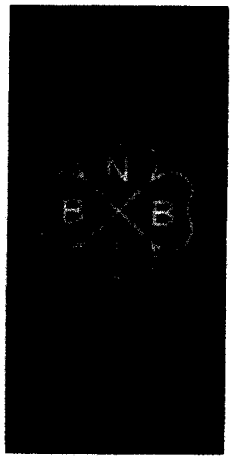


THE
NATIONAL
BOARD
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

Date Distributed: December 15, 2009

SUBCOMMITTEE REPAIRS and ALTERATIONS

AGENDA

Meeting of January 20, 2010
Austin, Texas

The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
Phone: (614)888-8320
FAX: (614)847-1828

1. **Call to Order – 8:00 a.m.**

2. **Announcements**

3. **Adoption of the Agenda**

4. **Approval of Minutes of July 2009**

5. **Review of the Roster (Attachment 1)**

6. **Interpretations**
   There are no interpretations assigned to this Subcommittee.

7. **Public Review Comments for 2010 Addendum Cycle A (Attachment 2)**

   PR10-0101 ***Part 3 4.4.1 e)*** Under 4.4.1 e) delete the first sentence, NDE may be conducted.

   PR10-0201 ***Part 3 4.4.1 e)*** In 4.4.1 e) First sentence should read, "other weld areas may be examined as identified by the Inspector and , where required, the Jurisdiction" Change shall to may to agree with the acceptance of regulatory authorities.

8. **Action Items (Attachment 3)**

   NB07-0905 ***Part 2 4.3.1-4.3.3 SC Inspection*** Review these sections for completeness and consistency in pressure testing. Mr. Cook suggested forming a task group from all three parts. A task group of G. Galanes(Chair), D. Parrish, M. Horbaczewski and J. Yagen has been assigned. Included in the attachment is an email from Mr. Galanes requesting that his concern be addressed in this action item. (Attachment 3 pgs 1a) – 3a))

   January 2010
   Mr. Galanes is expected to report.

   NB08-0304 ***Part 3 Forms 5.13.4.1 SG on R and A Specific*** The instruction guide for "R" Forms needs to be improved. The form also needs to have the ability to expand to accommodate people filling it out completely. A task group of R. Pulliam (Chair), M. Webb and W. Jones has been assigned. (No Attachment)

   January 2008
   A progress report was given.

   July 2008
   A task group was assigned.

   January 2009
   A progress report was given.

   July 2009
   A progress report was given.

   January 2010
   Mr. Pulliam is expected to report.

NB08-0322 ***Part 3 3.2 SG on R and A General*** Add a new paragraph to 3.2 General Requirements for Repairs and Alterations to address change of service for a pressure vessel. These requirements should caution inspectors, owners, repair organizations and jurisdictional authorities of the inherent dangers involved when changing service. A new supplement should be added to address the specific requirements for repairs and alterations of pressure vessels that have been converted from one service to another. A task group representing all three parts of the NBIC has been formed under the leadership of Bob Wielgoszinski. Task group members from R & A are P. Edwards and B. Schulte. (See Attachment 3, pg. 1)

July 2008
A task group was assigned.

January 2009
A progress report was given.

July 2009
A progress report was given.

January 2010
Mr. Edwards is expected to report.

NB10-0101 ***Part 3 5.9.6 SG on R&A Specific*** Change 5.10 to facilitate information flow. Task group of B. Boseo (Chair), J. Given and J. Sekely has been assigned. (Attachment 3, pgs. 2-4)

January 2010
Mr. Boseo is expected to report.

NB10-0102 ***Part 3 S1.2.10 SG on Locomotives*** Clarify requirements for repairs and alterations to Boiler Barrel unstayed areas. (Attachment 3, pgs 5-7)

January 2010
Mr. Reetz is expected to report.

NB10-0103 ***Part 3 Part 3 S2.13.9.2 SG on Historical*** Resolve conflict of text and figure. S2.13.9.2. (Attachment 3, pg. 8)

January 2010
Mr. Reetz is expected to report.

NB10-0104 ***Part 3 S2.13.12.3 SG on Historical*** Should the reference in a) be to S2.13.11.2 or what is written. (Attachment 3, pgs. 9-11)

January 2010
Mr. Reetz is expected to report.

NB10-0105 ***Part 3 S2.13.12.2 SG on Historical*** Remove a) from paragraph and revise wording so both paragraphs are clear. Clarify rules for Welded Flush Patches in Tubesheets. (Attachment 3, pgs. 12-13)

January 2010
Mr. Reetz is expected to report.

NB10-0106 ***Part 3.S4.16.3.a) SG on FRP*** Change Manufacturer's Design report to Fabricator's Design Report. (Attachment 3, pg. 14)

January 2010
Mr. Reetz is expected to report.

NB10-0107 ***Part 3 S4.18.1 b) SG on FRP*** Revise paragraph to include alteration as well as repair. (Attachment 3, pg. 15)

January 2010
Mr. Galanes is expected to report.

NB10-0108 ***Part 3 S5.4 d) SG on Repairs and Alterations Specific*** Clarify documentation requirements for Yankee Dryers. Task group of J. Given has been assigned.(Attachment 3, pg. 16)

January 2010
Mr. Given is expected to report.

NB10-0109 ***Part 3 S6.17 SG on DOT*** Add the words alteration and modification to the first sentence. The sentence should read, "The following requirements shall apply to all repairs, alterations and modifications to pressure retaining items. (Attachment 3, pg. 17)

January 2010
Mr. Staniszewski is expected to report.

NB10-0110 ***Part 3 S6.19.1 SG on DOT*** This information should be combined with S6.15.1 since they are talking about the same information. Has TR-1 and TR-2 been developed? (Attachment 3, pg. 18)

January 2010
Mr. Staniszewski is expected to report.

NB10-0302 ***Part 3 S3.2 SG on FRP*** The current text permits the repair firm to make repairs from non ASME Code material. The proposed revision requires new parts to be made from Code material. (Attachment 3, pgs. 19-21)

January 2010
Mr. Galanes is expected to report.

NB10-0701 ***Part 3 SG on R/A General*** Assure the ultimate objective of quality of work with sufficient documentation to show what was accomplished under the R stamp program. (Attachment 3. Pgs. 22-23)

January 2010
Mr. Galanes is expected to report.

10. Future Meetings

July 2010, Columbus, Ohio
January 2011, Austin, Texas

11. Adjournment

Respectfully Submitted,

John Hoh
Secretary
:rh

H:\ROBIN-Active Documents\NBIC Secretarial Documents\Committees\SC on Repairs and Alterations\Agenda\Agenda RA 0110.doc

Attachment 1

SC on Repairs and Alteration

Member	Title	ExpirDate	Interest Category
Edwards, Paul D.		8/27/2012	NB Certificate Holders
Galanes, PE, George W.	Chairman	8/27/2012	Users
Given, Jack		8/27/2012	Jurisdictional Authorities
Hoh, John	Secretary		
Jones, Wayne		1/22/2012	Auth Inpection Agencies
Larson, James P.		8/27/2012	Auth Inpection Agencies
Pavlovicz, Frank		8/27/2012	Manufacturer
Pillow, James T.	Vice Chair	7/19/2010	General Interest
Schulte, Bryan		8/27/2012	Users
Sekely, James		8/27/2012	General Interest
Webb, Michael		8/27/2012	Users
Total Members:	10		

Attachment 2

National Board of Boiler and Pressure Vessel Inspectors
National Board Inspection Code
Submission of Public Review Comment
2010 Draft Edition with 2010 Addendum Cycle A

PLEASE SUBMIT ONLY ONE COMMENT/RECOMMENDATION PER PAGE
Make additional copies as needed

Comments Must be Received No Later Than: December 7, 2010

Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: 10/22/09

Commenter Name: George Galanes

Commenter Address: Midwest Generation
Illinois

Commenter Phone: 815 - 207 - 5897

Commenter Fax: 312 - 788 - 5218

Commenter Email: ggalanes@mwgen.com

Section/Subsection Referenced: Part 3; 4.4.1 (e)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

Under 4.4.1 (e), delete the first sentence, NDE may be conducted. See attachment

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard _____

Submit Form To: Robin Hough, Secretary, NBIC Committee, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, fax 614-847-1828, email, rhough@nationalboard.org

NB Use Only
Commenter No. Issued: PR10-01
Comment No. Issued: 01
Project Committee Referred To: Repairs + Alterations

4.4.1 TEST OR EXAMINATION METHODS APPLICABLE TO REPAIRS

e) Nondestructive Examination

~~NDE may be conducted, when pressure testing is not practicable.~~ NDE methods used shall be suitable for providing meaningful results to verify the integrity of the repair. Exclusive use of Visual Examination (VT) is only permitted with the following considerations:

1. When a pressure test or alternative NDE methods other than Visual Examination (VT), are not practicable the exclusive use of direct VT as an NDE method shall be limited to routine repairs, as identified in 3.3.2.

2. For each repair being considered, the exclusive use of direct VT as an NDE method shall be acceptable to the Inspector, and where required, the Jurisdiction.

3. As a minimum, direct VT shall be performed after the root weld layer or first-pass is deposited, and the final weld surface. Other weld layers shall be examined as identified by the Inspector and, where required, the jurisdiction.

4. Personnel completing direct VT shall be qualified and certified in accordance with paragraph 4.2- b), AWS QC-1, or any nationally recognized standard acceptable to the Jurisdiction. Visual acuity shall be demonstrated using as a minimum, standard J-2 letters on standard Jaeger test type charts for near vision.

5. Direct VT shall be performed in accordance with a written procedure meeting the procedure and reporting requirements listed in the original code of construction or ASME Section V, Article 9.

4.4.2 TEST OR EXAMINATION METHODS APPLICABLE TO ALTERATIONS

Section **4.4.2-c**

c) Nondestructive Examination

Nondestructive examination (NDE) may be conducted when contamination of the pressure retaining item by liquids is possible or when pressure testing is not practicable. Concurrence of the owner shall be obtained in addition to the Inspector, and, where required, the Jurisdiction. Exclusive use of Visual Examination (VT) shall not be permitted. In all cases NDE methods or combination of methods used shall be suitable for providing meaningful results to verify the integrity of the alteration.

National Board of Boiler and Pressure Vessel Inspectors
National Board Inspection Code
Submission of Public Review Comment
2010 Draft Edition with 2010 Addendum Cycle A

PLEASE SUBMIT ONLY ONE COMMENT/RECOMMENDATION PER PAGE
Make additional copies as needed

Comments Must be Received No Later Than: December 7, 2010

Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: 11/3/09

Commenter Name: Mike Schwartzwalder

Commenter Address: American Electric Power
1 Riverside Plaza, Columbus, Ohio 43215

Commenter Phone: 614-716-1913

Commenter Fax: 614-716-1744

Commenter Email: meschwartzwalder@aep.com

Section/Subsection Referenced: 4.4.1 e)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☑ Revise Text ☐ Delete Text

- Use consistent capitalization of the term "jurisdiction" throughout the Section.

- In 4.4.1 e) 3 last sentence should read "Other weld areas ~~shall~~ may be examined as identified by the Inspector and, where required, the jurisdiction. change "shall" to "may" to agree with the acceptance of regulatory authorities.

Source: ☐ Own Experience/Idea ☑ Other Source/Article/Code/Standard _____

Submit Form To: Robin Hough, Secretary, NBIC Committee, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, fax 614-847-1828, email, rhough@nationalboard.org

NB Use Only
Commenter No. Issued: PR10-02
Comment No. Issued: 01
Project Committee Referred To: Repairs + Alterations

Attachment 3

NBIC Main Committee Task Group Action Block

Subject Pressure Testing Terminology in the NBIC

File Number 07-0905 **Prop. on Pg.**

Proposal Review current use of pressure testing terminology and revise as necessary to provide consistency of terminology across Parts 1-3 of the NBIC. Also, evaluate need for cautionary statement regarding low toughness materials subjected to pressure testing.

Explanation

Project Manager M. Horbaczewski

Task Group Galanes (CHAIR), Parrish, Yagen, andHorbaczewski.

Task Group Negatives **TG Meeting Date**

Background

This task group (TG) has been re-assigned to report back to the NBIC main committee Chair. The purpose of this TG is to review pressure testing terminology as currently stated in the NBIC, and to recommend necessary revisions to provide consistency of pressure testing terminology for Parts 1-3 of the NBIC.

1a

NBIC Main Committee Task Group Action Block

NB07-0905

NBIC Glossary Revisions

Current Definition for Pressure Testing

> **Pressure Test** — Prior to initial operation, the completed boiler, including pressure piping, water columns, superheaters, economizers, stop valves, etc., shall be pressure tested in a test performed in accordance with the original code of construction prior to initial operation of an installed unit that is witnessed by an Inspector.

Delete above.

Insert New Definitions below into the Glossary

Hydrostatic Test – a liquid pressure test that is performed in accordance with the requirements of the original code of construction.

Liquid Pressure Test - a test method using water or other liquid medium (which is incompressible) to verify the leak tightness integrity of a repair or to verify the leak tightness of a pressure retaining item. The liquid test pressure shall be the minimum required to verify the integrity of the repair or leak tightness of the pressure retaining item, as agreed upon between the Inspector and the owner-user.

Pneumatic Pressure test – a test method using an inert gas which shall not exceed the maximum pneumatic test pressure in the original code of construction (if applicable) or as agreed upon between the owner/user and Certificate holder.

Rationale;
The proposed change to the existing definition of pressure testing to liquid pressure testing captures the essence of using a liquid only. We now have identified the use of pneumatic pressure testing, where an inert gas is used versus a liquid.

2a

NBIC Main Committee Task Group Action Block

So, by having three forms of pressure testing identified in the Glossary, we can now go back and substitute in Part 1-3, terms where we can use Hydrotesting with reference to original code of construction followed by Liquid pressure testing to check for leaks or to verify leak integrity and finally we have pneumatic pressure testing as an alternative to Liquid Pressure testing.

I believe using the above definitions provides improved consistency and uniformity across all 3 parts of the NBIC. I deliberately chose not to address the definition of "Leak Test" because this can fall under a Liquid Pressure test OR pneumatic pressure test.

NB08-0322

Secretary, NBIC Committee
The National Board of Boiler and
Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, OH 43229

The following addition to the NBIC is proposed;

Add requirements to change the service of pressure vessels in Part 1, Installation, Part 2, Inspection, and Part 3 Repairs and Alterations.

Statement of Need

The Federal Railroad Administration has a proposal out on railcars carrying Poison Inhalation Hazard (PIH) that will require a number of existing tank cars to be retired early. There is a potential that some of these tanks will be recycled into stationary tanks for service other then what they were design for.

Additionally, this practice already occurs in some industries without any consideration for any damage mechanisms that made have been present in the initial service. The NBIC does not currently address these types of events.

Background Information

Part 3 - Add a new paragraph to 3.2 General Requirements for Repairs and Alterations to address change of service for a pressure vessel. These requirements should caution inspectors, owners, repair organizations and jurisdictional authorities of the inherent dangers involved when changing service. A new supplement should be added to address the specific requirements for repairs and alterations of pressure vessels that have been converted from one service to another.

be marked out but left legible. The new blowdown may be based on the current ASME Code requirements.

e) Incorrect information on the original manufacturer's nameplate shall be marked out but left legible. Corrected information shall be indicated on the repair nameplate and noted on the document as required by the
A07 quality system.

5.9.4 TEST ONLY NAMEPLATE

a) Where a valve has been tested and adjusted, as permitted by S7.10.1, but not otherwise repaired, a "Test Only" nameplate shall be applied that contains the following information:

1) Name of responsible organization;

2) Date of test;

3) Set Pressure; and

4) Identification, such as "Test Only."

b) A "test only" nameplate is also recommended when periodic testing has been performed, even when no adjustments have been made, for the purpose of identifying the date the valve was tested.

c) The existing repair nameplates, if applicable, shall not be removed during such testing.

5.9.5 REPLACEMENT OF ILLEGIBLE OR MISSING NAMEPLATES

a) Illegible Nameplates
When the information on the original manufacturer's or assembler's nameplate or stamping is illegible, but traceability can be confirmed, the nameplate or stamping will be augmented or replaced by a nameplate furnished by the "VR" stamp holder stamped "duplicate." It shall contain all information that originally appeared on the nameplate or valve, as required by the applicable section of the ASME Code, except the "V," "HV," or "UV" symbol and the National Board mark. The repair organization's nameplate, with the "VR" stamp and other required data specified in 5.9.2, will make the repairer responsible to the owner and the Jurisdiction that the information on the duplicate nameplate is correct.

b) Missing Nameplates
When the original valve nameplate is missing, the repair organization is not authorized to perform repairs to the valve under the "VR" program, unless positive identification can be made to that specific valve and verification that the valve was originally stamped with an ASME "V" or "UV" symbol or marked with an ASME "HV" symbol. Valves that can be positively identified will be equipped with a duplicate nameplate, as described in this section, in addition to the repairer's "VR"-stamped nameplate. The repairer's responsibilities for accurate data, as defined in 5.9.5(a) (Illegible Nameplates), shall apply.

c) Marking of Original Code Stamp
When a duplicate nameplate is affixed to a valve, as required by this section, it shall be marked "Sec. I," "Sec. IV," or "Sec. VIII," as applicable, to indicate the original ASME Code stamping.

5.9.6 REQUIREMENTS FOR STAMPING AND NAMEPLATE INFORMATION

5.9.6.1 SCOPE

When a pressure-retaining item is repaired or altered, the Certificate Holder shall attach a nameplate or stamp the item, except when otherwise permitted by these rules. Similarly, when pressure relief devices are repaired, the

1/30

attachment of a nameplate is required. The specific requirements for nameplates/stamping are described in this Part. See Figures 5.9.6-a thru 5.9.6-g.

5.9.6.2 GENERAL REQUIREMENTS FOR STAMPING AND NAMEPLATES

a) Required data shall be in characters of at least 5/32 in. (4 mm) high, except that characters for pressure relief valve repair nameplates may be smaller. Markings may be produced by casting, etching, embossing, debossing, stamping, or engraving. The selected method shall not result in any harmful contamination of or sharp discontinuities to the pressure-retaining item.

b) The National Board code symbols ("R," "VR," and "NR") are to be stamped; do not emboss.

c) Stamping directly on items, when used, shall be done with blunt-nose continuous or blunt-nose interrupted dot die stamps. If direct stamping would be detrimental to the item, required markings may appear on a nameplate affixed to the item.

d) The Certificate Holder shall use its full name as shown on the *Certificate of Authorization* or an abbreviation acceptable to the National Board.

e) The letters "RP" shall be stamped below the "R" symbol stamp to indicate organizations accredited for performing repairs or alterations to fiber-reinforced plastic items.

f) The letter "G" shall be stamped below the "R" symbol stamp to indicate organizations accredited for performing repairs or alterations to graphite pressure equipment.

5.9.6.3 ADDITIONAL STAMPING REQUIREMENTS FOR REPAIRS

Stamping or nameplate shall be applied adjacent to the original manufacturer's stamping or nameplate. A single repair nameplate or stamping may be used for more than one repair to a pressure-retaining item provided it is carried out by the same Certificate Holder. The date of each repair, corresponding with the date on the associated Form R-1, shall be stamped on the nameplate.

5.9.6.4 ADDITIONAL STAMPING REQUIREMENTS FOR ALTERATIONS AND RE-RATINGS

Stamping or nameplate shall be applied adjacent to the original manufacturer's stamping or nameplate.

5.9.6.5 ADDITIONAL STAMPING REQUIREMENTS FOR PARTS

Stamping or nameplate shall be applied in a conspicuous location on the part.

5.10 ALTERNATIVE MARKING AND STAMPING FOR GRAPHITE PRESSURE EQUIPMENT

a) General Requirements

1) This procedure may be used in lieu of the stamping and nameplate requirements defined in this section.

2) The required data as defined in this section shall be 5/32 in. (4 mm) high, minimum.

3) The National Board code symbol ("R") shall be used to make the impression in the cement.

2/3 (3)

b) Application of the "R" Code Symbol

1) The graphite surface shall be clean and smooth.

2) Apply a thin coating of cement onto the Code part. The cement should have the consistency of toothpaste.

3) Apply sufficient heat to the cement so that it begins to form a skin.

4) Apply a coating of a thinned release agent, such as "ANTISEIZE," to the tip of the "R" stamp with a brush.

5) Press the coated stamp all the way to the bottom of the cement and remove by pulling straight out before the cement hardens.

6) Cure or heat the impression as required.

7) When cured, the part may be washed to remove any excess release agent.

c) Application of characters directly to graphite

1) Use a very thin template of a flexible material (stainless steel; flexible and easily cleaned).

2) Place the template over a clean smooth surface.

3) Hold the template securely and trowel over with approved cement to fill all of the template area.

4) Carefully lift the template from the graphite part and examine the detail of the characters.

5) If acceptable, cure the cement.

6) If the characters are incorrect or damaged, wipe off the cement with a compatible solvent and reapply.

Note: The preceding methods can be applied jointly to identify the graphite part and to transfer the "R" stamp.

5.11 STAMPING FOR FIBER-REINFORCED VESSELS

The attaching of a nameplate to a repaired or altered vessel or tank shall indicate that the work was performed in accordance with the requirements of this Code. The attachment of a nameplate shall be done only with the knowledge and authorization of the Inspector. The Certificate Holder responsible for the repair or alteration shall apply the stamping nameplate. Required stamping and nameplate information are shown in 5.9.6.

5.11.1 REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

If it becomes necessary to remove the original stamping, the Inspector shall, subject to the approval of the Jurisdiction, witness the making of a facsimile of the stamping, the obliteration of the old stamping, and the transfer of the stamping to the new item. When the stamping is on a nameplate, the Inspector shall witness the transfer of the nameplate to the new location. Any relocation shall be described on the applicable NBIC form. The restamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction. A07

5.11.2 STAMPING FOR REPAIRS

Pressure-retaining items repaired in accordance with the NBIC shall have a nameplate as required by Section 5.9.6. Subject to the acceptance of the jurisdiction and the concurrence of the Inspector, nameplates may not be required for routine repairs. (See 5.7.2[b]). In all cases, the type and extent of repairs necessary shall be considered prior to waiving the requirement.

3/3(4)

S1.2.9.2 ARCH TUBES

a) Arch tubes that are damaged or reduced to less than minimum required wall thickness shall be replaced in entirety by new one-piece arch tubes. Welded repairs or partial replacement is not permitted. Damage includes defects such as bulging, burns, and cracks.

b) When arch tubes are installed by rolling, the tube end shall project through the firebox sheet not less than 1/4 in. (6 mm) nor more than 3/4 in. (19 mm) before flaring. At a minimum the tube shall be expanded and flared at least 1/8 in. (3 mm) greater than the diameter of the tube hole. Additionally, the tube may be beaded and/or seal welded provided the throat of the seal weld is not more than 3/8 in. (10 mm), and the tube is finished rolled after welding.

c) An arch tube installed by welding shall be considered a welded nozzle. Some acceptable weld joints are shown in Figure S1.2.9.2 Ref. ASME Section I, Part PW 16.1.

d) A change in tube attachment from rolled to welded or welded to rolled shall be considered an alteration.

S1.2.9.3 TUBE WALL THICKNESS FOR ARCH TUBES

The minimum wall thickness of replacement arch tubes shall be as shown in Table S1.2.9.3.

TABLE S1.2.9.3

Size	Wall Thickness
up to 3 in. (75 mm) OD	8 Birmingham wire gage (BWG)
more than 3 in. (75 mm) OD to 4 in. (100 mm) OD	7 Birmingham wire gage (BWG)

S1.2.9.4 THERMIC SIPHONS

a) For repairs to siphon knuckles see *Repair of Firebox and Tubesheet Knuckles*, and Figures S1.2.11.5-a and S1.2.11.5-b.

b) All weld repairs to the unstayed sections of the siphon neck and body shall be radiographically examined.

S1.2.9.5 CIRCULATORS

a) All butt welds on circulators shall be radiographically examined.

b) Welds applied to the circulator/firebox sheet joint shall be in accordance with the weld requirements for arch tubes. (See Figure S1.2.9.2).

S1.2.9.6 RE-ROLLING OF FLUE-TUBES AFTER SEAL WELDING A08

All flues and tubes that are installed by rolling and seal welding shall be re-rolled after seal welding is complete.

S1.2.10 REPAIRS AND ALTERATIONS TO BOILER BARREL UNSTAYED AREAS

a) Defects such as cracks and wastage may be repaired by weld buildup, a welded flush patch or a riveted patch. Installation of a riveted patch shall be considered an alteration. Prior to repairing cracks, the plate shall be examined for defects. Affected sections shall be repaired.

b) Weld buildup shall not be used if the affected section of plate has wasted below 60% of the minimum required thickness.

c) If the cracked section of plate is retained and is to be repaired by installation of a riveted patch, the crack may be stopped by drilling stop holes at each end or removed by a method such as grinding, cutting, or machining. Results of stop drilling or crack removal shall be verified by NDE.

113 (5)

d) Welded repairs at or near riveted seams requiring preheating or postweld heat treatment shall be carefully made in order to prevent loosening in the riveted seams, especially when localized heating is used. Where necessary to control expansion or to gain access for welding, rivets at the defective section and to each side of it may be removed. Reuse of rivets and staybolts is prohibited.

e) All welded repairs to boiler barrel unstayed areas shall be radiographically examined in accordance with ASME Code, Section I, when the size of the repaired area is greater than the maximum size of an unreinforced opening as calculated in accordance with the latest edition of ASME Code, Section I.

f) Riveted patches may be any shape or size provided the lowest patch efficiency is equal to or greater than the lowest equivalent seam efficiency of the boiler course to which it is applied. Ref: ASME Code, Section I.

FIGURE S1.2.9.4-a
Locomotive Firebox Thermic Siphon Installation

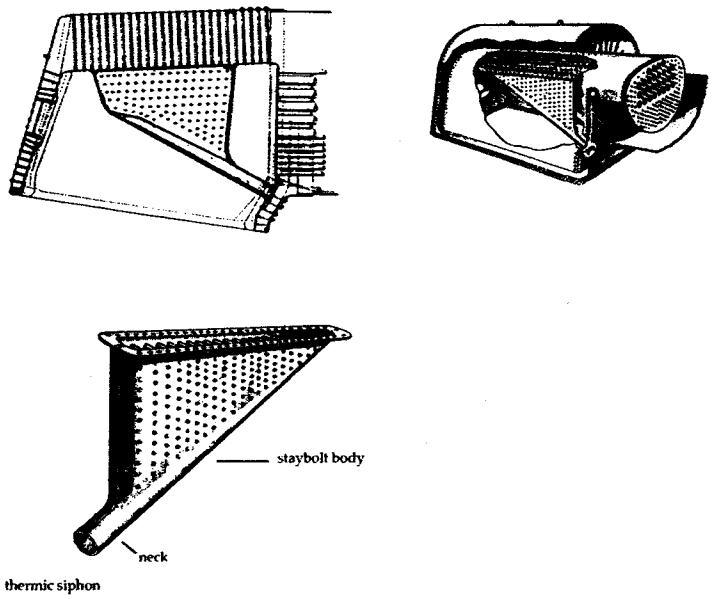
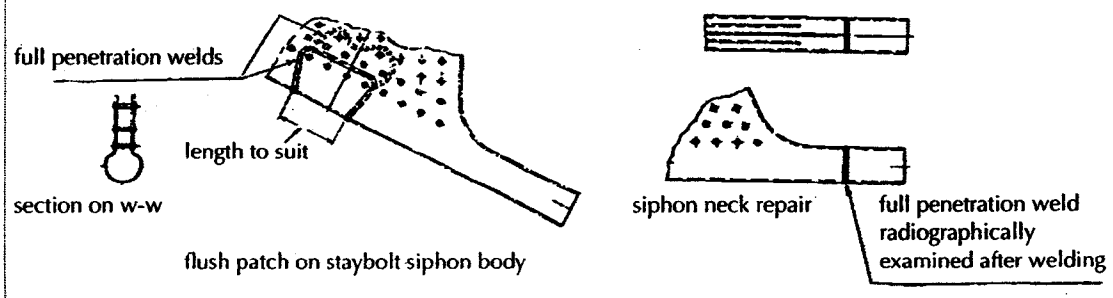


FIGURE S1.2.9.4-b
Thermic Siphon Repair



(6) 2/3

g) The factor of safety of all riveted patches shall not be less than four for locomotives operating under Federal Railroad Administration regulations.

S1.2.11 REPAIRS AND ALTERATIONS TO BOILER BARREL STAYED AREA

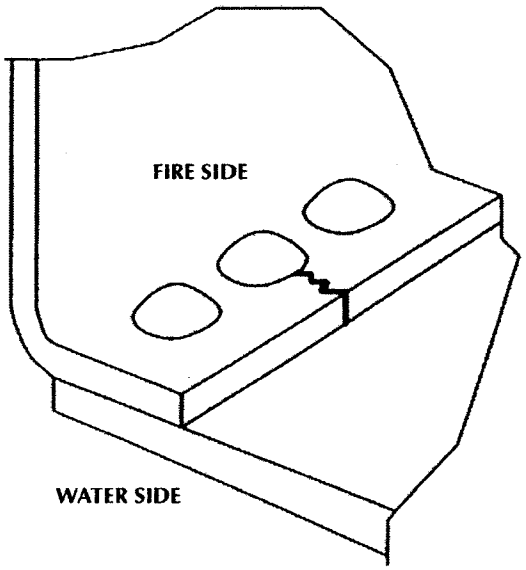
S1.2.11.1 FIREBOX SHEET REPAIR

a) Cracks in all stayed firebox sheets may be repaired by welding or the installation of a flush patch.

b) If the crack extends into a staybolt or rivet hole, the staybolt or rivet shall be removed prior to making the repair.

A07 c) Fire cracks or thermal fatigue cracks in riveted seams located in the firebox that run from the edge of the plate into the rivet holes may be left in place provided they do not leak and there is no indication that
A08 the seam or rivets are loose. (See Figure S1.2.11.1).

A08 **FIGURE S1.2.11.1**
Example of Thermal Fire Crack

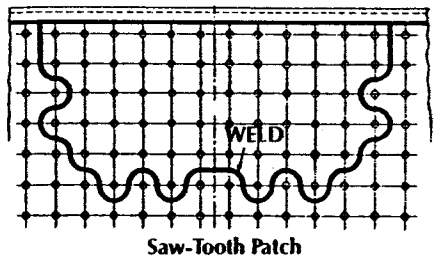


S1.2.11.2 FIREBOX PATCHES

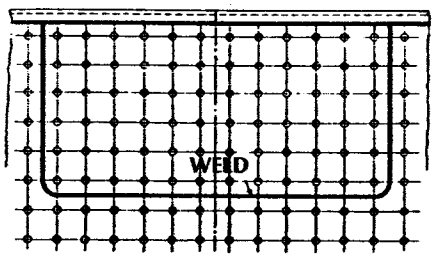
a) Patches may be any shape provided they are adequately supported by staybolts, rivets, tubes, or other forms of construction. Patches on stayed surfaces should be designed so weld seams pass between staybolt rows. (See Figure S1.2.11.2).

b) Patches are to be flush type, using full penetration welds. If the load on the patch is carried by

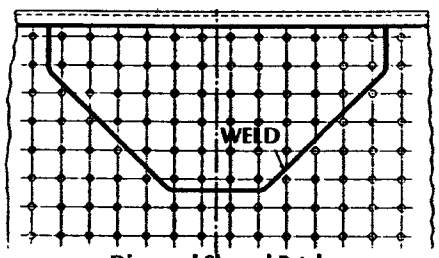
FIGURE S1.2.11.2
Typical Firebox Patches
This figure illustrates what would be considered a saw-tooth patch. Its advantage is that a maximum amount of welding is obtained for securing a given patch and by zig-zagging the weld, the weld is supported by three rows of staybolts instead of two. Its disadvantage is its irregular shape which causes greater difficulty in fitting and applying.



Saw-Tooth Patch



Rectangular Shaped Patch



Diamond Shaped Patch

(7)
3/3

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A07 S2.13.9.2 WELDED REPAIR OF CRACKS IN UNSTAYED AREAS

A07 a) Prior to repairing cracks, the plate shall be NDE examined for other defects. All affected sections shall be repaired. (See Figure S2.13.9.2).

A07 b) Cracks in stayed areas may be repaired by welding. Before cracks are repaired, however, the inner surface of the plate should be examined for possible excessive corrosion or grooving.

A07 c) Cracks in unstayed areas may be repaired by welding, providing the cracks do not extend between rivet holes in a longitudinal seam or parallel to a longitudinal seam within 8 in. (200 mm). The completed repair must be radiographed and stress relieved. Alternative methods in lieu of Postweld Heat Treatment identified in 2.5.3 may be used.

A07 d) Cracks radiating from a common point (star cracking) shall not be repaired; installation of a flush patch is required. Cracks radiating from a rivet hole in a girth seam may be repaired if the plate is not seriously damaged.

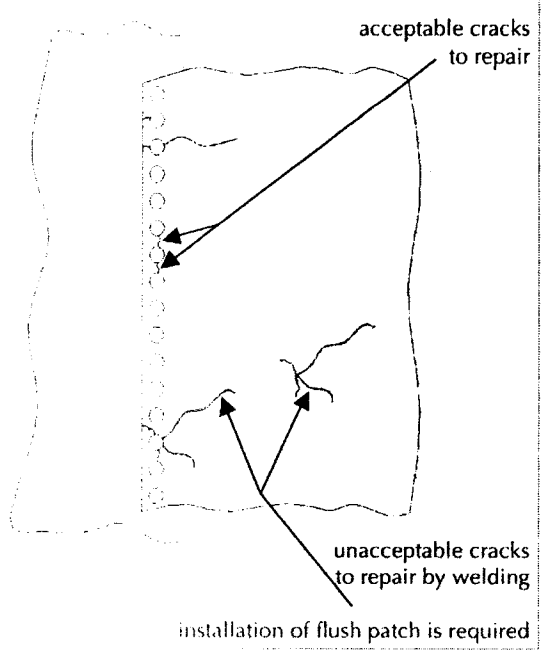
e) Prior to welding, the rivets into which cracks extend and the rivets on each side of them shall be removed. A07

f) In riveted joints, tack bolts should be placed in alternating holes to hold the plate laps firmly. A07

g) Rivets holes should be reamed after welding. A07

h) Welding shall not cover rivet heads. A07

A07 **FIGURE S2.13.9.2**
Unstayed Area Crack Repair



S2.13.9.3 WELDED FLUSH PATCHES IN UNSTAYED AREAS A07

a) Welded repairs to boiler unstayed areas shall be radiographically examined in accordance with the approved code of construction or ASME Code, Section I, when the size of the repaired area is greater than 3 in. (75 mm) in diameter. The completed repair must be stress relieved. Alternative Methods without Postweld Heat Treatment identified in 2.5.3 may be used. A07

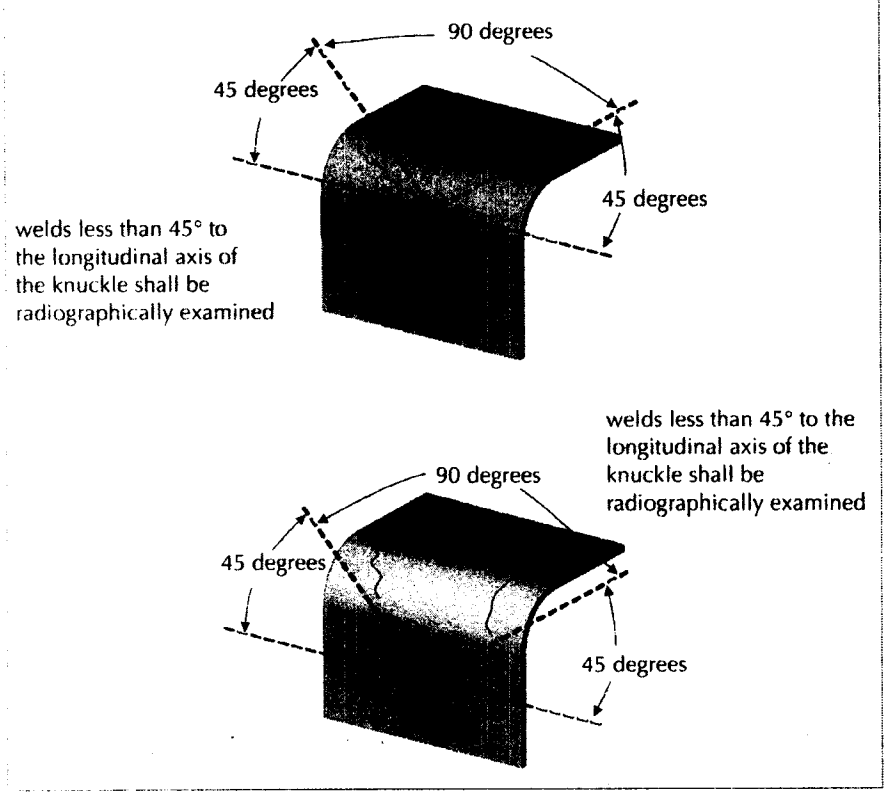
b) The weld around a flush patch shall be a full penetration weld and the accessible surfaces shall be ground flush. Examples of flush welded patches are shown in Figure S2.13.9.3. A07

c) Before installing a flush patch, the defective material should be removed until sound material is reached. A07

d) The patch should be rolled or pressed to the proper shape or curvature. The edges of the patch should align with original material without overlap. Patches shall fit flush on the waterside of the sheet. If the patch includes an existing riveted seam, A07

1/10 (9)

A07 **FIGURE S2.13.11.2**
Knuckle Weld Angles



A07 S2.13.11.3 WELDED FLUSH PATCHES IN FIREBOX AND TUBESHEET KNUCKLES

A07 Any patch not supported by means other than the weld, such as rivets, staybolts, tubes, or other forms of construction, shall have all weld seams radiographically examined. (See Figure S2.13.11.3). All other requirements specified in S2.13.9.3 shall be followed.

A07 S2.13.12 REPAIR OF TUBESHEETS

A07 S2.13.12.1 WELD BUILDUP OF WASTAGE AND GROOVING IN TUBESHEETS

All requirements of S2.13.9.1 and S2.13.10 shall be followed with the additional requirements listed below:

a) Damaged tubesheet holes may be repaired by welding. A07

b) Prior to welding, tubes in the wasted area should be removed.

c) Tube holes should be reamed after welding.

d) Welding shall not cover tube ends.

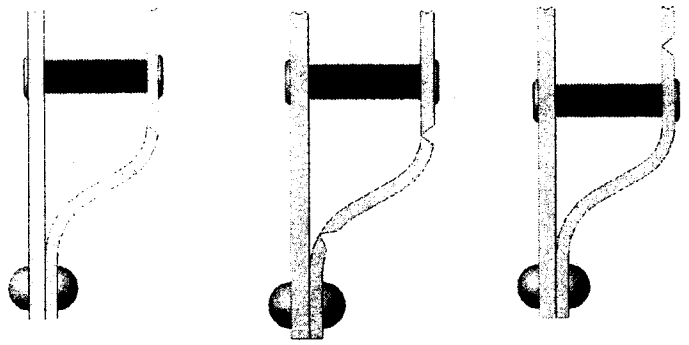
S2.13.12.2 WELDED REPAIR OF CRACKS IN TUBESHEETS A07

a) The same method of repairing cracks in stayed areas identified in Figure S2.13.12.2 shall be followed with the additional requirements identified below:

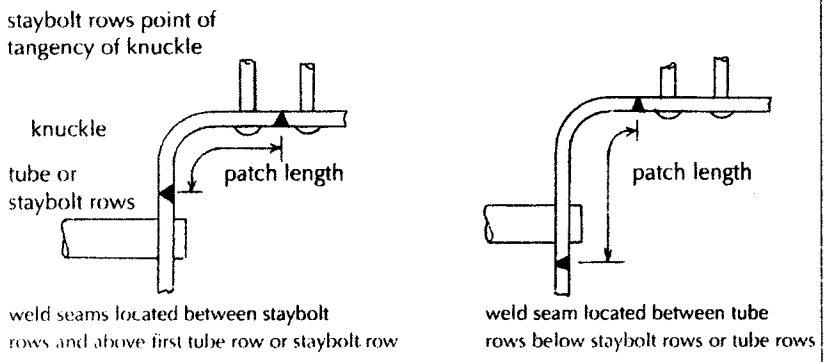
1) Cracks in a tubesheet and cracks between tubesheet ligaments may be

1/3 9

A07 FIGURE S2.13.11.3
Knuckle Flush Patch



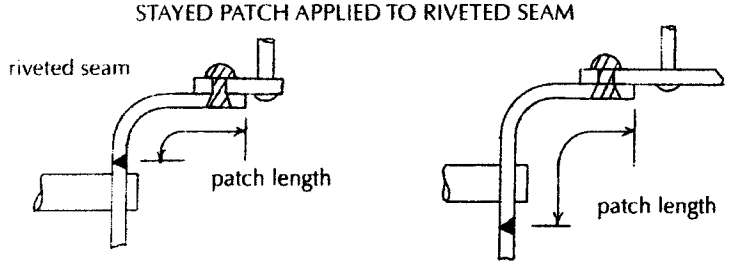
STAYED PATCH APPLIED TO BUTT WELDED SEAM



weld seams located between staybolt rows and above first tube row or staybolt row

weld seam located between tube rows below staybolt rows or tube rows

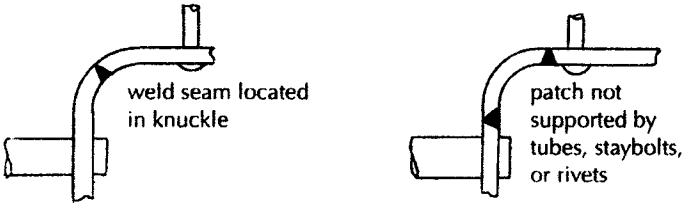
STAYED PATCH APPLIED TO RIVETED SEAM



weld seam located above first tube row or staybolt row

weld seam located between tube rows or staybolt rows

REPAIRS REQUIRING RADIOGRAPHIC EXAMINATION OF WELD SEAMS



2/3(10)

repaired by welding using full penetration welds. Before cracks are repaired, however, the inner surface of the plate should be carefully examined for possible excessive corrosion or grooving.

2) If the crack extends into a tube hole, the tube shall be removed prior to making the repair.

3) Tube holes should be reamed after welding.

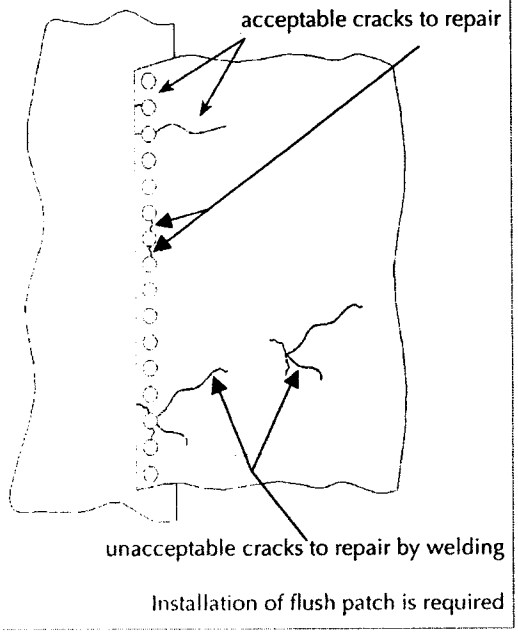
4) Welding shall not cover tube ends.

A07 S2.13.12.3 WELDED FLUSH PATCHES IN TUBESHEETS

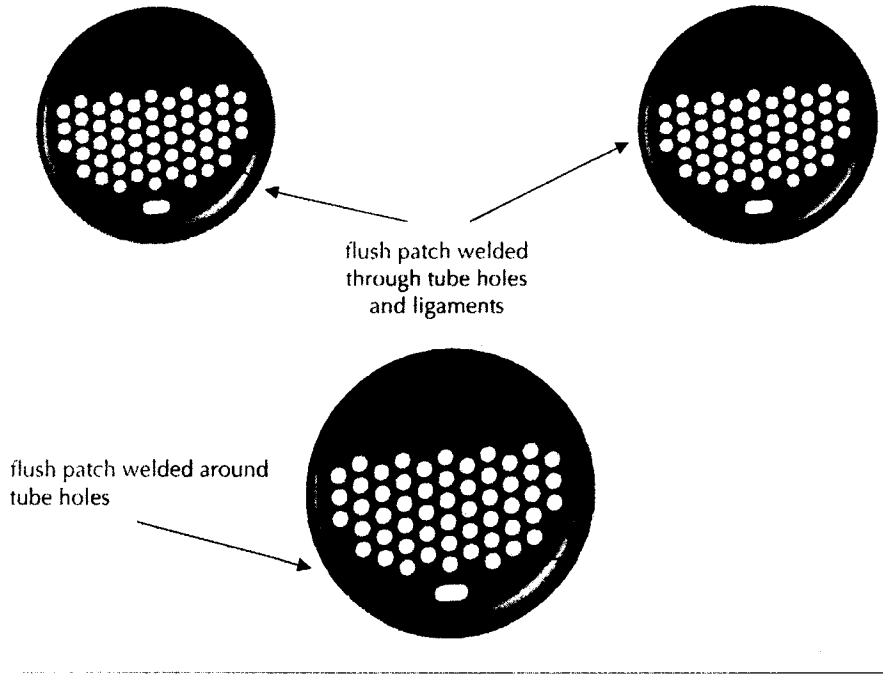
a) The method of repair shall follow the same requirements identified in S2.13.10.3 with the following requirement as noted below:

1) Tubes, staybolts, and rivets should be installed after welding of the patch is completed. (See Figure S2.13.12.3).

FIGURE S2.13.12.2
Stayed Area Crack Repair A07



A07 **FIGURE S2.13.12.3**
Tubesheet Flush Patch



3/3 (11)

repaired by welding using full penetration welds. Before cracks are repaired, however, the inner surface of the plate should be carefully examined for possible excessive corrosion or grooving.

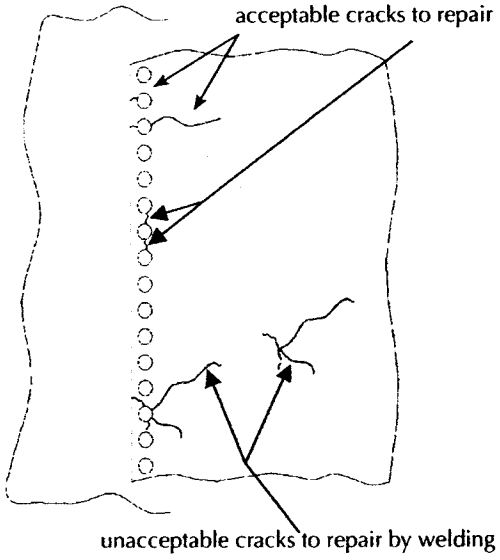
2) If the crack extends into a tube hole, the tube shall be removed prior to making the repair.

3) Tube holes should be reamed after welding.

4) Welding shall not cover tube ends.

A07

FIGURE S2.13.12.2
Stayed Area Crack Repair



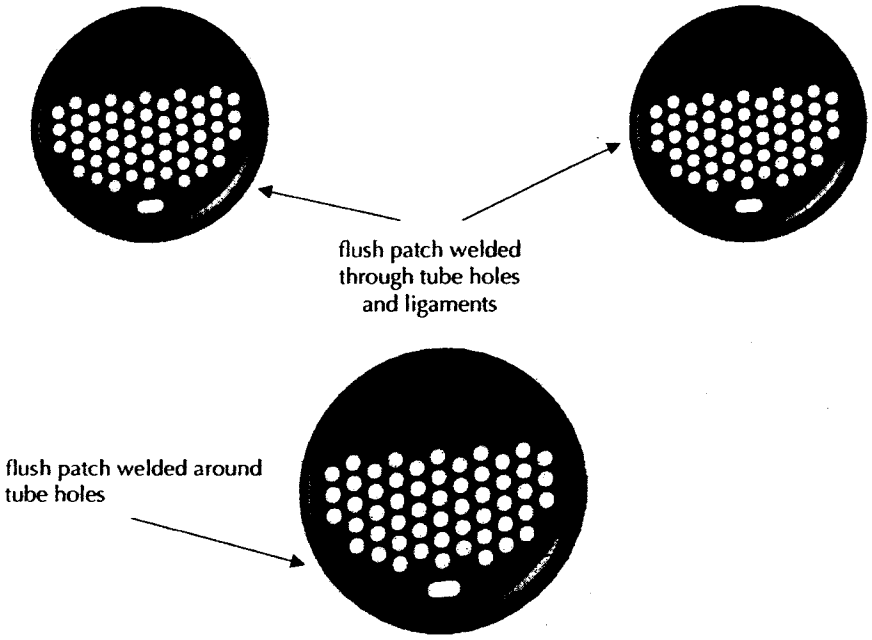
A07 S2.13.12.3 WELDED FLUSH PATCHES IN TUBESHEETS

a) The method of repair shall follow the same requirements identified in S2.13.10.3 with the following requirement as noted below:

1) Tubes, staybolts, and rivets should be installed after welding of the patch is completed. (See Figure S2.13.12.3).

A07

FIGURE S2.13.12.3
Tubesheet Flush Patch



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A07 S2.13.13 SEAMS, JOINTS, AND RIVETS

A07 S2.13.13.1 CAULKING RIVETED SEAMS AND RIVET HEADS SEE FIGURE S2.13.13.1

a) Caulking refers to the sealing of plate seams and rivet heads by driving the edge of one surface onto the other by use of an impact tool.

b) The plate edges should be beveled to an angle not sharper than 70 degrees to the plane of the plate and as near thereto as practicable.

c) Caulking shall be done with a tool of such form that there is no danger of scoring or damaging the plate underneath the caulking edge, or splitting the caulked sheet.

d) Riveted seams and rivet heads may be recaulked after repairs to tighten joint.

A07 S2.13.13.2 RIVET HOLES

a) All holes for rivets in plates, buttstraps, heads, stays, and lugs shall be drilled; or they may be punched at least 1/8 in. less than full diameter for material not over 5/16 in. in thickness and at least 1/4 in. less than full diameter for material over 5/16 in.

b) Such holes shall not be punched in material more than 5/8 in. in thickness.

c) For final drilling or reaming the hole to full diameter, the parts shall be firmly bolted in position by tack bolts.

d) The finished holes must be true, clean, and concentric.

S2.13.13.3 ASSEMBLY OF RIVETED JOINTS A07

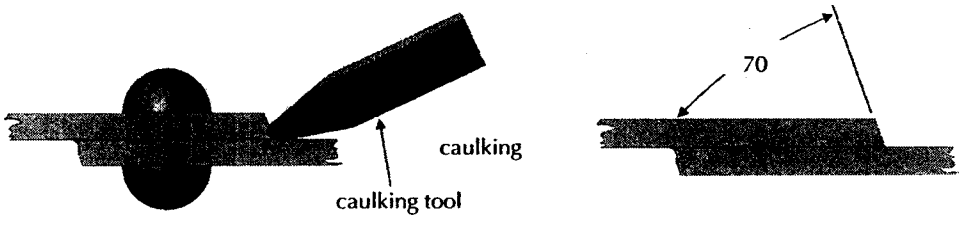
After drilling or reaming rivet holes, the plates shall be separated, the burrs and chips removed, and the plates reassembled. Barrel pins fitting the holes and tack bolts to hold the plates firmly together shall be used.

S2.13.13.4 RIVETING A07

a) Rivets shall be so driven as to fill the holes preferably by a machine that maintains the pressure until no part of the head shows red in the daylight. Barrel pins fitting the holes and tack bolts to hold the plates firmly together shall be used. A rivet shall be driven on each side of each tack bolt before removing the tack bolt.

b) Rivets shall be of sufficient length to completely fill the rivet holes and form heads at least equal in strength to the bodies of

A07 **FIGURE S2.13.13.1**
Rivet Heads



2/2 (13)

During the vacuum test, the vacuum source may be left connected to the vessel to compensate for leakage at fittings. All vessels acoustic emission tested, as required by the original code of construction, shall be retested during the vacuum test concentrating on the repaired or altered part of the vessel.

S4.16 ADDITIONAL REQUIREMENTS FOR REPAIRS

S4.16.1 SCOPE

This section provides additional requirements for repairs to pressure-retaining items and shall be used in conjunction with S4.1 thru S4.14 and S4.18.

S4.16.2 DRAWINGS

Drawings shall be prepared or modified to describe the repair. Drawings shall include sufficient information to satisfactorily perform the repair.

S4.16.3 REPAIR PLAN

When repairs other than those defined in S4.16.4 are being made to ASME Section X or RTP-1 stamped equipment, the user shall prepare or cause to have prepared a detailed plan covering the scope of the repair.

a) Professional Engineer Review
The repair plan shall be reviewed and certified by a Professional Engineer who is registered in one or more of the states of the United States of America or the provinces of Canada and is experienced in reinforced plastic vessel design. The review and certification shall be such to ensure that the work involved in the repair is compatible with the *User's Design Specification* or *User's Basic Requirements Specification* and the *Manufacturer's Design Report*. The certification shall also include any drawings and calculations prepared as part of the repair plan.

b) Authorized Acceptance
Following review and certification, the repair plan shall be submitted to the Inspector for his review and acceptance. Repairs to pressure-retaining items shall not be initiated without the authorization of the Inspector. Subject to acceptance of the Jurisdiction, the Inspector may give prior approval for routine repairs, provided the Inspector assures that the Certificate Holder has acceptable procedures covering the repairs.

S4.16.4 ROUTINE REPAIRS

Prior to performing routine repairs, the Certificate Holder should determine that routine repairs are acceptable to the Jurisdiction where the work is to be performed.

a) Acceptable routine repairs are listed below:

1) The addition or repair of non-load bearing attachments to pressure-retaining items where post curing is not required.

2) Replacement and repair of damaged corrosion liner areas in shells and heads shall not exceed 100 sq. in. (65 sq. cm) and not exceed the original corrosion liner thickness.

b) Routine repairs may be performed under the Certificate Holder's quality system program; however, the requirement for in-process involvement of the Inspector and stamping are waived. (See Section 5 of this part).

2) Hold the maximum load for at least 30 minutes.

3) Condition the vessel by holding at reduced load as required by Section V, Article 11, T-1121.

4) Retest the vessel as required by this appendix.

5) The vessel shall be judged against the evaluation criteria for subsequent loadings.

f) Hold time for the examination by the Inspector shall be the time necessary for the Inspector to conduct the inspection.

g) When pressure testing using liquids is not practical, other methods shall be used as follows:

1) The pressure test may be a pneumatic test provided the Certificate Holder has the concurrence of the Inspector, the jurisdictional authority where required, and the owner. Precautionary requirements of the applicable section of the original code of construction shall be followed.

2) For vessels designed for vacuum, a vacuum test shall be carried out to as close as practical to the design vacuum level of the vessel. During the vacuum test the vacuum source may be left connected to the vessel to compensate for leakage at fittings. All vessels originally acoustic emission tested shall be retested during the vacuum test concentrating on the repaired or altered part of the vessel.

S4.18 REPAIR AND ALTERATION METHODS

S4.18.1 GENERAL REQUIREMENTS

a) In general, when a defective or damaged vessel wall is to be repaired, the total structural laminate sequence of laminate construction removed as part of the repair shall be replaced. The replacement laminate shall provide structural properties meeting or exceeding the requirement of the original construction standard. Moreover, when damage includes the corrosion barrier, a corrosion barrier of the same type, which shall meet or exceed the barrier properties of the original construction, shall replace the corrosion barrier removed as part of the repair.

b) The repair shall meet the requirements of the original construction standard.

S4.18.2 CLASSIFICATION OF REPAIRS

a) Vessel repairs shall be classified into the following types:

1) Type 1a — Corrosion barrier repairs

2) Type 1b — Corrosion barriers with precision bores

3) Type 2 — Corrosion barrier and interior structural layer repairs

4) Type 3 — External structural layer repairs

5) Type 4 — Alterations

6) Type 5 — Miscellaneous general external repairs or alterations

7) Type 6 — Thermoplastic repairs

8) Type 7 — Gel coat repairs

SUPPLEMENT 5
GENERAL REQUIREMENTS FOR REPAIRS AND ALTERATIONS TO YANKEE DRYERS

S5.1 SCOPE

This supplement provides additional requirements for repairs and alterations to Yankee dryer pressure-retaining components and shall be used in conjunction with inspection requirements identified in Part 2, *Inspection* Supplement 5.

S5.2 EXAMINATIONS AND TEST METHODS

In addition to the requirements of 4.4.1 and 4.4.2, the following are recommended:

a) Acoustic emission testing

b) Metallographic examination when thermal damage is suspected due to operational or repair activities.

S5.3 YANKEE DRYER REPAIR METHODS

This supplement provides additional requirements for repair methods to yankee dryer pressure-retaining components and shall be used in conjunction with Section 2 thru 5 of this part, as appropriate.

S5.3.1 REPLACEMENT PARTS FOR YANKEE DRYERS

a) Yankee dryer replacement pressure-retaining parts shall be fabricated in accordance with the manufacturer's design and the original code of construction. Yankee dryer pressure-retaining parts may include:

1) shell

2) heads

3) center shaft, stay, or trunnion

4) stay bars

5) structural bolting

6) journals

b) Replacement of nonpressure-retaining parts, when different from the manufacturer's design, shall be evaluated for any possible effect on the pressure-retaining parts.

S5.4 REPAIR GUIDE FOR YANKEE DRYERS

a) Welding or brazing shall not be used on any Yankee dryer pressure-retaining component manufactured from cast iron. The *Manufacturer's Data Report* shall be carefully reviewed to determine the material of construction of each Yankee dryer component such as shell, heads, and journals.

b) Structural deterioration or damage caused by corrosion, thinning, or cracking shall not be repaired until their extent has been determined by suitable nondestructive examination.

c) The user shall have a plan covering the scope of the repair. The plan shall ensure that the work involved is compatible with the original design specification and good engineering practices.

d) All repair work shall be documented.

(16)

A07 S6.16 ADDITIONAL REQUIREMENTS FOR REPAIRS, ALTERATIONS, OR MODIFICATIONS

A07 S6.16.1 SCOPE

This section provides additional requirements for repairs, alterations, or modifications to pressure-retaining items and shall be used in conjunction with this section.

A07 S6.16.2 REPAIRS OF DEFECTS

Before a repair is made to a defect in a welded joint or base metal, care should be taken to investigate its cause and to determine its extent and likelihood of recurrence. This information shall be made available to the Inspector.

A07 S6.16.3 MODIFICATIONS

All modifications to the pressure-retaining item shall meet the requirements of this section.

A07 S6.16.4 DRAWINGS

Drawings or instructions shall be prepared to describe the repair, alterations, or modification. Drawings shall include sufficient information to satisfactorily perform the activity.

A07 S6.16.5 AUTHORIZATION

Repairs, alterations, or modifications to pressure vessel shall not be initiated without the authorization of the Inspector, who shall determine that the repair methods are acceptable and subject to acceptance of the Competent Authority.

S6.17 EXAMINATION AND TEST A07

The following requirements shall apply to all repairs to pressure-retaining items:

a) The integrity of repairs and replacement parts used in repairs, alterations, or modifications shall be verified by examination and test.

b) The "TR" Certificate Holder is responsible for all activities relating to examination and test of repair, alterations, or modifications.

c) Examination and tests to be used shall be subject to acceptance of the Inspector and the Competent Authority.

S6.17.1 METHODS A07

One or a combination of the following examination and methods shall be applied to pressure-retaining items with the concurrence of the Inspector and the Competent Authority.

a) Liquid Pressure Test A07
Pressure testing of repairs shall meet the following requirements:

1) Pressure tests shall be conducted using water or other suitable liquid. The test pressure shall be the minimum required to verify the leak tightness integrity of the repair, but not more than 150% of the maximum allowable working pressure (MAWP) stamped on the pressure-retaining item, as adjusted for temperature. When original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance. A07

space is needed to properly record the repair, alteration, or modification, Form TR-2 shall be used.

c) It is the responsibility of the "TR" Symbol Stamp Holder to prepare, distribute, and maintain the Form TR-1 and, if required, Form TR-2. The Form(s) shall be distributed as follows:

1) Owner-User;

2) Registered Inspector;

3) Competent Authority (DOT); and

4) National Board.

d) The Form TR-1 shall be signed by a Registered Inspector as defined in S6.7.1.

A07 S6.19.1 REGISTRATION OF FORM TR-1 AND FORM TR-2

a) It is required by DOT that the Form TR-1 and, if applicable, Form TR-2 be registered with the National Board.

b) The repair organization shall maintain a sequential Form "TR" Log that shall identify the following:

1) Form number assigned for Form TR-1;

2) Identify if the activity was a repair, alteration, or modification; and

3) Date sent to the National Board.

A07 S6.19.2 GENERAL REQUIREMENTS "TR" STAMPING AND NAMEPLATES

The holder of a "TR" *Certificate of Authorization* is required to affix a stamping or nameplate on the Transport Tank that indicates, as appropriate, that the repair, alteration, or modification has been performed in accordance with the requirements of this supplement of the NBIC and the additional requirements of the code of construction. The stamping or nameplate information shall satisfy the requirements of (a) thru (g) below:

a) The required data shall be in characters at least 4 mm (5/32 in.) high;

b) The markings may be produced by casting, etching, embossing, debossing, stamping, or engraving;

c) The selected method shall not result in any harmful contamination or sharp discontinuities to the pressure-retaining boundary of the Transport Tank;

d) Stamping directly on the Transport Tank, when used, shall be done with blunt-nose continuous or blunt-nose interrupted dot die stamps. If direct stamping would be detrimental to the item, required markings may appear on a nameplate affixed to the Transport Tank;

e) The "TR" Certificate Holder shall use its full name as shown on the *Certificate of Authorization* or an abbreviation acceptable to the National Board;

f) The stamping when directly on the item or when a nameplate is used shall be applied adjacent to the original manufacturer's stamping or nameplate. A single repair, alteration, or modification stamping or nameplate may be used for more than one repair to a Transport Tank, provided the repair, alteration, or modification activity is carried out by the same certificate holder;

g) The date of each repair, alteration, or modification corresponding with the date on the Form TR-1shall be stamped on the nameplate.

LETTER BALLOT

NB10-0302

Subj.: Revision of S3.2 d)

Explanation: The current text permits the repair firm to make repairs from non ASME Code material. The proposed revision requires new parts to be made from Code material.

PM: Shawn Malone

Background: Typically, graphite parts are machined to shape or extruded, and then impregnated. There are no standard specifications for impregnation of graphite, and no specifications for results of the impregnation. Part UIG of Section VIII, Div. 1 requires extensive testing of impregnated graphite material to prove it meets Code requirements.

The NBIC does not specifically require the repair firm to use ASME Code material for replacement parts. The proposed revision addresses this issue.

Existing text:

Delete

d) When ASME is the original code of construction, replacement parts subject to internal or external pressure, which require shop inspection by an Authorized Inspector, shall be fabricated by an organization having an appropriate ASME *Certificate of Authorization*. The item shall be inspected and stamped as required by the applicable section of the ASME Code. A completed ASME *Manufacturer's Partial Data Report* shall be supplied by the manufacturer.

Proposed Revision:

Replace with:

d) When ASME is the original code of construction, replacement parts subject to internal or external pressure shall be fabricated from certified material supplied by an organization having the appropriate ASME *Certificate of Authorization*. The item shall be inspected and stamped as required by the applicable section of the ASME Code. A completed ASME *Manufacturer's Partial Data Report* shall be supplied by the impregnated graphite material manufacturer.

Rationale: Part UIG of Section VIII, Div.1 controls the manufacture of impregnated graphite material, and requires the impregnated graphite to be stamped with the Code symbol. The current words of S3.2 d) permits the repair firm to use parts, such as tubes, that are not Code material. The proposed revision requires replacement parts to be fabricated from ASME stamped material.

NB10-0302 Graphite

Stupica,Andy voted: Approve ! 12/11/2009 3:16:23 PM	
Soltow,Ed voted: Approve ! 12/8/2009 10:56:12 AM	
malone,shawn voted: Approve ! 11/20/2009 2:38:59 PM	
Bonn,Tim voted: Approve ! 11/20/2009 12:20:47 PM	
Minick,Merle voted: Approve ! 11/20/2009 11:52:59 AM	However I think a material test report or partial data report could be used

NB10-0701

December 2, 2009

Secretary, NBIC Committee
The National Board of Boiler and
Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, OH 43229

Subject: Request for addition to NBIC, Part 3 code rules.

Purpose: To assure the ultimate objective of quality of work with sufficient documentation to show what was accomplished under the R Stamp program.

Statement of need: Currently there are no requirements for records retention or detail of work and test performed required for the R Stamp program. Joint reviews do not always provide sufficient evidence that stamp holders and inspections agencies are following code requirements when performing actual repairs and alterations of pressure retaining items. When performing jurisdictional inspections on items that have multiple repairs it is often no way for the inspector to verify who complete which repair leaving the possibility that the inspector is unable to identify non code welds.

These subjects were part of the member's technical meeting in October 2009 with overwhelming consensus that the R stamp program needs to address three separate issues.

1. Requirement for retention of all records to include but not limited drawings, design and specifications, repair and alteration methods, materials used, method of performing work, welding, NDE heat treatment, and examination and test performed. I would recommend the records retention be at least from review to review.
2. Requirements the R forms provide sufficient detail to allow for positive identification of type and location of work performed.
3. Requirements for the R forms to provide sufficient detail of examinations test and acceptance inspections to prove compliance with code requirements.

With the current economic situation and the decline in state and local revenues, many jurisdictions are being required to justify each and every program to show that they provide an acceptable level of safety without excessive cost to business. Without the recommended changes members are faced with the real possibility of being unable to

show the real value of the R stamp program to legislators and ultimately having laws changed to remove the requirement for R stamp holders to perform welding on pressure retaining items. In my opinion, the impact of losing the requirement for the use of R stamp holders even in one jurisdiction has the potential to lead to catastrophic results.

Please feel free to contact me if you have any questions concerning this matter.

Regards,

Gary L. Scribner
Deputy Chief
Boiler & Pressure Safety Unit
Missouri Division of Fire Safety
573-751-8708
Gary.scribner@dfs.dps.mo.gov