RULE CHANGE SUMMARY

CHAPTER 01 – HULL

No | Item
---|---
01 | Section 16

ADDITIONAL RULE – SHIPBUILDING and REPAIR QUALITY STANDARD

No | Item
---|---
01 | Section 1
02 | Section 2
PART A – CHAPTER 01 – HULL

01. Section 16 – Hull Outfitting

Revision Date: July 2021

Entry into Force Date: 1 August 2021

Item F.1.3.2 was revised according to UI LL50 Rev.6 as below:

1.3.2 A permanent and efficiently constructed gangway fitted at or above the level of the superstructure deck on or as near as practicable to the centre line of the ship, providing a continuous platform at least 0.6 m in width and a non-slip surface, with guard rails extending on each side throughout its length. Guard rails are to be at least 1 m high with courses as required in 2.2, and supported by stanchions spaced not more than 1.5 m; a foot-stop is to be provided.

Item F.1.3.4 was revised according to UI LL50 Rev.6 as below:

1.3.4 A wire rope lifeline not less than 10 mm in diameter, supported by stanchions about not more than 10 m. apart, or A a single hand rail or wire rope attached to hatch coamings, continued and adequately supported between hatchways.

Note 1 under item F.1.3.6 was revised according to UI LL50 Rev.6 as below:

Notes:

1. In all cases where wire ropes are fitted, adequate devices (for example turnbuckles) are to be provided to ensure their tautness.

Footnote of Table 16.5 was revised according to UI LL50 Rev.6 as below:

(*) Oil Tankers, Chemical Tankers and Gas Carriers as defined in SOLAS regulations II-1/2.22, VII/8.2 and VII/11.2, respectively, of the International Convention for the Safety of Life at Sea, 1974, as amended.

(**) \( A_f \) = The minimum summer freeboard calculated as type “A” ship regardless of the type freeboard actually assigned.

\( H_s \) = The standard height of superstructure as defined in ICLL Regulation 33.

ADDITIONAL RULE – SHIPBUILDING and REPAIR QUALITY STANDARD

01. Section 1 - Shipbuilding and Remedial Quality Standard for New Construction

Revision Date: July 2021

Entry into Force Date: 1 August 2021

Generally references to IACS requirement was changed to TL requirements.

Item A.3 was revised according to Rec. 47 Rev.9 as below:

In assessing the criticality of hull structure and structural components, reference is made to ref. A1, A2, A3, A11, A13, A14, A15, and A16 and A17.
Item C.3 was revised according to Rec. 47 Rev.9 as below:

3. Qualification of NDE operators

Personnel performing non-destructive examination testing for the purpose of assessing quality of welds in connection with new construction covered by this standard, are to be qualified in accordance with TL rules or to a recognized international or national qualification scheme. Records of operators and their current certificates are to be kept and made available to the Surveyor for inspection.

Item D.2.3 was revised according to Rec. 47 Rev.9 as below:

2.3 Remedial of Defects

Defects are to be remedied by grinding and/or welding in accordance with IACS-Rec. 12 TL-R W11 (ref. A12).

References were revised according to Rec. 47 Rev.9 as below:

REFERENCES

A2. TSCF “Guidelines for the inspection and maintenance of double hull tanker structures”
A3. TSCF “Guidance manual for the inspection and condition assessment of tanker structures”
A4. IACS-UR TL- R W7 “Hull and machinery steel forgings”
A5. IACS-UR TL- R W8 “Hull and machinery steel castings”
A6. IACS-UR TL- R W11 “Normal and higher strength hull structural steels”
A7. IACS-UR TL- R W13 “Thickness tolerances of steel plates and wide flats”
A8. IACS-UR TL- R W14 “Steel plates and wide flats with specified minimum through thickness properties ("Z" quality)"
A9. IACS-UR TL- R W17 “Approval of consumables for welding normal and higher strength hull structural steels”
A10. IACS-UR TL- R W28 “Welding procedure qualification tests of steels for hull construction and marine structures”
A12. IACS-UR TL- R Z23 “Hull survey for new construction”
A13. IACS Recommendation No. 12 “Guidelines for surface finish of hot rolled plates and wide flats”
A14. IACS Recommendation No. 20 TL-R W33 “Non-destructive testing of ship hull steel welds”
A15. IACS Recommendation No. TL- G 96 “Double Hull Oil Tankers- Guidelines for Surveys, Assessment and Repair of Hull Structures”
A17. IACS Recommendation No. TL- G 84 “Container Ships- Guidelines for Surveys, Assessment and Repair of Hull Structures”
02. Section 2 - Repair Quality Standard for Existing Ships

Revision Date: July 2021

Entry into Force Date: 1 August 2021

Items A.2 and 3 were revised according to Rec. 47 Rev.9 as below:

2. The standard covers typical repair methods and gives guidance on quality standard on the most important aspects of such repairs. Unless explicitly stated elsewhere in the standard, the level of workmanship reflected herein will in principle be acceptable for primary and secondary structure of conventional design. A more stringent standard may however be required for critical and highly stressed areas of the hull and is to be agreed with TL in each case. In assessing the criticality of hull structure and structural components, reference is made to ref. B1, B2, B3, B6, B8, B9, B10, and B11 and B12.

3. Restoration of structure to the original standard may not constitute durable repairs of damages originating from insufficient strength or inadequate detail design. In such cases strengthening or improvements beyond the original design may be required. Such improvements are not covered by this standard, however it is referred to ref. B1, B2, B3, B6, B8, B9, B10, and B11 and B12.

Item C.3 was revised according to Rec. 47 Rev.9 as below:

3. Qualification of NDE Operators

3.1 Personnel performing non destructive examination testing for the purpose of assessing quality of welds in connection with repairs covered by this standard, are to be qualified in accordance with TL rules or to a recognised international or national qualification scheme. Records of operators and their current certificates are to be kept and made available to the Surveyor for inspection.

Tables 2.4, 2.5, 2.6 and 2.7 were revised according to Rec. 47 Rev.9 as below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Grade</td>
<td>Same as original or higher</td>
<td></td>
<td>See D.</td>
</tr>
<tr>
<td>Welding Consumables</td>
<td>IACS TL-R-W17 (ref. B5)</td>
<td>Approval according to equivalent international standard</td>
<td></td>
</tr>
<tr>
<td>Groove / roughness</td>
<td>See note and Fig. 2.1</td>
<td>d &lt; 1.5 mm</td>
<td>Grind smooth</td>
</tr>
<tr>
<td>Pre-Heating</td>
<td>See Table 2.3</td>
<td>Steel temperature not lower than 5ºC</td>
<td></td>
</tr>
<tr>
<td>Welding with water on the outside</td>
<td>See E.1.3</td>
<td>Acceptable for normal and high strength steels</td>
<td>Moisture to be removed by a heating torch</td>
</tr>
<tr>
<td>Alignment</td>
<td>As for new construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weld finish</td>
<td>IACS Rec. 20 TL-R W33 (ref. B9 8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDE</td>
<td>IACS Rec. 20 TL-R W33</td>
<td>At random with extent</td>
<td></td>
</tr>
</tbody>
</table>
**Note:**
Slag, grease, loose mill scale, rust and paint, other than primer, to be removed.

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
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<th>Remarks</th>
</tr>
</thead>
</table>
| Size insert           | Min. 300x300mm R = 5 x thickness  
Circular inserts:  
D_{\text{min}}=200mm | Min. 200x200mm  
Min R = 100 mm |                                                   |
| Material grade        | Same as original or higher                                               |                                    | See D.                                                                   |
| Edge Preparation      | As for new construction                                                  |                                    | In case of non compliance increase the amount of NDET                   |
| Welding sequence      | See Fig.2.2  
Weld sequence is  
1→ 2→ 3→ 4                |                                    | For primary members sequence 1 and 2 transverse to the main stress direction |
| Alignment             | As for new construction                                                  |                                    |                                                                         |
| Weld finish           | IACS-Rec. 20 TL-R W33 (ref. B9 8)                                       |                                    |                                                                         |
| NDE T                 | IACS-Rec. 20 TL-R W33 (ref. B9 8)                                       |                                    |                                                                         |

<table>
<thead>
<tr>
<th>Item</th>
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<th>Limit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing plating</td>
<td></td>
<td>General: t ≥ 5 mm</td>
<td>For areas where existing plating is less than 5mm plating a permanent repair by insert is to be carried out.</td>
</tr>
</tbody>
</table>
| Extent/size           | Rounded off corners.                                                     | min 300x300 mm  
R ≥ 50mm                              |                                                                         |
| Thickness of doubler (t_d) | t_d>tp (tp=original thickness of existing plating ) | td > tp/3                        |                                                                         |
| Material grade        | Same as original plate                                                   |                                    | See D.                                                                   |
| Edge preparation      | As for [new building]  
new construction                                                               |                                    | Doublers welded on primary strength members: (Le: leg length) when t > Le + 5mm, the |
edge to be tapered (1:4)

Welding sequence similar to insert plates.

Circumferential and in slots: 0.6 x \( t_d \)

Normal size of slot: (80-100) x 2 \( t_d \)

Max pitch between slots 200mm

For doubler extended over several supporting elements, see Figure 2.3

\[ d_{\text{max}} = 500 \text{mm} \]

\[ d \leq 15 t_d \]

槽焊

槽宽 (边缘厚度): 0.6 x \( t_d \)

槽宽度：(80-100) x 2 \( t_d \)

最大槽间距：200mm

对于双层焊接到多个支撑元素时，参见图2.3

\[ d_{\text{max}} = 500 \text{mm} \]

\[ d \leq 15 t_d \]

无损检测

IACS Rec. 20 TL-R W33 (ref. B98)

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size insert</td>
<td>Min. 300 mm</td>
<td>Min. 200mm</td>
<td></td>
</tr>
<tr>
<td>Material grade</td>
<td>Same as original or higher</td>
<td></td>
<td>See D.</td>
</tr>
<tr>
<td>Edge Preparation</td>
<td>As for new construction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding sequence</td>
<td>See Fig.2.4</td>
<td></td>
<td>Weld sequence is 1→ 2 →3</td>
</tr>
<tr>
<td>Alignment</td>
<td>As for new construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weld finish</td>
<td>IACS Rec. 20 TL-R W33 (ref. B98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDET</td>
<td>IACS Rec. 20 TL-R W33 (ref. B98)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 2.10 and 2.11 were revised according to Rec. 47 Rev.9 as below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent/depth</td>
<td>Pits/grooves are to be welded flush with the original surface.</td>
<td>If deep pits or grooves are clustered together or remaining thickness is less than 6 mm, the plate should be renewed.</td>
<td>IACS Rec. 12 TL-R W11 (ref. B84)</td>
</tr>
<tr>
<td>Cleaning</td>
<td>Heavy rust to be removed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Heating</td>
<td>See Table 2.3</td>
<td>Required when ambient temperature&lt;5ºC</td>
<td>Always use propane torch or similar to remove any moisture</td>
</tr>
<tr>
<td>Welding sequence</td>
<td>Reverse direction for each layer</td>
<td></td>
<td>IACS Rec. 12 TL-R W11 (ref. B84)</td>
</tr>
</tbody>
</table>
Weld finish

IACS Rec. 20 TL-R W33 (ref. B9 8)

NDET

IACS Rec. 20 TL-R W33 (ref. B9 8)

Min. 10% extent

Preferably MPI

Reference is made to TSCF Guideline, Ref. B2 & B3

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groove preparation</td>
<td>$\theta = 45-60^\circ$ $r = 5 \text{ mm}$</td>
<td></td>
<td>For through plate cracks as for newbuilding. Also see Fig. 2.11</td>
</tr>
<tr>
<td>Termination</td>
<td>Termination to have slope 1:3</td>
<td></td>
<td>For cracks ending on edges weld to be terminated on a tab see Fig. 2.9</td>
</tr>
<tr>
<td>Extent</td>
<td>On plate max. 400 mm length. Vee out 50 mm past end of crack</td>
<td>On plate max 500 mm. Linear crack, not branched</td>
<td>Always use low hydrogen welding consumables</td>
</tr>
<tr>
<td>Welding sequence</td>
<td>See Fig. 2.10 for sequence and direction</td>
<td>For cracks longer than 300 mm step- back technique should be used Fig. 2.8</td>
<td></td>
</tr>
<tr>
<td>Weld finish</td>
<td>IACS Rec. 20 TL-R W33 (ref. B9 8)</td>
<td>100 % MP or PE of groove</td>
<td>100 % surface crack detection + UE or RE for butt joints</td>
</tr>
</tbody>
</table>

References were revised according to Rec. 47 Rev.9 as below:

B2. TSCF “Guidelines for the inspection and maintenance of double hull tanker structures”
B3. TSCF “Guidance manual for the inspection and condition assessment of tanker structures”
B4. IACS UR TL-R W11 “Normal and higher strength hull structural steels”
B5. IACS UR TL-R W17 “Approval of consumables for welding normal and higher strength hull structural steels”
B7. IACS UR TL-R Z3 “Voyage repairs and maintenance”
B8. IACS Recommendation No. 12 “Guidelines for surface finish of hot rolled steel plates and wide flats”
B9. IACS Recommendation No. 20 TL-R W33 “Non-destructive testing of ship hull steel welds”