

RESOLUTION MEPC.147(54)
Adopted on 24 March 2006
GUIDELINES ON THE ASSESSMENT OF RESIDUAL FILLET WELD
BETWEEN DECK PLATING AND LONGITUDINALS

ANNEX 16

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THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

NOTING the Condition Assessment Scheme, as a mandatory requirement for oil tankers operating under the provisions of regulations 13G and 13H of MARPOL Annex I (regulations 20 and 21 of the revised MARPOL Annex I), adopted by resolution MEPC.94(46), as amended,

RECOGNIZING the convenience to provide guidance for inspection of fillet weld between deck plating and longitudinals in connection with thickness measurements requirements as called for in paragraph 7.3.3 and table 7.3.3 of the Condition Assessment Scheme adopted by resolution MEPC.94(46), as amended,

HAVING CONSIDERED, at its fifty-fourth session, the recommendation made by the Sub-Committee on Ship Design and Equipment to adopt the Guidelines on the assessment of residual fillet weld between deck plating and longitudinals,

1. ADOPTS the Guidelines on the assessment of residual fillet weld between deck plating and longitudinals, as an optional provision referred to in Table 7.3.3 of the Condition Assessment Scheme, the text of which is set out in the Annex to this resolution;
2. INVITES Governments to bring the Guidelines to the attention of surveyors, recognized organizations and any other interested parties when carrying out thickness measurements during the conduct of CAS surveys.

ANNEX

**GUIDELINES ON THE ASSESSMENT OF RESIDUAL FILLET WELD
BETWEEN DECK PLATING AND LONGITUDINALS****1 General**

The purpose of the guidelines is to provide an evaluation method and criteria for residual throat thickness for the fillet weld between the deck plate and deck longitudinals in order to prevent collapse accidents of aged oil tankers. To ensure that evaluation of the ship's longitudinal strength is recognized as valid, the fillet weld between longitudinals and deck should be in sound condition.

2 Extent of measurement

Thickness measurement on deck should be carried out according to paragraph 3 of these guidelines i.e. in every other deck longitudinal for three transverse sections, within the cargo area, as given in Table 7.3.3, paragraph 1.2, of the Condition Assessment Scheme (resolution MEPC.94(46), as amended). For areas in tanks where environmental conditions seem to be similar, the extent of this thickness measurement may be specially considered by the attending surveyor.

3 Local thickness measurement and criteria**3.1 Method of local thickness measurement**

3.1.1 The extent of local measurement should be set within approximately 50 mm of each side of the baseline, as shown in Figure 1.

3.1.2 Within the extent of local measurement, at least five points should be arranged, including one point on the baseline and with approximately 25 mm spacing at maximum. Thereby, the local thickness distribution for the deck plate can be obtained for the target longitudinal.

3.1.3 From the measured thickness distribution, a representative thickness diminution (Δt), defined by the following equation (1), should be estimated from the measured data on the baseline and the minimum thickness value among the other points:

$$\Delta t = t_0 - \text{Min.}\{t_1, t_2, t_3, t_4\} \quad (1)$$

Where:

t_0 : measured thickness on the baseline which is nearly equal to original thickness minus corrosion diminution for deck upper surface (Δt_0) as shown in figure 1;

t_1, t_2, t_3, t_4 : thickness on each measuring point; and

Δt : representative thickness diminution, which is assumed to be nearly equal to the diminution of the fillet weld throat thickness.

3.1.4 An estimated residual throat thickness is determined by:

$$r_{\text{residual}} = r_{\text{original}} - \Delta t$$

where r_{original} is the original throat thickness at the weld.

3.2 Criteria

When the estimated residual throat thickness is zero or less than zero, repair or renewal of the weld should be considered also based on the result of the close-up survey.

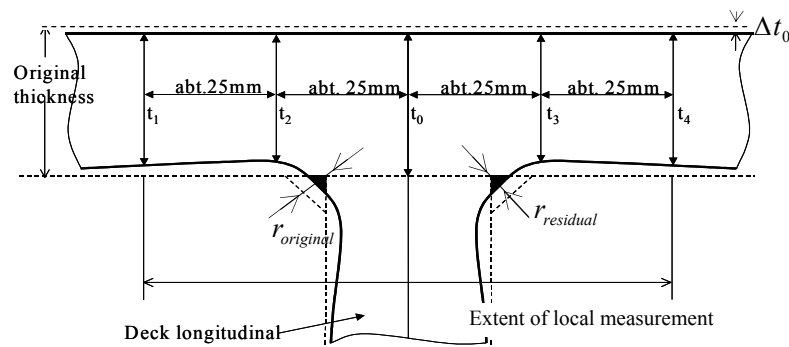


Figure 1 – Thickness measurement at deck plate from upper side

4 Alternative method

Detachment of the deck longitudinal member can also be checked using the following procedures. In cases where the longitudinal member is attached in sound condition, when the probe of the ultrasonic equipment is moved from the baseline to the outer side over the welding part, the ultrasonic echo from the bottom surface of the deck plate is not observed just over the welding part. However, in cases where the longitudinal member is detached from the deck plate, when the probe of the ultrasonic equipment is moved from the baseline to the outer side beyond the welding part, the ultrasonic signal echo can be observed continuously, even if the probe is on the detached welding part as shown in figure 2.

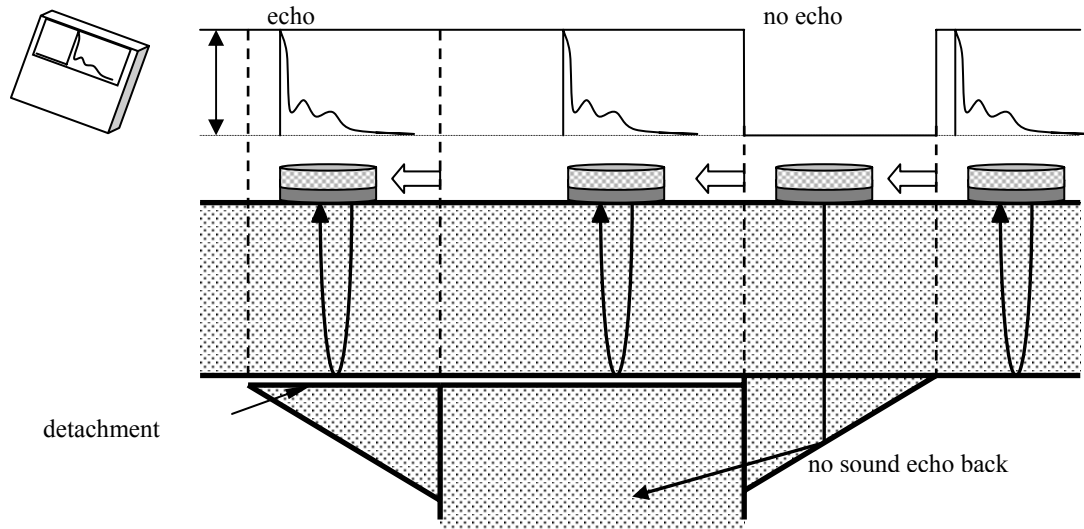


Figure 2 – Alternative method

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