CI-T 7
(November 2009)

Application of the Common Structural Rules for Double Hull Oil Tankers

Rule Section

1/1.1.1.1 Applicability
2/Figure 3.2.1 Typical arrangements of Double Hull Tankers
2/3.1.7.1 External environment
3/4.1.2 Novel designs

Knowledge Centre Questions:
No 142 (Type of cargo)
No 183 (OBO Carriers)
No 279 (Ore/Oil Carriers)
No 432 (Design with no cross ties)
No 438 (Restricted/Unrestricted Navigation)
RCP No 562 (Restricted/Unrestricted Navigation)

Description

The Common Structural Rules for Double Hull Oil Tankers (CSR/Tankers) of 150 metres or more have been published and adopted by IACS and became effective from April 1, 2006.

There are a couple issues of concern regarding the applicability of the rules that have become apparent after the adoption of the CSR/Tankers which this interpretations addresses:

- Ship types: do CSR apply to Chemical tankers, combination carriers etc.
- Conversions: vessels converted to tanker for oil
- Novel Designs: application of the CSR/Tankers to novel designs and unusual structural configurations
- Hull shapes outside of normal range L/B or B/D etc
- Service Area: application of the CSR/Tankers for ships on restricted service.

Common Interpretation / Procedure

The purpose of this interpretation is to ensure a unified understanding for which CSR/Tankers shall apply.

This common interpretation is not intended as a detailed procedure for the review and approval of novel concepts or particular structural arrangements not described in the CSR/Tankers.

1. Ship Types

The CSR/Tankers are mandatory for oil tankers with length of 150m and above having integral tanks for carriage of crude oil or oil products in bulk, which is contained in the definition of oil in Annex 1 of MARPOL 73/78.

Exemptions for which CSR/Tankers are not applicable are listed below:

- Combined Ore/Oil Carriers; or
- OBO Carriers; and
- Chemical tankers not having MARPOL certificate for carriage of oil or oil products
- Pure asphalt carrier
- FPSO, FSO
- Ships only carrying oil or oil products in independent tanks.

The class notation CSR may only be assigned for those vessels covered by mandatory application and may not be assigned voluntarily based on preference of Yard or Owner.

2. Conversion to Tanker for Oil

Ships converted to oil tankers should be exempted from complying with CSR for tank unless the whole cargo block (i.e. all the cargo holds) is replaced, in that case, relevant parts of CSR should apply to the cargo block only, and not the rest of the ship.

The exemption will only be applicable for vessels for which the date of the original contract for construction was prior to 1. April 2006.

3. Novel designs and unusual structural configurations

Although the Rules have been formulated for families of double hull tankers of more or less conventional structural configuration, there is no intention of limiting the development of novel designs in the future, or designs having improved local structural arrangements. However, the proposed designs must demonstrate that their structural safety is at least equivalent to that intended by the CSR/Tankers. This may include an independent systematic review/structural risk assessment in order to document equivalence with the Rules.

The individual class society will particularly consider how to apply CSR/Tankers on structural configurations different from those shown in Figure 3.2.1 or on “novel designs” (Section 3/4.1.2).

4. Designs with main particular outside normal ranges

The formulae for loads are tailored for ships of normal proportions. Although most may be applied to vessels of other proportions guidance should be sought from the individual class society when the criteria below are not satisfied. The individual class society will decide how to apply the CSR/Tankers to the ship.

- L/B > 5
- B/D < 2.5
- C_b > 0.7
- GM < 0.12B for homogenously full load conditions
  < 0.33B for ballast conditions

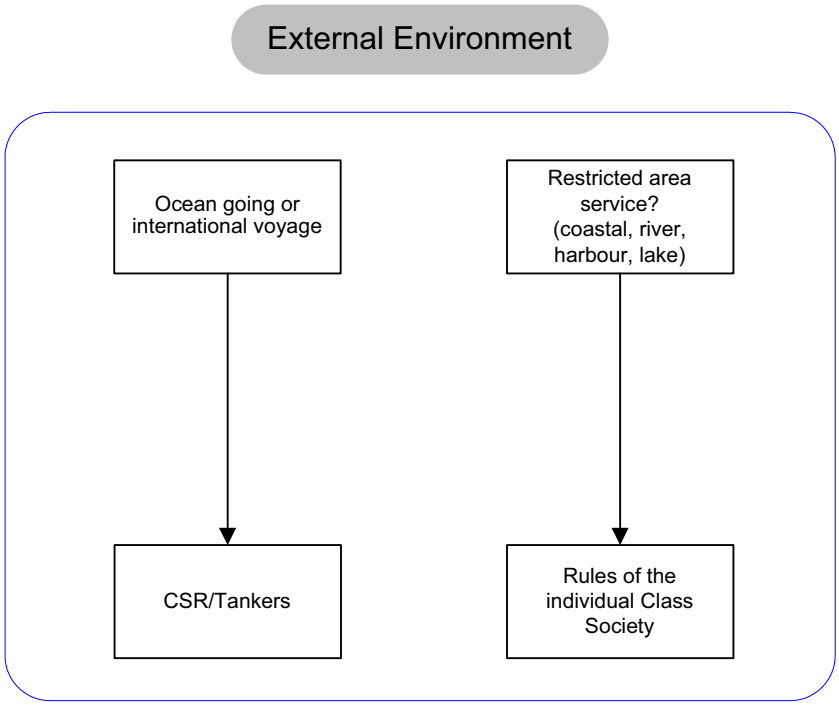
5. Service Area

Because there is uncertainty about the actual trading patterns of most ships, it is necessary to choose an arbitrary, but prudently severe, wave environment for the purposes of design assessment. The Rule requirements are therefore based on a ship trading for all of its life in the demanding North Atlantic wave environment. See Figure PR1 for application of CSR/Tankers based on external environment.

Shipowners are naturally concerned about maximising operational flexibility with the loading conditions that are approved and in the Loading Manual. The CSR for Tankers defines loading conditions that envelope the most prevalent in-service cases. This means that actual loading conditions will then fall within the range of draughts and hull girder bending moments (BM) / shear forces (SF) that have been investigated and approved by class. The standard loading conditions in CSR have been carefully selected to give extreme service limits. In some cases they are significantly more onerous than those routinely occurring. Where the shipowner intends actual loading conditions that may be outside the standard draught and BM/SF limits then these must be identified to the shipbuilder in the specification and submitted to Class to ensure the ship meets this enhanced requirement.

Figure PR1

Applicability of the CSR/Tankers – External Environment



NOTE: If the ship intends to change the operational environment of the ship from restricted to ocean going or international voyage then CSR/Tankers will be applicable at the time of conversion.

Implementation date

This CI is effective from 1 November 2009.

Background

This common procedure has been prepared to ensure a unified understanding on the application of CSR/Tankers.