

ANNEX 5

IMO MARINE CASUALTY AND INCIDENT REPORT

DAMAGE CARDS* AND INTACT STABILITY CASUALTY RECORDS

Statistics of damaged ships and of intact stability casualties are important to the work of the Organization in respect to improvement of subdivision and intact stability criteria in various conventions, codes, recommendations, and guidelines. Member Governments are invited to continue to submit to the Secretariat damage data and intact stability casualty data using the format in this annex.

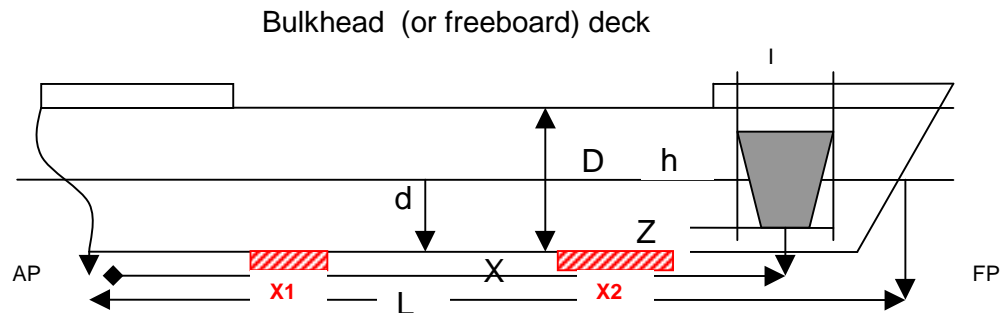
Note

* The Secretariat, while incorporating amendments to the cover and to annex 1 and 2 of the present circular, also included the amendments to MSC/Circ.224, which were approved by the Maritime Safety Committee at its fifty-ninth session (MSC 59/33 annex3)

DAMAGE CARDS

Damaged Ship

Length between perpendiculars* **L=** 161,15 m
 Moulded breadth* **B=** 24,50 m Moulded depth* **D=** 14,0 m
 Height of subdivision deck = 15,50 m (to trunk-deck)
 Draught before damage: amidships **d = 10,385m** (or fore = _____ and aft = _____)
 Struck/striking: _____



Dimension and location of damage (see sketch above)

Distance from AP to centre of damage* **X =** _____
 Distance from baseline to lower point of damage **Z =** _____
 Length of damage* **I =** _____ **I₁ =** _____
 Height of damage* **h =** _____ **h₁ =** _____
 Area= _____
 Penetration of damage* **b =** _____ **b₁ =** _____

(if damage extends above bulkhead (or freeboard) deck, additional dimensions should be given for the part located below this deck, these being marked with suffix "1")

Dimension and location of bottom damage

Distance from AP to centre of damage* **X =** **X1≈58m** **X2≈111m** Depth of damage **d = 10,385m**
 Distance from CL to centre of damage = **12,1m** Port or starboard? **Stb:**
 Length of damage **I =** _____ Width of damage = _____ Area = **Frame 65-100**
 _____ **And 135-175**

Second ship involved in collision (to be completed in case of collision between two ship) n/a

Length between perpendiculars* **L =** _____ Struck /striking : _____
 Moulded breadth* **B =** _____ Moulded depth* _____
 Draught before damage: amidships **d =** _____ (or fore= _____ and aft = _____)

Notes FOR DAMAGE CARD

1. Damage cards should be completed for decked, steel sea-going ships 25m. in length and over, for all breaches of the hull causing flooding of any compartments (collision, stranding, etc.)
2. The term "damaged ship" refers to the ship for which this card is being completed.
3. A sketch showing location of damage and of main traverse bulkheads would be desirable.
4. Depth **D** should be measured to the bulkhead deck in passenger ships and to the freeboard deck in non passenger ships (or to uppermost completed deck, if bulkhead or freeboard deck are not specified).

5. In case of collision with another ship, it is desirable to fill in damage cards for both ships.
6. All measurements should be given in metres.
7. Data marked with asterisk (*) are the most important

Additional data to be supplied if available:

1. Wind and sea (Beaufort scale) at time of casualty: **Variable NE-SE, Bft 1**

2. Speed at time of impact, in knots:

Damaged ship	V1	10,7
Second ship	V2	n/a

3. Angle of encounter _____
4. Did the ship to which this card refers sink? yes no
 If not, give draught after damage: n/a _____
 If so, indicate time taken to sink after collision some 4 min. and manner of sinking
capsizing _____

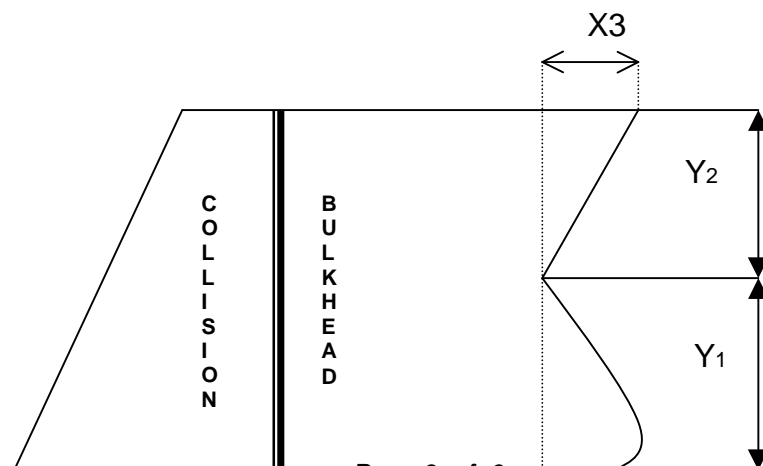
5. Appropriation of breached compartment(s) (e.g. machinery room, cargo hold, etc.):
WB tanks stb _____

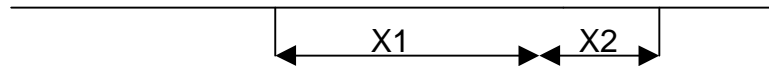
6. Type and quantity of cargo in damaged compartments, if any **none** _____
7. Where there any special circumstances which influenced the results of damage (e.g. open watertight doors, manholes, side scuttles, or pipes, fractures, etc.)? yes
No double bottom to protect the turn of the bilge / undivided WB tanks which resulted in huge amounts of water ingress within few minutes (600 t/min) _____

8. Position of watertight bulkheads in vicinity of damage (distance from AP to each of them) _____

9. Was the transverse subdivision bulkhead damaged? yes no
10. Was the collision bulkhead damaged? yes no
11. Number of compartments flooded _____
12. Was there a double bottom in the damaged area? yes no
 if so, indicate whether the inner bottom was breached yes no
13. Was there a separate penetration from the bulbous bow ye no

14. Striking ship bow geometry **X1** **X2** **X3**
 n/a **Y1** **Y2** _____





INTACT STABILITY CASUALTY RECORD

Length between perpendiculars* **Lpp =** 161,15 m
 Breadth moulded* **B=** 24,50 m Depth moulded * **D=** 14,0 m
 Draught amidships to assigned load line or subdivision line **d** 10,385 or fwd. aft
 Service conditions (light or loaded, with approximate percentage of cargo, stores, fuel and passengers)
 Loaded (cargo=93%, bunkers **2%???**, ballast= 2%, others/equipment= 3%)
 Type of cargo, if any gravel/stone Disposition bulk Stowage factor 1,44 t/cbm
 Deck cargo, if any **FFP equipment** Type Buckets, ROVs, container quantity **351 mt**
 Quantity of ballast water, if any 542 mto
 Sea and wind condition at time of casualty: sea* calm wind, Beaufort scale 2,1 m/s
 Wind velocity **u** marginal Wind pressure **pv** marginal
 Wave length: marginal Wave height **hw** marginal
 Direction of wind related to ship's head 320° (degrees)
 Direction of waves related to ship's head 320° (degree) marginal
 Speed of ship at time of casualty **V** 10,7 knots
 Name, length and height of enclosed superstructures and deck – houses above the deck to which D was measured

Bilge keels: Width ^(o) _____ Longitudinal extent^(o) _____
 Depth of bar keel, if any ^(o) _____
 Water was trapped on deck? nil if so, indicate the extent n/a
 Were all vulnerable openings effectively closed at time of casualty no
 Was icing a contributory factor to casualty yes no
 Was the vessel under action of helm at time of casualty yes no
 Were any special instructions relative to this ship in existence, concerning the maintenance of stability, e.g. filling tanks, etc.?
 Yes (ref.: Stability Information Booklet/Vol.1- Operation of the ship – Chap. 2.4.8/9)
 Were any voyage limits and or/weather restrictions imposed for the vessel?
 Not directly. For an indirect hint, see Stability Information Booklet/Vol.1 Chap. 2.1.1.3

Were any particular circumstances related to the casualty?
 The vessel heeled whenever the course was changed. This and the track along the utmost right side of the fairway increased the **squat effect???** considerably when coming close to Revskolten light.

Give short description of casualty ¹
 Vessel capsized rapidly after hitting ground and massive water penetrated into the ship through the ripped bilge plating in the area of deep tank 2 and 3 on Stb. side.

Note

1 Data should be provided only if not provided otherwise

General Particulars		For ships in fully loaded homogenous arrival condition (with 10% stores, fuel, etc.)	For ship in condition at time of loss
Draught (amidships)	d		10,385m
Displacement*	Δ		34578,83 mt
Centre of gravity above moulded base line*	KG		10,124m
Metacentric height (uncorrected)*	GM		0,423m
Distance between the traverse metacentric and centre of buoyancy	BM		
Reduction in GM due to any free surface of liquids*			0,038m
Block coefficient of fineness of displacement*	δ		
Coefficient of fineness of midship section	β		
Coefficient of fineness of water plane	a		
Height of centre of buoyancy above moulded base line	KB		
Lateral area of ships profile (including erections, etc.) exposed to wind	A_v		
Distance between centre of lateral area of ships profile exposed to wind and corresponding waterline			
Estimated rolling period (P-S-P) (in seconds) ^(o)	T_r		
Rated amplitude of roll (maximum)	θ_r		
Angle of heel for immersion of uppermost continuous deck			
Righting levers (GZ) based upon centre of gravity (G) corrected for any free surfaces, for the following angles of heel:*			
0°			-0,004
10°			0,077
20°			0,198
30°			0,277
40°			0,296
50°			0,235
60°			0,030
70°			
80°			
90°			
Maximum righting lever	GZ_m		0,300
Angle of Angle of maximum stability	θ_m		36,6°
Angle of vanishing stability	θ_v		
Lightship Displacement $\Delta_o =$	Centre of gravity above moulded baseline	KG_o =	
NOTES FOR INTACT STABILITY CASUALTY RECORD			

<p>1. Casualty records to be completed for all sea going passenger ships, sea-going cargo ships of 25 meters in length and over, and sea-going fishing vessels of 15 meters in length and over, in respect of both losses of ships in cases in which dangerous heeling occurred due to unsatisfactory stability, including those cases where loss or heeling of the ship was due to shifting cargo.</p>	<p>2. Depth D should be measure to the bulkhead deck in passenger ships and to the freeboard deck in non-passenger ships (or uppermost completed deck, if bulkhead or freeboard deck is not specified).</p> <p>3. The metric system should be used for all measurements.</p> <p>4. Data marked with an asterisk (*) are the most important</p> <p>5. The provision of data marked ^(o) is optional</p> <p>6. It is desirable to attach a sketch of statical stability curves, drawn for both the below loading conditions, using the following scale:</p> <p>(i) 20 mm for every 10° angle of inclination</p> <p>(ii) 10 mm (or 20 mm) for every 0.1 meter of righting lever.</p>
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