

# NATIONAL CARGO BUREAU, INC. GRAIN STABILITY CALCULATION FORM

\* (Required for vessels loading bulk grain in the United States of America)

M.V. / S.S. _____		KEEL LAID (month/year) _____	
COUNTRY OF REGISTRY _____	NET TONNAGE _____	IMO NO. _____	IN COUNTRY _____
AGENT _____			

DOCUMENT OF AUTHORIZATION ISSUED BY \_\_\_\_\_ DATE \_\_\_\_\_

GRAIN LOADING BOOKLET DRAWING NO. \_\_\_\_\_

APPLICABLE REGULATIONS \_\_\_\_\_

UNTRIMMED (UT) ENDS (A10.3 AND/OR A10.4) APPROVED BY \_\_\_\_\_

UT DRAWING NO.(S) \_\_\_\_\_

DATE(S) OF APPROVAL \_\_\_\_\_

LOADING PORT(S) \_\_\_\_\_

BUNKERING PORT(S) \_\_\_\_\_

DISCHARGE PORT(S) \_\_\_\_\_

STEAMING DISTANCE \_\_\_\_\_ MILES MILES PER DAY \_\_\_\_\_ TIME \_\_\_\_\_

DAILY CONSUMPTION: FUEL \_\_\_\_\_ DIESEL \_\_\_\_\_ WATER \_\_\_\_\_

	DISPLACEMENT	DEADWEIGHT	DRAFT	FREEBOARD
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\*\*WINTER \_\_\_\_\_

SUMMER \_\_\_\_\_

\*\*TROPICAL \_\_\_\_\_

FRESH WATER ALLOWANCE \_\_\_\_\_ TPC/TPI (AT SUMMER DRAFT) \_\_\_\_\_

\* EXCEPT FOR EXEMPTED VOYAGES

\*\* IF APPLICABLE

THIS IS TO CERTIFY THAT:

1. THIS CALCULATION IS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE VESSEL'S GRAIN LOADING BOOKLET AND THE APPLICABLE GRAIN REGULATIONS.
2. THE STABILITY OF THE VESSEL WILL BE MAINTAINED THROUGHOUT THE VOYAGE IN ACCORDANCE WITH THIS CALCULATION.

**CALCULATION PREPARED BY:**  
(TO BE COMPLETED IF THE FORM IS PREPARED BY OTHER THAN SHIP'S PERSONNEL)

NAME (PRINT) \_\_\_\_\_

COMPANY \_\_\_\_\_

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

	_____
	MASTER'S SIGNATURE
	_____
	MASTER'S NAME (PRINTED)
EXAMINED BY: _____	_____
	N.C.B. SURVEYOR'S SIGNATURE
	_____
	N.C.B. SURVEYOR'S NAME (PRINTED)
DATE: _____	_____

NOTE: ORIGINAL STABILITY CALCULATION AND GRAIN ARRANGEMENT PLAN TO BE SUBMITTED TO THE N.C.B. SURVEYOR. ALL TONNAGES USED IN THIS CALCULATION SHALL BE SHOWN IN THE SAME UNITS AS USED IN THE GRAIN LOADING BOOKLET.





## HEELING MOMENT CALCULATION

### PART III

COMPT. NO	STOWAGE (1)	GRAIN ULLAGE OR DEPTH	VOLUMETRIC HEELING MOMENT	S.F. OR DENSITY (2)	GRAIN HEELING MOMENT	VERTICAL SHIFTING MOMENT (IF PROVIDED) SEE NOTE 2 IN PART II	
		M/FT	M <sup>4</sup> / FT <sup>4</sup>		MT- M / FT- LT	M <sup>4</sup> / FT <sup>4</sup>	MT- M / FT- LT
<b>TOTALS</b>							

- (1) UNDER STOWAGE, COMPARTMENTS CAN BE INDICATED AS "F-T" FOR FILLED TRIMMED, "F-UT" FOR FILLED UNTRIMMED, "PF" FOR PARTLY FILLED, "IC-UT" FOR IN-COAMING UNTRIMMED, AND "SEC" FOR SECURED OR OVER-STOWED.
- (2) THE STOWAGE FACTOR USED IN PART III SHALL NOT EXCEED THE ONE BASED ON THE WEIGHT PER UNIT OF VOLUME (TEST WEIGHT) OF THE GRAIN. IF THE STOWAGE FACTOR IS THE SAME IN ALL COMPARTMENTS, DIVIDE THE TOTAL VOLUMETRIC HEELING MOMENT BY THE STOWAGE FACTOR OR MULTIPLY BY THE DENSITY TO OBTAIN THE GRAIN HEELING MOMENT. IF THE STOWAGE FACTOR VARIES, OBTAIN THE GRAIN HEELING MOMENT FOR EACH COMPARTMENT.

INTERNATIONAL GRAIN CODE, Part A, 7.1  
 REGULATION 4, CHAPTER VI, SOLAS 1974 or  
 REGULATION 4, IMCO RESOLUTION A.264(VIII), NEW CHAPTER VI, SOLAS 1960  
 REGULATION 4, IMCO RESOLUTION A.184 AN EQUIVALENT TO CHAPTER VI, SOLAS 1960

**A.** FOR VESSELS APPROVED UNDER

## STABILITY SUMMARY

	DEPARTURE	INTERMEDIATE	ARRIVAL
DISPLACEMENT			
KG <sub>v</sub> or GM			
TOTAL GRAIN HEELING MOMENT			
MAXIMUM ALLOWABLE HEELING MOMENT			
* ANGLE OF HEEL (12° MAX.)			
* RESIDUAL AREA 0.075 METER-RADIANS (14.1 FT <sup>0</sup> OR 4.3 M <sup>0</sup> ) MINIMUM			
* GM (0.3M OR 1 FT MINIMUM)			

\* TO BE COMPLETED IF VESSEL'S GRAIN LOADING BOOKLET DOES NOT INCLUDE A TABLE OF ALLOWABLE HEELING MOMENTS. IN SUCH CASE, STATICAL STABILITY DIAGRAMS DEMONSTRATING THIS INFORMATION SHALL BE ATTACHED HERETO.

**B.** FOR SPECIALLY SUITABLE SHIPS APPROVED UNDER

INTERNATIONAL GRAIN CODE, PART A, 8. 2  
 SECTION V (B) , PART B, CHAPTER VI, SOLAS 1974  
 SECTION V (B) , PART B, IMCO RESOLUTION A.264 (VIII), NEW CHAPTER VI, SOLAS 1960  
 REGULATION 12, CHAPTER VI, SOLAS 1960

**ANGLE OF HEEL =  $\frac{\text{GRAIN HEELING MOMENT} \times 57.3}{\text{DISPLACEMENT} \times \text{GM}}$**

	DEPARTURE	INTERMEDIATE	ARRIVAL
TOTAL GRAIN HEELING MOMENT			
DISPLACEMENT			
GM			
ANGLE OF HEEL ( 5° MAX.)			