

Demo PDF file. This file includes questions: 10 from 448. Full version of file looks the same as demo, but full version includes all questions. You may download file with all questions by link on bottom of this page

Q104 - Deck Safety: Stability Problems

1. The difference between the initial trim of a vessel and the trim after a change in load has occurred is known as _____.

- change of draft
- trim
- final trim
- **change of trim**

Note:

The difference between initial and final trim is termed 'change of trim'. This reflects the difference in draft between the bow and stern after a load change, a standard naval architecture concept. 'Change of draft' refers to draft variation, 'trim' is the current difference in draft, and 'final trim' is the trim after a change, none of which accurately describe the difference between initial and final trim conditions.

2. Forces within a vessel may cause a difference between the starboard and port drafts. What is this difference called?

- **List**
- Heel
- Flotation
- Trim

Note:

List is the sideways inclination of a vessel caused by internal weight distribution, resulting in unequal port and starboard drafts. Heel is a temporary inclination from external forces, trim is the difference between forward and aft drafts, and flotation relates to buoyancy, none of which describe the condition presented in the question.

3. The maximum draft to which a drilling unit may be safely loaded is called _____.

- deep draft
- calculated draft
- mean draft
- **load line draft**

Note:

The load line draft is the legally mandated maximum draft to which a drilling unit can be safely loaded, as defined by load line regulations.

4. Your vessel displaces 641 tons. The existing deck cargo has a center of gravity of 3.6 feet above the deck and weighs 36 tons. If you load 22 tons of ground tackle with an estimated center of gravity of 2.0 feet above the deck, what is the final height of the CG of the deck cargo?

- 2.33 feet
- 2.55 feet
- 2.77 feet
- **2.99 feet**

Note:

The final height of the deck cargo's center of gravity is calculated using a weighted average of the existing and added cargo, considering their weights and heights above the deck, resulting in 2.99 feet.

5. You have 10 containers of rig supplies each measuring 10'L by 6'B by 6'H and weighing 1.8 tons each. Each container is stowed on deck. What is the maximum VCG permitted of the remaining cargo if you are carrying rig water and load to maximum capacity

W. T. Door
W. T. DOOR
Lieutenant Commander
U.S. Coast Guard

- **0.94 foot**
- 1.36 feet
- 1.78 feet
- 1.96 feet

Note:

The maximum VCG for remaining cargo is 0.94 foot. Stability letter restrictions limit the combined deck cargo VCG to 2.0 feet above the main deck when carrying rig water. Calculating the combined VCG using the weights and individual VCGs of the containers and remaining cargo, the maximum permissible VCG for the remaining cargo is 0.94 foot to remain within the stability limits.

D037DC
Cont.

6. You have 12 containers of rig supplies each measuring 10'L by 4'B by 5'H and weighing 2.0 tons each. Each container is stowed on deck. What is the maximum VCG permitted of the remaining cargo if you are carrying rig water and load to maximum capacity

W. T. Door
W. T. DOOR
Lieutenant Commander
U.S. Coast Guard

- 0.5 foot
- **0.9 foot**
- 1.1 feet
- 1.6 feet

Note:

The stability letter limits the combined vertical center of gravity (VCG) of deck cargo to 2.0 feet when loaded with rig water. With 12 containers already stowed, the maximum allowable VCG for any remaining cargo is 0.9 feet to ensure the overall VCG remains within the stability limit.

D037DC
Cont.

7. You have 160 tons of below deck tonnage and 300 tons of above deck cargo on board. You must load 110 tons of liquid mud below deck. How much more deck cargo can you load

Attachment: LOADING DIAGRAM for the subject vessel bearing U.S. Coast
Guard approval stamp dated 8 April 1987

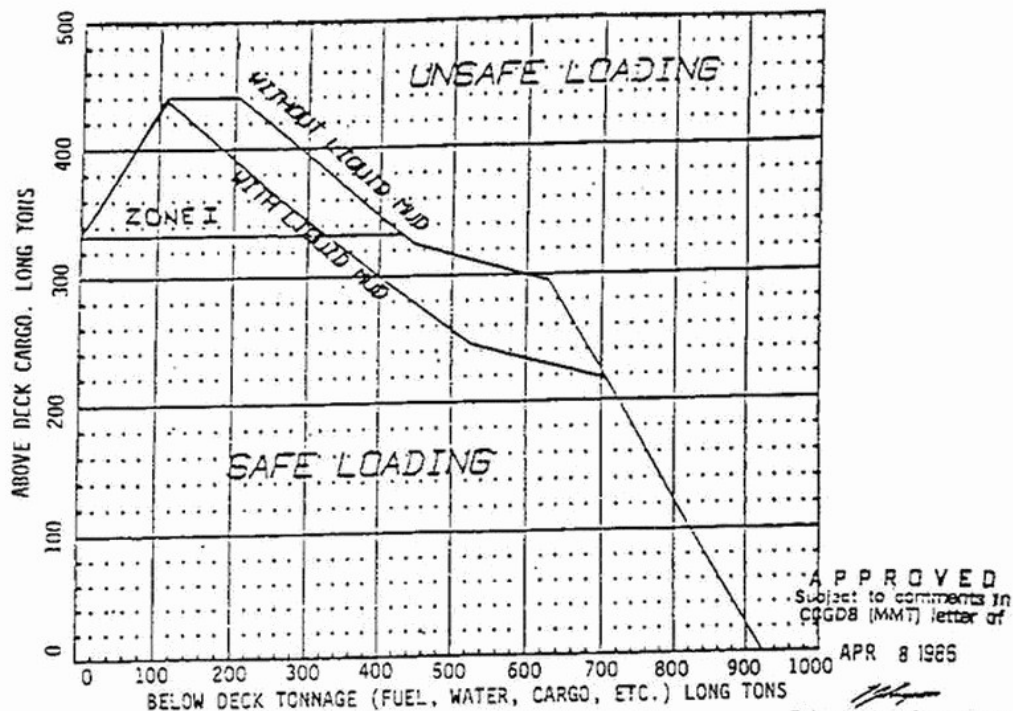
- 55 tons
- 99 tons
- 140 tons
- 360 tons

SEE NEXT PAGE FOR ATTACHMENT

Note:

The correct answer is 55 tons. Adding 110 tons of liquid mud results in 270 tons below deck, allowing a maximum of 355 tons on deck. Since 300 tons are already on deck, only 55 more tons can be loaded.

D036DG
Cont.



USCG STABILITY
LOADING INSTRUCTIONS

1. DRAW A VERTICAL LINE UP FROM 'BELOW DK' LOAD. DRAW HORIZONTAL LINE ACROSS FROM 'ABOVE DK' LOAD. IF THEY MEET BELOW THE CURVE THEN THE LOADING IS OK. IF THEY MEET ABOVE THE CURVE THEN YOU MUST CHANGE THE LOADING.
2. MAX. DECK CARGO VCG 3.00 FT ABOVE DECK.
3. WHEN OPERATING IN ZONE 1 (I.E. MORE THAN 334 LONG TONS OF DECK CARGO) THE FOREPEAK BALLAST TANK SHALL BE PRESSED FULL.

D036DG
Cont.

8. You have 180 tons of below deck tonnage including liquid mud. Your existing deck cargo is 300 tons with a VCG above the deck of 3.0 feet. What is the maximum additional cargo tonnage you are permitted to load

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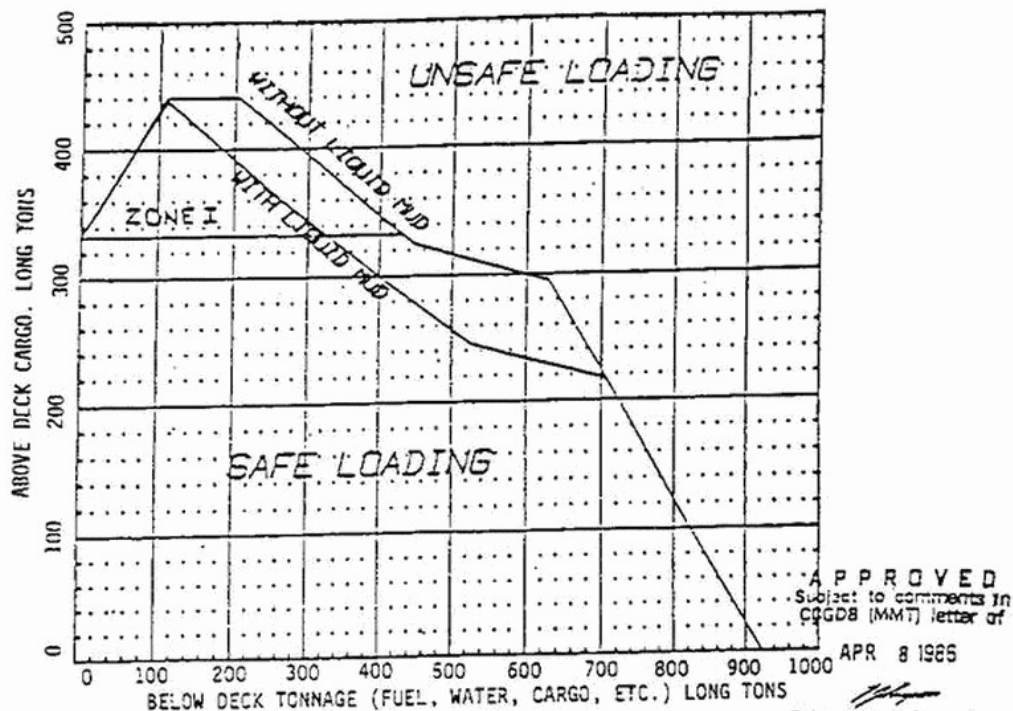
- 20 tons
- 60 tons
- 100 tons
- 400 tons

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Note:

The loading diagram permits a maximum of 400 tons of deck cargo with 180 tons below deck; therefore, the maximum additional cargo tonnage allowed is 100 tons (400 tons - 300 tons currently on deck).

D036DG
Cont.



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2. MAX. DECK CARGO VCG 3.00 FT ABOVE DECK.
3. WHEN OPERATING IN ZONE 1 (I.E. MORE THAN 334 LONG TONS OF DECK CARGO) THE FOREPEAK BALLAST TANK SHALL BE PRESSED FULL.

D036DG
Cont.

9. You have 200 tons of below deck tonnage. There is no liquid mud aboard. If you have 140 tons of cargo above deck with a VCG above the deck of 4.2 feet, what is the maximum allowed VCG of the remainder of the deck cargo that is permitted

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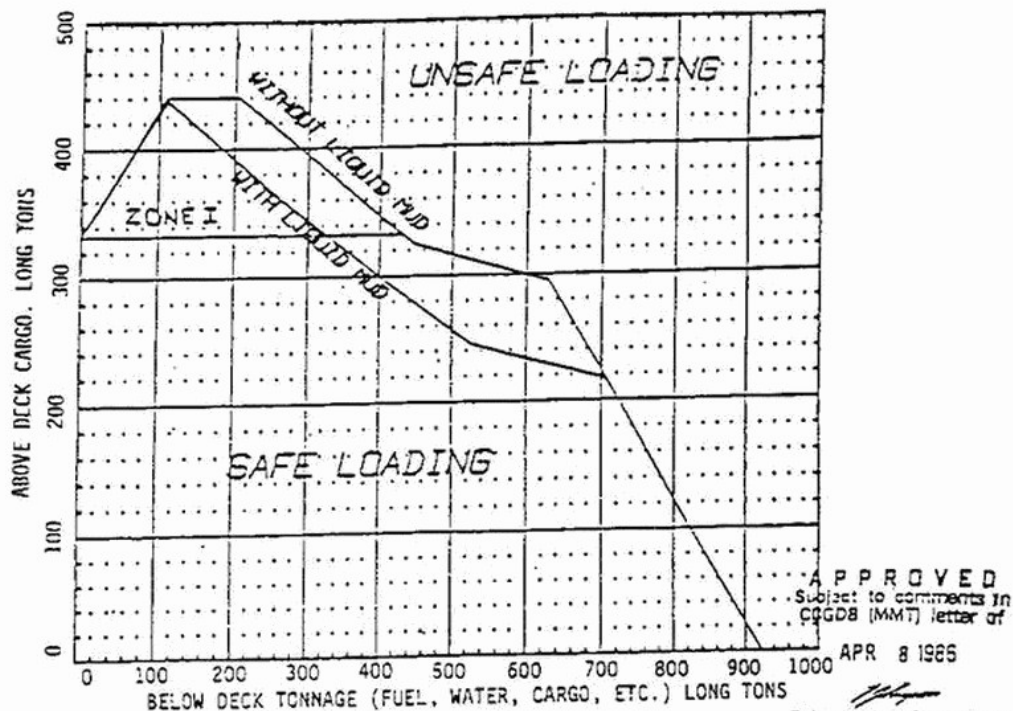
- 0.56 foot
- 0.87 foot
- 1.04 feet
- 2.44 feet

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Note:

The maximum VCG for the remaining deck cargo is 2.44 feet, calculated to ensure the combined VCG of all deck cargo does not exceed the 3.0-foot limit specified in the vessel's stability letter while remaining within the loading diagram's tonnage limits.

D036DG
Cont.



USCG STABILITY
LOADING INSTRUCTIONS

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2. MAX. DECK CARGO VCG 3.00 FT ABOVE DECK.
3. WHEN OPERATING IN ZONE 1 (I.E. MORE THAN 334 LONG TONS OF DECK CARGO) THE FOREPEAK BALLAST TANK SHALL BE PRESSED FULL.

D036DG
Cont.

10. You have 240 tons of below deck tonnage. There is no liquid mud aboard. If you have 360 tons of cargo above deck with a VCG above the deck of 2.9 feet, what is the maximum allowed VCG of the remainder of the deck cargo that is permitted

Attachment: LOADING DIAGRAM for the subject vessel bearing U.S. Coast
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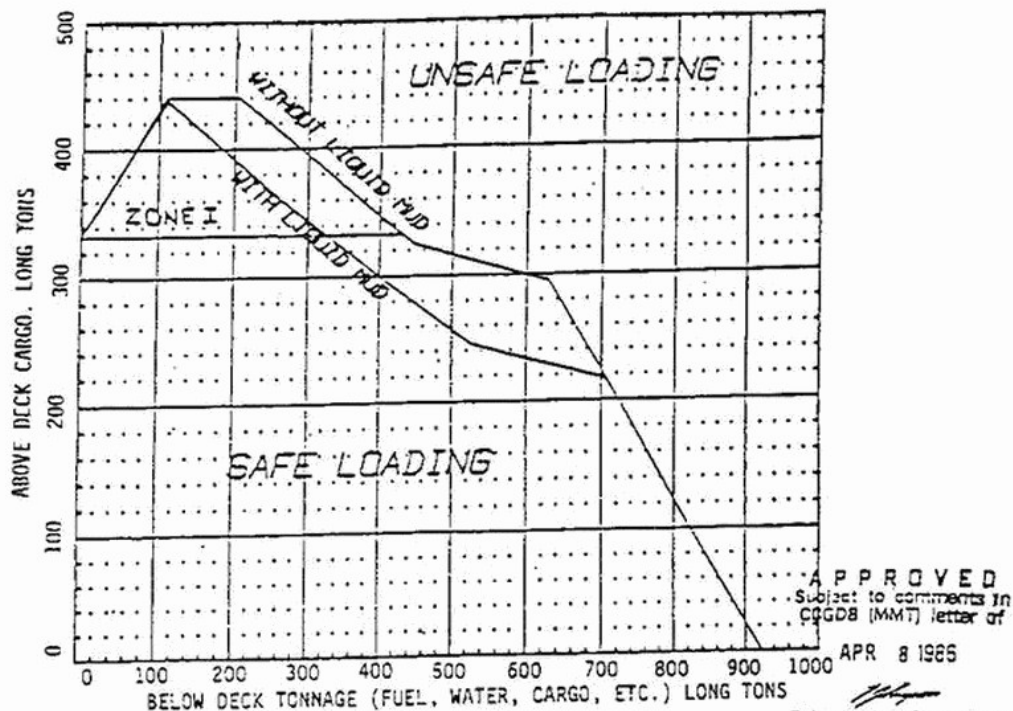
- 1.35 feet
- 1.86 feet
- 2.56 feet
- 3.60 feet

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Note:

The maximum allowable VCG of the remaining deck cargo is 3.60 feet. This is determined by ensuring the combined VCG of all deck cargo does not exceed the 3.0-foot limit specified in the loading diagram, calculated using the moment summation formula.

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Cont.



USCG STABILITY
LOADING INSTRUCTIONS

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2. MAX. DECK CARGO VCG 3.00 FT ABOVE DECK.
3. WHEN OPERATING IN ZONE 1 (I.E. MORE THAN 334 LONG TONS OF DECK CARGO) THE FOREPEAK BALLAST TANK SHALL BE PRESSED FULL.

D036DG
Cont.