

**Demo PDF file. This file includes questions: 10 from 224. 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**

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## **Q122 - Deck Safety: Stability Problems**

**1. Damage stability of a MODU is the stability \_\_\_\_\_.**

- **after flooding**
- which exists when the wind speed is less than 50 knots
- at survival draft
- before collision

Note:

*Damage stability refers to a vessel's stability following damage and flooding, not in intact conditions or under specific environmental factors.*

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**2. When flooding occurs in a damaged vessel, reserve buoyancy \_\_\_\_\_.**

- **decreases**
- remains the same
- increases
- shifts to the low side

Note:

*Flooding increases a vessel's displacement, raising the waterline and reducing the watertight volume above it, which directly decreases reserve buoyancy.*

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**3. With no environmental forces acting on the vessel, the center of gravity of an inclined vessel is vertically aligned with the \_\_\_\_\_.**

- metacenter
- center of flotation
- **original vertical centerline**
- longitudinal centerline

Note:

*With no external forces, the center of gravity remains vertically aligned with the original vertical centerline because it is fixed by the vessel's weight distribution and does not shift with heeling.*

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**4. During counterflooding to correct a severe list aggravated by an off-center load, your vessel suddenly takes a list to the opposite side. Which action should you take?**

- **Immediately stop counterflooding**
- Continue counterflooding, but in the opposite direction
- Continue counterflooding in the same direction
- Deballast from the low side

Note:

*A sudden list to the opposite side during counterflooding indicates overcorrection and instability; therefore, immediately stop counterflooding to stabilize the vessel and reassess the situation.*

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**5. If a MODU takes a sudden severe list or trim from an unknown cause, you should FIRST \_\_\_\_\_.**

- assume the shift is due to off-center loading
- **determine the cause before taking countermeasures**
- assume the cause is environmental forces
- counterflood on the side opposite the list or trim

Note:

*When a MODU experiences a sudden, severe list or trim of unknown cause, the initial action should be to determine the cause before taking any corrective measures to avoid potentially worsening the situation.*

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**6. What will cause the free surface effects of a partially full tank on a vessel in motion to increase?**

- The draft of the vessel
- **The surface area of the fluid in the tank**
- The height of the tank above the keel
- The displacement volume of the vessel

Note:

*The free surface effect, which reduces stability, increases with the surface area of the fluid in a partially full tank because a larger surface area allows for greater liquid shifting during vessel motion.*

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**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

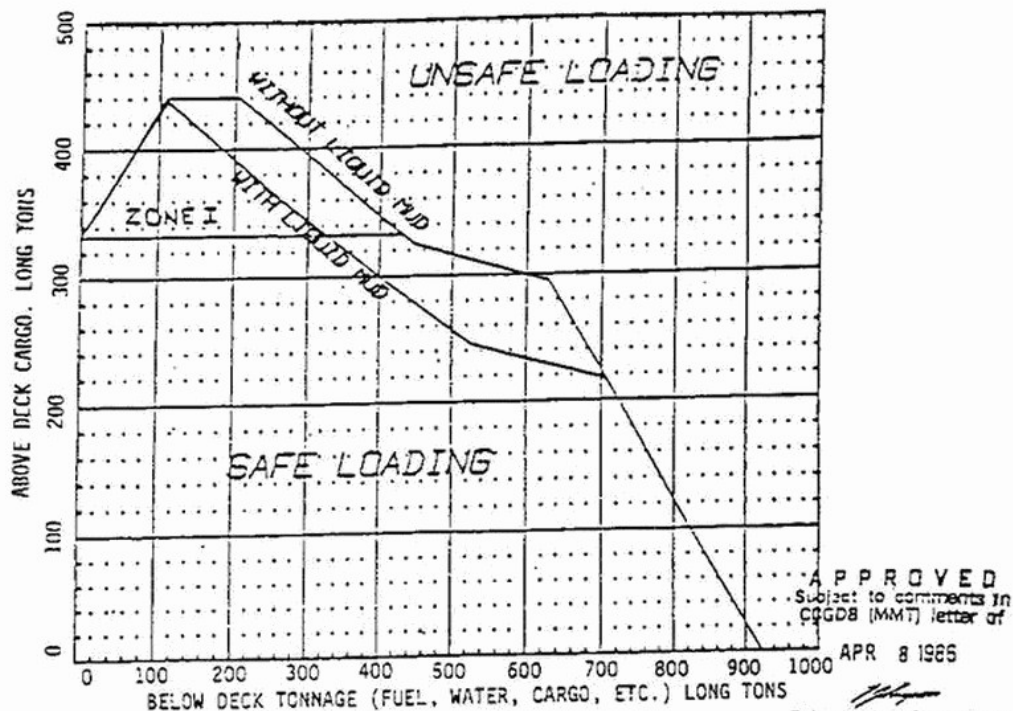
- 55 tons
- 99 tons
- 140 tons
- 360 tons

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.

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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



Attachment: LOADING DIAGRAM for the subject vessel bearing U.S. Coast  
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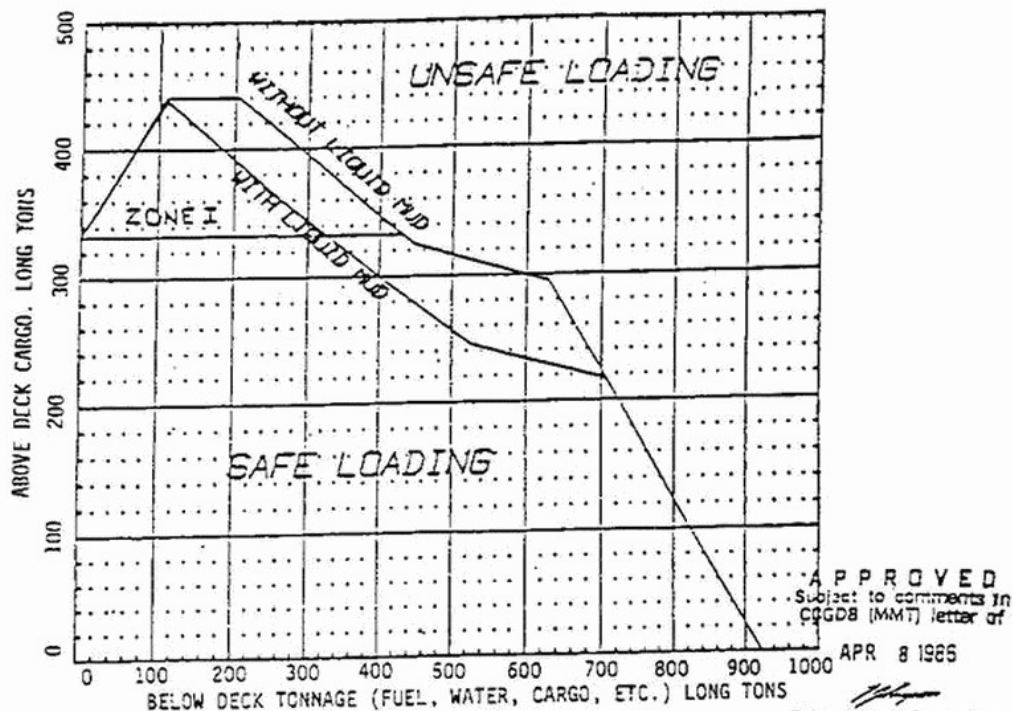
- 20 tons
- 60 tons
- 100 tons
- 400 tons

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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).

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Cont.



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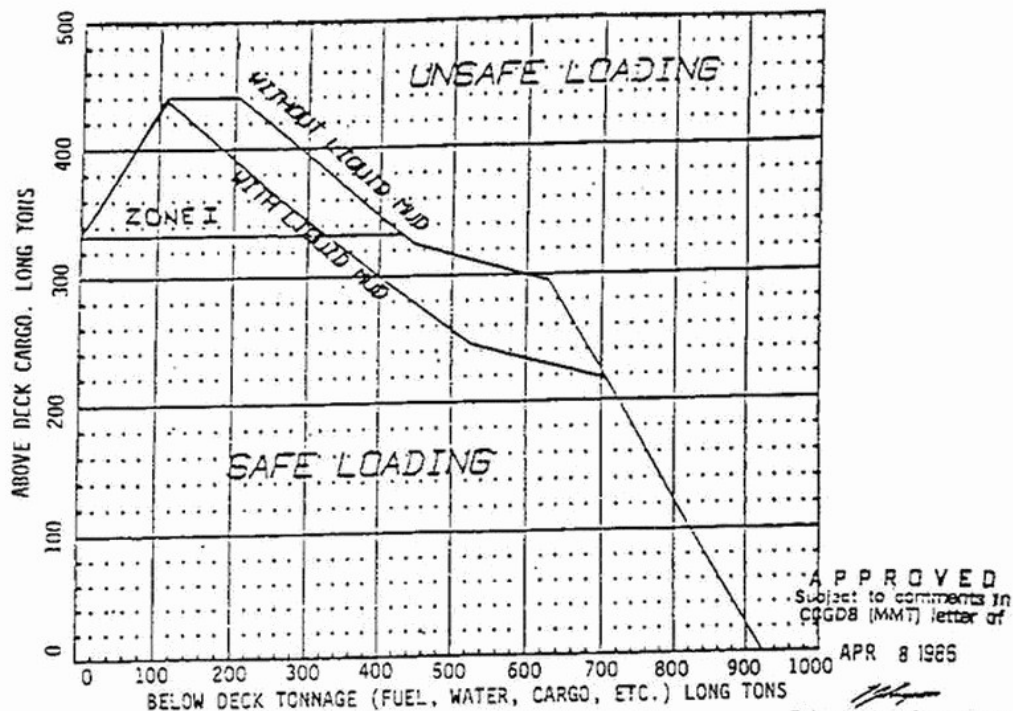
- 0.56 foot
- 0.87 foot
- 1.04 feet
- 2.44 feet

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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.



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LOADING INSTRUCTIONS

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D036DG  
Cont.

**10. You have 260 tons of below deck tonnage including liquid mud. Your existing deck cargo is 150 tons with a VCG above the deck of 2.2 feet. What is the maximum additional cargo tonnage you are permitted to load**



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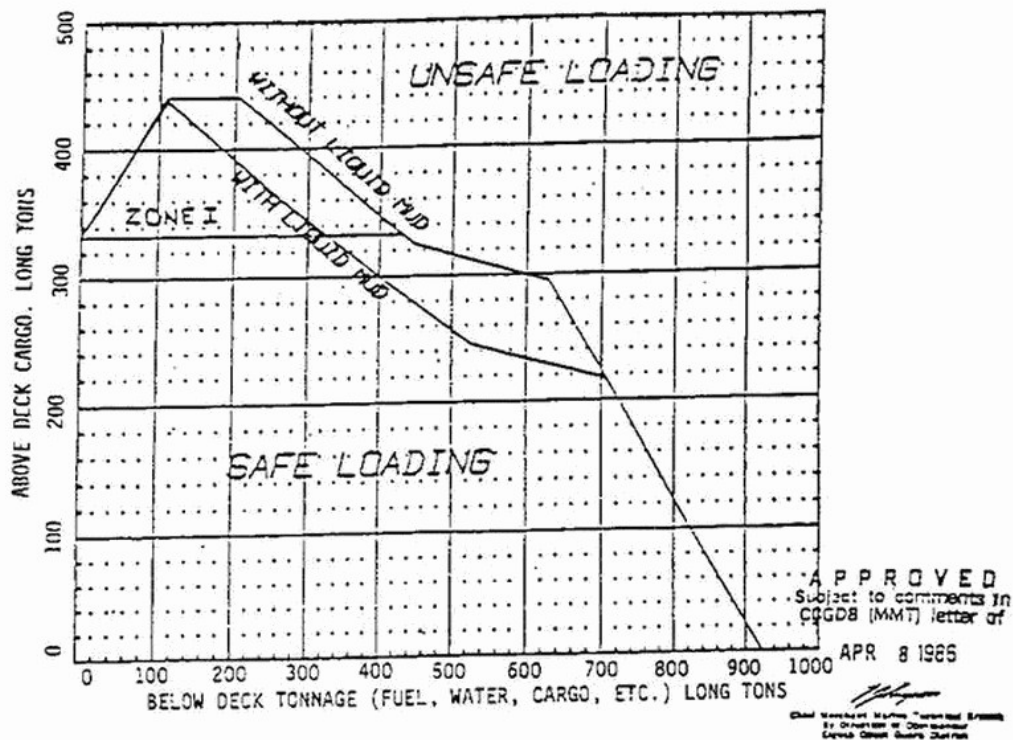
- 110 tons
- 140 tons
- 180 tons
- **210 tons**

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Note:

The loading diagram D036DG permits a maximum deck cargo of 360 tons with 260 tons of below-deck tonnage. Since 150 tons are already loaded, an additional 210 tons can be safely added.

D036DG  
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LOADING INSTRUCTIONS

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