

Cockpit? Well deck? Flush deck? Open boat? Which is your T-boat?

By LT Lincoln Stroh

Are you sure what hull type your T-boat is? You would have to know to take a simplified stability test. (See page 19.) The following should help you discern T-boat hull types and designs.

Definitions

Understanding the definitions of sheer line, bulwark, gunwale, freeing port and scupper is essential in differentiating hull types.

Sheer line - Generally, the line formed by the intersection of the main deck and the side is the sheer line. On cockpit and open boat designs, the sheer line typically continues along the gunwale. Similarly, on well deck and flush deck designs, the sheer line usually follows the deck.

Bulwark - The portion of the vessel's side above the sheer line is the bulwark. For example, a well deck vessel has bulwark around its periphery.

Gunwale - That portion of a vessel's side below the sheer line and above an exposed recessed deck is a gunwale.

Freeing port - A large opening in the bulwark at the deck edge for drainage of the weather deck area is a freeing port.

Scupper - A small drainage opening leading overboard is a scupper. Sometimes, the scupper opening is in the deck and drains the deck area through a pipe out the side shell. Scuppers are usually "non-return types" in that they allow self-bailing of a recess or cockpit and deter the water from returning.

Freeboard measuring

Understanding these definitions makes measuring freeboards for simplified stability tests easier. The information in 46 CFR part 171 and form CG-4006 is very explicit concerning

where to measure freeboards, provided you understand the terminology.

For both well deck and flush deck designs, the freeboard is measured to the weatherdeck. For cockpit and open boat designs, the freeboard is measured to the gunwale. In all T-boat designs, the maximum freeboard attainable is the sheer line's height above the waterline. Bulwark height should never be given credit when measuring freeboards for simplified stability tests.

The following examples distinguish between the bulwark and the gunwale, indicating where the freeboard should be measured.

On a cockpit vessel with bulwark in front of the recess, the freeboard is measured to the lowest freeing port at gunwale height.

On a well deck vessel modified with a step, which gives the appearance of a cockpit design, the new freeboard is measured to the lowest freeing port at "modified gunwale" height. The addition of the step in this design creates a very shallow cockpit. The increase in freeboard from the original well deck to the new cockpit design is only the step height. From a simplified stability test point-of-view, the new cockpit vessel will probably have a lower allowable immersion mark than the original well deck design.

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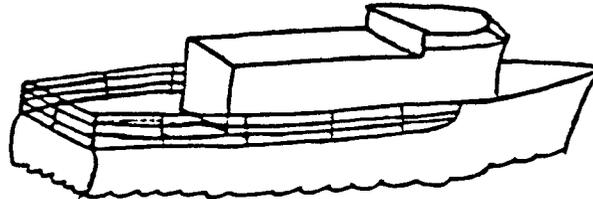
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Editor's note: This article highlights many areas that can cause confusion when applying stability regulations. Small passenger vessel builders and owners should contact their local Coast Guard marine safety office early in the design process to resolve any uncertainty. Coast Guard headquarters is preparing guidelines on determining flush decks, well decks and cockpit vessels to help clarify these issues.

Understanding T-boat terms and structure makes the simplified stability test extremely fair.

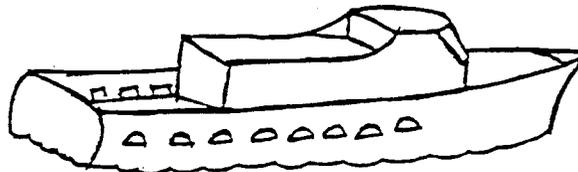
T-Boat designs

Differentiating between T-boat designs and the intent of the regulations regarding drainage is also critical in discerning T-boat types. The intent of the regulations varies with each design.



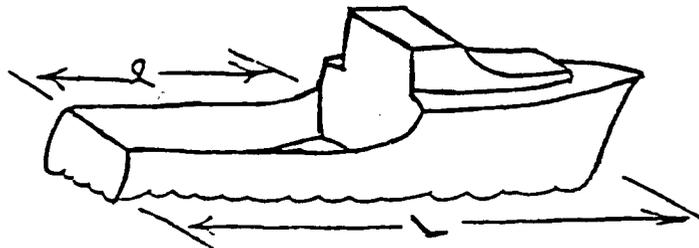
Flush deck

The hull and weather deck form a continuous watertight envelope. Railings are installed around the periphery of the weather deck with little or no bulwark forward. The weather deck is flush with the sides. Additional drainage is not required. Water on deck quickly drains over the flush side.



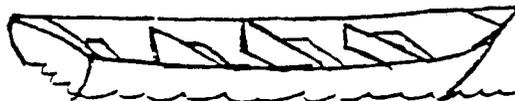
Well deck

This design is similar to a flush deck, except that bulwark is used in place of railing around the periphery of the vessel. The bulwark forms a "well" around the vessel, which restricts spray and waves from getting on deck. If water gets on deck, the well has freeing ports to rapidly clear and drain it.



Cockpit

Unlike well and flush decks, the cockpit design has an exposed recess in the main deck, usually located aft. Scuppers drain the cockpit. Designed to prevent water from entering the cockpit, scuppers maintain the hull's watertight integrity. The regulations originally intended that cockpit vessels have little or no bulwark forward so that the foredeck and midship areas would drain overboard, separately from the cockpit area. However, many of today's cockpits incorporate bulwark forward, midship and aft. Cockpit scupper sizes do not account for bulwark, which may channel water from the foredeck and midship areas back into the cockpit. Thus, additional drainage may be needed to ensure that entrapped water forward rapidly drains overboard, not back into the recess or cockpit.



Open boat

This design is open to the weather with little, if any, deck or superstructure to drain water overboard. The upper edge of an open boat's side is the gunwale. Drainage is to the bilge. Vessels with gunwales are intended to have high freeboards to minimize the amount of seawater coming in.