

New Marine Aircraft Need a New Amphibious Ship
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To
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The Marine Corps has carefully plotted the future of its air combat element (ACE). This path began with a need to replace an aging fleet of aircraft and ended with the development of the most capable and advanced aircraft the Marine Corps has seen. The MV-22 Osprey and Short Take-Off Vertical Land (STOVL) Joint Strike Fighter (JSF) will carry Marine Corps aviation well into the twenty-first century. Although these platforms will provide the Marine Corps with additional capabilities, the larger aircraft size will be a limiting factor when operating aboard current amphibious ships. The current amphibious ships, the LHA¹ and LHD², are not properly suited to support Osprey and JSF operations. In order to address this situation, a modified version of the LHD is set to replace the aging LHAs. However, the Dual Tram Line (DTL) ship design is the only ship design suitable to replace the LHA because it is the only ship that meets all Marine Corp's space and flexibility requirements for future operations at sea.

¹ LHA: A Tarawa class ship designed to operate independently or as a unit of a force. As a flagship or individual ship unit in both air and/or surface assaults, these ships are key elements of the amphibious assault forces for the Navy. Five commissioned from 1976-1980. URL:< <http://www.fas.org/man/dod-101/sys/ship/lha-1.htm>>

² LHD: A Wasp-class ship, the largest amphibious ship in the world. The LHD is an improved follow-on to the five Tarawa-class LHAs, sharing the basic hull and engineering plant. The LHD has an enhanced well deck, enabling it to carry three LCACs (vice one LCAC in the LHAs). The flight deck and elevator scheme is also improved, which allows the ship to carry two more helicopters than its predecessor, the LHA. URL:< <http://www.fas.org/man/dod-101/sys/ship/lhd-1.htm>>

Background

The Marine Corps has invested over two decades in its quest to replace legacy aircraft with its vision for the future. It has also closely evaluated the shipboard requirements these platforms require to operate properly. According to the Program Executive Office Ships, the Marine Corps has set forth the following future requirements:

- the ability to conduct concurrent fixed and rotary wing operations
- space to accommodate ten JSF
- thirty-thousand square feet for vehicle storage
- improved command and control capabilities³

These requirements may seem ambitious, but these are the new minimums that will enable the ACE to execute its mission properly while at sea and provide the most flexibility for future growth.

In November of 2000, the LHA Replacement (LHA(R)) Program was created and began to explore ways to meet the future requirements of amphibious "big deck" ships. Three solutions were presented to replace the older LHAs. Option one was to build modified versions of the LHD without structural changes to

³ Program Executive Office Ships, Marine Corps Advisor, PEO Ships, Col Gary Warner

the hull. Option two was a modified version of the LHD with structural changes that lengthened and widened the hull. And option three was to design a completely new ship from the keel up. This design, the Dual Tram Line, would result in a larger ship with two tram lines on the flight deck.

However, the Department of Defense has many large projects competing for funding, a result of equipment upgrade/replacement needs coming due within a short span of years, including the largest Department of Defense project in history, the JSF. Consequently, during design selection negotiations between the Navy and Marine Corps, a modification to option number one developed due to the expense of other design options. It was named the LHA(R) Flight Zero and saves up to a third of the cost of a DTL.

This concept utilizes the existing hull of the latest LHD-8 with internal modifications. For example, a decision was made to eliminate the well deck.⁴ This decision was enormous for the Marine Corps, resulting in an aviation-specific amphibious assault ship built to support the JSF and Osprey. The re-design

⁴ Well deck: A large, garage-like space in the stern of the ship. It can be flooded with water so that landing craft can leave or return to the ship. Access to the well deck is protected by a large stern gate that is somewhat like a garage door.; CRS Report for Congress, Navy-Marine Corps Amphibious and Maritime Prepositioning Ship Programs: Background and Oversight Issues for Congress, URL: <<http://www.fas.org/man/crs/RL32513.pdf>>, accessed 17 December 2007

of the well deck provides additional space for aviation maintenance shops, aircraft parts storage, and a 42% increase in hangar deck space. Ballast tanks previously used to control well deck operations will be converted for fuel storage. These modifications will enable the LHA(R) Flight Zero to support JSF and Osprey maintenance functions due to a larger hangar deck; however, space on the flight deck will remain the same. The re-design mirrors current aircraft embarkation capabilities.

In 2005, the contract for the production of the first Flight Zero ship was awarded to Northrop Grumman Ship Systems (NGSS) in Pascagoula, Mississippi. At a cost of \$2.8 Billion, the first of four Flight Zero ships will be LHA-6, scheduled for delivery in 2012. Two LHA(R) Flight Zeros are intended to replace LHAs and two will join the Maritime Pre-Positioning Force.

The Flight Zero

Unfortunately, the LHA(R) Flight Zero amphibious assault ship is a poor compromise to support Osprey and JSF operations. With the acquisition of new, larger, more capable aircraft, the Marine Corps needs a new, larger, more capable ship from which to operate them.

Room for Growth

The future demands of an amphibious assault ship will overwhelm the LHA(R) Flight Zero. The Marine Corps estimates

ground equipment weight to increase by 16.5% and aviation equipment weight to increase by 40%. The Marine Corps desires the future ACE to include twelve Osprey, eight skids, four CH-53Es, and ten JSF, but the Flight Zero can only support up to six JSF on a MEU. Just six JSF will weight ninety-four tons more than the six Harriers they will replace. Also, the Navy would like to add an additional two CH-60s, bringing the total number of aircraft aboard to thirty-eight. Current amphibious assault ships support up to thirty-one aircraft.

The LHA(R) Flight Zero will carry no more aircraft and have 11,760 square feet of the vehicle storage, half of a current LHD. Although more hangar space has been made available by removing the well deck, the aircraft dimensions are larger than the aircraft they are replacing. Therefore, fewer aircraft will be available on the flight deck. This will decrease space available on the hangar deck for maintenance functions and limit the flexibility to launch various flight packages during missions. Room for flexibility and growth are essential to future mission success.

Moreover, the single tram design of the LHA(R) does not allow concurrent fixed-wing and rotary-wing operations. Operating larger aircraft from a legacy sized flight deck will further reduce operational tempo and sortie generation rates of all aircraft on board.

Amphibious ships have always been intended to transport Marines and equipment into harms way, and offload them in a manner that quickly masses combat power ashore. Without the ability to do this, (retired) Marine Maj. Gen. William Whitlow, a former Director of Naval Expeditionary Warfare, states, "We are relegated to a long, protracted, attrition type of conflict."⁵ With the growth of equipment in the Marine Corps, future combat effectiveness will be constrained by an ability to get to the fight.

The Dual Tram Line

The LHA(R) Flight Zero should only be utilized to bridge the gap between the LHDs and DTLs. The future of Marine expeditionary operations requires the capabilities and flexibility offered by a DTL ship. Whitlow also states that "an aviation-only capable ship would be very short sighted...and that any future ship should be built from the keel up to be able to adapt to a myriad of [SIC] capabilities."⁶ And insiders agree, "The first LHA(R) could just be an intermediate step towards a new class of ships."⁷ The DTL is the only amphibious ship design proposed that meets every requirement put forth by

⁵ National Defense Magazine, Roxana Tiron, August 2004, Navy downsizing Could Weaken Marine Corps Expeditionary Posture

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the Marine Corps. The DTL must be designated as the only possible ship design considered for replacing further LHAs.

Room for Growth

The DTL would displace approximately 68,000 tons compared with 42,000 tons of the LHD-8 and 97,000 tons of a modern nuclear aircraft carrier. It would have two flight decks (tram lines), one for rotary-wing and tilt rotor operations and one for fixed-wing operations. The flight deck would measure 220 feet wide and 960 feet long. A small ramp would be built on the front of the fixed-wing tram line to reduce take-off roll, and the super structure would be placed center mid-ship between the flight decks. There would be enough room for twenty-three JSF, or twenty-eight Osprey, or a mix. The DTL could easily support the proposed increase number of aircraft on a future ACE, and carry 1 million gallons of aviation fuel. It could accommodate 1,830 Marines, and possess 28,600 square feet of vehicle storage. Additional ship space would accommodate an improved command and control system and an aircraft carrier-like ordnance magazine, rated to 1000 ton protection, greatly improving survivability. The DTL expected service life is 40 years, twice as long as the original LHA. This is the amphibious assault ship that can take the Marine Corps and Navy into the twenty-first century.

	LHA	LHD	Flt Zero	DTL
Cargo (K sqft)	25.4	20.9	11.6	28.6
Well Deck Spots (LCAC)	1	3	0	3
Troops	1,713	1,686	1,686	1,830
JP-5 (K Gal)	400	617	1,300	1,000
Flight Deck Width (ft)	116	118	118	220
Overall Length (ft)	820	847	847	960
Cost (Billions USD)	.133	1.4	2.8	4

Counterarguments

It is difficult to argue that DTL is not a superior ship to the Flight Zero ship. Therefore, opposition mainly resides within the context of funding priorities, political protocol, and the contractual process with the ship building industry. Due to sensitivity around these issues, little official documentation exists. However, casual conversations with those close to naval ship building admit these issues are significant.

Funding priorities are weighted toward the aircraft carrier portion of the Navy. The aircraft carrier community sees a larger deck amphibious ship as a threat to the relevance and necessity of their future. The successful demonstration of a DTL ship might prove to be a more economically efficient way to transport aircraft than an aircraft carrier. And ship builders are reliant on scheduled and timely contracts through annual Congressional budgets. When the time comes to set these contracts, the Navy can only buy with the dollars available to that project at that time. At the time this ship contract was

due, \$3 billion was the budget. This curiously fell short of funding required for any new amphibious ship designs.

In the opinion of this author, these arguments are unfortunate excuses. We must not let emotions surrounding these issues control the decisions made about the future of our Navy and Marine Corps. We can not have "that's the way we've always done it" attitudes influencing funding priorities. Leaders must properly apportion more funding toward amphibious ship building based on documents like *A Cooperative Strategy for the Twenty-First Century Sea Power*, which out-line the importance of forward presence to ensure peace in the world's littoral regions. Contrary to current ship funding priorities, forward presence would be accomplished best with many smaller amphibious ships, not fewer carrier-sized ships.

Conclusion

The Flight Zero ship must be seen only as a transitional step to future amphibious assault sea lift requirements. The Marine ACE will require a new, larger amphibious ship in order to maximize operational tempo of new aircraft, enhance the scalability and flexibility of the ACE, and ultimately provide the MAGTF commander with the ability to mass combat power ashore. The requirements that the Marine Corps has laid out for future amphibious assault ships are vital for the most effective employment of the JSF and Osprey at sea. The new replacement

ship for LHAs should be a completely new design with the capability to meet all future Marine Corps requirements. The DTL is the only ship design proposed that would accomplish this. While political and contractual issues must be considered, informed sources indicate \$10 billion would make the Dual Tram Line ship reality!

2027 words

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