



The modern liftboat could be a jackup

Liftboats started as a concept in South Louisiana with the first-known liftboats conceived in Braithwaite. The technology was developed locally and has continued to improve. A liftboat is a self-elevating, self-propelled vessel equipped with at least one crane and with open deck space that can be used for multiple purposes.

That there is only a local understanding of these vessels cannot be more evident than by the fact that only one major class society, American Bureau of Shipping, has rules specifically written for liftboats. The *ABS Guide*

for Building and Classing Liftboats came out in the 1990s, and the most recent update was published in March 2013.

Until recently, there has not been a high-degree of global recognition for liftboats. Whatever recognition there has been outside the US for liftboats has been as small jackups. In Europe and Southeast Asia, where these vessels have found a home, the designs are influenced by jackups.



The SUDA 320-L3 liftboat

Larger liftboats may look like jackups, but they are not jackups and the design philosophy should reflect that. A jackup-influenced liftboat design leads to inefficiencies. For example, some 320ft leg liftboats have leg walls up to 2.5-in. thick. Liftboat

The newly designed SUDA 450-L3T liftboat has 450-ft legs.

designer A.K. Suda, Inc.'s model 320-L3 liftboat has 1.5-in. maximum leg-wall thickness and has a higher VDL and environmental criteria than the 2.5-in. leg-wall vessels.

VDL means Variable Dead Load. It is the sum of weights of liquids (consumables, not ballast) and deck cargo. Environmental criteria consist of Wind, Wave Height and Period, and Current. All these produce a load on the structure. A higher Environmental Criteria set is a combination of these items that produces a higher load on the structure.

There is also the problem of the jacking system. A liftboat requires, in some ways, a more complex and robust jacking system. Suda found that it is no more expensive than one used in the traditional jackups.

ABS' liftboat guide notwithstanding, there is still a significant degree of confusion and incongruity between ABS and USCG rules. This leads to an unnecessarily high margin of safety not evident in other craft because the US Coast Guard does not recognize the ABS Guide. Instead, the USCG utilizes a combination of ABS Mobile Offshore Drilling Unit (MODU) rules and its own Offshore Support Vessel (OSV) supplemental rules (most recently updated January 2013). This sometimes results in more stringent requirements than those for full-fledged MODUs.

Liftboats are typically limited to locations within 12 hours travel to an area of safe refuge, unlike MODUs that should need, if anything, a higher margin of safety.



Scheduled for delivery in 3Q 2013, SUDA 300-L3 features the shortest towers of any vessel in its class and can serve as an accommodation vessel.
(Image: A.K. Suda, Inc.)

These limitations sometimes result in owners changing the flag of vessels operating outside US waters. This is not an easy decision. A liftboat that changes flag can never work

in US waters again, barring some very remote possibilities.

New designs

Suda recently completed the design of a 320-ft-leg vessel (model SP 320-L3). There has been a liftboat with longer legs, but the usable leg on the SP 320-L3 model and craneage make it the "world's largest liftboat."

The company is currently designing a 450-ft-leg SEU (SUDA 450-L3T). Two of these vessels, the largest of their kind, are under construction by EMAS in Singapore. These vessels have a large deck area and can carry up to 250 passengers. They are suitable for operation in the North Sea and will carry Wind Farm Installation Maintenance and Repair Certification.

This liftboat (called so because it is self-propelled) is also a new generation jackup. It incorporates a new-generation jacking system design concept. The compact, high-capacity accommodation meets what

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more owners want – a self-elevating unit that can do everything. It can work in the wind farm area with its liftboat-type jacking system. It can also be fitted with a drilling package to work in the oil and gas industry.

Also under construction are four 335-ft-leg liftboats (SUDA 335-L3), each with 160-passenger capacity and large deck area and variable deck load. Each vessel includes a custom jacking system based on the one developed for the SUDA 300-L3 currently under construction in Houma, Louisiana.

The SUDA 300-L3 is scheduled for delivery in 3Q 2013. This design features a hull depth of 13ft, no more than what is absolutely necessary to provide a strong, stable, and efficient working platform. The saving in hull weight benefits the leg and jacking system design, which in turn, improves variable load carrying capacity. The leg design has a lower weight per foot, based on comparable designs in the indus-

try, while still meeting or exceeding all design factors of safety based on class and other standards. This vessel may have the largest dead-weight tonnage/displacement ratio (a measure of merit in ROI) of its type. DWT is the *displacement* at any loaded condition minus the lightship weight.

The SUDA 300-L3, like the SUDA 335-L3, also features the shortest towers of any vessel in its class, worldwide. SUDA assisted the jacking system vendor in developing this efficient jacking system design for this unique application. This liftboat will carry a very high variable load and will also have the longest usable leg length for a vessel in its class.

Suda designs typically incorporate capabilities for multiple uses. Thus, the SUDA 300-L3 can work as an accommodation vessel, for oil production operations such as coiled tubing operations, cantilever, skid mounting, as well as for wind turbine installation, maintenance, and repair.

The vessel can carry the components for an entire wind turbine in a single trip. It will be the “smallest” vessel to receive the ABS Wind IMR certification.

In the same lineage is the SUDA 260-L3, currently owned by Hercules and operating in the Middle East. This vessel has a deck load capacity over 915-ton, and a depth of only 11ft. A similar vessel in this series is operating in West Africa.



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