

Chapter 3. Boats And Motors

RECONNAISSANCE AND ASSAULT BOATS

Three-Man Reconnaissance Boat

The three-man reconnaissance boat is designed to carry a three-man crew, together with individual equipment, on reconnaissance missions. The boat is fabricated of neoprene-coated nylon cloth and consists primarily of a main flotation tube, divided into four separate compartments, and a single layer floor which forms a separate air chamber. The boat is equipped with two oarlocks, three paddles, a 600-pound capacity towing rope, repair kit, hand pump, backpack, and a rope lifeline running around its perimeter.

Mission

The types of missions which can be accomplished with the three-man reconnaissance boat include measurement of stream width and depth, determination of river bottom conditions, and inspection of bank conditions to determine suitable crossing sites. The boat may also be used for general utility work in bridge construction and for infiltration of small groups of personnel into enemy territory.

Crossing capability

The three-man reconnaissance boat is designed to operate in rivers with currents not exceeding 4 FPS. The boat can carry three personnel (with equipment) or a total of 675 pounds.

Inflation

The boat is inflated by using the hand pump and adapter, provided in the boat's carrying case. The boat should be inflated to approximately 2 pounds per square inch (psi). There are five inflation valves, each inflating a separate compartment on the boat. Inflation time is approximately 5 minutes.

Propulsion

The boat is hand paddled and there are no provisions for the attachment of an outboard motor. One-person operation of the boat is

made possible by means of the two oarlocks attached to the flotation tube. When the boat is operated by one individual, the maximum speed through still water is approximately 4 FPS. When the boat is fully loaded with two people paddling and one person tilling (steering), the boat's maximum speed is approximately 3.5 FPS in still water.

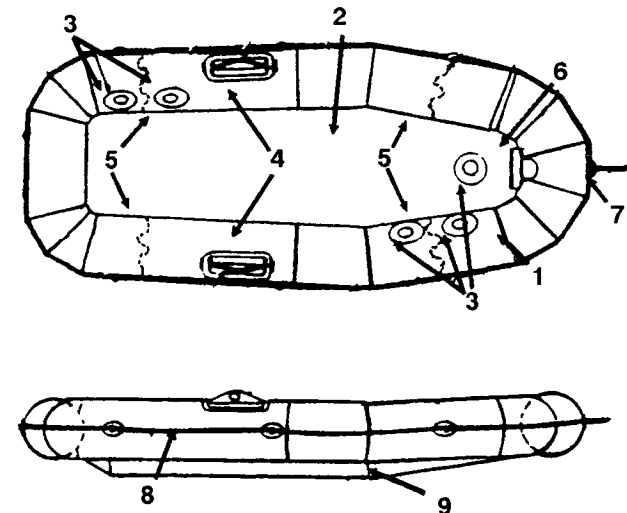
Transportation

The boat is normally carried in its backpack by one person.

Dimensions	
Length	9 ft
Width	4 ft
Depth	14 in
Weight	37 lb
Rolled dimensions	16 x 24 in

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|--------------------|--------------|
| 1 Flotation tube | 6 Repair kit |
| 2 Inflatable floor | 7 Tow rope |
| 3 Inflation valves | 8 Lifeline |
| 4 Oarlocks | 9 Skeg |
| 5 Bulkheads | |

Three-man reconnaissance boat



Seven-Man C02 Inflatable Landing Boat

The seven-man landing boat is designed to carry seven people in an assault across a water obstacle. The boat is constructed of neoprene-coated nylon cloth and can be inflated using the C02 cylinder provided, or by use of a foot or hand operated pump (also provided with the boat). In addition to the C02 cylinders and pumps, the boat comes equipped with a carrying case, six paddles, an anchor, an emergency repair kit, and a motor mount. An outboard motor is NOT automatically provided with the boat.

Mission

The primary purpose of the seven-man landing boat is to carry assault troops and equipment across rivers or other bodies of water. The boat can be used in general bridge construction or in the reconnaissance of rivers prior to crossing operations.

Crossing capability

When paddled by hand, the boat can carry up to seven people or approximately 1,575 pounds in a river current not exceeding 5 FPS. When outboard motors are used, this same load can be carried in currents up to 10 FPS.

Inflation

The seven-man landing boat is inflated instantly by pulling the cord attached to the C02 cylinder. If additional pressure is needed, the small hand or foot pump can be used to apply air to the uninflated section(s).

Fifteen-Man Inflatable Assault Boat

The fifteen-man inflatable assault boat, also known as the pneumatic assault boat, is fabri-

cated from neoprene-coated nylon fabric. It is divided into 10 separate air compartments. The main flotation tube, itself, is divided into six separate compartments, any three of which can be punctured and still enable the boat to carry a full load. This assault boat comes equipped with 11 paddles, 3 pumps, a repair kit, towing bridle, lifeline, transom for mounting a 25-or 40-horsepower outboard motor, and carrying case. An outboard motor is NOT automatically provided with the boat.

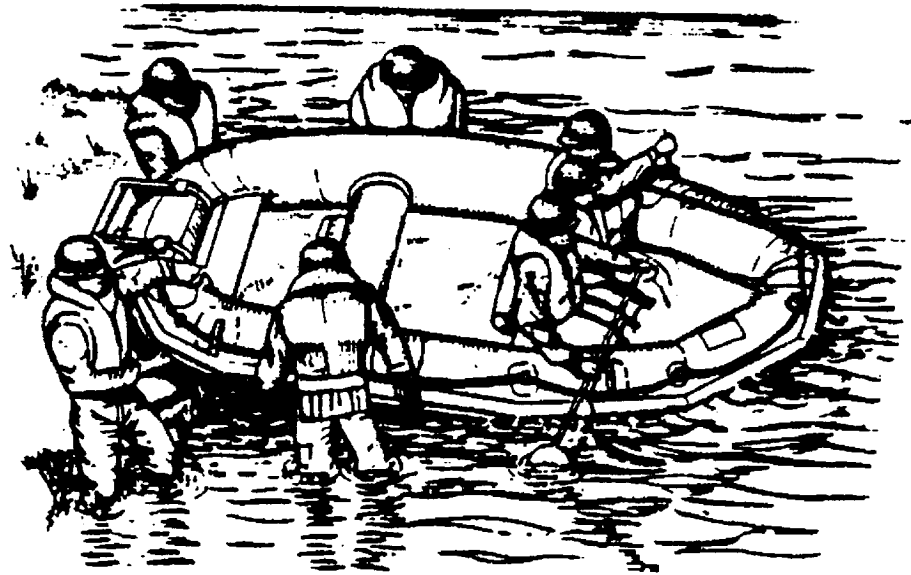
Mission

The primary mission of the fifteen-man assault boat is to carry assault troops across rivers or other bodies of water. This boat can also be used for reconnaissance missions such as for the inspection of river bottoms or bank conditions prior to river crossing operations.

Crossing capabilities

This pneumatic assault boat is designed to carry 15 combat equipped soldiers or approximately 3,375 pounds of equipment. When the boat is paddled by hand, the crew will

Dimensions	
Length	12 ft
Width	6 ft
Rolled dimensions	61 x 16.5 x 24 in



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normally consist of 3 engineers and 12 infantrymen. The boat will handle this load in currents not exceeding 5 FPS. When a 25- or 40-horsepower outboard motor is used for propul-

sion, the crew will normally consist of 2 engineers with a full complement of infantrymen. When under the power of outboard motors, the

fifteen-man assault boat can negotiate currents not exceeding 10 FPS.

Inflation

The fifteen-man assault boat can be inflated using the pumps provided with the boat in 5 to 10 minutes.

Propulsion

The fifteen-man inflatable assault boat can be paddled or propelled by outboard motors. Although the motor mount for the outboard motor is provided with the boat, the outboard motor is NOT automatically provided with the assault boat.

Table 5. Allocation of reconnaissance and assault boats

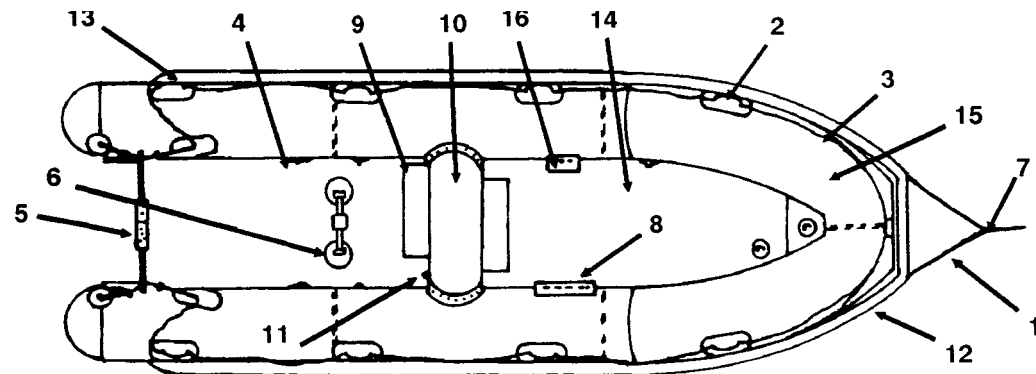
	Corps Assault Float Bridge Co			Bridge Co Div Engr Bn		Engr Co Separate Bde	
	05078- H200	05079- J200	05493- L100	05145- 210	05145- J420	05107- J200 (Infantry Bde)	051275- J400 (Heavy Bde)
3-man reconnaissance boat	10	2	18	18	18	6	3
15-man pneumatic assault boat	70	1	27	24	27	9	0
7-man assault boat	0	0	0	0	0	0	9

Fifteen-man assault boat

Dimensions

Length	17 ft
Width	5 ft 8 in
Depth	34 in (at the bow)
Weight	250 lb
Inflation	
Floor mattresses	7 psi
All compartments	3 psi

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|-----------------------|--------------------------|
| 1 Tow bridle | 6 Fuel tank holder |
| 2 Carrying handles | 7 Floor inflation valves |
| 3 Lifeline | 8 Hand pump |
| 4 Main flotation tube | 9 Foot pumps |
| 5 Transom | 10 Thwart tube |



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|------------------------------------|------------------------|
| 11 Thwart tube inflation valve | 14 Inflatable floor |
| 12 Spray rail tube | 15 Main flotation tube |
| 13 Spray rail tube inflation valve | 16 Repair kit |

Transportation

The fifteen-man assault boat is normally transported on standard military cargo trucks. One 2 1/2-ton truck can carry 20 deflated assault boats.

Allocation of Reconnaissance Assault Boats

Reconnaissance and assault boats are provided to engineer units as shown in Table 5.

BRIDGE ERECTION BOATS

Bridge Erection Boat, Twin Jet, Aluminum Hull (USCSBMK-1) (BEB-SD)

The BEB USCSBMK-1 was originally purchased from Fairey Allday Marine Limited, United Kingdom, and is now the standard US BEB. This boat is also commonly referred to as

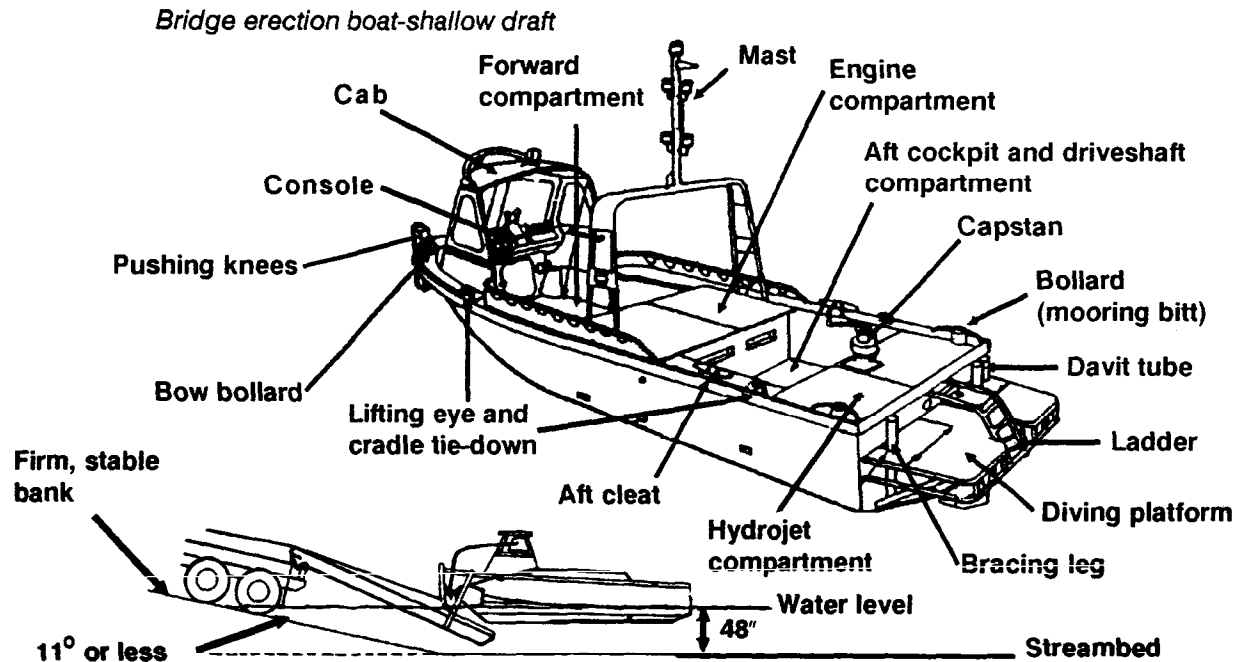
the "bridge erection boat, shallow draft" or BEB-SD. The primary purpose of the BEB-SD is to support the construction of floating bridges, as well as the construction and propulsion of military floating rafts. The boat may also be used as a general work boat in support of diving operations and maritime projects, for inland water patrols, and as a safety boat for river crossing operations. The BEB-SD can be used as an assault boat in circumstances where the need to quickly cross the assault forces outweighs the possibility that the boat will be damaged or destroyed. In making this decision, the commander must realize that the loss of even a few BEBs can seriously jeopardize the success of rafting operations. For additional in-

formation, consult TM 5-1940-277-10. A newer version of the BEB-SD, the USCSBMK-2, is currently being provided to float bridge companies. Modifications on this boat include the provision of an internal cooling system, reinforced pushing knees, as well as other minor changes. The operating characteristics and performance data for the MK-2 are the same as that for the original BEB-SD.

Launching and retrieving the BEB-SD

The BEB-SD is normally transported using the modified M812 series, 5-ton bridge transporter. This transporter is fitted with a cradle which allows the operator to launch or retrieve the boat in the same manner as the ribbon bridge bays.

Dimensions	
Weight	8,800 lb
Length	27 ft
Height —	
w/cab & mast	9.8 ft
w/o cab & mast	6.5 ft
Draft	22 in
Performance	
Speed	21.6 mph
Max towing capacity	4,400 lb
Fuel capacity	75 gals diesel
Fuel consumption at —	
1,750 RPM	2.8 gal/hr
2,000 RPM	4.2 gal/hr
2,250 RPM	6.0 gal/hr
2,450 RPM	10.8 gal/hr
Max safe engine operating speed	2,800 RPM



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The boat should be launched or retrieved at a site having a uniform bank and a streambed slope of 11 degrees or less. The site should also have a water depth of 48 inches or more at and beyond the launch point. The two methods of launching the boat from the transporter are the calm water launch and the fast water launch. The calm water launch is normally performed in currents of not more than 5 FPS. The fast water launch can be conducted in currents of 5 to 10 FPS. Boats may be retrieved under similar bank conditions, but current velocities should not exceed 5 FPS. Further guidance for the launch or retrieval of the BEB-SD is provided in *TM 5-1940-277-10*. The BEB-SD can also be transported using medium or heavy lift helicopters. When helicopters are used, attach the boat

to the aircraft by means of an airlift sling provided in the Ribbon Bridge Supplemental Set. See Appendix B for additional information regarding airlift procedures.

Operation

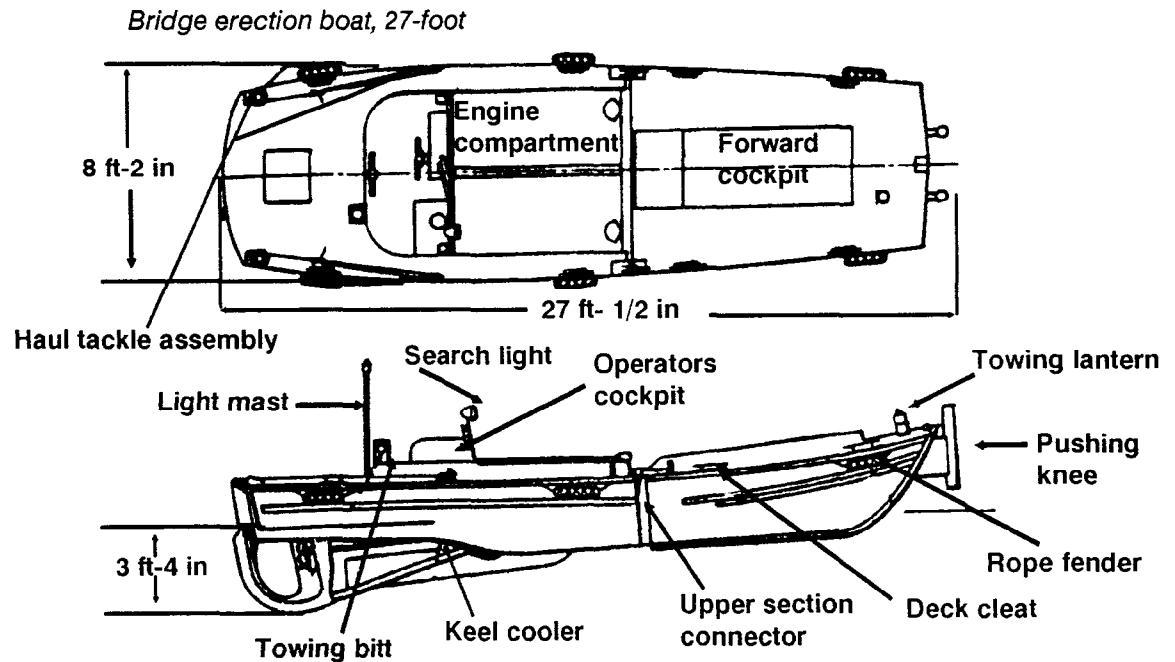
The BEB-SD is normally operated by a crew of two licensed boat operators. The boat is powered by two 212-horsepower, water-cooled, six-cylinder diesel engines. These engines each drive a hydrojet propulsion unit which provides the thrust to move and steer the boat. Water is drawn in through the grilles in the underside of the boat and expelled through nozzles mounted beyond the back of the boat. Movable shields or scoops are mounted over these nozzles to direct the flow of water from the propulsion units. The

position of these scoops is mechanically adjusted by the steering wheel and the scoop control levers mounted on the boat's control panel. The steering wheel controls the port-starboard directional movements while the scoops control the forward-reverse motion. At low speeds the scoops can also be used to turn the boat by having one scoop in REVERSE position and the other in a NEUTRAL or FORWARD position.

Bridge Erection Boat, 27-Foot

Some Army National Guard and Army Reserve units currently maintain the 27-foot BEB. This boat is a gasoline-powered, twin-screw BEB. It should be noted that most of these boats have been modified to use diesel

Dimensions	
Weight	7,150 lb
Length	27 ft
Height	6.5 ft
Draft	40 in
Performance	
Speed (w/crew, equipment, & fuel)	17.7 mph
Fuel capacity	90 gal
Fuel consumption	
at 2,400 RPM	5 gal/hr
at 2,800 RPM	12.4 gal/hr
Max safe engine operating speed	2,800 RPM



fuel rather than gasoline. The 27-foot BEB is constructed of a two-sectioned, aluminum hull, consisting of a bow cargo-carrying section and a stern section which contains the engines and operator's cockpit. The two sections are quickly and easily connected by means of special connecting hooks and clamps, and are just as easily disengaged.

This boat was designed with the primary purpose of propelling M4T6 and Class 60 rafts and to aid in the construction of heavy floating bridges.

Launching the 27-foot BEB

The 27-foot BEB can be transported in several manners. Units equipped with the modified M812 5-ton bridge truck can transport and launch the 27-foot BEB using the same method that is used to launch the BEB-SD.

Those units not equipped with the modified M812 bridge transporter can transport the boat in two sections. The bow section is carried on a standard 4-ton bolster trailer or a 2 1/2-ton pole

trailer which is towed by a 2 1/2-ton truck. The stem section is carried in the truck bed. During transport, each section rests on a special full-fitting cradle, to prevent damage to the boat. Upon arrival at the launch site, the boat can be launched from the truck and trailer by using a crane or some other lifting device. The boat's two-person crew can then couple the bow and stem sections. It is also possible to couple the two sections and launch the entire boat using a crane.

Operation

The 27-foot BEB is powered by two separately controlled, six-cylinder marine type engines mounted side by side in the stern section of the boat. Each of these engines drives a propeller. The drive of both engines is equipped with forward, neutral, and reverse gears. The engine speed control (throttle) and transmission control are located on the same lever and both rudders are operated simultaneously by turning the steering wheel.

STANDARD MILITARY OUTBOARD MOTORS

Use

The primary function of military outboard motors is to propel inflatable assault boats. Outboard motors may also be used to push LTRs and other small items of floating equipment. When considering whether or not to use outboard motors when conducting an assault across a river, the commander should weigh the advantages and disadvantages offered by the outboard motor. Obviously, the motor can provide the commander a quicker assault crossing than would be obtained by directing that the soldiers paddle their assault boats. The use of outboard motors also enables the use of assault boats in currents up to 10 FPS. (Paddled assault boats can only be used in currents up to 5 FPS.) On the other hand, the noise produced when using outboard motors can compromise the commander's ability to achieve some degree of surprise as to when and where the assault is being conducted.

Types

The US Army currently relies primarily upon 40-horsepower outboard motors to propel assault boats or LTRs. At this time, there is no standard 40-horsepower motor. Various models of Johnson, Evinrude, Mercury, and Outboard Marine Corporation (OMC) motors are available. Operators should refer to the references provided by the makers of their particular make or model of outboard motor for information on operation and maintenance.

