

## **Response Marine, Inc.**

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## **Specifications: *RESPONSE FR-8.2***

### **1.0 GENERAL**

Built for: Tenth District Volunteer Fire Department Marbury,  
MD

Built by: Winninghoff Boats, Inc.

Delivery: May, 1992

Hull Type: Modified Vee  
Hull Length Overall: 26' 9"  
Beam Overall: 8' 6"  
Draft (hull): 1' 4"  
Freeboard Fwd.: 4' 2"  
Norm. Oper. Displ.: 5600 lbs.  
Power: Twin Outboard; Mercury 175HP; Counter Rotating

Reference Drawing: Winninghoff # 850D

Design and outfitting were developed in conjunction with Wayne Klinger of the Marbury Fire Department in the Fall and Winter '91/'92. The mission was to provide a special purpose boat for rescue and fire fighting service on the Potomac River. Performance specifications included high speed operation in seas up to three feet and slower speed operation in seas up to six feet. Reliable service in adverse conditions including ice was a priority. As a result the boat is outfitted with an ice skirt in the area of the forward waterline as well as extensive watertight compartmentation.

## **2.0 CONSTRUCTION**

The boat shall be of all welded aluminum construction featuring both trans-verse and longitudinal framing. There shall be a watertight bulkhead between the stem and the cabin/cockpit and at least three other watertight bulkheads between the forward cabin and the transom. Other frames may be frames or bulkheads. The side decks shall be enclosed for the purpose of improved stability and floatation with the cockpit partially flooded. Scantlings shall be as per the following table:

<u>Item</u>	<u>Dimension</u>	<u>Alloy</u>
Keelson	.375" Plate	5086 H116
Transverse Frames	4" x 1.7" x .190 Tee	5086 H32
Bulkheads	.160" plate	5086 H32
Bulkhead Stiffeners	1.5" x 1.25" x .190" Tee	6061 T6
Longitudinals- Bot. & Deck	1.5" x 1.5" x .25" Tee	6061 T6
Longitudinals- Topsides	1.5" x 1.25" x .190" Tee	6061 T6
Bottom Plating	.190" Plate	5086 H32
Ice Skirt	.250" Plate	5086 H32
Chine Bar	.250" Plate	5086 H32
Topside Plating	.160" Plate	5086 H32
Transom	.375" Plate	5086 H32
Working Deck	.190" Plate	5052 H32
Side Deck Enclosure	.125" Plate	5052 H32
Pilothouse & Trunk	.160" Plate	5052 H32
Cabin Beams	1.5" x 1.25"x .125" Chan.	6061 T6
Fuel Tank	.160" Plate	5052 H32
Pipe & Tubing	Primarily Schedule 40	6063 T6

Note: Beds, knees and other heavy duty reinforcements shall be provided in areas of high stress such as engines and fire system plumbing.

Welding- MIG and TIG processes using 5356 filler wire. All underwater seams shall be continuously welded inside and outside. All frames and stiffeners shall be stitch welded both sides.

## **3.0 FUEL & PROPULSION**

### **3.1 FUEL**

Fuel capacity shall total 120 gallons in single aluminum tank constructed and tested as per USCG and ABYC standards. Tank shall be installed in a watertight compartment and shall be located at the vessel's normal operating LCG. There shall be a removable deck panel above the tank for tank inspection and removal. Fuel feed plumbing shall include a triple filter manifold with valves to enable each engine to draw full or zero flow. There shall be primer bulbs in each line enabling the priming of all engines. All hoses shall be appropriately sized so that

all engines can operate at full rpm without suffering flow restriction., and all hoses shall be USCG approved. The tank shall be fitted with a fuel level sending unit wired to gauge at console.

### **3.2 PROPULSION**

The vessel shall be outfitted with twin 175 hp, 25" shaft, counter-rotating, Mercury outboards. Outboards shall be mounded on 40" centers on the extended transom. Outboard accessories shall include the following:

- (2) Stainless Steel Propellers
- (1) Speedometer
- (2) Tachometers
- (2) Water Temperature gauges
- (2) Battery meters
- (2) Hour meters
- (1) Fuel gauge
- (1) Clock

Engine wiring, controls and plumbing shall be routed from the transom to the engines in three 2" Commercial gray hoses. Hoses shall attach to welded aluminum grommets at the transom.

### **3.3 STEERING SYSTEM**

The steering system shall be SeaStar two line hydraulic. Components shall include; Helm Pump, Front Mount Cylinder and Stainless Steel Tiebar. The helm shall be fitted with a 15" Stainless Steel, destroyer type steering wheel.

## **4.0 SUPERSTRUCTURE**

### **4.1 HELM AREA**

The helm area shall be open at top and back, with a wrap around, five panel windshield. There shall be three windows forward and one each port and starboard. The helm station shall be located to starboard with dash layout as per Section 7.2.. The dash shall extend aft of the companionway bulkhead which separates the forward cabin from the helm area.

### **4.2 FORWARD CABIN**

Forward of the windshield there shall be a trunk cabin providing headroom to the cabin below. The trunk shall extend approximately 30" forward of the windshield and terminate approximately 60" from the bow. The forward cabin shall be accessed via a 36" wide companionway located to port of the helm station, as close to centerline as possible. Companionway shall be fit with a lockable single or bi-fold door which can be secured both open and closed.

The forward cabin shall be configured with Vee berth/work tables port and starboard. Port berth shall be designed for a stokes litter and EMS attendance. Below the berths/tables there shall be gear stowage with access hatches sized to suit Marbury FD equipment boxes.

## **5.0 AUXILIARY SYSTEMS & EQUIPMENT**

### **5.1 BILGE PUMPS**

The boat shall be outfitted with two electric bilge pumps of at least 1,000 gph. Pumps shall be wired to float switches with float assembly enclosed and protected from debris. Manual/Automatic operation shall be control-able from main circuit breaker panel. Forward pumps shall be located at after portion of forward bilge, and aft pump shall be located just forward of the transom. The watertight bulkheads shall be fitted with drain plugs in order to enable draining to appropriate bilge pump.

### **5.2 FIRE FIGHTING SYSTEM**

The fire fighting system shall be a Darley HE500 Bronze fire pump producing in excess of 500 gpm at 100 psi at the bow monitor. Pump shall be powered by a marinized Ford LSG 423, close coupled to the fire pump. The pump engine shall be incorporated into the vessel's main fuel and battery systems. the engine shall be marinized and furnished with wet exhaust thru transom. Engine controls shall be located at engine with standard gauge and control panel.

Suction: Suction plumbing shall be 4". Thru hull shall be welded aluminum 4" schedule 40 pipe with a flat bar grate fit flush with the hull. Suction plumbing shall include a shut-off valve and clean out for easy access to the fire pump screen. There shall be a short length of hose in the suction line in order to isolate pump and engine vibration from the hull.

#### Discharge:

The pump shall be fitted with two 2.5" discharge outlets with ball valves. One of these shall feed the 3" main leading forward to the monitor. The other shall be located aft for hose connection. The 3" main shall include a short section of flexible discharge hose to isolate vibration. The remainder of the main shall be 3" sch. 40 aluminum pipe with another section of hose leading through the forward cabin to the monitor standpipe.

An Elkhart Stingray #8393 (Bronze) monitor shall be mounted on the foredeck.

### **5.3 HEAT**

The vessel shall be provided with an Espar #D1L, 6,000 BTU heating system. The system shall run off a three gallon diesel tank. Ducting shall be provided for cabin heating as well as forward windshield defrost.

## **6.0 ELECTRICAL SYSTEM**

### **6.1 BATTERY SYSTEM**

The vessel shall be outfitted with two batteries each of which shall be at least 85 Amp-Hour marine type batteries. There shall be a four position Battery Selector Switch to control flow of current to and from the fire pump and outboard engines and to the accessory system.

### **6.2 ACCESSORY SYSTEM**

The vessel shall be outfitted with a 17 position circuit breaker panel which will provide for individually protected and labeled circuits for the circuits listed below. Wiring and installation shall be such that an individual breaker can be replaced without interruption of any other circuits. All breakers shall be fed independently from the hot buss which is controlled by the battery switch. The sole exception is the bilge pumps circuit breakers which are wired directly to Battery 1 or 2 in order to enable operation with the battery switch in the "Off" position.

<u>Emergency</u>	- Strobe	<u>Navigation</u>	- Depth
	- Siren		- Radar
	- Aux.		- Loran
<u>Radios</u>	- VHF		- Aux.
	- Fire	<u>Lights</u>	- Deck
	- Aux.		- Spot
<u>Bilge Pumps</u>	- Fwd. (Man/Auto)		- Dock
	- Aft. (Man/Auto)		- Dash
			- Nav. (Run/Anchor)

An additional two breaker panel shall be dash mounted for the windshield wipers.

### **6.3 ACCESSORIES**

Vessel shall be outfitted with the following electrical accessories.

Fwd. Cabin Lights:	(1) Guest Red/White Dome Lights
	(2) 12v Fluorescent Lights
Deck Lights:	(2) 3' x 5" Halogen
Cockpit Courtesy Lts:	(4) Red, Flush Mount
Strobe Lights:	(1) Red; Federal 131DST, LP
	(1) Amber; Federal 131DST, LP
Defroster Fans:	(2) Guest #900; Location to be determined.
Depth Finder:	CFE
Horn:	AFI #1004; Single Trumpet

Radar: Furuno 1730 w/ Radome Antenna  
 Navigation Lights: Port; Starboard; Pole/Anchor  
 Spot Light: Rayline 8" Electric Remote; 425,000 CP  
 VHF Radio: CFE  
 Windshield Wipers: (2) AFI, self parking, Pantographic Arms  
 Battery Charger Sys: Jack & Wiring system for Fire Dept. Charger

## **7.1 OUTFITTING EQUIPMENT & HARDWARE**

The vessel shall be outfitted with the following:

- Safety Rails: - Pilot Rail. Fabricated with 1" Schedule 40 Aluminum pipe. Welded to forward cabin trunk and deck. Rail shall extend approximately 24" above deck and shall run from after portion of trunk cabin to within 36" of bow. Rail shall provide at least 18" of walking area between rail and sheer.
- Hand Rails. Helm area shall be fitted with side hand rails.
  
- Hull & Deck Equip.: - 8" Aluminum Cleats. (6) Welded to deck.
- Bow Eye & two Stern Eyes. Aluminum Fabrication welded to Stem.
- Sheerline Rub Rail. PVC running full length each side and thru bolted on approximately 8" ctrs.
- Hull & Dk. Eq.-cont. - Rubber Scupper Flaps. Fitted at transom port & starboard for self bailing cockpit.
- Radar Arch, Hinged. Vessel shall be fit with a radar arch extending full width between the side panels just aft of helm. Arch shall be at least 6'6" above deck and shall provide at least 50" of top mounting surface. Arch shall be primarily 1.5" sch. 40 aluminum pipe.
  
- Rescue: - Dive Door. Vessel Topsides shall include a 36" dive door on the starboard side. Door shall hinge downward to form integral boarding ladder.
- Rescue Rails. Dive Door and starboard side shall be fitted with 10' rescue rails running fore & aft approximately 6" above the waterline. Rails shall be 1" sch. 40 aluminum pipe welded to hull.

- Access: - Six & Ten inch deck plates. Deck plates shall be secured by dog handle. Appropriate sized plates shall be provided at all areas requiring access to include: Fuel tank fittings, Bilge Pumps and fittings, Wiring and plumbing connections.

## **7.2 PILOTHOUSE & CABIN JOINER WORK**

Pilothouse outfitting shall include the following:

- Windows: - There shall be three windows forward and one each port and starboard. All windows shall be Wynne enterprises, aluminum framed, clamp ring design with .25" safety glass.
- Seating: - Pilot and Crew Seats shall be Pompanette #1620, folding and sliding.
- Dash: - Custom dash arrangement to accommodate engine gauges and controls, breaker panels and electronic accessories. Dash shall be located to starboard and shall include stowage compartment/wiring access below helm.
- Doors: - Companionway Door (hinged) with lock set and eyes for securing door open/closed.
- Forward Cabin: - Joiner Work will consist of bunks/work benches to port and starboard. Construction shall be aluminum framework and painted plywood tops. Arrangement is further described in 4.2.
- The trunk shall be fit with an 18" square escape hatch/skylight.
  - Berths shall have removable cushions, marine grade vinyl.
- Anchor Locker: - Forward of the cabin there shall be a watertight bulkhead/anchor locker with a 10' x 20" hatch.

## **7.3 COCKPIT JOINER WORK**

Cockpit joiner work shall consist of a three hatch stowage compartment at the transom compartment. The middle hatch shall provide access for operation and maintenance of the fire pump. The starboard area shall be largely taken up by

the fire pump discharge assembly but there will be limited stowage. The port area is available for battery and oil injection systems.

Access shall be provided to the port and starboard areas via 10" x 20' hatches. The fire pump shall be accessed by a custom hatch assembly at centerline. The deck above these stowage areas shall be configured with space and rails to accommodate a litter.

## **8.0 PAINT & FINISH**

All exterior and cabin surfaces shall be painted with International Interthane paint systems (two part polyurethane). In addition, all deck surfaces shall have a painted non-skid finish. Colors and lettering shall be to suit customer specifications.

## **9.0 FINAL OUTFITTING & SEA TRIALS**

The boat will be provided with the following Trailer:

E Z Loader, 5400#, painted, Roller, Dual Axle, Surge Brakes.

The boat will be provided with the following Canvas Work:

One removable dodger assembly to extend from radar arch forward to windshields. Dodger shall incorporate windows on front and sides and it shall anchor to the top of the windshield, wrapping aft along the sides to the radar arch.

The boat will be provided with one copy of manufacturer and component manufacturer manuals.

**The vessel will be provided with half fuel and personnel for acceptance trials at Rowley, MA. Delivery and acceptance is FOB Rowley, MA. Factory inspection trips are encouraged.**