

Response Marine, Inc.

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Specifications: Response FR-9.2

1.0 GENERAL

Proposed to: Bolton Landing (NY) Fire Department

Built by: Winninghoff Boats, Inc.

Delivery: June, 2000

Hull Type: Modified Vee (14° transom, 20° midship, 60° Cutwater)
Hull Length Overall: 30' 2" (excluding rails)
Hull Beam Overall: 10' 0"
Draft (hull): 1' 8"
Freeboard Fwd.: 4' 3"
Norm. Oper. Displ.: 11,000 lbs. (approx.)
Power: Twin Outboard; Evinrude 225 HP; Fuel Injected;
Counter Rotating

The design shall be similar to the attached plan, profile and body plan.

2.0 CONSTRUCTION

The boat shall be of all welded aluminum construction featuring both transverse and longitudinal framing. There shall be a watertight bulkheads as follows:

- Between stem and forward cabin
- Between forward cabin and pilothouse (below pilothouse sole)
- At each end of the fuel bay
- At the forward end of the fire pump compartment

Scantlings shall be per the following table:

<u>Item</u>	<u>Dimension</u>	<u>Alloy</u>
Keelson	.375" Plate	5086 H117
Transverse Frames	4" x 1.7" x .190 Tee	5086 H32
Bulkheads	.190" Sheet	<u>5086 H32</u>
Longitudinals- Bottom	3" x .190" Flat Bar	6061 T6
Longitudinals- Deck	2" x .190" Flat Bar	6061 T6
Longitudinals- Topsides	1.5" x 1.25" x .190" Tee	6061 T6
Bottom Plating & Doublor	.250" Plate	5086 H117
Chine Bar	.375" Plate	5086 H117
Topside Plating	.190" Sheet	5086 H32
Transom & Pump Eng. Beds	.375" Plate	5086 H117
Decks	.190" Sheet	5052 H32
Pilothouse & Trunk	.190" Sheet	5052 H32
Cabin Beams	2" x 1"x .125" Chan.	6061 T6
Fuel Tank	.190" Sheet	5052 H32
Pipe & Tubing	Primarily Schedule 40	6061 T6 or 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. There shall also be a ¼" doubler plate, port and starboard on the hull bottom forward. Doublor shall extend from the inner chine for approximately 12" inward, extending from the stem to approximately 20% of the LWL aft.

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 150 gallons in single aluminum tank constructed, tested and plumbed per USCG regulations and ABYC recommended practices . Tank shall be installed in a watertight compartment and shall be located near the vessel's normal operating LCG. The tank shall include (3) valved, pick-up tubes

(one for each engine). 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. Minimum fuel feed hose and pick-up diameter is 3/8" (inside). Fittings in the feed line shall have a minimum inside diameter of 9/32" (7.1mm). All fuel distribution lines shall either be secured above the highest fuel level when the boat is in its normal, unloaded, static floating position or shall have anti-siphon valves installed at the tank pick-up fitting.

The tank shall be fitted with a fuel level sending unit wired to a gauge at console.

3.2 PROPULSION

The vessel shall be outfitted with twin 225 hp, 25" shaft, counter-rotating, fuel injected, Evinrude outboards. Outboards shall be mounted on approximately 40" centers on the extended transom. Outboard accessories shall include the following:

- (2) Stainless Steel Propellers- OMC Renegade Offshore 14 1/2" x 19" or 21" to suit engine RPM operating range
- (2) OMC Ignition Harnesses w/ safety switch and dual ignitions, OMC P/N 176410
- (2) Tachometers, OMC "Concept" series w/ "system check", OMC P/N 176309
- (1) Speedometer, OMC "Concept series, OMC P/N 175609
- (2) Trim gauges, OMC "Concept" series, OMC P/N 175
- (2) Water Temperature gauges, OMC "Concept" series, OMC P/N 175618
- (2) Volt meters, OMC "Concept" series, OMC P/N 175613
- (2) Hour meters, OMC "Concept" series, OMC P/N 175623
- (1) Fuel gauge, OMC "Concept" series, OMC P/N 175614
- (2) VRO Tanks, 3 gal, OMC P/N 176996

Engine gauges shall be back-lit and with back-lighting wired from a rheostat to control light intensity. Engine wiring, controls and plumbing shall be routed from the transom to the engines in 2", watertight, flexible conduits. Engine control cables shall be Morse 33C Supreme. Hoses shall attach to welded aluminum grommets at the transom.

3.3 STEERING SYSTEM & CONTROLS

The steering system shall be SeaStar two line hydraulic. Components shall include; Helm Pump, Front Mount Cylinder (port or starboard engine) and

Stainless Steel Tiebar. The helm shall be fitted with a 15" Stainless Steel, destroyer type steering wheel. Controls shall be single lever w/ trim, twin binnacle, i.e. one lever per engine controlling both throttle and shift, OMC P/N 176374. Control cables shall be OMC or Teleflex Supreme.

4.0 SUPERSTRUCTURE

4.1 PILOT HOUSE

The pilot house shall be closed-backed, approximately 7'4" long, with a hinged door, and shall have an aft raked, eastern style windshield. There shall be two windows forward, one each port and starboard and three in the aft bulkhead/door. The arrangement shall consist of a full length bunk to port and a helm station to starboard. Bunk length is critical in order to accommodate a Stokes basket that measures 89" (with flotation rings) and 85" (without flotation rings). Fitting the basket without rings will be acceptable.

Electronics and radios shall be mounted overhead and/or on the dash.

4.2 FORWARD CABIN

Forward of the dash bulkhead there shall be a trunk cabin providing headroom to the cabin below. The forward cabin shall be accessed via a 30" wide (approx.) companionway located to port of the helm station, as close to centerline as possible. The 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 approximately 5'-4" long and shall be configured with a small sole and with shelves port and starboard.

5.0 AUXILIARY SYSTEMS & EQUIPMENT

5.1 BILGE PUMPS

The boat shall be outfitted with two Lovett 1200 GPH electric bilge pumps. Manual/Automatic operation shall be controllable from main circuit breaker panel. One pump shall be located just forward or aft of bulkhead #3, the other just aft of bulkhead #8. The watertight bulkheads shall be fitted with drain plugs in order to enable draining to the appropriate bilge pump.

5.2 FIRE FIGHTING SYSTEM

The fire fighting system shall be a Hale 60FB-1-M Bronze fire pump producing at least 1,500 gpm at 150 psi, less applicable friction losses. Pump shall be powered by a GM 350 CID marine engine, 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, furnished with a high output alternator (175 amp @ 2,500 alternator RPM, 275 amp at 6,000 alternator RPM), twin wet exhaust and fresh water cooling with seacock and in-line basket strainer. There shall be drain valve(s) to provide for draining the raw water line (between the seacock and engine) and filter to the bilge in order to avoid freezing. The fire pump and engine shall be installed in a compartment just forward of the transom. Access to the engine shall be via an inboard/outboard style, lift away, engine box. Engine and pump controls shall be located as follows:

Helm Area (located to port of the helm station such that crew or helmsman can easily operate)::

- Throttle (Vernier type)
- Engine Panel w/ Tachometer, Oil Pressure Gauge & Alarm, Water Temperature Gauge & Alarm, Push Button Start
- Pump Pressure Gauges:
 - (1) compound gauge at pump
 - (1) monitor standpipe
 - (1) aft/port discharge
 - (1) aft/starboard discharge
- Pressure Relief Valve Controller
- All pump and pump engine gauges to be back-lit and wired with a rheostat to control intensity of back-lighting.

Pump Area (Aft):

- Suction Valve & Clean Out
- 12 volt Pump Priming Valve & Switch (located just inside the starboard transom hatch)

Primer: 12 volt flexible impeller, self priming pump.

Suction: Suction plumbing shall be 6". The sea chest/thru-hull shall include a coarse strainer grate fit flush with the hull. Suction plumbing shall include a PVC butterfly valve, clean out and secondary, expanded metal strainer. Manual valve operation shall be from above deck. 12 volt valve operation shall be proposed separately as an option. 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 discharge to a 4" aluminum pipe main, isolated from engine vibration by a short length of hose. The 4" main shall in turn feed the pressure relief valve, two aft outlets, and the 4" foredeck standpipe. The plumbing to the monitor shall be 4" pipe running under the starboard side decks with a short length of hose between the cabin/dash bulkhead and the foredeck standpipe. Outlets & Valves are as follows:

- (2) 5" Storz outlets (90° w/ 360° swivel) at the transom deck, port and starboard. Flow to these outlets is controlled by a single Akron 4' ball valve (bronze).
- Monitor Standpipe (4") on foredeck. Standpipe to be gated just below monitor and fit with (1) 5" Storz outlet w/ cap, facing forward, just above deck. The Storz outlet shall be below the monitor valve.
- The pipe leading forward to the monitor shall be located under the starboard side deck and shall have (2) 4" Akron Ball Valves in line. (1) located near the transom and (1) located near the helm.
- The monitor shall be an Akron electric StreamMaster 3578 (pyrolite) w/ 5078 electric StreamMaster nozzle (500-1500 gpm flow range). The monitor control system includes an Akron control box, with (3) toggle switches, mounted at the pump panel.

Pressure Relief Valve: Hale #P35F dumping to the suction thru-hull.

DeWatering: Zico Jet Foot Pump (JFP-250-T) with custom strainer. BLVFD to provide hoses.

5.3 ON BOARD FIRE PROTECTION

Fireboy manual/automatic system with Dupont FE241 chemical. Installed in the fire pump/engine compartment.

5.4 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 pilothouse heating and forward windshield defrost .

6.0 ELECTRICAL SYSTEM

6.1 BATTERY SYSTEM

The vessel shall be outfitted with three batteries each of which shall be Group 29 or Group 31 marine batteries (flooded type). There shall be four, four position battery selector switches to control flow of current to and from the fire pump engine (& 12v primer), each outboard engine and to the accessory system. Battery switches will be wired to permit independent switching for the port engine (Batt. 1, Batt. 2, Both, Off), the starboard engine (Batt. 1, Batt. 2, Both, Off), and the pump engine (Batt. 2, Batt. 3, Both, Off). A diagram of this wiring will be submitted with the bid.

Ships service circuits shall be divided into two busses. Buss #1 shall consist of most electronics and cabin lighting and shall be fed directly from battery 1 or 2 with a 100 amp main breaker. Buss #2 shall be comprised by balance of the system- including primarily heat, wipers and exterior lighting, and shall be fed from the fourth battery switch with a 150 amp main breaker. The bilge pump circuit shall be wired directly from one of the batteries, such that this circuit will be hot when all battery switches are in the "Off" position. Batteries, main breakers and all battery switches shall be located in the aft compartment, port side.

6.2 ACCESSORY SYSTEM

The vessel shall be outfitted with two accessory circuit breaker panels providing individually protected and labeled circuits as listed below. The main breaker panel shall be mounted so as to prevent accidental tripping of circuits.

Main Panel

Bilge Pump- Aft; manual/automatic	GPS
Bilge Pump- Fwd.; manual/automatic	Radar
Horn	Nav. Lts; running/anchor
Cabin Lts.- Pilothouse	Spot Lt.
Cabin Lts.- Fwd. Cabin	Heat
Courtesy Lts.	Aux. Outlets- aft
Siren	Aux. Outlets- fwd.
Fire Radio	Auxiliary/Spare (4)
VHF Radio	
Depth Finder	

Aux. Panel at Helm

Horn Switch	Deck/Scene Lts.- forward
Bilge Pump Indicator Lights	Docking Lights
Fire Extinguisher Indicator Light	Light Bar
Deck Lts.- aft	Wiper- port
Deck/Scene Lts.- port	Wiper- starboard
Deck/Scene Lts.- starboard	

6.3 ACCESSORIES

Vessel shall be outfitted with the following electrical accessories.

Bilge Pumps:	(2) Lovett, 1200 GPH
Blower:	3", in fire pump compartment
Cabin Lights:	(2) Stratolite #62, white, 7" diameter (2) Stratolite #62, red, 7" diameter
Pilothouse Lights:	(4) Stratolite #62, white, 7" diameter (4) Stratolite #62, red, 7" diameter
Compass:	Ritchie SS1000 w/ light
Courtesy Lights:	(4) red lights in each corner of the cockpit (2) red lights in the pilothouse All courtesy lights shall be mounted 18-24" above the sole.

Deck/Scene Lights: (6) 3' x 5" Halogen- 2 each, fwd & aft; one each, port & stbd. Controlled by (4) switches.

Depth Finder: TO BE SPECIFIED

Docking Lights: Morse, flush mount.

Engine Room Light: (1) in fire pump compartment

Fire Radio: Customer Furnished

Horn: AFI #10026, dual trumpet

Light Bar: Whelen Edge #9416, 52" light bar w/ blue strobe lenses, and the following accessories:
 (2) Halogen Flashers, forward
 (2) Halogen Alley Lights, one on each end
 (1) SA-40 Siren Speaker

Navigation Lights: Port; Starboard; Pole/Anchor, Aqua Signal. Lights and their placement shall comply with USCG Navigation Rules- Rule 23, Inland.

Outlets: (4) 12V, two prong outlets, (1) each port and starboard outside the aft pilothouse bulkhead, (1) in pilothouse near the bench seat, (1) in pilothouse near the helm.

Radar: TO BE SPECIFIED

Search Light: 225,000 cp, manual remote, Vetus Z7012

Siren: Code 3 #3692 control box

VHF Radio: TO BE SPECIFIED

Windshield Wipers: (2) AFI, self parking, Pantographic Arms

6.3.1 ADDITIONAL WIRING DETAILS

Appropriate wires will be run from the breaker panel to the pilothouse overhead for later hook-up of radar, depth, VHF and fire radios.

14/2 wire will be run from the breaker panel to the rear of the pilothouse (starboard side) for customer installation of (2) "Streamlight Light Box Flashlights".

All wiring will meet or exceed BIAA specifications (including color coding) and ABYC Standards and Recommended Practices for Small Craft.

6.4 AC SYSTEM

30 amp shorepower inlet & galvanic isolator. Accessories shall include 30 amp shorepower cord (50'). AC accessories shall include the following:

Battery Charger: Guest 2540C, 40 amp charger
 Outlet: (1) located in the area of the pilothouse bench seat.

7.1 OUTFITTING EQUIPMENT & HARDWARE

The vessel shall be outfitted with the following:

- Anchoring & Mooring: - 20 lb. Danforth Anchor with:
15' of 3/8" galvanized chain
300' of 1/2" nylon anchor line:, dead end of line to be secured to stem in anchor locker.
Anchor Chocks: for stowage on foredeck, not in way of bow access.
- Dock Lines (4): 25' x 1/2", double-braid
 - Fenders (3): 6" x 18", inflatable, single eye.
- Hull & Deck Equip.: - 3" Mooring Bitts. (3) Welded to deck
- 12" Aluminum Cleats. (4) Welded to deck.
 - Bow Chocks. (2)
 - Bow Eye & two Stern Eyes. Aluminum Fabrication welded to Hull.
 - Dive Door. Vessel Topsides shall include a 36" dive door on the port side. Door shall hinge downward/outboard to form integral boarding ladder.
 - Mounting Cradle for ladder. On pilothouse roof.
 - Sheerline Rub Rail. 3" Rubber "D" running full length each side and thru bolted on approximately 10" ctrs. Rub rail shall wrap around the bow.
 - Rub Strake. 3" Rubber "D" running approximately 15', starboard side only, and thru bolted on approximately 10" ctrs.
 - Scuppers. Scupper pipes shall be provided for drainage of self bailing cockpit, port & starboard.
 - Flag Lanyard. On the Signal Mast.
 - Signal Mast. Hinged mast to accommodate radome, strobes, aft deck lights & anchor/steaming light(s).
- Rails: - Bow Rail. Fabricated with 1" Schedule 40 Aluminum pipe. Welded to foredeck. Rail shall extend 24-26" above deck and shall run from after portion of trunk cabin to the bow, with a 20-34" opening at the bow. Rail shall be painted flat black.
- Hand Rails.
Pilothouse interior- overhead on centerline
Pilothouse exterior- aft corners & roof top
Side Decks- aft quarters

- Outboard Engine Guard Rail. 2.5" sch. 40 aluminum pipe, welded.
- Rescue Rails. Dive door area shall have horizontal and vertical rails fore & aft of door opening. Rails shall be 1" sch. 40 aluminum pipe welded to hull.

Stowage: - Anchor Locker. Forward of bulkhead #1. Deck access via Freeman Deck Hatch # 1218. Forward Cabin access via Viking 1191 hatch in bulkhead. Covered Chain pipe at deck. Locker to have a watertight bottom above the waterline w/ overboard drains.

- Below Cockpit Sole. (1) Freeman Deck Hatch (15" x 24" CO provided in cockpit sole to access compartment with removable, flat bottom and side liner.

- Below Pilothouse Sole. (1) large, rectangular, fabricated hatch in pilothouse sole to access compartment with removable, flat bottom and side liner. Hatch shall be flush with sole.

- Deck Box. Built in on the starboard side, running from the pilothouse bulkhead aft approx. 78". Shall be built off the hull topsides such that it utilizes space under the side decks. Box shall be vented and limbered and shall have a lift-out bin approximately 6" deep and 39" long. Box dimensions to be approximately 78"L x 15"D x 21"W where W is measured for the topside hull plate to the inboard edge of the box.

- Stokes Litter Compartment. Enclosed compartment running fore & aft on the port, outboard side of the pilothouse with hinged door access at the aft pilothouse bulkhead.

Misc. Deck Access: - (4) Freeman 12" round deck plates accessing fuel tank fittings, fire pump suction assembly and outboard engine bolts.

7.2 PILOTHOUSE & CABIN JOINER WORK

- Pilothouse Windows: - There shall be two fixed windows forward, one horizontal slider each port and starboard, two vertical drop downs in the aft bulkhead & one fixed in the aft door. All windows shall be Wynne enterprises, aluminum framed, clamp ring design with .25" safety glass. Frames shall be black anodized or powder coated.
- Vents - (2) in pilot house, (2) in forward cabin. Cowl or clamshell type to allow for natural ventilation.
- Vent Hatches - (2) Bomar (Nibo) vent hatches in pilothouse roof. Model # 1070-10A.
- Seating: - Pilothouse port side shall have a full length bench with 3-4" cushion. Bench height is approximately 36" to cushion top and bench depth is approximately 24".
- Pilothouse bench shall have 3 "ambulance style" straps to secure patient.
- Helm shall have a Todd #1000 helm seat with slider & swivel installed on a stowage pedestal.
- Dash: - Custom dash arrangement to accommodate engine gauges and controls, breaker panels, pump panels and electronic accessories. Dash shall be located to starboard.
- Doors: - 30" Companionway Door (single or bifold hinged) with lock set and eyes for securing door open/closed.
- Forward Cabin: - Joiner Work will consist of a small removable sole and shelving at the perimeter, running full length- (2) shelves per side.
- The trunk shall be fit with an 24" square escape hatch/skylight, Bomar # 1049-10AX. The trunk sides shall be fit with Bomar #3410 opening portlights, port & starboard.

8.0 PAINT & FINISH

Item	Primer	Topcoat
Bottom	Ameron 370 Epoxy	Ameron 635 anti-foul- Black
Hull Topsides	Ameron 370 Epoxy	Amershield 450 HS Polyurethane- Red
Cabin Exterior	Ameron 370 Epoxy	Amershield 450 HS Polyurethane- White
Cabin Interior	Self Priming	Ameron 400 Epoxy (Gray)
Cockpit Interior	Self Priming	Ameron 400 Epoxy (Gray)
Decks	Self Priming	Ameron 400 Epoxy (Gray, w/ non-skid)
Bow Rail	Ameron 370 Epoxy	Amershield 450 HS Polyurethane- Red

Lettering- all to be reflective decals, port and starboard:

Hull: BOLTON FIRE DEPT. white letters, 8-10" high

Pilohouse and trunk: FIRE / RESCUE red letters, approx 6" high

Pilohouse, above windows: FIREBOAT 1 red letters, sized to fit

9.0 FINAL OUTFITTING & SEA TRIALS

The boat will be provided with the following additional accessories:

Two copies of manufacturer and component manufacturer manuals.
Manufacturer manuals to be highlighted for appropriate model, as necessary.

Spare parts kit to include:

(2) spare fuses for each fuse

(1) spare primary fuel filter

(1) spare bulb for lights (to be determined, not included)

Factory Trials will be performed prior to acceptance trials. At this time the fire pump test will be performed and certified, and all features of the vessel will be checked for proper performance and operation. Upon successful completion of the factory trials, the vessel will be provided with half fuel and personnel for Customer Acceptance Trials at Rowley, MA. Winninghoff will provide 14 working days notice prior to these trials.

10.0 DELIVERY & TRAINING

Acceptance trials are at Rowley, MA. Delivery is FOB Bolton's Landing.
One day of training shall be provided by a qualified factory representative.