

**CONSTRUCTION SPECIFICATIONS**

FOR THE

**H.T. GOZZARD 31**

AFT COCKPIT CUTTER

**Design By:** H. Ted Gozzard  
Gozzard Yachts

**Commissioned by:** GOZZARD YACHTS

**Date Written:** February, 2004

**PRINCIPAL NUMBERS**

LENGTH OVERALL	36' - 2"
LENGTH ON DECK	31' - 0"
LENGTH AT WATERLINE	26' - 0"
BEAM	11' - 0"
DRAFT	4' - 5"
DISPLACEMENT	12,000 Pounds Half Load.
BALLAST	4,800 Pounds (external lead)
MAST HEIGHT ABOVE WATER (no equipment)	46' - 0"
SAIL AREA MAINSAIL	251 Square Feet
SAIL AREA TOPSAIL	367 Square Feet
SAIL AREA STAYSAIL	164 Square Feet
SAIL AREA TOTAL 100% FORE TRIANGLE	607 Square Feet
SAIL AREA TOTAL	782 Square Feet
FUEL CAPACITY (MAIN)	55 Gallons
RANGE AT CRUISE	TBA
WATER CAPACITY	TBD
WASTE CAPACITY	TBD
BATTERY CAPACITY	400 Amp Hours
ENGINE	35 HP Diesel
BOW THRUSTER (OPTION)	

**EQUIPMENT SPECIFICATIONS**

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## Presenting the GOZZARD 31

NOTE: These specifications are subject to without notice unless contracted.

### 1. CONCEPT and DESIGN.

#### 1.1 PHILOSOPHY

The following are excerpts of a letter written to the editor of SAIL Magazine regarding – SAIL Magazine’s “Top Ten Nominees”. We had been asked to participate in “2002 Top Ten” with our Gozzard 41. And this time we were also asked to define our concept and design criteria. Although it

03/11/04

was specifically about our G41, it nicely sums up the concepts that apply to all our yachts...you might have fun reading it.

*Dear (Editor),*

*Believe it or not, we were actually having a meeting discussing the merits of the "Top Ten" when your September Issue of "SAIL" showed up. We were trying to make a decision as to whether or not we were interested in participating in the "Top Ten". The thought of having our brand new Gozzard 41 and it's owners reviewed in that manner was not something we were looking forward to. The timing of the Editor's column about the "Top Ten" was right on and as result a different light was cast on the whole thing. By defining some of the difficulties inherent in that endeavor, it seems you might actually be trying to address some of the concerns we are having.*

*The last time we participated in the Sail Top Ten (2000), with the Gozzard 37, I came away thinking it was a waste of time, the free press notwithstanding. After the herd of "experts" boarded and departed our boat with the precision of a military maneuver, I was left thinking that the boat didn't really get a fair shake and was actually quite apprehensive about what the review might say. It was clear that most of the judges seem to miss the boat's concept completely, either because they couldn't see it, didn't see it or they just didn't agree with it.*

*Because the boat was being judged in a category, as I recall "Offshore or Blue Water (or something)", we were coming up a little short. Everyone said the boat was beautiful and extremely well built but it didn't meet the criteria. "No permanent sea berth in the middle of the boat", "a cockpit that was very comfortable but too big even if it did have 8 x 12 inch drain", "way too much open space down below", "no V-berth to store your wet sails", "a deck stepped spar"...these are not elements of the traditional Offshore passage maker at least by the standards set by SAIL experts.*

*You will ask why we didn't call it a coastal cruiser, when in fact that's what most people will use it for? Well...because a coastal cruisers by it's own definition basically says that it is not intended to go offshore. Just because a boat is designed to be comfortable for the 99% of the time it is being used by 99% of the people who own that kind of a boat does not make it less seaworthy which, unfortunately, is what your readers will read into it. Yachts are full of compromises, in our case at the expense of some of the more traditional things you would design into a boat to make nothing else but ocean passages. These compromises may make our boat less comfortable in the conditions you might associate with the odd nasty passage. But once that passage is complete, do not the very things that make a true blue water passage maker the "ultimate"...also make it a much less comfortable cruiser. You are blurring the distinction between a seaworthy blue water passage maker and a seaworthy blue water cruiser.*

*If you have ever been aboard one of our boats you would know that the concept is unusual and that we stray a fair distance from the norm. Those traditional standards are set on high by a few for even fewer and we argue that they need revisiting at least as they apply to modern boats and the people who buy them and pay our bills. Trying to categorize one of our boats into a predetermined group just doesn't work. And what is worse, if the people who are reviewing the boat do not have an open mind, they can literally do more damage than good. Our order book shows our customers judge our boat differently than your experts. After all, we have not shown up at boat shows with the same exact boat year after year, unlike some other ultimate blue water passage makers I could name.*

*So...you see our dilemma.*

*This time, however, you want us to tell you what the boat's concept is and who we intend to impress. The challenge there is in most cases the customer determines the concept of the boat. They tell us, which is the very nature of building semi custom. So with that in mind and in regards to our part of the Gozzard 41, our concept is as follows:*

*A solidly constructed cutter rigged auxiliary cruising sailboat (with emphasis on the auxiliary and the cruising) built to classic lines. It is designed to be a capable cruiser, coastal or otherwise, for a couple with occasional guests, heavily weighted towards comfort and livability. Further, the hull form must provide as*

*much interior volume as possible but not at the expense of being out of proportion as the look of the yacht must instill pride of ownership. The forefoot must be deep enough to accept a bow thruster and not pound and the stern sections must be able to support a dinghy on davits. The construction must provide absolute peace of mind to the owners. The boat must be stiff and dry. Grounding must occur on lead not fiberglass. The rig will have a wide external chain plate base so the side deck access and rig support is not compromised. Loss of pointing ability is a calculated and acceptable trade off. The spar is to be deck or keel stepped depending on interior variations and customer comfort levels. It must have the ability to motor like as displacement power boat. The interiors are to be constructed with the intended use in mind and are optimized and maximized to those prioritized parameters. Lastly, it must be built to a level of quality that will ensure the highest resale value for when the adventure is over.*

*The Gozzard 41 is intended to appeal to middle aged couples who have cleared the nest and want to enjoy the rewards of their lifestyle and hard work, while they still have the health to do so. They are not interested in being uncomfortable and would like to bring with them some degree of home and dignity. They like to read about Joshua Slocum, Hiscock and Purdey but have no wish to be them. They are most definitely not Gypsies. They demand to live in the lifestyle they are accustomed to. They are not interested in the cheapest base boats you can find and then bring up to speed with thousands of dollars of options. They stand apart from the crowd and they are looking for a boat that fits that image.*

*As any good boat builder should...we try to build them each their own boat. If you are going to judge a boat on it's own merits; it will be fun to see how you make out with this one.*

*Please also note that "Moxy", Gozzard 41 #1 is **not a company demo**. It is a very recently delivered (2 weeks old as a matter of fact) commissioned project and is the prototype. The production hull and deck tooling are complete with some changes are already in mind for future versions. Barbara and Andy Heap, the owners, are a full time live-aboard retired couple with this as their primary residence...destinations south or were the wind carries them. I trust your crew will show them the respect they deserve.*

In February of 2002 SAIL MAGAZINE chose the Gozzard 41 as the TOP TEN WINNER...the first such honor bestowed to H.Ted Gozzard in his illustrious career. We are grateful to the editors and judges of the SAIL TOP TEN for their recognition.

## 1.2 HULL

Originally designed in 1989, the hull (specifically the under water section) was redesigned to be a smaller sister ship to the G37. This design was to see the draft limited to less than 5' and to be one of the most stable yachts in her size range. The G31 is build and designed to go anywhere with multiply Trans-Atlantic passages to her credit.

## 1.3 DECK

The deck for the 31 is designed to be dry and comfortable. The cockpit is fully enclose while maintaining excellent visibility.

## 1.4 SAIL PLAN

Conventional cutter rig: Of note, the aspect ratio and overall size of the staysail is increased to help fill the gap at 15 to 18 knots when most crews tend to shorten the topsail by furling it completely away. The combination of the self tending staysail and mainsail makes the 31 very easy to sail in the higher wind ranges.

## 1.5 INTERIOR

The interior design continues to evolve. Each new customer brings different ideas and need to the design and we tend to incorporate the best of these into the standard plan.

## 2. STRUCTURAL

### 2.1 General.

The builder's workmanship is to be done at a level equal or superior to that exhibited by a current Gozzard (2004 Vintage). All FRP calculations are based on a hand lay-up of knitted double bias E-

Glass cloth using marine grade resins. All laminated schedules are recommended and approved by the material suppliers and are based initially on existing technology and known successful examples of comparably sized vessels, then adapted and modified to suit our renowned level of construction and quality.

**2.2 Hull Construction.**

The hull is molded from female production tooling. The laminate as with all GOZZARD YACHTS is a “sandwich” cored construction. The “ATC” A550 CORE CELL foam core increases panel stiffness, strength, impact resistance and sound/thermal insulation while maintaining an excellent weight to strength ratio. Most of the weight saved by designing the cored laminate is then re-applied in extra skin thickness either side of the core, making the laminate schedule, in the words of the ATC engineers, “robust in the Gozzard tradition”. Only marine grade Hydrex-100 vinyl ester laminating resins are used in the hull.

The gelcoat is an NPG/ISO COOK “Buffback”. It is backed with a relative rich layer Hydrex-100 for cosmetic and osmotic protection before the structural laminates are laid. Only white gelcoat is used below the waterline for better quality control.

The hull laminate is constructed of knitted double bias E-glass CM clothe and is built up to a thickness shown on the following chart. Additional XM clothe reinforcing is utilized in the bow, trail-board, chainplate, mast step and transom areas.

The core material measures ½” in thickness, has a density of 5 pounds per cubic foot. The core is installed using both Vacuum bagging and hand laid techniques. The core runs from the cove stripe to approximately 10” from the centerline. The coring material is eliminated and replaced with a solid glass laminate in the areas of the sheer line, centerline, keel, rudderpost, and thru-hulls.

The solid and cored laminate areas are built up to approximately the following thickness:

AREA	TOTAL THICKNESS
Centerline – forward of keel	0.75”
Centerline – aft of keel	0.625”
Keel	0.875”
Sheer – above core	0.5”
Hull Flange	0.5”
Thru-hull platforms	0.625”
Hull below waterline at main bulkhead	0.875”
Hull below water	0.755”
Hull above waterline	0.755”

Finish above the waterline is Off White gelcoat with the standard broad stripe “Traditional” configuration in any normal color. Below the waterline is finished with 2.5 mils (dry) of INTERPROTECT 2000 barrier coat to create a “primed” surface for the (optional) bottom anti-fouling paint of your choice.

- 2.2.1 *OPTION: Awlgrip stripes (only) with white gelcoat hull.*
- 2.2.1.1 *OPTION: Awlgrip hull complete with stripes*
- 2.2.1.2 *OPTION: Dark colored hull with the limited edition small upper accent stripe*
- 2.2.2 *OPTION: Anti-fouling Paint (MICRON CSC)*

**2.3 Deck Construction.**

The deck is a molded FRP sandwich construction with ½” and ¾” ATC A500 CORE CELL. The deck, like the hull is finished with COOK “Buffback” Off White gelcoat. In areas where equipment is to be installed, the coring material is eliminated created a solid laminate. The outer and inner skins

are built up to a thickness of approximately 1/4". The deck flange is solid and built up to 1/2" in thickness. Extra reinforcing is added to cleat, mast step and winch attachment areas as well as high stress areas and corners.

The hull deck joint is bedded in 3M 5200 and bolted on 6" centers with 5/16" Stainless Steel machine screws with ny-lock (aircraft) nuts.

#### **2.4 Rudder.**

The rudder shaft is 1.5" diameter 316 stainless steel. The rudder is built from two molded 1/4" thick FRP half foils (skins). Stainless steel webs are welded to the shaft forming a stiff back that is heavily glassed to one of the foils. The foils are then cored and assembled together. 3M 5200 is used around the stainless shaft where it exits from the rudder to help prevent water from migrating into the rudder along the shaft. The cosmetic joint between the two halves is glassed over and faired. The entire rudder is coated with INTERPROTECT barrier coat. Once completed, the rudder is essentially a solid structure with no voids. However it should be noted that because of the different materials used in the construction, confusing readings may occur on some moisture meters.

The lower bearing surface is bronze and secured to the skeg. The shaft seal is made of bronze by EDSON and is integrally mated to the filament wound glass stern tube. This assembly (tube) is then heavily glassed with gussets to the hull. The shaft seal is positioned above the static waterline so that it can not leak when the boat is stationary.

The emergency steering handle is conveniently stored in a specially designed holder located under the aft cockpit locker lid where you can find it if you need it. Access is gained through a removable deck plate in the cockpit sole.

#### **2.5 Skeg.**

The FRP skeg is made in much the same way as the rudder except that it is considerably heavier in structure. It is designed to protect and support the rudder in the event of grounding. Although the skeg is not part of the hull, it has a stainless bolt spider, like the lead keel, that is permanently bolted using epoxy to the hull.

#### **2.6 Bulkheads.**

All main or structural bulkheads are constructed using cored FRP laminates for superior strength, low relative weight and total rot resistance. All bulkheads are glassed to the hull and deck before the interior trims are installed. Where possible all wooden furnishings, shelves, seat tops, dividers, etc., are glassed to the hull or deck to minimize unsupported panel size.

#### **2.7 Rub Rails.**

Full-length FRP rub rails are installed approximately 18" below the cap rail with a 316 Stainless Steel cap. The rails are secured to the hull with self-tapping screws into an area of the hull that has been specially prepared for that purpose. The rails are intended to be replaceable should they be damaged protecting the hull. The outer edge of the hull at the cap rail forward of amidships is also protected with a Stainless Steel strip.

### **3. DECK.**

#### **3.1 General.**

All horizontal surfaces (walkways) have a molded sand type non-skid. The cockpit sole is finished with teak decking for improved durability, excellent wear and dirt resistance. The teak decking is glued to the deck (and together) with Sika-Flex 290 Deck Caulk keeping external screw fasteners and plugs to a minimum.

3.1.1 *OPTION: Teak decks (not including cabin top)*

3.1.2 *OPTION: Two Tone deck non-skid color*

#### **3.2 Exterior Details.**

Only genuine Asian Teak is used for the exterior woodwork including the coach roof "Eyebrow", the bow sprit platform, cap rail, dorade boxes, cockpit sole and other trim.

The hull-deck joint is covered with a solid teak cap rail. In addition to being visually attractive, it provides a second and completely independent seal for the hull to deck joint creating as dry a joint as possible. The teak cap rail itself is made up of smaller sections. Where visible, the sections are joined using a “Murphy” scarf joint. All other joints are made utilizing a flexible caulking (SIKAFLEX 290DC) and covered with chocks so that the rail can be repaired in sections instead of in its entirety if damaged.

Stylized bronze dolphins, which are clear coated to protect the polished finish, are installed over the break in the rail known as the “hansing”, become a signature piece.

3.2.1 *OPTION: Cetol exterior teak*

3.2.2 *OPTION: Epifanes Varnish exterior teak.*

### 3.3 Stainless Weldments

All pulpits, davits, stanchions, etc. are manufactured (welded) using hand polished 316 Stainless Steel. All assemblies are designed to be removable.

- The bow pulpit is fitted on the sprit platform with the aft most legs secured to the bulwarks of the deck. The forward center leg secured to the bow weldment and has the bow Bi-color light integrated.
- The stanchion bases are mounted to the side of the bulwark (not on the teak) for improved rigidity with SS backing plate. Where access to the standard backing plates is difficult due to interior confines, such as behind the icebox, the backing plate is permanently installed with tapped holes so the bases can be removed from outside.
- The large diameter upper portion of the double lifeline is located 27” above the deck.
- Port and starboard board gates with adjustable pelican hooks
- Chainplate are bolted through hull with SS backing plates complete with dedicated lightning ground attachment point.
- - 3 Loop and 2 Loop SS handrails are positioned near the side decks on the coach roof.

3.3.1 *OPTION: Wooden Handrails in lieu of SS Handrails*

### 3.4 Dinghy Davits. (Optional)

To avoid having to deflate/stow or tow your tender, standard dinghy davits can be incorporated into the stern rails. Designed to hold up to 200 pounds, it will allow the storage of most rigid bottom inflatable dinghies with the OB motor still mounted. It is recommended that the OB motor be removed when the vessel is in a seaway.

The dinghy hoist is a 4:1 tackle with snap shackle attachments that is lead forward to a HARKEN jam cleat mounted to the davit within easy reach from the cockpit. Cleats are also installed for securing the dinghy to the davit to prevent movement in a seaway. A bar is secured across the ends of the davits to provide a handhold while boarding the dinghy from the opening transom. The davits also are used as a base for the flagpole and the GPS antenna.

3.4.1 *OPTION: Dinghy*

3.4.2 *OPTION: Outboard Motor*

3.4.3 *OPTION: Outboard Motor Crane (FORESPAR “NOVA LIFT” with custom base.)*

3.4.4 *OPTION: Outboard Motor Bracket – teak.*

3.4.5 *OPTION: Deck Tie Downs are available so the dinghy can be secured on deck during open water passages.*

3.4.6 *OPTION: Life Raft storage on spray shield with anchor point*

### 3.5 Deck Hardware. (See Rig Section for Sailing Hardware)

- 12 Volt outlet at pod
- Ritchie compass - SP5C
- 6 Gozzard bronze CHOCK/CLEATS are capable of handling 2 – ¾” dock lines each while keeping the deck clear. Strategically located for correct mooring at the bow, amidships and the stern.
- Safety Harness (2) Pad eyes in cockpit
- Jack Line Pad eyes (P&S)

3.5.1 *OPTION: Jack lines c/w shackles*

### 3.5.2 *OPTION: Chrome Exterior Bronze*

### 3.6 **Anchoring System.**

The vessel is equipped to handle 2 bow anchors in a roller assemblies located at the end of the sprit (not through the sprit). This position allows the anchors to be deployed without fouling or chafing on the sprit stays when a bridle is not necessary. The rode locker, which is located in the front half of the sail locker is divided and can handle 150' of 5/16" HT chain on the primary and 60' on the secondary. Provision can be made for additional chain on the primary. Dead end attachment points are provided for the anchor rode. Recommend maximum primary anchor size is a 35-lbs. Plow if permanently carried on the sprit.

The fore deck hatches provide access to sail and equipment locker. The entire anchor/sail locker is drained aft through the side of the hull and is considered part of the exterior not the interior of the boat.

- 3.6.1 *OPTION: A MAXWELL VWC 1200 vertical electric windlass with foot controls forward and remote switch at helm station. A safety switch is conveniently located on the DC panel to de-activate the foot controls. Storage for the clutch handle is provided.*
- 3.6.2 *OPTION: Anchor chain packages in 50' increments*
- 3.6.3 *OPTION: Primary Anchor with swivel*
- 3.6.4 *OPTION: Secondary Anchor with swivel*
- 3.6.5 *OPTION: Secondary Anchor rope rode*
- 3.6.6 *OPTION: Anchor mooring bridals with Devils Claw*
- 3.6.7 *OPTION: Fresh water wash down (part of pressure water system) located in bow*
- 3.6.8 *OPTION: Sea water wash down*
- 3.6.9 *OPTION: Stern Anchor with rode and stern deck pipe*

### 3.7 **Ventilation.**

- 2 –Stainless Steel HOOD 24"x 18"opening deck hatches
- 2 - SS 3" solar day/night ventilators
- 1 – SS 4" solar/12 volt power shower vent
- 4 - SS Opening 8"x15" Ports c/w screens
- 5 - SS Opening 5"x12" Ports c/w screens

### 3.8 **Companionway**

- Teak hinged companionway doors with louvers and built-in keyed lock set (not a pad lock). Interior locking bolts allow the doors to be secured from inside whilst on board.
- Built-in storm panel tracks allow for drop panels to be mounted inside the companionway doors.
- Overhead sliding screen and screened companionway doors allows for maximum ventilation while keeping insects out.

3.8.1 *OPTION: 3-piece aluminum storm drop panels*

3.8.2 *OPTION: Stained Glass inserts in lieu of louvers*

### 3.9 **Swim Platform**

- Fold down walk-thru transom with SS boarding ladder make man-over-board recovery and boarding the dinghy easy (especially with a dog or supplies)
- Built in hot and cold fresh water cockpit shower
- 6"x12" spring loaded storm drain (blast gate) is built into the transom. This drain has over 8 times the capacity of the more traditional 2" scupper drains normally found in modern cockpits. The transom maximizes emergency draining should the cockpit ever be swamped.

## 4 **MECHANICAL**

### 4.1 **Main Engine.**

- Westerbeke 35B3 – 3 cylinder marine diesel rated at 31HP at 3000 RPM and 59 foot pounds of torque at 1940 RPM
- Pre-cup combustion system for quieter operation.
- Glow plugs to aid cold weather starting.

- Fresh water enclosed cooling system with raw water heat exchanger.
- Self-priming fuel system with electric pump.
- 2" wet exhaust to custom-made oversized waterlock with drain.
- Engine exhaust is discharged through the side for a cleaner transom.
- Instrument panel includes gauges for tachometer, hour meter, oil pressure, voltmeter and water temperature with an audible alarm for low oil pressure and high water temperature.
- Automatic shut down system is included for low oil pressure and hi water temperature.
- Volt 120 Amp Series 27 large case alternator with twin drive belts and a multi-stage external voltage regulator.
- Water connection for domestic water heating.
- Perko clear glass bowl type intake strainers
- FORESPAR engine flush out valve. This specially designed valve allows you to easily run fresh water through the engine for storage or winterizing and it can be used to turn your engine intake into an emergency bilge pump.

4.1.1 *OPTION: Remote Racor Re-usable Oil filter. Uses a screen that can be cleaned eliminating the need to carry spare cartridge filters. Is equipped with a by-pass indicator light.*

#### **4.2 Drive Train.**

- The transmission is a HBW marine gear with 2.7:1 reduction ratio.
- VETUS Bull-Flex is used to reduce engine noise, vibration and the need to align the engine mounts.
- 316 SS 1 1/4" drive shaft
- PSS NO-DRIP shaft seal system
- Spare shaft zinc installed 1/8" forward of PSS collar to confirm collar position and prevent major leaking should the shaft seal accidentally come undone.
- 16"x 14" RH 3 Bladed Bronze MP Michigan Wheel Propeller.

#### **4.3 Engine Room and Equipment Room.**

All efforts will be made to provide a maintainable and easy to clean area. The engine room is heavily sound insulated. The sodium filled sound deadening foam is Mylar covered and trimmed with aluminum. All removable panels have neoprene gaskets to further reduce noise levels.

All access panels to the engine are hinged with stays. This allows instant access without having to remove panels or furniture (and then finding a place to put them). The engine can be completely removed in less than 4 hours by two people without damaging the boat.

#### **4.4 Steering System and Controls.**

- The engine is controlled using a KOBELT single lever shifter. This control has no moving steel parts that can affect compass accuracy unlike most other controls.
- Steering system is an EDSON Pull-Pull type with 3 turn's lock to lock with center brake. This system utilizes conduits with in-line grease cups (not unlike a shifter cable) to lead and protect the wire from the steering axle to the quadrant. Cable tension becomes a non-issue with this type of steering system because the cables are completely captive.
- 12" EDSON quadrant with autopilot linear drive mount. This allows the autopilot to steer the boat should the steering system fail.
- 28" Wood rim STAZO traditional type steering wheel is provided.

#### **4.5 Thru-Hulls and Seacocks.**

All Thru-hulls below the waterline have FORESPAR ball type seacocks. Made from glass reinforced MARELON and exceeding both UL and ABYC standards, these valves are totally impervious to corrosion and electrolysis. Installed with ease of access in mind each valve has an independent function and is clearly identifiable (tagged). All hoses are manufactured by SHIELDS and are USCG/ABYC approved for their particular application. All connections are double clamped.

#### **4.6 Refrigeration.**

The standard G31 uses a small freezer box located inside the refrigerator (5 cu/ft). The refrigeration unit is an air-cooled 12-volt NOVA COOL. A 12-volt /solar fan is used to keep fresh air moving through the compressor locker.

The FRP boxes are heavily insulated using closed cell foam with no voids for condensation to be formed. The box is drained with a water trap into a remote containment system not the bilge. The access doors have twin gaskets that mate on a wide seal plate to prevent cold loss. The doors are lockable with adjustable cam action handles. A gas ram supports the counter top access lid when open.

The standard configuration works extremely well for most applications and there are a number of optional upgrades and alternatives that can further enhance the usability and function of the fridge and freezer including the use of a standard front load DC Fridge/freezer. Cold holding plates also have some advantages. The system can be tailored to your intended use.

#### **4.7 Pumps.**

Located at the aft end of a heavily raked deep keel are the main bilge water pickups. A WHALE Gusher 10 manual pump is positioned so it can be accessed from the helm position. The main electric bilge pump (Rule 1100 GPH with built in float switch) has manual and automatic switch with an indicator light. Both main pickups can be lifted out of the bilge for easy servicing.

Independent shower sump pump(s) are supplied for each shower and icebox. (See 5.4) By removing (or smashing) the lid, these pumps can be included as emergency pumps. In addition the engine is equipped with a custom flush out valve that can be brought on line in an emergency at 11 GPM.

4.7.1 *OPTION: Cycle counter tracks pump operation*

4.7.2 *OPTION: Extra Electric Bilge Pump (1500 GPH) mounted forward for redundancy.*

4.7.3 *OPTION: High water alarm*

#### **4.8 Air Conditioning. (OPTIONAL)**

#### **4.9 Stoves and Propane System.**

The Force 10 stainless steel 2-burner propane stove with oven is gimbaled (with lock). A counter extension covers the cook-top when not in use and bi-folds back out of the way protecting the cherry doors. The stove is equipped with a thermal couple on each burner that automatically shuts the propane supply off if the flame is extinguished for any reason. Lighting the burner is simply achieved by the push of an ignition button.

Storage is provided for a 20 pound propane tank in a custom isolated and drained container located in the cockpit. Installation includes one 20 LBS. aluminum propane tank, a pressure regulator, gauge and electric shut-off valve controlled by a propane leak detector. The pressure gauge allows you to confirm if the tank is hooked in correctly and monitor the system for extremely small leaks.

A XANTEC propane detector is included with the system. With a sensor located behind the stove and another in the bilge, the boat is constantly monitored for propane gas. If a leak is detected an alarm is set off and the propane supply is automatically shut off by the solenoid. The system is wired so it can be manually by-passed should a sensor go off line.

4.9.1 *OPTION: Force 10 BBQ installed on aft rail tied into propane system.*

#### **4.10 Bow Thruster. (Optional)**

### **5 ELECTRICAL**

#### **5.1 General**

All ship's wiring is marine grade tinned copper including primary battery runs and is installed in accordance with ABYC specifications (except partial color code). All wires are coded and colored for easy identification. Schematics and a legend are supplied for each system for servicing. All connections are crimped using tinned fittings with colored heat shrink covers for stress relief and

easy identification. All circuits are fused except the main engine starter in accordance with manufacturer's specs and ABYC recommendation.

## 5.2 DC Electrical System

The ship's main DC Voltage system is 12 Volt. There are 2 separate battery groups – one for the deep cycle house consumption and the other dedicated to starting the engine. The house bank consists of 2 industrial quality lead acid 12-Volt batteries. This bank gives a total of 400-amp hour capacity. We have designed our battery installations to be close to the center of buoyancy and as low as possible actually increasing the vessels overall stability. The engine has a dedicated OPTIMA RED TOP maintenance free AGM diesel starting battery.

The primary system is wired for total redundancy. Each battery bank is equipped with a main disconnect switch and each of these switches can be linked in parallel or in isolation to the other battery banks for emergency access. For example - emergency starting the main engine can be done from the house battery or the VHF can be powered from the starting battery...total flexibility

To charge the batteries, the engine is fitted with a 120 amp 12-volt alternator that charges the house battery bank directly. Alternatively, when the vessel has access to a 120 volt AC shore power source, the batteries may be charged from the 50 amp automatic Freedom 10 charger/inverter. The engine battery is charged with an ECHO CHARGER, which is current limited to 15 amps from the house bank. This will not allow the engine battery to be overcharged as is often the case. If the engine battery should ever need to be bulk charged, it can be accomplished by selecting the correct position on the battery switches allowing it to "see" the higher charging rates.

The DC system is monitored by the LINK 2000R, (a power consumption meter for your main battery bank). It is interfaced to the FREEDOM 10 inverter/charger and the alternator. The Link 2000R controls the charge rate of either the FREEDOM inverter/charger or the engine driven alternator as required through a multi-stage (smart) voltage regulator.

For redundancy a simple standby voltage regulator is mounted beside the primary regulator that uses the same plug. If the primary regulator goes down, simply plug the standby in. Additionally, the original 51 amp internally voltage regulated alternator that was supplied with the engine is mounted as a spare with all brackets, wiring and belts. This gives you a completely spare engine charging system that bypasses all the high tech equipment should all else fail.

5.2.1 *OPTION: Upgrade House Battery Bank*

5.2.2 *OPTION: Upgrade to 190 Amp Alternator.*

## 5.3 AC Electrical System

The ship's AC system is 120-volt single-phase 60 cycle. AC power is supplied by ship to shore connection or from the 12 volt DC system via the FREEDOM Inverter. Duplex outlets with SS covers are located in convenient locations throughout the cabin. All circuits are GFI protected. The system also incorporates a galvanic isolator to control stray electrolysis.

The ship to shore connection is made through a 50'- 30 Amp 120-volt shore cord. The connection is normally located at the stern with optional additional bow connections available with a transfer switch to isolate the connection not being used. There is a primary disconnect switch within 6' of the deck connection and a secondary disconnect at the distribution panel.

The FREEDOM 10 Inverter can generate up to 1000-watts @120 volts AC using the ships DC system which will easily power a laptop computer, or re-charge a handheld VHF or cell phone battery.

5.3.1 *OPTION: Upgrade Freedom Inverter/charger up to 3000 watts/135 amps*

## 5.4 Distribution Panel

The main DC and AC distribution panels are located in the navigation station. The BASS distribution panels are custom made using magnetic circuit breakers with indicators and back lighting. An analog voltmeter is integrated into the DC panel allowing you to test the voltage at the house bank, main

engine starting battery. An analog DC amp meter measures amp draw at the panel. Similar meters are installed for the AC side. A reverse polarity light is included.

5.4.1 *OPTION: DC sub panel – used to group equipment or if equipment exceeds panel capacity.*

### 5.5 Bonding System.

The vessel is fully bonded and is equipped with a Canada Metal ZC-5 external zinc anode located aft. The optional thruster is equipped separate zinc. The propeller shaft is also protected by a clamp on shaft zinc.

### 5.6 Lightning Protection.

The lightning protection system has all pulpits, lifelines and antenna arch grounded with 4 gauge tinned copper braid to a large Dyna-Plate (est.64sq.ft.)

### 5.7 SSB. (OPTIONAL)

## 6 PLUMBING.

### 6.1 General.

All hoses are premium quality marine grade and are UL and CG approved for specific application. The fresh water system uses the Whale 2000 tubing system. Made of hard plastic and colored blue for cold and red for hot, this system does not use hose barbs and clamps, rather quick disconnect fittings that are much easier to service.

As the interior of the boat is semi custom, the location, number and size of the tanks can be adjusted to suit the owner's needs. The following is the standard configuration.

### 6.2 Fresh Water System

A single water located under the quarter berth stores fresh water. The vent is carefully routed to prevent seawater from contaminating the system and is equipped with a shut-off valve. . . all but eliminating any potential problems. Custom made to maximize the available space, the FRP tank is made from FDA approved post cured Vinylester resin to ensure no taste transfer and have removable lids with access panels for easy maintenance or service.

6.2.1 *OPTION: Hart Tank Tender located in the nav station to measure levels in each tank (3).*

Water capacity is set at:

- Starboard quarter berth tank – 51 US gallons
- Hot water – 6 US gallons

The 3.7 US gallon/min. JABSCO Sensor Max VSD pump offers variable water flow lowering amp draw and sound levels. Equipped with pre-filter and accumulator tank, it supplies water pressure at 35 PSI. Hot and cold water is run to the head vanity/shower, galley sink and cockpit shower.

An 6 gallon FORCE 10 hot water heater supplies hot water. This heater can make hot water using a 120-volt electric heating element or a built-in heat exchanger using the closed loop engine coolant system. A thermostatic mixer valve is installed at the hot water heater to regulate the water temperature at the desired maximum temperature to prevent the 190-degree engine coolant in the heat exchanger from overheating the water.

6.2.2 *OPTION: Seagull water filtration system can be plumbed into the galley to provide clean, taste free, drinking water from a tap.*

6.2.3 *OPTION: Second water pump with manifold for total redundancy*

6.2.4 *OPTION: Pressure regulated shore water inlet, by-passing the onboard system if dock water is available.*

### 6.3 Waste Management System

The standard interior is designed to incorporate a single RARITAN PH2 marine head. The discharge is pumped via a vented loop to a FORESPAR combination thru-hull/Y-Valve that directs the flow

either overboard or to the on-board holding tank. Premium Shields sanitation hose is double clamped.

The FRP holding tank has the lid permanently glassed on so the tank can withstand the pressure of being overfilled. Clean out panels are provided. The tank can be emptied using a deck fitting or the onboard macerator system. Fluid levels can be measured using the Hart Tank Tender (see 6.2.1). The holding tank utilizes a cross ventilation system by incorporating port and starboard vents. The advantage of this is that air is always moving through the tank lessening the odor and providing a redundant vent.

- 6.3.1 *OPTION: Fresh water supply with manifold for toilet flushing. If water conservation is not an issue (water maker) the toilet can be flushed using the onboard water supply, eliminating the need to regularly service the toilet pump.*

#### **6.4 Grey Water System**

All sinks drain directly overboard through a seacock installed in close proximity and within easy reach.

The galley has a single 18"- 16"- 7" standard stainless steel sink that will easily hold a frying pan or large pot. Different arrangements are available including a more traditional deep and narrow marine sink depending on the galley design and space constraints. The head has an oval shaped stainless vanity sink.

A self-contained sump pump is supplied for the shower and icebox drain that discharges overboard. This unit is automatic and has a strainer built-in.

#### **6.5 Diesel Fuel System**

Diesel fuel is stored in a baffled H5052 aluminum tank. This tank is manufactured specifically for the boat by Gozzard Yachts and is completely epoxy coated for corrosion resistance. A unique feature to the Westerbeke engine is the use of an electric fuel pump that moves approximately 3 times as much as fuel as can be burned by operating the diesel. This extra fuel is cycled through the system cooling the injection pump and re-filtering or "polishing" the fuel.

Large clean outs are built in to the tank top for easy servicing. A dedicated clean out tube is installed to the very lowest section of the tank so you can check the condition of the fuel and if necessary pump it out without having to open the tank. Note: Fuel capacities are approximate and will be finalized and maximized when constructed.

Fuel filtering is achieved with a Racor 500 primary and a finer micron on-engine secondary filter. Fluid levels are measured electronically with the fuel gauge located near the helm station.

Fuel related options include:

- 6.5.1 *OPTION: Dual Racor 500 Fuel filters with manifold.*  
6.5.2 *OPTION: Vacuum Gauge that measures fuel restriction through the filter.*  
6.5.3 *OPTION: By-pass fuel pump to back-up the on engine pump.*

### **7 INTERIOR**

#### **7.1 General**

As with all GOZZARD YACHTS, all usable space is made accessible for storage or machinery. Where necessary, overhead panels, hull lining, nut covers, etc., are made removable for easy access to wiring and deck hardware.

The style and level of fit and finish is to Gozzard 2004 standards as shown by boats displayed at the 2004/2005 Boat Show Circuit.

#### **7.2 Joinery Work**

The standard interior wood is American cherry finished with a rubbed effect varnish. The louvered cabinet doors feature a 4-way adjustable hinge to allow easy adjustment for compensate for wood movement. All drawers are dove tailed and are installed on sliders.

All ply-woods are made with marine grade cores and waterproof glues. All main bulkheads are FRP cored structures with cherry veneer faces. All trims, fiddles, face frames, kicks and doors are solid cherry and have the backside and end grain cuts sealed. All furniture and cabinets constructed with plywood have the end cuts finished with solid stock so they can not absorb water. The owner has the option to select the use of Formica upper laminates or other veneers for a lighter effect. All end grains are sealed.

Cabin soles are teak and basswood (tong and groove) and are made from solid stock not veneer. The sole is glued to a structural FRP structure and access panels are provided where required. All bilge panels have locks or are fastened securely.

### **7.3 Counters**

All counters are made of cultured marble. Sinks are recessed and back splashed are provided. Color is the owner's choice.

### **7.4 Upholstery and Cushions**

The owner may choose from a large in house selection of fabrics or purchase them independently with a credit equal to the cost of the standard material. Ultra Swede or the Ultra Leather is a popular optional upgrade. Cabins can be done in different materials bearing in mind that some materials are only available in minimum length orders. The style and look of the cushions can be tailor to suit the owner's tastes.

Curtains are included for all ports. All furniture shown on the attached drawings are included in the specification.

Closed cell cockpit seat cushions (3pc.) are provided standard. Two 4' sections are left uncovered at the forward end of the cockpit so that you can exit to the side decks without stepping on the cushions.

7.4.1 *OPTION: Ultra Leather Upgrade*

7.4.2 *OPTION: Ultra Suede Upgrade*

7.4.3 *OPTION: Forward Cockpit Cushion Sections*

### **7.5 Canvas**

All canvas is made with Sunbrella fabric for long life and resistance to sun fading.

Covers and canvas include:

- Pod - covering cockpit table, instruments and wheel
- Mainsheet Bag
- Port and Starboard Halyard Bags
- Navy Top complete with heavy weather dodger panels. The fixed hard windshield serves as the base for an extreme heavy weather dodger and navy top. In the dodger mode, clear vinyl panels are zipped in the front and sides in a low profile position allowing low windage and excellent visibility both through and over. In the navy top position, the vinyl panels are removed and remaining the bimini portion slides up and forward on a track mounted on the hard windshield to increase head room and move the bimini directly over the companionway for sun and rain (drizzle) protection.
- Helm Bimini
- Mid Section – Covers between Bimini and Navy Top creating a complete rain cover for the cockpit.

7.5.1 *OPTION: Not Used - Blank*

7.5.2 *OPTION: Included with option #3.31 Wooden Hand Rail covers*

7.5.3 *OPTION: BBQ Cover*

7.5.4 *OPTION: Full Cockpit Enclosure (Only available with Mainsheet Arch)*

7.5.5 *OPTION: Life Jacket Package Bag*

## 7.6 Lighting and Accessories

- 2 – LITECO DC florescent lights (galley and head)
- – NICRO Courtesy floor lights are located on the main walk way and galley kick with the switch at the companionway.
- - ABI Halogen reading lights
- Built-in customer provided TV/VCR
- Wiring for fan circuits

7.6.1 *OPTION: Fan package – Forward, galley and aft cabin*

7.6.2 *OPTION: Extra Fan(s)*

7.6.3 *OPTION: PIONEER AM/FM Stereo with CD player mounted in nav area. 2 - interior speakers in forward cabin and 2 – exterior speakers in cockpit.*

## 8 RIG and SAILING HARDWARE

### 8.1 Spar

- SELDON gray anodized aluminum Mast and Boom
- Single spreaders
- Masthead anchor light
- Steaming and fore deck light
- Burgee halyard (STBD) and flag and reflector halyard (PORT)

8.1.1 *OPTION: Powder Coating of spar and boom in lieu of anodizing*

8.1.2 *OPTION: Masthead Tri-light*

8.1.3 *OPTION: Masthead Strobe*

### 8.2 Sails

The QUANTUM (Toronto Loft) sails are designed and built to fit the boat's intended operating parameters. With the G31 having a moderate displacement and being relative stiff the sails are built to withstand the higher wind ranges the boat is capable of being used in. Careful detail has been giving to correctly position reinforcing and chafe patches to increase the sail life span.

- Fully Battened Dacron Mainsail with two reefs
- Furling Cross-cut Dacron Topsail with White UV strip
- Furling Cross-cut Dacron Staysail with adjustable clew board with White UV strip

8.2.1 *OPTION: Mainsail Upgrade to Premium Off Shore Series*

8.2.2 *OPTION: Topsail Upgrade to Radial Cut Premium Off Shore Series*

8.2.3 *OPTION: Cruising Asymmetrical Spinnaker with snuffer*

8.2.4 *OPTION: Storm Tri-sail*

### 8.3 Standing Rigging

All wire is 1x19 316 SS. All upper terminals are swaged except for the fore stays and sprit shrouds, which are STALOK. All bottom terminations are open bronze body STALOK turnbuckles.

- Forward Lowers
- Aft Lowers
- Upper shrouds
- Intermediate shrouds
- Intermediate Backstays
- Staysail Stay
- Forestay
- Backstays (2)

### 8.4 Running Rigging

All running rigging is color coded for easy identification. All lines are sized for load, ease of use and storage.

- Main Halyard –7/16” – White REDPOINT RLS
- Topsail Halyard –7/16”- Red trace REDPOINT RLS
- Staysail Halyard – 7/16 – Blue trace REDPOINT RLS

- Topsail Sheet – ½” -Red trace REDPOINT Yacht Braid
- Staysail Sheet – 3/8” – Blue trace REDPOINT Yacht Braid
- Vang/preventor – ½” – Green trace REDPOINT Yacht Braid
- Main Sheet – ½” – White REDPOINT Yacht Braid
- Staysail track control – ¼” – Blue trace REDPOINT Yacht Braid
- Topsail Furling – 5/16” – Red Trace REDPOINT Yacht Braid
- Staysail Furling – 5/16” - Blue trace REDPOINT Yacht Braid
- Mainsail Out-haul – 3/8” - White REDPOINT Yacht Braid

## 8.5 Components and Hardware

- SPINLOCK Sheet stoppers are used for all controls.
- LEWMAR 16 Chrome Self-Tailing halyard winches – Port and Starboard
- LEWMAR 16 Chrome Self-Tailing main sheet winch located on steering console. The main sheet has a 2:1 purchase SCHAEFER block system and is designed to be at the end of the boom where the moment arm is at it’s greatest. This is the best, safest and by far the strongest way to attach the main sheet to the boom. Mid boom sheeting increases the loads on the boom and the boat by 4 times over end boom sheeting.
- 2 – 8” and 1 – 10” LEWMAR Alloy locking winch handles are conveniently stored in custom holders under a cockpit locker lid.
- Custom built curved self-tending athwartships staysail traveler with SS supports. The track is curved to the same radius as the sail, allowing the staysail to be tacked without adjusting the sheet. The staysail sheet, which has a purchase of 2:1, is lead aft to a sheet stopper (starboard side). The traveler control is used to adjust the traveler car to induce twist or park the car in the center of the track when furled. This control is lead aft to a HARKEN jam cleat.
- SELDON Rigid Boom Vang with a cascade 4:1 purchase system leads aft to a sheet stopper. A unique feature of this vang arrangement is the live end. Instead of the rope simply being tied to the block, it is lead through an extra block on the boom with a snap shackle. When the vang is being used normally the snap shackle is pulled hard into the block, essentially being dead-ended. If you release the vang, you can move the snap shackle down to a pad eye on the port or starboard bulwark and set up a preventor, all still being lead aft to the cockpit.
- LEWMAR 40 Chrome Self-Tailing primary winches. The topsail sheets to an inboard 1” T-track mount with SCHAEFER genoa fairlead cars.

8.5.1 *OPTION: Primary Winch Upgrade to 44CST*

8.5.2 *OPTION: Halyard Winch Upgrade to 30CST*

8.5.3 *OPTION: Electric Primary Winches 40ECST*

8.5.4 *OPTION: Electric Halyard Winch 40ECST*

8.5.5 *OPTION: Spinnaker Halyard lead aft to sheet stopper*

8.5.6 *OPTION: Spare Halyard run aft to sheet stopper*

8.5.7 *OPTION: Down wind pole*

## 8.6 Mainsail Furling/Reefing

- All controls lead aft to port halyard winch area. Controls can be operated facing the sail with a minimum amount of friction and can be tailed to a winch if necessary.
- Reefing is achieved with a single line that secures both the luff and the leech of the sail that allows this operation to be completed by a single person without leaving the cockpit.

8.6.1 *OPTION: Mainsheet Arch c/w cockpit light*

8.6.2 *OPTION: In-mast furling by SELDON SPARS*

8.6.3 *OPTION: In-boom furling*

## 8.7 Headsail Furling

- Topsail furling – Schaefer 1100
- Staysail furling – Schaefer 750
- Headsail furling controls lead aft to port halyard winch area. Controls can be operated facing the sail with a minimum amount of friction and can be tailed to a winch if necessary. Leads run from the

furling drums neatly under the fore deck, exit up the cabin face and along the coach roof to labeled sheet stoppers.

## 9 ELECTRONICS

### 9.1 Basic Instruments (Standard)

Ray Marine supplies all instruments. All instruments are integrated using the “SeaTalk” bus or HSB and are capable, in some cases, of repeating other instrument functions.

#### Helm Station

- ST 60 Tridata
  - Fuel Gauge
  - Volt outlet
- 9.1.1 *OPTION:* ST 60 Wind Instrument  
 9.1.2 *OPTION:* Thruster Control included with 4.10.0  
 9.1.3 *OPTION:* Upgrade VHF to Ray 230 c/w remote

#### Navigation Station

- RAY 45 VHF
- Link 2000R
- Bilge Pump Auto/Manual switch
- Map light

### 9.2 Advanced Instruments (OPTIONAL)

#### Helm Station

9.2.1 *OPTION:* RL70C Color Radar – HSB to Raychart 530 at nav

#### Nav Station

9.2.2 *OPTION:* Raychart 530 Color Chart Plotter – HSB to RL70C  
 9.2.3 *OPTION:* R120 WAAS GPS

### 9.3 Auto Pilot

9.3.1 *OPTION:* Autohelm Type 100 Computer with 6000+ display, Fluxgate Digital Compass, and a Type 1 linear drive unit  
 9.3.2 “G” series Autohelm computer needed for radar/chart overlay.  
 9.3.3 *OPTION:* Hand held remote for auto pilot

## 10. OTHER EQUIPMENT

### 10.1 Gear

- Fire Extinguishers
  - Flag Pole with stern socket
- 10.1.1 *OPTION:* 2 – 20’ 1/2” Nylon Dock Lines  
 10.1.2 *OPTION:* 2 – 30’ 1/2” Nylon Dock Lines  
 10.1.3 *OPTION:* 3 – 8” x 20” Fenders  
 10.1.4 *OPTION:* Boat Pole with deck storage  
 10.1.5 *OPTION:* 6 USCG Life Jacket in storage bags  
 10.1.6 *OPTION:* Odin Flare Gun Kit

### 10.2 Spares

10.2.1 *OPTION:* Spare primary, thruster and shaft zinc anode  
 10.2.2 *OPTION:* Main Engine Cruise Kits  
 10.2.3 *OPTION:* Generator Cruise Kit  
 10.2.4 *OPTION:* Spare alternator belts  
 10.2.5 *OPTION:* Ship’s fuse kit  
 10.2.6 *OPTION:* Ship’s spare bulb kit  
 10.2.7 *OPTION:* Additional spares.

### 10.3 Manuals

03/11/04

- Owners manual complete with users guide, specification and equipment literature
- As-built schematics for the electrical and plumbing systems
- Electrical legend and color code
- Manuals for main engine and generator

## **11. COMMISSIONING**

### **11.1 Delivery Dates**

Gozzard Yachts will make every effort to complete the project in a timely fashion. However, considering the complexity of the project, we are only prepared to estimate the delivery date. We will, via email, be able to send digital photographs of the weekly progress and through full disclosure keep the owner in the loop as to the timing. Our past experience indicates we are never more than a month behind (or ahead) of schedule.

### **11.2 Testing and Sea Trails**

The boat will be launched, rigged and tested fully at a location to be determined by the owner. The owner is encouraged to make a thorough inspection of the vessel, either by surveyor or personally, as this will represent the end of construction and related work. The final payment will be due the owner's acceptance of the boat.

All electronic systems will be tested and calibrated.

### **11.3 Delivery**

The boat can be launched and commissioned in Goderich or at another location. The cost of the transportation of the boat from Goderich will be the responsibility of the owner or dealer.

### **11.4 Systems Inspection**

All major systems will be inspected and have the installation approved (signed off for warranty) by their manufacturers or authorized representatives either during construction or at time of sea trials.

### **11.5 Pre-scheduled Factory Maintenance**

Upon final commissioning 2 visits by factory or dealer authorized personnel will be scheduled at approximately 3 and 6 months intervals to fine tune the systems and make any final adjustments.