

‘STARTING AT THE BOW.....’ INDEX

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Preface

The boat you are interested in is a refined, constantly up-dated copy of the boat I designed and built for myself 11 years ago. After years handling many different boats, doing hands-on repairs, and subsequently winning both national and world titles in offshore race boats that I personally put together, the experience was there to truly know what a good boat really is. So at the time of what one could loosely call my “retirement” I was looking forward to traveling the Islands in a boat that reflected that knowledge. I wanted a safe boat for open ocean trips running out of the sight of land - yet with a shallow draft to run across the scary shallow waters around the Islands. I wanted the largest boat that could be water launched and retrieved off a trailer using just a 4 wheel drive pickup so that I would not be held hostage by a marina with a travel lift. And the big one - I was just *done* with outboards. There simply was not a diesel boat on the market for cruising, diving and fishing with adequate creature comforts or even the capacity to properly carry the amenities for comfortable cruising – let alone one that had style, fit and finish commensurate with my taste and eye for quality - at least one that was not a giant floating house. So with all the tools and talent in place, I jumped from boat repair to a small boat builder. We spent the time and the money to do the real engineering and she turned out to be a fantastic boat. Since boat #1 each has been essentially a work in progress for 11 years now each boat a bit more refined than the last. (So much for my retirement - but I am enjoying the creations). The 45' CruiseDiveFish was designed and built from inception to run fast and dry in rough seas. She's powered by economical diesel engines putting their power through the simple and robust *POWER-VENT drive system*. With *PVS* drives our boats only draw 28” so you can usually find a place to slip over the reef and glide her nose up onto a beautiful sandy beach normally only accessible to little rubber dinghies. The 45 CDF was designed to be low and close to the sea for easy access to the water. And with her low windage she is not easily blown around while maneuvering or at anchor.

Apparently there are others with my vision of what makes a really good cross-purpose boat, as we are producing as many pre-sold boats each year as we can. I still build them with the care and detail as though they were to be mine. We are building something that we are proud of not some fast-buck boats with planned obsolescence. I was raised in the aircraft industry; planes would fall out of the sky if the aircraft industry operated with attitude I see in the marine industry. Boats should be dependable and they should last. To that end, I have done my best to attract good people and to relate to my employees that we build lifetime boats; boats that maintain both dollar value and the value of a long service life. To improve quality we have adopted a philosophy contrary to the marine industry norm. That is contrary to the thinking that it's okay to build ‘base boats’ and then haphazardly screw on options later as a customer decides they want them. At this level of boat it is virtually impossible to install options correctly after the fact, which is why most other boats look “busy” - everything is an afterthought. Most boats manufactured today are really built as just a high ticket product to profitably market and it shows if you look at them closely. On the other hand we decided to build in just about all of the amenities you can think of. We do that from the boat's inception to insure properly planned integration of equipment. In doing so we find that equipment holds up well, is easy to use, and does not clutter the boat or its appearance. All that said, and meaning no offence, it has also been my experience that it is human nature to read sales brochures considerably more thoroughly before purchasing a boat than the manuals after you own the boat and want to go play with it. So with that in mind I have taken the time to do not only a fairly detailed description of the boat and equipment, I have also narrated a bit on why and how as well. If you will read this you should come away a more knowledgeable buyer no matter whose boat you buy. And if you purchase a Smith you will have some idea of how to operate the boat even if you don't read the manual. One final comment, despite the apparent complexity of our Smith 45' CDF and its systems we have managed to keep our boats a “start it and go”, come home “squirt it off and leave” boat that's fun for all aboard and easy for anyone to drive. Some of the more advanced features will keep your interest for years they are built in and waiting for you.



She's a lot of boat, the list is quite long, please sit back.

STANDARD EQUIPMENT AND FEATURES 2007-2008 SMITH 45 CDF

- The running surface of the 45' CDF is a conventional V-hull with a 22 degree deadrise measured at the transom. (Deadrise is the angle of one side of the V of a boats hull). Her deadrise is a progressive design set to carry heavy diesel engines well forward of the transom to allow for more floor space aft, The design also allows for large shifts in load while displaying excellent lateral balance. In other words she is not tipsy (tender is the proper term). When you step down on her you will notice she is very stable. Passengers and gear may be placed about anywhere on the boat without a large effect on the boats performance. Her bow entry is 43 degrees per side to split waves well but not so sharp she would tend to stuff in following seas. Actually the design turned out to handle seas in any direction exceptionally well.
- There are no bottom changes that operate as "steps". There are chine vents on each side to break suction in tight turns. These look the air entry of a step, but are not.
- The boats come with *POWER-VENT™ Drive Systems*. They are a simple fixed (non articulating) shaft strut and rudder system with no moving parts except the robust 2" diameter propeller shaft and the solid 5/8" stainless steel rudder with a 2" rudder shaft. There is no oil. No seals to leak. No hoses in the water to break off or collect barnacles. And no fragile little gears to break. The *PVS* is serious big boat hardware. The system is literally built up and into the hull itself as a molded-in part of the boats construction. Even swinging 23" diameter propellers the boats draft is a mere 2'4". In addition the drives position the propellers fully forward of the transom up in pockets so there are no dangerous blades or protrusions aft of the transom.
- Trim attitude of the boat is accomplished by a pair of very large trim tabs over 19" wide 44" long, they are made of fiberglass. They are also notched flush into the hull bottom and solidly bolted to the hull at their forward edge. IE: there is no hinge to wear out. The tabs are bolted smooth into the hull bottom as an extension of the hull. By using a simple stainless steel hydraulic cylinder inside the boat above each tab and tapping into the boats abundant power steering pump pressure we are able to hydraulically bend the back edge of the tab down to induce a hook or slightly lift it to put rocker into the bottom that can raise the bow. The result is extremely effective control of bow down, bow up and the ability to lean the boat either way to compensate for load imbalance or perhaps to reduce spray in quartering seas on a windy day. There are many advantages to this tab system one of the main ones is that there is a lot of trim effect and very little speed reduction with the tabs down. There are no little electric hydraulic pumps to go bad rather we install an industrial solenoid valve block that will last 20 years or more. This hydraulic control block receives the hydraulic oil from

common automobile type power steering pumps one per engine. The block directs enough oil from each pump to the steering so that if one pump were to quit the power steering would still be effective although just slightly harder which should indicate to the captain to check into the steering system. NOTE: the boat would steer if both pumps quit. After 11 years 100% of the problems have been pump belts which are easily replaced. The boats are delivered with two sets of spare belts. The tabs are a big part of the boats incredible control in the sea. They are quite fast in response and the response is quite predictable. Again this is possible because the Hydraulic "block" is a serious piece of equipment. In the case of the tabs it also uses the power steering oil pressure to acuate the trim tab cylinders up and down. It directs oil into the steering system when the boats auto pilot is engaged. And in the case of a bow thruster and the Hydraulic windless the "Block sums the total output flow of the pumps together while in windless or thruster mode to increase the speed of both functions. We have installed 50 segment LED indicators in the helm panel beside the throttles. There are (2) sets (port and starboard pairs) of trim switches; one on each side of the steering wheel. These switches both do exactly the same function; there are two sets simply for convenience.

- Her overall dimensions were deliberately set to be the longest and widest rig you can legally pull on a trailer over most public roadways with just a simple a \$35.00 oversize permit.
- The boats maximum beam is just aft of the cabin bulkhead where she is 10' even measured at the rub rail. With just a 10' beam the boat can go through a standard warehouse door. This is a feature which will be important sometime in the boat's long life - be it just for maintenance or storage.
- Her actual hull is 45' even in length, however, with the swim platform and anchor added these boats are just under 48' overall.
- As a bonus it works out that at 45' they are remarkably easy to water launch and retrieve with a good 4 wheel drive pickup even at just a fair boat ramp. Trailer launching is often more convenient and certainly improves owning a Smith 45 CDF by eliminating the mandatory need and expense for a marina and travel lift when boats gets too wide to trailer.
- While on the subject of dimensions: Her water line length is 40'5" x 103" wide at the transom. At an average displacement of 23,500 lbs. she floats with her floor (Cockpit sole) fully self bailing 6" above the water and with her chine 9 1/2" deep. She floats sitting 0 degrees as in dead level along the keel with a 1.5 degree cockpit sole inclination aft so her floor drains well. By setting her up with her keel level, in conditions of poor bottom visibility I have often been able to use the brail method and bump my way through shallows to deeper water. The propeller tips up in the *POWER-VENT drive* pockets are just about level with the keel. But they are also 40' aft of the bow where first contact with ground would usually be made. This gives a captain the time it takes to glide 40' to react and reverse before the propellers get to an object that might damage them. NOTE: This is not a practice I recommend but it happens when you go exploring off the beaten paths and it can cut many miles off a trip cutting through shallows not to mention if you know what you are doing she can take you to see really beautiful places just plane inaccessible to most boats.

- Water surface up to the top of the radar (bridge clearance) is 8' 11" (call it 9' light ship) to the top of the radar dome. Yes the Perko LED anchor light is a few inches higher but it will fold back on its mount without damage.
- People often comment that the boat just feels very safe. Yes, she is safe as boats go because she is so overbuilt which also makes her heavy and stable. I also think the "feeling" is in part because the cockpit floor to the top of the gunwale cap between the front of the console and the cabin is the world safety standard railing height of 39". With the boat loaded to an average weight, the gunwale cap down to the water surface is approximately 56" forward of the console. The combination yields great visibility and a safe feel. I recall a quote a woman made while we were out on a rough day. She "said gee honey this boat rides so well it feels like it a right to be out here in this "
- Aft of the console the gunwale caps slope down to just 27" above the aft cockpit floor for gaffing fish. Reaching over the side the water is just 33" below the gunwale.
- The cockpit design is a molded liner designed so that with your knees and thighs pressing flat against the wide flat combings there is a generous area for your toes without kicking the hull side. We also built in a 2" drain gutter where the floor meets the hull sides; a perfect place to hook your toes if you are gaffing barefooted. There is sturdy hand rail recessed level with the gunwale cap all the way around the aft cockpit. All in all you will find she's the best boat you ever gaffed over.
- Non-rusting gaff and boat hook clips are standard up under the gunwales amidships.
- Her hull construction is a blend of Dupont Kevlar and E-Glass. While Kevlar is super strong in tension, in a lay-up that is practical for boat construction it is not as good in compression as E-Glass so we use a 60% Kevlar and 40% E-glass hybrid with the strands arranged to fully exploit the best physical strengths of each material. For the technically minded the inner and outer skins of the hull are 40 ounces per sq. ft. 0-90 with the center 20% of the strands woven so the material could never shear. We use only 100% vinyl ester resin throughout the boat's construction. There is no wood in the structural part of the boat, only a bit of real teak in the cabin for warmth and richness. The boat has a 1" thick, 100% solid laminate bottom. While a cored lamination would be lighter and it could be as stiff (and certainly would cost less to construct), a solid bottom gives a better rough water ride than a cored bottom. It's as simple as this: "mass meeting mass right at the point of contact tends to null out shock radiating up through the boat which equates to a smoother ride". In addition, the composite lay-up we have been using now for over 11 years has actual real experience(s) at being "puncture proof". For example, one dark night I personally put one on solid rock at 40 mph plus. She came to rest high and dry perched a-top the dagger-like points of iron shore rock with no damage but scratches. The real damage was to my ego, "which I certainly deserved for displaying my arrogance in running fast at night!" And to my wallet to get her lifted off those rocks. However no one was hurt, no holes or leaks- so once the barge and crane pulled her off we drove her home 70 miles.
- So how can our boat hit solid rock at over 40 mph without punctures? The bottom is real thick and strong. We overlap all the laminations at the keel. As a result the area where the

boat first hit is about 1-1/2" thick! In addition the boats center stringer is sitting right on top of her keel so the assembly is incredibly strong. Actually 1'1/2" is just way, way overkill until the day you hit solid rock! The boats are built to operate in the Bahamas. There is reef everywhere so if you like to venture into unfamiliar areas someday you might be glad your boat was built with overkill. The balance of the bottom running surface varies in thickness however even the thinnest sections are a good 5/8" thick. We had one get away in a bad storm along with six other boats. Someone with a "big floating house" tied up to a dock that was too weak to stand the extra weight and windage the big boat added and the dock ripped out. They all ended up a mile away rocking all night in the surf on a barrier reef. The bottom of the SMITH was cosmetically a mess but of the six she was the only one that did not puncture and take on water. And even with dinged up propellers she was used as the tug to pull the others into port after they were patched and pumped out.

- In contrast to the 100% solid bottom of the 45 CDF, her hull sides are highly cored to reduce weight and to give the boat just a bit of flex and relieve stress. The coring we use also builds in natural buoyancy; Nida Core propylene honeycomb coring material is also 1-1/2" thick like the keel - but in this case it is not solid; the honeycomb cells are full of air. After the gelcoat and 3 ounces per sq. ft. of fiberglass mat for skin-out, we laminate in our 40 ounce Kevlar and E-glass hybrid. The next day we lay in two layers of 2415 fabmat in the bottom and slightly up the chine so she has good defense if she ever drifts against rocks. The day after that we lay in a wet ounce and a half mat on the hull sides and immediately vacuum bag the 1-1/2" Nida-Core. The vacuum pulls the core tight and void free against the Kevlar already on the hull sides. Later there is another 2415 across the bottom that also extends a few inches up the inside. This way the core is not only chemically attached it, it is physically mechanically straddled. After the coring and the balance of the bottom laminate are in place the complete hull is again laminated with another 40 ounce Kevlar hybrid. The result is the sides are stiff yet they are light weight and very buoyant because of all the air trapped in the honey comb cells. The cockpit sole (floor) is also Nida Core but even thicker at 1-3/4", the deck 1", the side combing panels and the stringers have a whopping 2" Nida Core center. The bulkheads and the engine room stringers are of a linear PVC foam core called ATC Corecell. I am convinced linear PVC foam is the best material for those jobs. The engine beds are not wood they are Mantex (sometimes called space age board) with 1/2" aluminum plate imbedded in the lay-up for the engine mounts to bolt into.
- The boats have been laminated in this way for 11 years now and have proven to be anvil solid. We have experienced absolutely zero structural problems ever and that includes over 10 years of daily open ocean commercial service! In addition, the US Navy says they are unsinkable by construction primarily because the Nida Core contains so much encapsulated air in the structure above the waterline that the boats without towers would even self right if they could be flipped. "Sorry" no personal experience on those counts.
- We use the best gel coat money can buy and then paint everything except the bottom running surface. Why? About any boatyard monkey can repair a gouge in a gel coat bottom. And so far, unlike gel coat, Poly Urethane paint does not chalk in the sun, needs no waxing, washes easily and can be repaired by about any good car painter. IE: Car painters are

usually a lot easier to find if you need a touch up. The premium gelcoat we use along with the 100% vinyl ester resin we use throughout the boat should prevent osmosis blisters from ever forming even if the boat sits in the water. NOTE: that does not mean the boat would not require bottom paint. It certainly would to prevent the adhesion of marine organisms like barnacles. Bottom paint does slow boats down, but not nearly as much as even just a small case of barnacle growth.

- We have continued our crusade at maintaining and improving on the boats and their simple clutter-free look. You will notice very few mounting screws show anywhere making the boat easier to keep clean and looking new. Actually, just about everything is thru-bolted using custom made mountings with studs going through the lamination. The nuts and washers are on the back out of sight.
- For 2007 we have made Option (1) a light weight hard top. The new hard top T-Top is still console-mounted on the same 2" anodized curved aluminum legs. Most everyone felt that the beautiful flowing shape of the T-Top and its legs have helped to give the Smith 45 CDF her stunning understated look, so from a distance I designed the tops to look alike. The new hard top is attached to the legs by some new custom made anodized pads with special screwless attachment caps. NOTE: While any and all hardtops are by materials alone considerably heavier than canvas, hard tops are perceived to be more valuable and admittedly they are easier to clean. So, for those reasons we made the hardtop available. Our lighter weight laceless Weblon over aluminum remains as our standard T-Top.
- As always our 2007 45 CDF still has a flat cockpit sole (floor) without any steps to trip up or down. Our boats feature a flat floor all the way from the cabin door to the transom and out onto the stainless steel swim platform making the boat much safer and less tiring. Not to mention the large floor space gives the boat the ability to accommodate many guests comfortably underway or just a floating party boat.
- The cockpit floor is totally self-bailing with self-bailing hatch drains. There are watertight rubber seals on all floor hatches, recessed stainless steel floor hinges and stainless steel hatch pulls
- Our standard fully molded cockpit liner now includes a classic planked "teak wood" look on the floor, the floor hatches and the teak pattern is carried up onto the gunwales caps, the transom hatches and the marlin door lid. The teak cockpit floor is not only beautiful; the material is a fantastic nonskid, especially when wet. It is extremely tough - even dive tanks do not dent it. Poor boating shoes, even women's high heels don't mark our teak floors. When you are out styling at night your women can keep their heels on as far as the floor is concerned! And that red wine that always seems to get spilled just easily washes right off so everyone is happy. How can that be? *Because it's not real teak.* It's Poly Vinyl Chloride plastic "PVC". It looks like teak and feels like teak - it passes for real teak even up close everyone is amazed! The material is an American product which is basically the same material they make outdoor basketballs out of. Think about the abuse a basketball takes bouncing on asphalt and concrete and how long they last. The floor is about 1/4" thick, easily cleans up with a pressure washer. And yes, we have a pressure washer permanently

installed on the boat - just flip the switch and spray wash. About the only down side to the teak floor is that just like real teak this PVC teak is a red/brown color. In the mid day sun it can get hot on bare feet so we also include a Misters Unlimited, Inc. (www.mistersunlimited.com) evaporative cooling mister system with (14) non clogging Ruby orifice jets. By adjusting the pressure of the system a bit lower than normal the mist falls before total evaporation and seems to just dampen and cool the floor. In addition the jets reduce the air temperature in the cockpit about 15 degrees as well! We plumb the condensation from the cabin air-conditioner into the fresh water tank to help with fresh water needs so the Misters can be run for the peak temperature hours of the day drawing water off the boats 120 gallon fresh water tank without depleting the supply significantly. We find the condensation from the cabin AC just about replaces what the misters use because in the summer the cabin AC is on almost the entire time the boat is in use and the AC unit condenses an incredible amount of moisture from the air.

- Option (2) for 2007 is a pair of Seatek 820 HP turbo diesel engines and ZF 312- 2-speed transmissions! For those who would like to cruise effortlessly at 65mph these engines are the tickets. Top speed depends on many other factors lets just say well into the 70's.
- Option (3) is a half tower. Fold back buggy top, Ray Marine E-120 navigation screen , a second totally separate VHF radio, full 17' Lee fold out pole & wire out riggers. Full steering, auto pilot control, helm controls and three bucket seats.
- Option (4) is a 12 volt DC water maker system. It is not recommended unless you spend a lot of time in the Islands as water makers are very high maintenance especially in silt or worse - oil laden water. IE: the dirty water close to shore has a lot of street run off with oil in it which ruins water maker membranes immediately.
- Option (5) is a 120 volt AC 850lb per day fresh or salt water flake icemaker that automatically pumps ice to the fish boxes.
- Option (6) we now offer a bow thruster which we hydraulically power off the main engines power steering pumps. The boat really does not need it, but it is offered as an option to assist when docking in strong currents. We worked out the details and it can be an option but only at the time the hull is laid up. We will not add one later as doing so is a recipe for problems later in the boats life.
- The only other major option is an anodized aluminum spool windless also hydraulically powered off of the engine power steering pumps. This is a serious spool configuration with a level winder that can pay out and retrieve over 700' of anchor line.
- The balance of this list is the standard boat for the price quoted. We will accommodate you with some changes.

STARTING AT THE BOW AND WORKING GENERALLY AFT

- 1) A 22 lb. stainless steel Bruce style anchor connected by a stainless steel swivel to 75' of 1/4" stainless steel chain braided to 125' of 5/8" triple braided line. Stainless chain is slippery so it does not get in a knot in the anchor locker. 75' of chain is enough for most light anchoring situations. I suggest keeping the 125' of anchor line tied with the Velcro strap we provide so it is always ready to pay out with out any tangles.**
- 2) A custom made, thick, strong stainless anchor chute is recessed into the deck. The anchor line is pulled over a nylon roller. There is a stainless chain stopper and a welded-on bow cleat. A metal whisker on a switch rides against the anchor shank so that if the anchor is down or even begins to move (as in coming loose underway), the switch closes and a bright orange light illuminates at the helm.**
- 3) Our standard windlass is a Muir brand head hydraulically powered off the engines power steering pumps. It is faster and stronger than any electric models on the market. NOTE: you can see the anchor line moving on the chain counter and you can speed anchor discharge or retrieval up faster by clicking one or both of the engines into neutral then revving them to 1600RPM to increase hydraulic oil flow**
- 4) Windlass operation controls are available from either a bow switch and/or console helm switch where you can see hydraulic pressure and read a line counter. There is an amber LED at the helm to indicate (anchor down) or even just loose. The system is all neatly covered by a latching lid. The lid is also held open by a stainless steel spring. The anchor area is essentially water tight from the balance of the boat and is self draining from stainless steel thru-hulls. It is also nicely lit by the same LED light string used for the cabin V-berth**
- 5) Bow eye is 5/8" polished stainless steel. Its load limit is the tensile strength of the 5/8" 316" stainless steel because it cannot be pull out of the Kevlar; it will snap off first. IE: you could tow the boat. Also there are transom eyes that are great for towing water skiers or tying floats to when anchored. Yes, the boat accelerates hard enough to pull up skiers; use a 150' ski rope as crossing her prop wake up close is Oh Wow!**
- 6) Navigation lights are Perko brand LED units they are supposed to last thousands of hours. They are recessed into the hull for a smooth look and to protect them. We place them into the hull rather than on the deck so their light reflection does not degrade the captain's night vision as ambient light of any source will do.**

- 7) The deck forward of the cabin bulkhead has a bow rail with a pulpit out over the anchor which we normally set at 16" high so that it blends in to match the boat's hull lines. Again, no mounting screws show. There is one single 3/8" bolt up into the railing pad from in the cabin.
- 8) 22" round Lewmar Deck Hatches over cabin are set for standard "open forward" to scoop air in when at anchor; air then vents out side ports and or cabin door way. NOTE: Kids will always unlock them to play. Please be sure to check and keep them latched underway, we have never had one break off but they will flop back against the deck with a crash that will scare hell out of you and you won't forget again!
- 9) Six tinted cabin side portal openings (3 in cabin, 1 in galley, 1 in head & 1 in closet)
- 10) Locking cabin doors. The cabin doors are center split to fold in and latch out of the way on magnetic catches. There are some serious stainless steel slide bolts to lock them shut.
- 11) The cabin hatchway is quite large and in two sections. The set is designed so the aft half folds forward exactly on top of the front. In this half open position you have access to the cabin even underway in mild seas. Both halves can then be raised on gas struts when at the dock or at anchor. The doors and lids are not acrylic because it tends to crack at the mounting screw holes over time - or worse - common acrylic will shatter if you leave something open and it slams shut. We recently have had poly carbonate tinted to match our gelcoat / paint. It is much, much tougher than the acrylic the marine industry has used for years. So far, zero cracks and zero shattering. NOTE: Please shut and latch the doors if things look like they could get rough. Let's not find out this poly carbonate can be broken and have someone hurt by flying plastic.
- 12) There is a hanging closet in the cabin. It is both lighted & vented and has a 1" stainless closet rod fastened securely. NOTE: We start you off some wood hangers so your clothing stays hung as the metal ones from the cleaners just bend open and everything ends up at the bottom of the closet.
- 13) The cabin liner is a molded fiberglass part that is set in place in a bed of structural adhesive called Plexus (Methacrylate glue). We also glass it into place so that it will never come loose. I guarantee it!
- 14) We carpet the headliner and the balance of areas where seat cushions will be placed with the finest indoor/outdoor carpet. Please don't let the words indoor/outdoor give you the impression this is ugly, it's not. The carpet is available in several color combinations and we use it because it is washable, lasts years and we can get it glued securely into place around all the cabins many contours without worrying that it will come loose someday.
- 15) We use the best upholstery foams and fabrics sewn into fine upholstery cushions. Velcro strips are applied to the upholstery backs so the cushions stick to the glued-down carpet and everything stays in place. The carpet under the seat cushions is

cut to match the edges around the storage compartments and the edges are then bound with upholstery material to match the seats.

- 16) The V-berth area is a cut up 4" California king (74") TempurPedic mattress which is very comfortable - the boat sleeps well. The V-berth has a removable filler piece supported on (3) stainless finger grip handles. The filler may be wrapped and stowed under the V-berth and a small dining table set in place. NOTE: the cabin is large enough and the walls sturdy enough to install a hammock from the front bulkhead to the galley where a hook can be installed along side the microwave. Crude, but great for kids and strong enough for adults if you need to sleep more people.
- 17) There are (3) dry storage hatches under the V-berth for life jackets, bedding, towels, folded clothes, etc. The center storage is where we usually stow the table, its stand pipe and the filler piece. The storage hold is large enough for everything to fit in at once and still have room for towels, etc. NOTE: It is best to keep the center locker under the V-berth full of soft stuff, maybe even a fender, so the table and / or the filler piece does not get beaten against the compartment sides if you get into rough water.
- 18) There are valances with indirect lighting over the V-berth with soft blue LED lights. These are on their own switch to help achieve really nice comfortable mood lighting.
- 19) (2) Reading lights on the forward V-berth bulkhead may be rotated to focus their light beam and they switch on / off by lifting their covers. And there are (2) intense Xalagon lights on separate switches one by the galley and one in front of the closet which is a nice area to sit and read.
- 20) There is a nice time / tide clock and a barometer between the V-berth reading lights.
- 21) We also mount (6) stainless steel rod holders into the top of the V-berth bulkhead. These holders are designed for safe, dry transport of your rods. The butts of the rods face the bow and reels are held in the holder by bungee cords attached to stainless steel eyelets on the rod holder. The rods stay securely in place with the rod itself resting against the carpet headliner. We provide foam tubes to put over the rod tips for safety and to act as wear pad to protect the headliner carpet.
- 22) There are two table mounts in the cabin floor and (1) table that can be put in the best position. The table is made of teak plywood with beige starboard edges so it can take some abuse without the teak edges splintering. The table pedestal is a light weight stainless steel 3" tube with tapered ends. They both stow wrapped in a pad in the center V-berth hatch. NOTE: The table and its SS pedestal are sturdy. They may be set up or stowed in seconds because there is just a simple taper to the ends of the SS pedestal mating with a matching taper in the table and the one in the floor. IE: there is no positive latch. However, we do run around in moderate seas with the table installed. Be advised if the boat hit just the right wave it could jump out of the tapers and bounce around chipping up the cabin interior. So I would suggest that it

be wrapped and stowed in the center V-berth hatch if you plan to go play in rough stuff.

- 23) Cabin seat arm rests have been fitted with 7 drink holders. There is also an “out of plain view” stow box on the port arm rest accessed from the V-berth side. (Good place for papers, wallet, purse, etc.)
- 24) More storage under the cabin seat cushions by the closet and the galley. This is the compartment where we stow a large waterproof bottle containing safety equipment, flairs, flashlights, etc. As it is also right outside the shower so it makes a good place to keep bath towels.
- 25) The galley is well lighted. It has a window, a 12 volt DC florescent under counter light, three low voltages and an air conditioning vent.
- 26) 120 volt 20 Amp twin outlet GFI plug to power a hot griddle and / or a coffee pot.
- 27) (2) 12 volt DC plugs for phone chargers, etc. One is installed in the countertop backsplash and another one under the forward edge of the galley countertop by the seat.
- 28) The countertop is a material similar to Dupont Corian in appearance but is considerably tougher. We even use it for the cabin entry steps and have never had one break.
- 29) There is an “under-mounted” polished stainless steel sink in the galley countertop. The galley faucet is a Sanvic (top quality) chrome over brass
- 30) Trash and bread crumbs can be wiped into a hole in the countertop where they fall into a trash bag that is held in place with a bungee cord. It’s a simple trash chute system that works great and makes it easy to get the trash off the boat when you get home.
- 31) Refrigerator is an AC/DC Nova Kool WR2600. If there is AC power available the fridge will automatically run off of the AC refrigerator breaker. If AC power is lost the unit will automatically switch over to run off of the house batteries if the refrigerator DC breaker is ON. When ever the refrigerator is on AC or DC you will see a red LED marked Fridge ON at (both) the AC/DC panel in the cabin and at the helm starboard switch panel. NOTE: The fridge is deliberately NOT controlled by the BOAT MASTER solenoid. Control is only at the cabin AC/DC panel so do not forget it’s on as unless shore power or the generator is on, in a few days it will deplete the house battery bank. The door on the fridge has (2) positive latches so you do not open the cabin to find your food on the floor after a rough trip.
- 32) Under the refrigerator is a 17” wide by 25” long by 2 ¼’ deep stainless steel drawer. It is sturdy and low in the boat with a superior lid like a safety deposit box lid. We keep some decent dinner plates, silverware and galley utensils in it. There is a second smaller drawer under the galley seat. NOTE: these drawers are deliberately mounted in a bit of a bind IE: they do not slide in and out very easy. We set them up

that way so they are not flopping around in their tracks and tearing loose in heavy seas.

- 33) There is a built-in 120 Volt KitchenAid blender that does a great job crushing ice for drinks. The blender is a good heavy duty unit however, like most things you buy today, it had a computer control and touch pad. From experience, salt air makes short work of eating that up, so we open the case and hard wire the motor on high speed - then we install just a simple waterproof military toggle switch to control the blender. Center is off - up is solid on - and down momentary on. You should never have any trouble with it.
- 34) 120 volt Microwave. It's a simple manual knob type - as with the blender the ones with digital panels and such just don't last. We open the case on the microwave and install nut plates inside so the unit. There are (2) ¼" Philips screws hidden behind the galley florescent light that hold the microwave in place in rough seas. NOTE: stick a pillow or something in with the microwave to hold down the revolving plate if its real rough - you cannot imagine what the plate does to the inside of a microwave if its flying around loose in there when you are running 30 or so in 6-10' seas
- 35) Teak Tambour doors cover the compartments for storage of small items and the pantry door at the galley. The pantry is actually the area under the port aft facing cockpit seat. We try to use every space for something useful. There is also another storage area or pantry on the starboard side under the aft facing seat where we usually keep spare paper products, Bread, chips etc. Both sides are carpeted to provide some cushioning. For long trips we usually load cans and jars in first - then the light stuff on top. Things must ride pretty smooth right there as I can remember watching my girlfriend pack quart glass jars of peaches and spaghetti sauce in there and thinking 'boy, I hope its smooth or that will be a hell of a mess to clean up!' About 100 miles into a 335 mile leg of a 700 mile trip to Turks and Cacos we hit a really rough 8'+ head sea for the next 200 miles. Those jars survived 12 hours of hell and not one broke, I was amazed! By the way, just as a point of interest, the other 5 boats we were hanging with for most of that trip were all well built boats over 60'. It was so rough it took them 21 hours to cover what we did in 12.
- 36) Head/shower is enclosed in the cabin below deck. The head features a real porcelain toilet with an internal macerator. The system is set up to flush using the boats fresh water or to use salt water. Choose salt or fresh simply by the direction you press the flush switch. NOTE: try to save fresh water by flushing with salt water then finish the flush by pushing the switch to the fresh water side. There is a shower sprayer with a heated water supply that pulls out on 72" hose. If nothing else it's handy to wash down the head. A tough composite counter top also with an "under-mounted" stainless steel sink bowl, med cabinet and a trash chute with a quick change bag system similar to the galley set up. There is a ¼" mirror (real glass, not plastic) which is mounted in a custom composite frame for safety, an instruction placard and good lighting for applying makeup on a light dimmer. There is also an operable port light (window) and a small air conditioning / heat vent.

- 37) Air conditioning is a 115 volt AC Marine Air Cabin Mate 12,000 BTU with reverse cycle heat. The unit is a special version mounted on a stainless steel condensation pan. NOTE: a valve under the top cabin step will direct this good clean water into either the boats fresh water tank where it goes a long way to offsetting the water used by the mister system. Or the captain may select to drain the condensation into the shower sump where it is pumped overboard. You will find the Marine Air Passport thermostat mounted at the forward end of the galley by the microwave. A Passport thermostat may be set up to cause the AC unit to be a very effective dehumidifier in situations where the boat is left dockside on shore power and you want to keep the cabin fresh. Marine air conditioning units have a sea water pump that pushes sea water to a heat exchanger in the AC unit itself. This water flow is what carries away the heat from the cabin air. The pump is under the bottom cabin step. It must be switched on with the AC unit at the AC/DC panel. There is also a nickel plated naval bronze sea chest. (a saltwater manifold for distributing raw sea water to several pumps from only one inlet) In this case the sea chest also has a strainer to catch debris. You will see it mounted opposite the burgundy color pump for the air conditioning water. It has a clear lid so you can see the water flow. From time to time it must be cleaned and there is a valve to stop the flow of water so the strainer may be opened. NOTE: do not forget to reopen it and check for leaks around the sea strainer's O- ring, depending on options that require a saltwater source. Some of our boats have a valve on the sea chest so that you can hook the male end of a garden hose (boats freshwater coil hose for example) and back flush sand or mud out of the strainer without even removing the clear plastic lid.
- 38) Sharp Aqua's 20" LCD flat screen TV. We mount it in the closet door with a 316 stainless backing reinforcement so it cannot rip out of the door in big seas. There is also a stainless steel door stay so the TV can be set to face the V-berth. The TV may play from the cabin DVD player or an external antenna or satellite. The TV is 12 Volt DC so it will play off the house batteries.
- 39) The DVD player in the cabin is set up so it will also feed out both video and audio signals to play on the RayMarine E120s at the helm.
- 40) The cabin steps lift out to access all of the boats water pumps and the forward bilge pumps. The area is well lit with LED rope lights. The forward bilge is separated from the engine room bilge so there is never a chance of spilled oil or fuel coming forward to make the cabin smell.
- 41) Moving out of the cabin up the two steps to the forward cockpit there are two aft facing bucket seats with stainless steel handles and removable upholstery.
- 42) Notice the heavy recessed spring cleat blended into the deck. The little 2 1/2" stainless discs along the combings are for fenders. The front pair works pretty well to hold a hammock across the boat.
- 43) Fuel fills (2) port (2) starboard. The fresh water fill is port and waste pump out starboard. The front fuel tanks are approximately 100 gallons each. The rears 115

gallons. The water tank is about 120 gallons and the holding tank 25 gallons (check the capacity we stamped into the stainless steel deck caps for the specific amount).

- 44) Fresh water tank is actually the space under the big floor storage holds in the floor just forward of the console. The water tank is a molded-in structural part of the hull. The tank separates the bilges between the engine room and the cabin bulkhead. The water tank consists of (8) bullheaded cells all connected together with a capacity of approximately 120 gallons. We install an 8" easily removable inspection plate in each cell to allow for cleaning.
- 45) The fresh water system is pressurized via a ShurFlo variable speed 5.7 GPM pump to a two gallon pressure tank made of stainless steel. Pressure flows to the galley, vanity basin, shower, bait station and to (3) deck wash downs dispersed around cockpit. Fresh water is also plumbed to a solenoid valve to flush the head. There is also a salt water flush solenoid to the head. NOTE: salt and fresh water pressure pumps are normally controlled by switches at the helm. We have been adding a wire from the flush switch that will turn on the pumps if someone attempts a flush and the pumps were not on.
- 46) An "Instaheat" hot water unit is plumbed to the head shower. Water also flows through to Instaheat to the fresh water coil hose at the marlin door for a warm water rinse when you come in from the water. The Instaheat is powered by gen and/or the inverter or shore AC. It is the highest amp draw by far at over 30 amps when in use, so it is on its own 40 amp breaker in the cabin AC/DC panel. NOTE: over the years of using "Instaheats" the only trouble we ever have is when the boat runs low on water and an air bubble goes by the heating element in the unit they sometimes burn out. Its pretty easy to change but the problem can be avoided altogether if you only switch the unit on (1) when there is enough water in the tank and (2) bleed any air out of the line before you turn the breaker on. Personally, I just leave the breaker off until I need the hot water so there are no accidents.
- 47) The 25 gallon holding tank has a locking overboard valve under cabin steps and a deck pump-out portside to meet US Coast Guard compliance anywhere in the USA. Even with the overboard valve left in the 'open' position the system is designed to hold 3-4 flushes before any danger of discharging solids. If the valve is opened or left open the system is designed to self-clean by allowing sea water to enter the holding tank where it dilutes and washes waste overboard automatically as the boat rises on falls over the waves.
- 48) Fuel capacity as stated above, is approximately 430 gallons (Diesel) in (4) tanks (2)-100 GAL in front, (2)-115 GAL in rear). The tanks are constructed of Kevlar and special vinylester resin. They are structurally built in as part of the boat. This vastly reduces the chance of cracks, leaks, and corrosion. We do not use aluminum tanks for several reasons. First, they put hard spots in the overall flex of the hull that could induce stress cracks. Second, aluminum tanks will all too often corrode through in time because the tanks sweat and create water by condensing moisture out of the air coming in through their vents.

- 49) Each fuel tank has a stainless steel inspection plate. This plate is exposed by opening the 10" inspection cover in the cockpit floor over it. Welded into the SS plate on the tanks you will find a simple 1" nylon plug that may be opened. With a flashlight you may see down inside or use a wooden dowel you will find in the console to "stick it" to be real sure how much fuel is in there. Overkill? Maybe, but please remember we build the boat to travel in remote areas where this could be important - especially if someone sells you some water instead of good clean fuel you will be happy to have a way to get it out.
- 50) Each tank has an electronic fuel level sender transmitting to fuel level gauges at the helm. The top gauge will read fuel level for the forward tanks and the bottom for the rears. The switch below the gauges selects to read either both port tanks (front and rear) or starboard two tanks (front and rear). The gauges are learning gauges which means they may be calibrated to be very accurate. NOTE: we get them close before delivery of the boat. There is a pamphlet in the owner's manual on how to dial them in spot on.
- 51) The boat has (2) fuel control manifolds with valves (1) on each side of the console. For example, the starboard manifold controls the supply and fuel return to the starboard engine. And the port manifold selects the supply and the unused fuel returning for the port engine. STOP RIGHT HERE! The next two sections might confuse many people. Don't let it intimidate you. Once you have worked with the system it will become intuitively obvious that this is the best way to have a fuel system set up. NOTE: virtually all diesel engines circulate fuel around a loop to cool their injectors. They use fuel out of the loop proportional to the throttle setting and return the unused portion back to the tank. In the case of our boats we send it through a fuel cooler first then back to the tank. This loop is designed to provide cooling for the injectors and to purge the fuel of air. Back to the manifolds, the captain may select to draw and return fuel from front or rear tank on each side for the engine on that side. In other words, the port and starboard fuel systems are normally independent of each other. However, he or she may also select to draw and return fuel from the opposite side of the boat in the event both the front and rear tanks run dry on one side before the other. (Beyond detail discussion here) but very useful and an important feature because this allows normal operation of both engines from one supply. In addition, it allows the fuel filters to be cleaned underway with both engines at full capacity. A very useful feature if you have polluted fuel to work through as is often found in the Bahamas even these days.
- 52) The boat has (2) Separ fuel filters (1) on each side of the console located in the floor hatches with their respective fuel manifold. Again, the filters have been placed where they may be inspected, accessed and cleaned under way in the safest easiest manor we could design. Their tops come off with wing nuts. NOTE: I actually wash them out with the boats fresh water hose. Right or wrong it works and you get more life out of them. NOTE-2: the drain valves on the bowls push in and turn. I find that sometimes it is easier to just unscrew the whole valve which is threaded hand tight

into the clear plastic bowl with an O-ring and again you will be amazed at what the filters catch - so it is ok to wash the filter body out with the hose also. NOTE: any water left in the filter or the body will settle right to the bottom very soon after fuel comes into the newly cleaned filter so do not worry about drying things off. NOTE 2: you could also use compressed air from the dive compressor.

- 53) Electric fuel pumps: There are two – (1) for each system that may be turned on to re-prime main engines and/or the generator. However, they are not normally run in daily operation. They are electrically protected by a circuit breaker for the pair in the battery room and by a separate car type spade fuse near the pumps themselves.
- 54) Low fuel pressure lights at the helm warn of a fuel problem before the engine quits. If the light comes on and stays on you are probably out of fuel on that tank. Normally turning on the fuel pumps and a quick tank change over will usually catch the fuel pressure loss so the boat remains in operation on both engines. NOTE: with diesel engines 99% of the reasons they would quit or fail to start are fuel related so we pay a lot of attention to the fuel systems. NOTE-2: it is normal to see the lights blink on for a second from time to time. If they start coming on a lot you are sucking air as the fuel is getting low in that tank or the filters are becoming clogged and should be cleaned or changed soon.
- 55) Fuel and hydraulic hoses are of top of the line AeroQuip single wire MatchMate hydraulic. Arguably, the best that money can buy.
- 56) Fuel and hydraulic hose ends and fittings are 316 stainless steel; absolutely the finest money can buy. Some fittings are brass. We use brass where fittings are against aluminum to reduce the possibility of electrolysis. The few plain steel fittings we do use are there only because they are not made in non-rusting material so we do our best to give them a good coat of rust resistant paint. We hate rust!
- 57) The console itself is bolted-in sheer to the floor and stringers. There is an aluminum plate imbedded into the laminate into which the 25 or so 3/8” stainless steel bolts are threaded; very solid! It unbolts if the engines ever have to come out. All the console wiring is through waterproof Deutsch connectors which may be unplugged in the event that the console needs to be removed.
- 58) Engine access is mainly from the “pry up and slide forward” tray that is completely removable. This engine tray also holds the console seat bases / 150 qt Igloo coolers. The removable helm foot rest gives a view of the engine coolant reservoirs, the transmission dip sticks and access to the Halon fire system, and any of the (6) hatches in the floor aside the console. Over the years that these boats have been made we have worked on many parts of the engines and found you can get to most everything without too much cussing. It may not be fun but it can be done. NOTE: if you ever have to open the engine tray in big seas we provided tie off cleats on the sides or the cabin bulkhead.

- 59) The console has a lot of handles. It has a tilt steering wheel and a 1/2" safety glass windscreen that raises electrically 14" to channel wind up over your head - and then it retracts neatly into the console so you can see well while docking.
- 60) In addition to the electric windscreen there are three Eisenglass screens. A front unit securely attaches between the console and the T-top and on the sides to the T-Top legs. This front section has a U-shape zip and roll up center piece so it can be left in place and quickly be put up or down. The two side curtains are always in place ready in their stow bags available to quickly roll down in weather. The "phone booth style" enclosure works well to keep 5 or 6 crew dry in a rain storm underway.
- 61) Canvas covers are custom made and supplied for the console itself, and both leaning post seats. The aft facing cushions come out and should be placed in the cabin.
- 62) The front console seats are Igloo 150 qt coolers with custom made lids covered with contoured foam to form a bucket seat with upholstery to match the rest of the boat. The coolers may be pulled out to act as lounges. NOTE: We use the seat cooler a lot for dry storage cases of wine, extra bottled water, etc.
- 63) Ever-Dry foam is in all the upholstery. It remains light-weight & dry over time.
- 64) The area just aft of the console has a flip down step to raise the floor 8-1/2" above cockpit sole for a better view. The step is hinged off the console foot rest.
- 65) Front leaning post is triple wide with seat cushions split in three opening sections. Each opens to access a large carpeted storage box below the seat. The seat storage boxes are not sealed but we find things stay pretty dry even in rain or spray. There are (8) stainless steel drink holders, (2) 2 1/4" 30d. and (2) 2" 30d. rod holders flush-mounted into the front leaning post.
- 66) The aft leaning post is removable with (4) bolts which then go back into the holes for a smooth finished look. The aft seat has a single opening seat with storage below and may be ordered with a fold-out fighting chair, or with an icemaker and fridge, or it may contain a second baitwell instead - in which case we will install a second baitwell pump next to the first under the cabin steps and install a switch on the second seat baitwell itself. It will still be powered off of the boat master so it is less likely to be left on and run the batteries down. The standard aft leaning post is equipped with 4 stainless steel flush-mounted drink holders and (4) 30d. flush-mounted rod holders.
- 67) Engines are Yanmar 6-LT-3 480 hp and transmissions are ZF - info covered elsewhere. (www.Yanmar.com and www.ZF-Marine.com)
- 68) We have continued to use the *POWER-VENT drive system* exclusively. There are no other viable options. Nothing else even comes close to the overall performance and durability of the PVS. More covered elsewhere. www.Powervent.com
- 69) Built in 1800 PSI 120 volt AC electric pressure washer plumbed into the boats fresh water system. Just flip the switch and wash. NOTE: It is a simple Husky brand. We

take the plastic case off it and bolt the unit securely in place. If it goes bad it is inexpensive to replace. BE CAREFUL! 1800 PSI will cut upholstery and your skin if you get tip to close!

- 70) Built in 12 volt DC air compressors provides air for Hookah rig diving. Includes 200' of down hose in (2) 100' sections (3) Y's (4) 20' split hoses (4) regulators belts and lead shot weights for (4) divers. NOTE: the condensation drain is also a place to tap into compressed air for air tools, etc.
- 71) Molded-in side storage with tackle box spaces port and starboard and great space for holding cleaning supplies. They also hold the pressure washer and the battery powered DC dive compressor; both of these units are securely mounted for all sea conditions. Both units may be unplugged and easily removed.
- 72) The molded-in side storage boxes also house boarding steps which fold down on both Port & Starboard sides of the boats aft cockpit. Fresh & saltwater wash down hoses are conveniently located above and behind each side step and are accessible with the step door open. Notice the steps are positioned so the brim of the T-Top may be used as a secure hand-hold as one enters or exits the boat. You will find the boats are very access friendly for older people.
- 73) Bait prep station (built into transom) features a pop-up faucet that dispenses salt water in a continuously running fashion with the flip of a switch. Salt water may be left to run while cleaning fish. The prep station lid seems to function well for additional counter space. Flipping and holding the switch in the opposite direction dispenses water from the boats fresh water tank in a momentary fashion to conserve the boats fresh water supply. There is a replaceable cutting board right under the water spout and a trough to keep your cleaning knife from sliding overboard. Below the cutting station you will find a generous storage compartment. We have made the door on this compartment removable because we found the space works well to hold a tackle box up off the floor and shielded from spray, yet still allows good access to tackle with the door out of the way.
- 74) Livewell is a (42) gallon center transom built in. The custom seawater circulation system does an exceptional job of keeping bait alive by properly draining away waste from the tank bottom as well as overflow drainage. The baitwell lid has an O-ring seal (no splash under way); there is a 12" view window to keep an eye on your bait and it also has a night light. NOTE: we use the baitwell for the main trash receptacle when we party.
- 75) Marlin door and transom lid: the transom lid is designed to release with one pull of a strap across its latches then to slide down into the door so both may be removed as a unit. The opened Marlin doorway is then deck level onto a 316 stainless steel powder-coated swim platform with a polished stainless steel (3) step fold-down dive ladder. A finger grip boarding handle across transom is provided to assist climbing the dive ladder safely. The ladder is quite tough. It will usually survive being dragged home if you forgot it was down. It just tags along in the prop wash until

noticed. It folds in under the swim platform and latches with one motion and opens with one button.

- 76) Fishboxes (2) in the aft cockpit floor approximately 16" wide, 14" deep, and 60" long. They are vacuformed out of ABS plastic like a pickup truck bead liner. They are tough and they do not chip up the boat if they are lifted out onto the floor.
- 77) Storage / Fishboxes in the forward cockpit below decks are very large - approximately 27" wide x 27" deep by 72" long. These are water tight and pretty well insulated. We pipe the cabin air conditioning through them just to keep the humidity down when they are not used as ice storage. We have found these Fishboxes to be an excellent storage place for foodstuffs that you would preserve in room temperature such as bread, cookies, and fruit, etc. The cabin A/C seems to keep the fishboxes at 60-70 degrees even in the sun. If the 850lb per day option is ordered, the starboard compartment becomes an ice bin with a macerator on its drain and the port compartment contains the icemaker unit with sufficient room left over for at least the (6) 10" X 26" boat fenders, the bow ladder and the boat's toolboxes.
- 78) Rod holders are custom designed so that they show no mounting screws (clean) 2" and or 2-1/4". (12) are deck mounted there are an additional (6) mounted in the cabin V-berth bulkhead set up with bungee cords to hold the rods and reels in place for dry and secure rod transport. There are also seat-mounted rod holders; the quantity depending on the seating style chosen.
- 79) Stereo consists of (2) 10" 4 ohm Peerless XXLS subs 27Hz to 80 Hz, (12) 8" Peerless midrange speakers 80Hz to 2.5k, (8) Morel T-37 tweeters 3000Hz out. All speakers are totally out of sight facing down and reflected off the cockpit sole. They are mounted under the gunwales in sealed chambered spaces so they are properly tuned to match the speakers resonate requirements. Clear, clean sound at soft to "Turn it up" and you are *in* the music. We are into music - the boats stereo can play AM / FM / satellite radio / HD radio / DVD / CD / MP3 and is iPOD ready. It is just plain awesome by anyone's standards!
- 80) Amps are either Rockford Fosgate Power 1000 5 channel in bridged mode (2) amps; one mounted on each side in the cabin under the aft facing seats. The amps provide the crossover frequencies for the drivers. Or SoundStream amps, in which case the Alpine head unit provides the crossover points.
- 81) The DC electrical system is divided into two 12 volt banks. The system is comprised of (6) six volt 220AH absorption glass mat AGM golf cart batteries in series / parallel to deliver 12 volts DC. There are (3) batteries Port and (3) Starboard. (2) provide engine starting BANK ONE and the other 4 comprise the HOUSE BANK 2. These AMG batteries provide the most power vs. size, weight. We considered life expectancy considering the abuse possible with an inverter aboard then considered replacement cost. After a lot of considering, we consider them the best value.

- 82) There are battery switches for each ENGINE. A separate switch for the DIESEL GENERATOR. A switch for the INVERTER / CHARGER and a switch for the HOUSE DC system. The boat is wired so both engines are connected to bank (1). The normal setting for the HOUSE is on bank (2). NOTE: NEVER set the house switch on "BOTH" except in an engine cranking emergency because you could easily run down the engine batteries. The system is designed so there is always power to start engines. All batteries are kept charged automatically by an ACR (automatic control relay). The control switch for this relay and its status LEDs are mounted at helm. If the house bank is dead, the engine bank will run everything - but be advised it's a bad habit. You can put all the banks together with a flip of the ACR switch at the helm; the orange LED will come on showing the banks are combined (bussed). For example, if the air conditioning has been left on too long running off the batteries through the inverter (because the generator was off). The first sign that you might see of a low battery condition is the RayMarine screens start flashing because of low voltage. No big problems #1 Using the ACR switch at the helm – flip the ACR switch to combine. The orange light will come on. #2 Start the generator so the generator will power the air conditioning and the inverter will go back to recharging the batteries. #3 Give the system a minute or so, then flip the ACR back to AUTO and watch the digital DC volt meter at the helm. You should see the volts come up and see the house bank being charged at over 100 amps. #4 If you were to restart the main engines you will soon see the meter rising to about 160 amps as the engine alternators add in their power output to recharge the house bank. More in the owner's manual. The point is this: the system is designed so that you do not experience dead batteries. One last thing, you could also manually combine the banks with the house battery switch on BOTH in a situation where the engine batteries are low. The battery switch set to BOTH can handle way more load than the relay. Either way, PUT THINGS BACK BEFORE YOU GET OFF THE BOAT SO THAT YOU DON'T COME BACK TO FIND THAT ALL OF THE BATTERIES ARE DEAD!
- 83) Battery charger / inverter will supply DC to recharge the batteries in addition to the engine alternators. However, be aware that the charger / inverter only works when the genset is on and running or the boat is connected to shore power. In addition, with either generator or shore power as the AC power source the cabin mounted selector switch must be manually set to connect the power to the system loads.
- 84) Digital AC meters at helm and cabin AC/DC panel show AC volts and amps on line.
- 85) Small red LEDs on the cabin AC/DC panel show what sources are "live" and available to be used.
- 86) Digital meters at the helm also show DC volts and amps of charge / discharge for each bank. The meters are powered off the boat's master switch but are actually reading the voltage at the batteries so they are very accurate.
- 87) Shore power system is 30 amps 120VAC. The plug with a stainless steel cover is under starboard gunwale forward. We supply the boat with a 30' shore power cord and an adapter so the cord may be plugged into a standard 15 amp electrical outlet.

NOTE: In the door under the AC/DC panel you will find an inverter/charger control panel. In the event that the load that the boat presents to the shore power supply causes the shore circuit breaker to trip, the knob on the control panel may be rotated counter-clockwise to reduce the boats power consumption to a level that the shore power circuit can sustain without tripping.

- 88) The boat has a 30 AMP Guest galvanic isolator to separate any boat and shore power galvanic issues.
- 89) The boat has a full bonding system as per ABYC standards.
- 90) The boat has ground fault interrupters on all AC appliances, IE: (20) amp GFI receptacles
- 91) There is a cabin mounted AC/DC electrical panel with back lighting. It contains AC & DC breakers for cabin related equipment as well as a row of AC breakers for all AC related equipment in the boat. There is a selector switch SHORE / OFF / GENERATOR and a digital volt meter / AMP meter, and a REVERSE POLARITY light along with status lights for the Guest galvanic isolator mentioned above and LED's indicating that power sources IE: shore power and/or the generator is live and power is available for use as a source.
- 92) The boat contains a state-of-the-art inverter / charger. This unit can be charging the boat's battery banks one second and then if required it will in less than 16 milliseconds change to an inverter to produce AC power. The result is effectively a seamless phase match to either the generator or shore power to assist in starting or running an AC load. The "MultiPlus" inverter / charger can power the AC needs of the boat itself using solely the boats house battery bank or it will supplement power spikes by operating in parallel with either the shore or generator changing back to a battery charger whenever conditions will allow it to consume surplus AC power for DC battery charging.
- 93) Wiring in our boats is the top of the line Premium tinned copper. Most wiring terminations are soldered and sealed; some are crimped where soldering is not advisable. All terminations are water sealed with epoxy heat shrink tubing and coated with liquid electrical tape. Any plugs are Deutsch brand water proof assemblies.
- 94) DC switch panels at the helm are custom made to be waterproof. They have back lighted labeling, and are sealed in place with clear silicone and mechanically held in place with studs off their backs with nylon nuts. The seal may be broken and the panel lifted out on its service loop.
- 95) Switches themselves are waterproof military grade with waterproof boots for an extra measure. We have never had one go bad in 20 years of using them. Yes, they are a bit on the ugly side compared to the fancy Contura switches that are popular today - but they always work!

- 96) The DC Master switch at the helm turns the complete DC system on or off with one click! This allows for quickly powering up the boat or exiting the boat because you can leave all circuits in their existing position – true one switch control. The three systems not controlled by the master are the (4) auto bilge pumps, the stereo memory circuits and the DC refrigerator in the cabin. There are LEDs at the helm and in the cabin to show ‘Fridge ON’. NOTE: If the gen or shore power is not live you are draining battery power.
- 97) A second master switch turns everything on or off in the cabin except the refrigerator. This allows the captain to control lights emanating from the cabin that might deter his/her night vision without leaving the helm. The master switch is repeated in the cabin at the AC/DC panel so that everything in the cabin may be turned off in one switch motion as one enters or exits the cabin.
- 98) Lighting package is all DC and mostly LEDs to conserve power. The full deluxe light group includes over 200’ of LED light strings on split circuits mounted in an indirect light reflecting position to produce a glow of light. LED lighting is on separate switches for the cabin V-berth and upper cabin storage. There are switches at the helm to control forward cockpit, aft cockpit, lower storage spaces, engine room bait well lighting, Nav, Anchor, (4) sets of spreader lights and the panel lighting at the helm. Red LEDs for the bilge and engine room. Three (3) galley ceiling lights are low voltage G4 Xenogen bulbs on a dimmer. Three (3) more low voltage recessed lights in the head / shower. The galley also features an adjustable florescent over the counter and sink. There is a row of red LEDs under the galley counter softly illuminate the cabin floor and steps for night safety. Navigation lighting is top-of-the-line Perko LED fixtures. The T-top has spreader lights forward, aft and side floods all on separate switches. There is a fourth switch that controls a light over the helm. There is also lighting inside the helm seat storage box.
- 99) 35 watt Xenon ballasted underwater lights in the transom are switched at the helm and on their own circuit breaker in the battery room starboard side floor aft console hatch.
- 100) (2) 40 AMP 12 volt DC plugs are provided for Lindgren-Pitman deep drop reels aft.
- 101) Drink holders - at least 14 stainless steel drink holders dispersed around the boat
- 102) (3) 150 Qt Igloo brand ice coolers (1) Recessed securely into floor under leaning post and (2) coolers that have custom upholstered lids and are used as the front console seat bases/ engine cover. They work equally well as dry storage or fish boxes.
- 103) Deluxe hand grip package anodized billet aluminum and/or stainless steel grips. Gunwale level hand rails with foot treads in the aft cockpit area.
- 104) The boat’s navigation package is based on (2) 12.1” Raymarine E-120 multiple display screens each with Raystar 125 GPS sensors (2) for navigation redundancy. A 4kW radar, 2000 watt sonar firing through the hull from an oil filled enclosure,

Sirius satellite weather and a Raymarine S1G Autopilot with a ST-6002 control head, a rudder angle indicator, a fluxgate compass sensor and a rate-gyro for improved rough water performance. This exceptional electronics package may be reviewed on Raymarine's web sight (www.raymarine.com). Both screens are interfaced with the cabin DVD player.

- 105) For additional navigation security, the boat also features a KVH Azimuth 1000 digital compass with remote head on a separate power source.
- 106) The VHF is a Standard Horizon Phantom PS1000 black box with a RAM mic. We add (2) PA/Hailer horns so you can hear the VHF very well underway. It is SOS interfaced to transmit coordinates in an emergency.
- 107) The antennas are Digital brand on stainless mounts. One antenna is a VHF-AM / FM and the other is a VHF / Cell phone. NOTE: You will need an adapter for your specific phone but the antenna and wire is in the console.
- 108) Five 10" stainless steel cleats, HD 5/8" bow and stern eyes, all stainless steel hardware throughout
- 109) (2) 5/8" x 35' dock lines, (4) 5/8" x 30', (4) 5/8" x 15' and (6) 10" x 26" fenders with 5/8" x 10' fender lines.
- 110) Safety kit with 25mm flairs, smoke, parachute flairs, signal mirror, flashlights, extra batteries in yellow sealed floating bottle, 12 PFD's, throw cushion, bell & whistle.

She's all you need!

Happy boating!