SELENE
YACHTS Europe

SPECIFICATION

SELENE 78 OCEAN EXPLORER

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VERSION 02 - MARCH 2014

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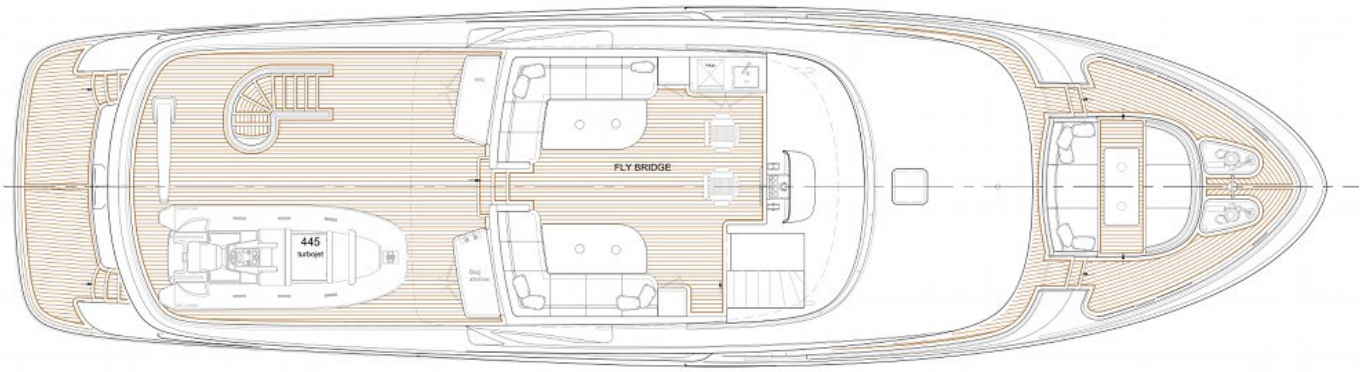
LAYOUT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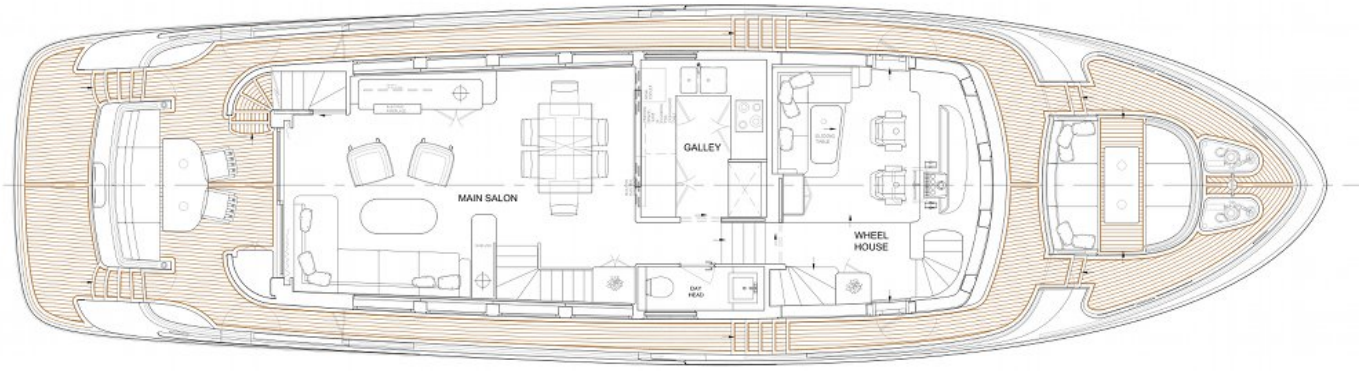
turbojet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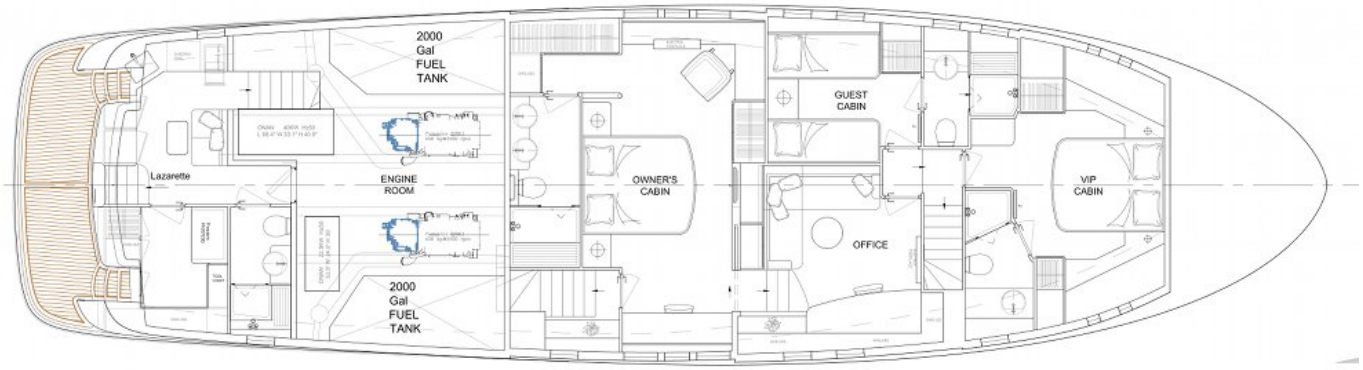
WHEEL
HOUSE
DAY
HEAD


2000
Gal
FUEL
TANK
Lazarette
ENGINE
ROOM
2000
Gal
FUEL
TANK
OWNER'S
CABIN
GUEST
CABIN
OFFICE
VIP
CABIN

SPECIFICATIONS

1. SHIPS STRUCTURE

LOA:	78-7"	(23.96 M)
LWL:	70'-11"	(21.37 M)
BEAM:	21'-6"	(6.56 M)
DRAFT (50% load approx.):	6'-4"	(1.95 M)
DISPLACEMENT (full load approx.):	238,032 lbs.	(108 Tons)
WATER CAPACITY:	700 USG	(2.700 L)
FUEL CAPACITY (approx.) :	5,000 USG	(19.500 Ltr)
BLACK WATER CAPACITY:	250 GALLONS	(968 Ltr)
GRAY WATER CAPACITY:	250 GALLONS	(968 Ltr)

2. GENERAL CONSTRUCTION

2.1 Hull lamination:

- Hull lamination schedule per construction plan, the area below water line to use "Isophthalic" Gelcoat and vinylester resin for the first five (5) layers. Deck lamination schedule per construction plan. Construction plans pertaining to structure to be based on standards set by the AMERICAN BUREAU OF SHIPPING (ABS).

2.2 FRP Details:

- Hand laid Cymax bi-axis and uni-direction stitched woven roving/mat
- Vacuum resin infusion hull and superstructure
- 6 watertight bulkheads (chain locker, Collision locker, Forward E/R, Aft E/R, lazarette)
- Transverse frames and longitudinal girders system
- Vinylester resin for the first five layers below the waterline
- Transverse frames and longitudinal girders system
- CPP (Cook) Gelcoat for hull, deck, superstructure and non-skid surfaces
- Hull and Superstructure to have "Coremat" 2mm anti print thru material in first series of lamination before roving is applied.
- FRP hard top arch with mast tree
- FRP staircase from cockpit to flybridge
- Built in settee & table with storage underneath at foredeck

2.3 Core Materials:

- Cabin side (vertical surfaces): Divinycell of varying degrees of thickness
- Cabin top and deck (horizontal surfaces): Baltec or equivalent vertical end grain balsa, 1" thick

2.4 Deck/hull joint:

- Between deck and hull flange: 3M 5200
- Inside of joint: Three (3) layers M. & W.R. in all accessible locations
- Mechanical fastening: 3/8" thru-bolts on 6" centers

2.5 Longitudinal Stringer:

- Hull: Full length each port and starboard
- Hull: Transverse Frame System

2.6 Water tight bulkheads:

- Water tight bulkheads per construction drawing to include, but not limited to the following areas: Between Lazarette and crew quarters , crew quarters and E/R, E/R and lower guest cabins, Aft bulkhead of Fwd. Guest cabin, and chain locker/collision bulkhead.

3. MACHINERY DETAILS

3.1 Port Main Engine:

- Cummins QSM-11, 405HP @ 2100RPM Heavy duty rating/High Output rating. Wet exhaust & 24VDC starting
- Gear Box: Twin Disc #5114DC, 3.43:1 reduction
- Alternators: 24VDC
- Walker "Air Sep" crankcase ventilation
- Two (2) 4D batteries connected in series for 24VDCstart
- Engine beds to have 1/2" stainless steel cap on top of bed and 1/4" plate on sides, plates are to be highly polished stainless steel.
- Each engine mounted on (4) resilient mounts
- FRP drip pan under engine

3.2 Starboard Main Engine:

- Cummins QSM-11, 405HP @ 2100RPM Heavy duty rating/High Output rating. Wet exhaust & 24VDC starting
- Gear Box: Twin Disc #5114DC, 3.43:1 reduction
- Alternators: 24VDC
- Walker "Air Sep" crankcase ventilation
- Two (2) 4D batteries connected in series for 24VDC start
- Engine beds to have 1/2" stainless steel cap on top of bed and 1/4" plate on sides, plates are to be highly polished stainless steel.
- Each engine mounted on (4) resilient mounts
- FRP drip pan under engine

3.3 Engine Controls and Panels:

- Five (5) stations: pilothouse, fly bridge, aft deck and, P&S bridge. Controls in the engine room optional.
- Engine instrument panels with alarm that will monitor Tachometer, Engine oil pressure, Engine water temp, System voltage, Gear oil pressure and fuel burn for each main engine.

3.4 Propellers:

- NiBrAl alloy 4 blade counter rotating propellers. Propellers to be built to I.S.O. class 1

3.5 Propeller Shafts:

- Aqualloy 22 or equivalent, 3" diameter
- Taper details: Standard SAE
- Line cutters on each main engine shaft

3.6 Stern tubes:

- Material: FRP
- Bearings: rubber cutlass type
- Stuffing Box: bronze

3.7 Fuel Filter(s)

- Two (2) Racor 75-900MAX duplex filters in addition to secondary engine mounted filter for each engine
- One (1) Racor 75-500MA filter in addition to secondary generator mounted filter for the generator engine. Optional second filter for optional generator.

3.8 Noise Control Systems

- Hull Damping - Area above the propeller rotation plane to be treated with two (2) layers of E-A-R Specialty Composites Isodamp CN Tiles (CN-62), alternating between resin and chopped glass to form a constrained layer damping system to be the inboard side of the shell plate.
- Engine room ceiling and forward bulkhead treated with 2" of sound down lead foam and 2" of 3M Thinsulate. Inboard tank sides, aft bulkhead, underside of deck, forward side of engine room bulkhead and ventilation ducts to be treated with 2" of sound down lead foam and 2" of 3M Thinsulate and covered with white aluminum panels by Soundown.
- Salon/galley cabin sole to have 45mm Nida Core" core system and 1/4" Soundown "decoupler" layer
- Engine room hatches to have rubber gasket and lock down mechanism
- Two S/S supports for salon cabin sole filled with lead shot for vibration absorption and mounted on Soundown rubber mounts
- Soundown Quiet Pro lining covering engine room intake ventilating ducts, 1” thick secured with epoxy and mechanical fasteners
- Insulated bulkheads in living areas with 3M Thinsulate per drawing
- Forward accommodation areas between hull and hull ceiling to be insulated with 3M Thinsulate
- Salon overhead between deck underside and Majilite overhead panels is to be treated with 1" thick 3M Thinsulate

3.9 Engine Exhaust

- Underwater wet exhaust system for each engine design and supplied by DeAngelo Brothers Marine Exhaust, Florida

3.10 Generator #1

- Onan model #MDKBU e-QD 33KW 120/240VAC single-phase/60Hz
- Wet exhaust system using gen-sep water separator
- 24VDC start
- Alternator: 24VDC
- Main panel located in pilot house and start stop on main electrical panel

3.11 Generator #2: (optional)

- Onan model #MDKBP e-QD 17.0KW 120/240VAC single-phase/60Hz
- Wet exhaust system using gen-sep water separator
- 24VDC start
- Alternator: 24VDC
- Main panel located in pilot house and start stop on main electrical panel

3.12 Hydraulic System:

- Hydraulic powered 40 HP bow and stern thrusters using 12" tunnels with proportional controls at 5 stations

- TRAC #370 digital stabilizer system with 12 sq. ft. fins and dual station control. Stainless steel kelp cutters fwd. of fins tied to bonding system. System to be powered with engine driven pump
- Hydraulic bilge pump 180GPM, plumbed to all watertight areas with 2" PVC, schedule 80 pipe to a manifold in the engine room.
- Hydraulic anchor wash pump/fire fighting pump 180gpm
- Each main engine fitted with a clutchable PTO and hydraulic pump
- Two (2) Maxwell VWC 4000 windlasses

4. HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS (HVAC)
** This is a preliminary estimate, further refinement may be required as the systems engineering progresses.*

4.1 Air Conditioning System:(*)

Tempered Water System:
- CRUISAIR Tempered Water System (chilled water) 8 tons(96,000BTU's), 230VAC
- Modular Tempered Water Units: Framed Chiller, 8 tons, three phase, 2-stage (MTD48DC)
- Control Panel: Unit Panel, 2 Pump Relays, 240VAC
- Variable Frequency Drive for each chiller, #763300009

Air Handlers:
- Crew Cabin - AT6-DCZ-FC-1KW, 230VAC
- Crew Mess - AT9DCZ-FC-1.5KW, 230VAC
- Master Cabin and Head - (2) AT9-DCZ-FC-1.5KW, 230VAC
- Port Guest Cabin and Head - AT9DCZ-FC-1.5KW, 230VAC
- Starboard Guest Cabin and Head - AT9DCZ-FC-1.5KW, 230VAC
- VIP Cabin and Head - AT12-DCZ-FC-2KW, 230VAC
- Pilothouse - AT18-DCZ-FC, 230VAC
- Galley - AT12-DCZ-FC, 230VAC
- Salon/Dining - (2) AT18-DCZ-FC, 230VAC
- Engine Room - AH24SLLZ-FC-COS, 230VAC
- Circulation Pump: CPOD120BX
- Sea Water Pump: PS1800BX

Room Controllers:
- (9) SMX LCD Key Pad/Display, Grey

Accessories:
- Expansion Tank-TW-Bladder
- Balancing Flow Control
- Automatic Vent
- Backflow Preventer Valve
- Pressure Regulator Valve
- Vent Dual Spiro 2" FPT
- Strainer

4.2 Engine room ventilation system

- One (1) Intake Fan -One louvered vent Starboard side deck aft in the engine room with screened blower inlet. The intake fan will pull through a Livos Technology moisture eliminator located at the deck side.
- One (1) Exhaust Fan - One louvered vent on Port side decks aft in the engine room with screened blower inlet.
- Fire/Smoke Dampers – Stainless Steel Rear Flanged dampers equipped with a side mounted Honeywell H-2024 Fast-Acting, Two Position Actuator. One damper (1) each installed on the engine room side of each blower for easy access. Each damper will be normally open and will close on SEAFIRE actuation.
- intake fan and (1) exhaust fan have adjustable speed controls.
- Automatic Blower control and Damper Closure on SEAFIRE Actuation (See Fire Protection System)

4.4 Heads

- One (1) Exhaust Blower each head
- One (1) on/off switch and internal timer
- Ducting is to be 4"

4.5 Staterooms

- One (1) Supply Blower for crew, master, and lower staterooms.
- Blower located to insure minimal noise in stateroom
- Ducting is to be 4"
- Cabin intake air is to come from a louvered intake vents located outside the boat and ducted to the stateroom.

5. FIRE SUPPRESSION SYSTEM

5.1 Engine Room

- SEAFIRE Fixed Fire extinguishing system based on FM200 agent, automatic and manual, with electronic shutdown of engines, generator(s) and ventilation system.
- FM-200 cylinder assembly, size TDB
- model #131-460 Monitoring panel in Pilothouse
- model #131-445 Engine Shutdown Control, 6 Circuit - 9-32 VDC
- Manual Discharge Pull Cable located outside the engine room.

5.2 Portable Fire Extinguishers

- Pilothouse, Fly Bridge, Galley, Salon, and Master Stateroom: One (1) each USCG TYPE B-II (four total)
- Guest and Crew Cabins: One (1) each USCG TYPE B-1 (Five Total)**6.**

6. STEERING SYSTEM

6.1 Kobelt Hydraulic Steering System - 35 degree Rudder Deflection, Single Station: (pilothouse)

- Helm Pump: Model #7012-0011B
- Cylinders: 1 x Model # 7050-B12 balanced cylinder with 2" Bore with 12" Stroke and 1 x Model# 7065-SB12 servo cylinder with 2" bore and 12" stroke
- Safety and Bypass Valve
- Double arm for 7080 cylinder Arm: Model #7082-T

- Single Arm Tiller Arm: Model #7082-S
- Two (2) rod ends
- 7085 tie bar ends with nut
- Filler Tank
- Rudder feedback unit
- Master rudder angle indicator
- Rudder angle indicator
- Transfer box : 1 station for autopilot
- Jog lever for Five(5) stations Model # 7170-A1
- Single solenoid valve base
- Solenoid valve
- Power pack is (2) Eaton model #04223-LH or equivalent 7/8-13 tooth 2 bolt SAE "B" pad, PC pumps including reservoir, tank top return filter, low level/high temperature switch and pressure gauge. Cooling of hydraulic oil is done through two heat exchangers that are fed with raw water from a gear driven pump on each main engine.

6.2 Hydraulic lines

- Seamless copper tubing 5/8" I.D. with reinforced rubber hydraulic lines to the hydraulic rams and helm pump.

6.3 Steering wheel

- Stainless steel destroyer type in pilothouse

6.4 Emergency tiller

- To attach to top of stbd. Rudderpost

7. RUDDERS

7.1 Rudder stock

- 3 1/2" Aqualloy 22

7.2 Rudder:

- Fully protected FRP per JTM Design

7.3 Rudder carrier shoes

- Two piece fabricated 316 stainless steel. Main piece fastened to hull by rivets. Aft piece removable so that rudders can be removed.

7.4 Rudder stock stuffing box

- Bronze traditional style x 2

7.5 Rudder stock tube

- FRP with bronze/rubber cutlass bearing at the bottom
- "T" bolt clams at stuffing box x 2

8. TANKAGE AND PLUMBING SYSTEM

8.1 Water Tanks

- Number and capacity: tanks totaling 500 gallons
- Material: Fiberglass from male molds with FDA approved gel coated interior

- Inspection plates: Appropriately positioned and sized for access
- Tanks air tested to 4.5 pounds per sq. inch
- Each tank to have "WEMA" level gauge
- Each tank to be fitted with sight gauge
- Tank baffles to be spaced on 24" centers
- Exterior of tanks finished in gel coat
- Tanks to comply with ABYC section H-23 for potable water systems for use on boats
- Cleanliness: Tank interior surfaces to be thoroughly Vacuumed and wiped down prior to final closure

8.2 Fuel Tanks

- Number and capacity: Three (3) main tanks and one day tank (300 gallons) totaling approximately 5000 gallons. One forward tank will be transferred to main E/R tanks thru the fuel transfer system.
- FRP construction from male molds using Vinylester resin. To comply with all ABYC codes for diesel fuel tanks. Tanks to be coated with fire retardant Gelcoat on outside to comply with ABYC section H-33.20 for fire resistance.
- Inspection Plates appropriately positioned for interior access by average size man. Plates to be fitted with labels that contain all information as stated in ABYC section H-33.16.3. Each internal baffle to have a removable panel to allow access to entire interior of all fuel tanks.
- Each tank supplied with tank gauges with displays located at the helm station
- Magnetic sight gauge for each E/R fuel tank
- Each tank to be air tested to 4.5 pounds per sq. inch
- Provide baffles on 24" centers
- Transfer manifold and Orberdorfer gear pump or equivalent fuel pump with timer switch and Racor 1000MA fuel filter with 10 micron element which can transfer fuel from one tank to another and polish the fuel while transferring.
- Exterior of tanks finished in gel coat
- Cleanliness: tank interior surfaces to be Vacuumed and wiped clean before final closure
- Each tank to have two (2) 1" I.D. vent lines
- Each tank to have separate 1 1/2" I.D. fill pipe located a minimum distance of 18" from any ventilation openings.
- All hardware that comes in contact with fuel to be bonded into the ships grounding system.

8.2 Fuel Pipe and Hose

- Supply lines from engine room tanks are 1 1/2" ID with Parker brand fuel hose and swaged brass fittings
- Fuel line to main engine filter is ¾" ID with Parker brand fuel hose and swaged brass fittings
- Fuel lines to the generator(s) to be ½" ID with Parker brand fuel hose and swaged fittings
- Vent lines to be Trident fuel certified, reinforced hose 1" ID

8.3 Water Piping

- Cold water: Hose from water tanks to water pump and to accumulator to be 1" diameter reinforced and approved for potable water; Branch lines to be 1/2" PVC pipe (blue) PEX or equivalent
- Hot water: Reinforced 1/2" PVC pipe (red) PEX or equivalent
- Sea water hoses: Trident brand reinforced for marine use and provided with double stainless steel clamps below the water line
- All hoses used shall meet the requirements for service as set out by ABYC for the system intended

8.5 Hot Water Heater System

- Heater: One (1) 50 gallon with dual 240VAC elements
- System to have a recirculation pump

8.6 Thru Hulls

- Bronze body, S/S Balls and Teflon seats
- Grounding wire: #6 gauge green wire
- Each thru hull to have a clearly visible tag indicating use
- Each thru hull to be readily accessible

8.7 Fresh Water System

- Main Pump: Headhunter Mach 5, AC pumps with pressure regulator and Groco WSA-1000 strainer on pump inlet
- 5 gallon accumulator tank with pressure gauge
- Hose from water tanks to water pumps and to accumulator to be 1" diameter reinforced and approved for potable water
- Back up Pump: Johnson Pump Aqua Jet Duo WPS 10.4 installed as back up to main pump
- Filter: Water filter housing with a 5 micron sediment filter installed downstream of fresh water discharge manifold
- Pump Selection Manifolds (2): Pump inlet and discharge manifolds made of stainless steel standard pipe. Supply manifold furnished with isolation ball valves from each fresh water tank, to each fresh water pump, and from the water maker. Discharge manifold furnished with isolation valves from each pump.
- Fresh water fill w/SS cap
- Fresh water system will use rigid PVC piping and PEX tubing
- Water maker: 1200GPD or larger HRO with UV sterilizer, media filter and remote panel. (Optional)

8.8 Plumbing fixtures

- Head sinks - Seven (7) total: Master Cabin x 2, salon day head , VIP/guest lowers x 2, and aft crew.
- Galley sink: Double S/S
- Head faucets: Grohe Model# 33170-0000 chrome
- Galley, Grohe Model# 33939 chrome/black
- Shower fixtures: All Grohe #28.049 handle, #28786 soap dish, #28.820 24" shower bar, #28.151 hose, #34.436 thermostat valve
- "Scandvik" aft deck shower installed at the stern
- Fresh water outlets on the foredeck, aft deck, fly bridge, bridge deck and one (1) in engine room

8.9 Shower and sink sump pump system for crew head

- One (1) Lancaster sump-less sump pump #399 or equivalent located under cabin sole in laundry area. Shower ,sink, e/r sink and washer drain to pump via PVC manifold with 1 1/2" outlet. Sump pump discharges to gray water tank. Requires 1/2" vent line.

8.10 Sump pump system for forward guest heads

- One (1) Lancaster sump-less sump pump #399 or equivalent located under cabin sole in forward area. Shower, sink, e/r sink and washer drain to pump via PVC manifold with 1 1/2" outlet. Sump pump discharges to gray water tank. Requires 1/2" vent line.

8.11 Bilge Pumps

- Electric: Six (6) Par Jabsco Diaphragm pumps or equivalent, 1" diameter ports, with "Ultra Senior" auto float switch #UPS-01-24/32.
- Manual: Edson Model #117AL-200-230-PC or equivalent
- Hydraulic driven emergency pump: (1) Pacer hydraulic pump or equivalent plumbed to all water tight compartments with 2" PVC piping. Manifold for emergency pump to be located in easily accessible location.
- High Water Bilge Alarm Panel - High water bilge sense will come from std. Ultra Senior in each bilge compartment. Visual and audio alarm panel in pilot house.

8.12 Toilets and Holding Tank System

- All toilets to be TECMA fresh water toilets
- Water supply to toilets to be fresh water only
- Holding Tank: One (1) FRP holding tank
- Piping to use only schedule 80 PVC pipe or Trident "Odor Shield" #140 sanitation hose
- Holding tank overboard pumps: Edson "Bone Dry" #120ELB electric and Edson "Bone Dry" manual pump or equivalent
- Holding tank vent to use vent filter
- Deck fitting for portable evacuation facility

8.13 Gray Water System

- Tank: One (1) FRP 150 gallon tank. All sinks, showers, and air conditioning condensate to drain to tank. All drains to have "P" traps and sloped downhill run to tank. Exception: Crew head sink and shower, laundry and forward guest cabin head drains will be pumped to gray water tank with the "Lancaster" sump-less sump pumps as described. Tank equipped with electric and manual discharge pumps, level switch for pump starting, and level monitor system.
- Tank overboard pumps: Edson "Bone Dry" #120ELB electric and Edson "Bone Dry" manual pump or equivalent
- Manual back up pump: Edson Model #117AL-200-230-PC or equivalent

8.14 Sea Chest for raw water supply to various systems

- Generator(s), water maker intake, air conditioning and spares.
- Dual 2" diameter intakes port and starboard of keel using two (2) Groco #ARG2000 with Monel basket
- Each intake from sea chest to have a rotary sight flow indicator with single window.

8.15 Oil Change System

- Reverso AC powered oil change system plumbed to each engine
- All hose used in oil change system to be Parker brand fuel hose and swaged brass fittings

8.16 Anchor Wash/Fire Fighting Pump

- Hydraulic drive anchor wash/fire fighting pump: One (1) Pacer hydraulic pump or equivalent - 2" intake thru-hull and Groco strainer at bow. Provided "y" valve to switch from anchor wash to fire fighting system. Fire fighting to consist of a "Izerwaren" valve #91.778 , Nozzle #91.718, (2) 91.707 fire hoses with couplings, stowed in #91.727 container.

8.17 Central Vacuum system

- Central Vacuum - Brand TBD

- Inlet valves - plastic inlet valves with wires in brown
- Hose sock-gray
- Floor rug combo tool

9. ELECTRICAL SYSTEM

9.1 The AC electrical system

- The vessel is fitted with two (2) 240VAC shore inlets at the stern. Ships shore power is fed through a 12KVA, 220-250VAC, 50/60Hz isolation transformer. AC selector control switches allow the operator to select the source(s) of power from either the generator(s) or shore power. The HVAC (air conditioning) may be operated from the ships shore power or from its own dedicated shore power inlet which is also equipped with a 12kVA, 220-250VAC, 50/60Hz isolation transformer. The air conditioning may be operated from either 50 Hz or 60 Hz service. AC service is distributed through custom electrical panels containing 240VAC and 120VAC sections, volt and amp meters and individual breakers and fuses for branch circuits.
- Two (2) 12kVA shore power isolation transformers and two (20) shore power input connections at the stern of the vessel.
- 120/240VAC, 7.0kVA inverter system for limited ships power, control power to the helm station and for refrigeration during times when the generators and shore power are offline.
- AC Outlets are standard US format 120VAC. Locations TDB
- All outlets in head compartments, mechanical spaces, exterior and galley are GFCI type. All external outlets have water proof covers.
- One (1) Glendinning shore power cord retrieval system provided for the 240VAC, 50 amp. ships shore power connection. The system to be provided with 50' of shore power cable. Shore power inlet to be located at the stern of the vessel.

9.2 The DC electrical system

- The DC electrical system is a 24VDC distribution system with a maximum capacity of 800 amp/hours. The DC system is to provide power the ships inverter system and provide power to the helm station DC equipment, and ships service. DC service is distributed through custom electrical panels containing 24VDC and 12VDC sections, volt and amp meters and individual breakers and fuses for branch circuits.
- Standard batteries are located per machinery layout drawing
- 24VDC ships battery bank - Consists of 12, 2 volt AGM batteries @ 800 A/H each. connected in series. A total battery bank capacity of 800 amp/hours is provided for emergency, control, ships equipment and limited operation without operation of a generator or shore power connection.
- 12VDC helm power is drawn from one 200 A/H battery and a 24 to 12VDC converter system
- Port main engine starting - (2) AGM batteries connected in series for 24VDC starting. Switching logic to parallel with 24VDC ships bank for emergency starting.
- Starboard main engine starting - 2 AGM batteries connected in series for 24VDC starting. Switching logic to parallel with 24VDC ships bank for emergency starting.
- #1 Generator starting- (2) - Group 31 AGM batteries connected in series for 24VDC starting. Switching logic to parallel with 24VDC ships bank for emergency starting.
- #2 Generator starting- (2) - Group 31 AGM batteries connected in series for 24VDC starting. Switching logic to parallel with 24VDC ships bank for emergency starting.

9.3 24VDC battery charging

- One 24VDC, 100amp battery charger

- Inverter/charger provides a total of 120 amps at 24VDC for the ships battery bank.
- Main engine starting battery bank is charged from the respective engine alternator. These alternators are also available through automatic charging relays to support the ships battery bank.
- Generator starting battery bank(s) is charged from the respective engine alternator.
- Each charging source can be switched to accommodate any single failure of a charging device.

9.4 Vessel Monitoring

- Maretron backbone to be run the length of the vessel for vessel monitoring ships equipment and critical systems.

9.5 Wire

- All wire to be marine grade, tinned conductor, 600 volt insulation type and sized according to the ABYC Standard

9.6 Wire Terminations

- Connectors to be ring type with closed end seamless construction.

9.7 Corrosion control

- All thru hulls to be bonded together with a #6 green wire and tied into the DC negative system
- All hardware mounted below water line - i.e. stuffing box, rudder shoe, rudder frame, all thru hulls, engines, and strainers to be connected to bonding system
- Zinc plates to be tied into the bonding system based on the hull potential requirements of the vessel.

9.8 Electrical Panels

- Main AC distribution and control panel located in E/R, sub panels located fore and aft on each deck as required
- Main DC distribution and control panel located in E/R, sub panels located fore and aft on each deck as required
- AC/DC distribution panel in pilothouse for helm instrumentation, navigation, communications and Helm equipment.
- Ships battery control at the helm station
- Engine/gen start battery and emergency parallel control panel at entrance to engine room, control of the panel at the helm station
- Generator start/stop panel in pilothouse
- Helm station control and monitoring panel for bilge pumps, engine room ventilation, navigation lights, high water alarms, pump monitoring and other shipboard systems.

10. INTERIOR

10.1 General

- Teak, cherry or oak veneer (straight grain or mountain grain)
- Bulkheads, teak or cherry veneer
- Formica finished ceiling & bulkhead for bathroom
- Drapery or blinds for saloon & each stateroom
- Grab rails, teak
- Headlining, acoustical vinyl
- Push button for all door lockers & drawers

- Carpet, teak & holly or wood parquet interior floor for cabins
- Metal non-skid flooring for engine room
- Floating floor
- Tinted tempered window glass 10~12 mm
- Clear tempered glass 12mm for front windshield
- Corian or granite head floor
- Granite galley counter top w/back splash
- Granite head counter top w/back splash
- Interior steps to all teak. Corner of steps to have nonskid varnish.
- Interior lockers and drawers to be locking with chrome push button
- Interior overhead panels - Removable, held in place by Velcro.
- Interior door lock sets to be chrome brass
- Interior cabin doors to have rubber gaskets for sound reduction and door hooks
- Hanging lockers to have automatic interior lights controlled by micro switch. Lined with Cedar.
- Solid (non louvered) cored doors for heads and staterooms 1.25" thick with rubber gaskets on door jambs
- Interior teak woodwork including cabin sole in pilot house to be varnished with 60% gloss varnish
- Salon tables, pilothouse table to be varnished with high gloss varnish
- All hand rails to be teak.
- Structural bulkheads dividing staterooms and heads to have ¾" furring strips on each side to allow application of ¾" thick sound insulation. The finished bulkhead material of 3/8" thickness to be applied over this.
- Mirrors are located thru out vessel as shown on interior drawings
- All drawers to have stainless steel ball bearing slides

10.2 Galley

- Subzero or Liebheer home size large refrigerator *
- Microwave *
- Electric range and oven *
- Dishwasher *
- Trash compactor *
- Exhaust fan *
- Granite counter tops
- S/S double sink
- Single lever swivel type retractable faucet
- Overhead cabinets
- Drawers & storage lockers w/shelves under counter
- Sliding doors to galley to have frosted glass panels
- Provisional Cost Allowance provided for the appliances

10.3 Dining Room

- Leaf style dining table seats for 6 persons or a circular table w/settee for 4 and two loose chairs
- Cabinet storage below windows to starboard
- Wood/mirror overhead lighting over the dining table area

10.4 Main Salon

- Floors: Carpet with 2 lb.,/sq. ft. 1/2 thick Soundown underlayment pad

- Sofa with hi-lo foldable teak parquet table
- Entertainment center w/pop-up TV cabinet
- S/S sliding door for saloon entrance
- OceanAir blinds w/drapes
- TV lift for 50" plasma TV on side of salon (TV not included)
- Prewire for surround sound speakers
- Teak valance/air con soffit P&S and aft sides of salon
- Two overhead teak hand rails
- Mullions along port and starboard side for installation of window treatments
- Overhead to have perimeter recess with strip lighting

10.5 Day Head

- Floors: Teak
- Counter top: Granite with bull nosed edge
- Mirror and towel bar as shown on drawing
- Cabinet/joiner work: All teak
- Locker and drawer interior finish: Formica
- Toilet paper holder and Towel bar: TBD

10.6 Master Cabin

- Floors: Carpet with 2 lb./sq. ft. 1/2" thick Soundown under lament pad
- Cabinet/paneling: Varnished teak
- Mattress: Standard Queen size
- Port and starboard berth cabinets & drawer bureaus
- Full high wardrobe and dressing room with automatic light and aromatic cedar liner
- Safe located at master stateroom
- Sofa and coffee table to port master cabin
- TV/Video cabinet
- Desk with stool
- Teak headboard frame

10.7 Master Stateroom En-suit Bath

- Floors: Ceramic or stone tile to be specified with order
- Counter top: Granite with bull nosed edges
- Mirrors and towel bars: As shown on drawings (TBD)
- Molded FRP shower stall with frameless glass doors
- Cabinet/joiner work: All teak
- Locker and drawer interior finish: Formica
- Toilet paper holders: TBD
- Vanity unit w/integral wash basin, 2 sets
- Teak removable grating panel for shower room
- Medicine cabinet with mirror
- Vanity mirror w/teak frame

10.8 Pilothouse

- Floors: Teak - varnish
- Cabinet/joiner work: Varnished teak
- Counter tops and instrument panel faces: Formica #939 dark gray
- Teak table at settee to slide in and out.
- Settee aft with chart drawers under

- Helm seat - Stidd 500N-2X2 Low Back "Slimline". Ultra-Leather and pedestal color are buyer's choice
- Chart table w/Cantalupi "Rico" chart light
- Locker interior finish: Formica
- Book shelves and chart drawers as located per interior drawings
- Top of instrument console to be wrapped in black leather or ultra leather

10.9 Forepeak (Chain Locker) Water tight collision bulkhead

- Shelves: Longitudinal plywood shelves with 5" fiddles provided port and starboard for storage
- Pad eye in each locker for bitter end of chain
- Finish: Painted with gray gel coat
- Locker to be divided for dual anchors and chain
- Both lockers to be self-draining thru thru-hulls at boot top.

10.10 Crew cabin

- Floors: Carpet with pad
- Cabinetry and joiner work: Formica with teak trim
- Mirrors as shown on interior drawings
- Hanging lockers with Cedar wood lining
- Book shelves and lockers outboard of lower berth
- Drawers under berths
- Mattresses: Custom 5" thick foam
- Aft stairway to crew cabins and engine room
- Bulkheads to be finished: Varnished teak
- Washer/Dryer
- Forced air ventilation system with adjustable blower

10.11 Crew head

- Floors: Lonseal #154 Sandstone
- Cabinetry: Formica with teak trim
- Shower to be molded FRP
- Counter tops: Granite with bull nosed edges
- Aluminum/glass bi-fold shower door
- Towel bars TBD
- Toilet paper holder TBD
- Full height mirror over sink

10.12 Forward port and starboard guest cabins

- Floors: Carpet with 2 lb./sq. ft. 1/2" thick Soundown under lament pad
- Cabinet/paneling: Varnished teak
- Hanging locker interior finish: Cedar wood
- Dresser outboard
- Drawers under bunk
- Mattresses: Custom 5" thick foam
- Night stands next to bunk
- Teak headboard frame

10.13 Forward VIP cabin

- Floors: Carpet with 2 lb./sq. ft. 1/2" thick Soundown under lament pad

- Cabinet/paneling: Varnished teak
- Mirrors as shown
- Hanging locker with Cedar wood lining
- Drawers under berths
- Mattresses: Custom 5" thick foam x 2
- Forced air ventilation system with adjustable blower

11 LIGHTING (Per lighting plans)

11.1 Main overhead lighting throughout interior
- Cantalupi Power LED Lighting controlled by wall switches.

11.2 Exterior overhead lights
- Cantalupi Power LED Lighting controlled by wall switches.

11.3 Overhead reading lights
- Cantalupi Power LED Lighting controlled from separate switches

11.4 Engine Room and Lazarette Lights
- 120VAC fluorescent
- 24VDC as emergency lighting

11.5 Courtesy Lights
- Exterior: LED 24VDC White
- Interior: LED 24VDC Red
- 24VDC LED white rope lighting under settees, bunks and toe space in selected areas interior and exterior, white exterior and red interior.
- Hanging Locker Lights and misc. Lockers: LED 24VDC

11.6 Navigation lights and signal lights for vessels over 12m
- Port nav light - Aqua Signal 55 Series, #55300 24VDC
- Star nav light - Aqua Signal 55 Series, #55200 24VDC
- Stern light - Aqua Signal 55 Series, #55500 24VDC
- Steaming light - Aqua Signal 55 Series, #55400 24VDC
- Anchor light - Aqua Signal 55 Series, #55000 24VDC
- Stainless steel "Light Stand"

11.7 Reading Fixtures
- Owner's cabin, VIP Cabin and port and starboard guest cabins to have one or two 24VDC Cantalupi "Vienna" chrome bronze swing arm reading lights (6 total)

11.8 Salon Accent Fixtures
- Wall Lamps in salon in three (2) locations.

11.9 Dining Accent Fixtures
- Wall Lamps at forward end of dining area in two (2) locations.

11.10 Bath Accent Fixtures
- Accent lights in heads, Four (4) owner's head, Two (2) day head, Three (3) total for guest heads.

11.11 Deck Floodlights

- Three (3) Aqua signal 120VAC/500 watt series 1069 mounted on port and starboard F/B hardtop and one facing aft on the mast.

11.14 Search Light

- Carlisle & Finch 200 watt spotlight #XY2EDE-RF with dual station remote controls. Unit mounted on the flybridge hardtop.

12. EXTERIOR, DECK HARDWARE, and EQUIPMENT

12.1 Exterior Details

- All horizontal surfaces on deck to have a diamond pattern nonskid as shown in deck plan - standard nonskid to be a contrasting color to parameter deck
- Stainless 316 handrails 2"OD with electro polished bases. All rails shown on drawings to be standard in addition to those specified
- Handrails at transom
- Hand rail around aft deck coaming 2" dia.
- Handrail on underside of aft deck overhang 1 1/2" O.D.
- Hand rail at port and starboard side boarding doors
- Recessed hand rails from lower deck to P/B deck
- S/S 316 Hawse fittings with rollers:
- S/S 316 18" bollards per drawing
- Upper rub rail cap to be 316 stainless steel 1/4" fastened with flush 316 stainless steel fasteners. Stainless steel caps on upper and lower rub rails as shown in design.
- Teak Decking on main side decks
- Settee, molded fiberglass with cushions at foredeck and aft deck
- Manship ports in hull and deck as shown on design. Ports positioned as per layout drawings.
- All opening ports to be fitted with screens and deadlights
- Fixed window in day head

12.2 Cockpit

- FRP settee with Sunbrella cushion set
- Table w/stainless steel table pedestal
- Fresh water deck wash in transom
- Saltwater wash down in transom
- Steps to transom integrated port and starboard
- Teak Decking

12.3 Flybridge

- Richie Compass
- Helm station w/console box
- S/S destroyer steering wheel
- One (1) Selene helm seats
- Corian integrated wash basin w/folded faucet
- FRP table (1 or 2)
- Chart counter top
- FRP settees (1 or 2) w/storage underneath, w/Sunbrella cushion set
- Built-in FRP locker P&S
- Mini bar with S/S grab rail

- Tender storage space on the fly bridge deck

12.4 Bow (Sundeck)
- One (1) FRP settee with cushion set
- One (1) Table w/ S/S table pedestal
- FRP bar unit

12.5 Anchor Storage
- Stainless steel 316 anchor pockets port and starboard.

12.6 Rails and Stanchions
- Stainless steel 2" dia. 316 rails and stanchions on upper deck and F/B deck . Rails to have welded on round bases with fastening studs on bottom and dual 1 1/2" divider rails as shown on drawing.

12.7 Foredeck Rail
- Foredeck to have 316 elliptical stainless rail with 2" diameter stanchions. Welded to round bases with fastening stud welded on bottom.

12.8 Windshield Wipers
- "Exalto" two (2) speed self-parking motor, with wash system for three (3) front windows
- EX2167.32 wiper motor 223BS 24VDC/23Nm, for (1- 3/8" {9.5mm}) bulkheads
- #EX2135 T1 Pantograph arm 17.7"-23.6" (450-600mm) adjustable
- #EX2174 curved wiper blade 17.7" (450mm)
- #EX2159 Combo switch for single wiper 24VDC
- #EX2143 24VDC solenoid valve for wash system
- #EX2136.03 tubing retainer strip
- #EX2184 Washing Jet for type 1 adjustable pantograph arm
- #EX2186 plastic bulkhead connector for 19.7" (500mm) (new style)
- #EX2154 Tubing ¼" (6.35mm) soft black x 5 meters
- #EX2157 Tubing ¼" (6.35mm) hard black for push fit plumbing fittings x 5 meters
- #EX2129 elbow 6x.24" (6mm)
- #EX2166 T-coupling 6x6x6mm
- #EX2119 straight coupling , ¼" (6.35mm)
- #EX2105.025 Gallery with adjustable spring to tension wiper against window

12.9 Horn
- Kahlenberg dual trumpet #D-1 with chrome finish and fog timer 230VAC compressor w/24VDC solenoid

12.10 Deck hatches
- Per deck plan, Lewmar #70 "Ocean Series" to include insect and privacy screens. One (1) Lewmar #60 "Ocean Series" to include insect and privacy screens.
- Install (1) Lewmar #70 "Ocean Series" on the port side of the lower platform to access the flybridge hardtop.

12.11 Windows
- Windows 10-12mm" thick tempered glass
- All side windows to be tinted glass
- All salon and pilothouse windows are recessed 1".

- All salon windows to have storm plate receptacles

12.12 Exterior Doors
- Aluminum doors by Pacific Coast Marine as follows (Note: interior as well as exterior PCM doors are included in this schedule):
- Pilothouse--2ea, Weather Tight Dutch door, one L.H. Mortise hinge, one R.H. Mortise hinge. C.O. 21" x 73"
- Salon after--1ea, Weather Tight double opening door with all glass panels. 48" x 73"
- Salon port side, Weather Tight door, one RH Mortise hinge
- Engine room--1ea, Water Tight model no. PCM4170-W with sound blanket core, painted. L.H. surface mount hinge. C.O. 21" x 73".

12.13 Boarding doors
- Port and starboard - opening in two pieces. Top to fold up and over and bottom to open outboard. Stern doors on port and starboard side aft per drawing. Doors to have "blind" dog lock/handles. Each provided with built-in boarding ladder.

12.14 Davit
- 2200 LB capacity hydraulic/240VAC davit with extendable boom to 20 feet mounted per drawing.

12.15 Bottom treatment
- Five (5) layers of epoxy barrier coat and three (3) coats of anti fouling paint

12.16 Deck Drains
- Bridge deck and Fly Bridge deck to drain through 2" deck drains.
- Lower side decks to drain through freeing ports and scuppers.

12.17 Control stations
- Port and starboard side of forward bridge deck equipped with helm controls, bow and stern thruster controls, start/stop/horn.
- deck control station equipped with helm controls, bow and stern thruster controls, start/stop/horn.

12.18 FRP hardtop over F/B
- FRP hardtop over F/B with molded in non-skid 4"dia. Stainless steel support stanchions at forward end, port and starboard

12.19 Stern capstan winches
- Two (2) Maxwell VC 2200 port and starboard cockpit

12.20 Staff
- 60" teak flag staff with 1 1/2" socket for aft P/B deck rail.

12.21 Anchor
- Two (2) 200 lb. stainless steel POOL type

12.22 Anchor Chain:
- Two (2) Lengths, 400 ft. 1/2" (12mm) chain

12.23 Swim ladder
- Stainless steel with teak steps mounted on swim step under FRP hatch accessible from water

12.24 Tender Docking
- Two (2) fold up style 10" cleats on swim step port and starboard for dinghy tie up

12.25 Windlass and Fittings
- Dual matched set of Maxwell VWC 4000 hydraulic three (3) station controls pilothouse, fly bridge, aft deck and foot switches with chain counters and band brake and 1/2" (12mm) chain gypsy x 2
- Chain stoppers with devils claw chain tensioner for 1/2" diameter chain

12.26 Exterior locker doors
- All exterior locker doors to use flush stainless steel pull rings for latches
- All exterior locker doors to have stainless steel louvered vents

12.27 Life raft pads
- Port and starboard side of F/B deck

12.28 Swim Platform
- Three (3) 2 1/2" diameter "U" shaped rails across swim step
- Teak Decking

12.29 Foredeck lockers
- (2) flush style port and stbd. as shown on drawings. Hinges to be Freeman Style "Large Yoke" with gas shocks

12.20 Deck Locker Misc.
- All deck lockers and stowage boxes to be fitted with stainless steel gas shocks of the proper rating.

13. OPTIONS
- Awlgrip, Alexseal, or Awlcraft PU painted color hull
- Davit upgrade to 3500lbs.
- Under water lighting
- Teak deck on F/B helm station
- Teak deck on Portuguese bridge deck, fore deck.
- Teak coaming on rail for foredeck, aft deck and fly bridge
- Helm Navigation, Communications and Entertainment package
- Ships monitoring system for all vital system onboard
- Upgrade the stabilizers to the ABT Trac Star system (at anchor stabilization). Note this requires the optional generator to be installed with increased capacity and hydraulic PTO to drive the system while at anchor.
- Rear & E/R camera monitoring system
- Passarelle

IMAGES