GOLD COAST YACHTS®
ST CROIX, U.S. VIRGIN ISLANDS

# GC80P

## DESIGN BRIEF

Designed with ease of use in mind the St. John ferry is a high speed, fuel efficient, continuous duty ferry for use on the Red Hook, St. Thomas to Cruz Bay, St. John water transportation route. All technical aspects of the vessel are fit for purpose. The interior and exterior finish of the vessel is completed to a “commercial ferry” finish, with all equipment and systems containing standard, well known components.

## SPECIFICATIONS

| | |
|---|---|
| LOA | 80’ |
| BOA | 32’ |
| Draft | 5’5” |
| Light Ship Displacement | 80,000 lbs |
| Full Load Displacement | 130,000 lbs |
| Passenger capacity | 149 |
| USCG | Subchapter T |
| Crew | Captain and 3 Crew |
| Engines | 2 X QSK 38 1200 hp |
| Top Speed | 29 knots |
| Cruise Speed | 26 knots |
| Tankage | 1000 gal-fuel, 200 gal water, 200 gal waste |
| Steering | Electric/Hydraulic |
| AC Elec. | (2) 21KW Onan 120V/240V AC |
| HVAC | 360,0000 BTU |
| Electronics | Raymarine |

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## FEATURES

### HULLS, DECKS AND SUPERSTRUCTURE

**Construction**
The hulls and superstructure will be designed using ABS High Speed Rules as guidelines.

**Exterior/Interior Finish**
- DuPont marine polyurethane paint system
- Commercial finish

**Paint & Graphics**
- Whisper White hulls, cabins
- Blue window stripe
- Coin pattern rubber decking
- 3 Coats bottom paint, 3 on waterline
- Lettering as per USCG requirements

### PROPULSION SYSTEM

**General**
The propulsion package consists of two marine diesel engines, one per hull, each powering one fixed propeller via a reversing marine gearbox. The design of the entire machinery system, including main engine, shafting, and propeller shall be such that at all speeds within the operating range, the operation will be free from all serious

forms of vibration. The builder shall furnish complete propulsion packages including the main engines, gears, couplings, shafting, bearings, seals and propellers.

**Main Engines**
(2) Cummins QSK 32 MCRS, turbocharged and after cooled, rated at 1200 HP, continuous duty at1800 rpm, engines will be resiliently mounted. Each engine will be fresh water cooled and fitted with a heat exchanger connected to seawater supply piping as provided by manufacturer. Engines will be installed in accordance with manufacturer's requirements and/or recommendations.

**Reduction Gears**
The two gear boxes will be single speed output, ZF 4540 marine gear or equivalent. Ratio of engine speed to gear output to be confirmed.

**Shaft and Propeller**
The shaft will be 3" Aquamet 22 SAE standard propeller taper companion end taper and with split couplings. Two counter rotating five (5) blade fixed pitch propellers made in Nibral will be fitted. A PSS drip less shaft seal from PYI will be included. The struts bearings and shaft tubes bearings will be by Duramax.

**Propulsion Controls and Instrumentation**
**Propulsion Controls**
Cummins electronic control system will be fitted. The main engines will be arranged for key operated start and stop from controls in the pilot house. Engine rooms will have start/stop control.

**Machinery Monitoring**
Each main engine is to have a C-Command monitoring panel mounted at the pilothouse using electronic multi view panels giving at minimum the following information:

- Coolant water temp
- Lube oil pressure
- Gear oil temp
- Gear oil pressure
- Primary alternator voltage
- Turbo Boost

Each main engine will be fitted with gauges for oil pressure and coolant temperature mounted on the engine.

**Exhausts**
Propulsion engines will be provided with suitable exhaust gas silencing systems and appropriately sized piping, hoses and clamps to meet engine manufacturer's requirements and specifications, specifically back pressure. Exhaust will be of the wet type.

**Steering**
An appropriate sized JASTRAM electronic/hydraulic system will be fitted and interfaced to the autopilot to steer the port and starboard rudders using bronze tiller arms.

## ELECTRICAL

**General**
Two 21 KW Onan generators will be set up with a split bus system allowing use of either or both of them to supply the power.

**System Voltage**

- AC voltage – 120/240V, 3 wire/4 wire, 60 Hz, Single phase
- DC voltage – 12V, 2 wire

**Generation**
Ship service electric power will be provided by either or both of two diesel-driven, raw water cooled, resiliently mounted, AC generators. The generators will be identical Onan models in sound enclosures. Each generator will output 21 KW/120V/240V 60 Hz/single phase. Generator raw-water cooling will be provided by sea suction, located as low as possible on the VESSEL bottom. Strainers will be provided. Generator diesel exhaust will have water injection, through manufacturer supplied wet elbow and will pass through a water-lift type muffler. Generator exhaust will discharge through the hull.

**Power Distribution**
The power distribution system shall be designed for 240 VAC, single phase 60hz for large power demands, 120 VAC single phase 60 Hz for lighting and general purpose.12VDC will be used for direct current applications and emergency systems. Switchboards, panels, breakers and cables will be in accordance with ABYC requirements.

**Shore Power**
A double Hubbell or equal shore receptacle will be provided on the foredeck to receive two (2) 100 amp input, 240VAC single phase power 3 pole/4 wire.

**Lighting**
Guest and operational spaces will be lighted by 120V AC lights. Fixtures are to be marine grade, suitable for application and will be switched locally at main entrance to each area. Emergency 12V DC and exit lights will be fitted.

- **Exterior Deck Lighting** - Deck lights will be provided in the following locations and will be switched from the inside of the accommodation entrances and wheelhouse: Eight (8) on the main deck and four (4) on the upper deck. Deck lights shall be positioned to avoid glare.
- **Search Light** - One ACR RCL-100 searchlight or equal, complete with ACR Universal Remote Control Point Pad will be fitted atop the pilothouse and will be controlled from the operating station console inside the pilothouse.
- **Navigation Lights** - Navigation lights and controls will be installed in accordance with the COLREGS consisting of; steaming light, port light, starboard light, stern light, anchor light. The lights will be individually controlled by a panel located in the control station.

**Receptacles**
Interior AC receptacles shall be provided. Receptacles rated at fifteen (15) amperes, 120 VAC, single phase will be provided in machinery spaces; and Receptacles rated fifteen (15) amps will be provided in passenger spaces, as well as the pilothouse. Appropriate receptacles with ground fault interruption will be provided for weather deck areas, engine rooms and wet locations.

**DC Systems**
12V DC Batteries and Charging Equipment
Eight 12V 8D AGM sealed maintenance free batteries shall be provided, two for each for port and starboard engine starting, one each for port and starboard generator starting, which also provides redundancy for engine starting, and a two (2) battery bank for supply of 12V equipment. A multi-bank charger will be installed providing maintenance charging and DC supply for vessel needs. All battery banks will be provided with bridge readouts for voltage. Battery switches will be Blue Sea.

## ELECTRONICS

**Navigational and Communications Equipment**

**General**
The following Raymarine navigation equipment will be supplied and fitted:
(1) GPM Central processor module for the G series network including platinum charts for North America, gold charts for Caribbean.
(1) G Series command center keyboard
Pilothouse
(1) G170 Marine Display
Pilothouse
(2) 12KW Super HD 48 inch open array radar
Pilothouse roof
(1) DSM400 HD Sounder Module 3KW
Digital sounder
(1) R309 Ultra High performance thru hull Transducer
(1) CS4500 Ultrasonic speed transducer
Speed Log
(1) T42 Precision temp sender
Water Temperature
(2) Ray218 VHF radio, Class D DSC, Hailer
Pilot house
(1) Smartpilot X-Sol core pack
Autopilot controller
(1) ST70 Color Autopilot control head
Pilothouse
(1) AIS500 Class B transceiver
Pilothouse
(2) Raystar 125 Differential GPS antenna
Pilothouse roof
(2) Seatalk Network switch
System
Asst Cabling, connector, interfaces

**Public address System**
Located in Pilothouse with four (4) exterior horn speakers.

**Satellite TV Reciever**
Raymarine Model 33STV

**Horn**
One electro-pneumatic air-horn will be provided and installed in accordance with COLREGS. A horn button will be fitted at the pilot house and flybridge control stations.

**Smoke and Fire Detection and Alarm System**
Appropriate UL listed smoke and fire detectors will be installed with alarm to a panel in the pilot house console.

**Bilge Alarm System**
High Bilge level alarms will be provided and installed in the pilot house console.

**Tank Level Indicator System**
A tank level indicator system will be provided to serve two (2) fuel oil tanks, one (1) freshwater tanks and one (1) black water tanks. It will be located in the pilothouse.

## AUXILIARY SYSTEMS

**General**
All system pipe work materials, excluding resilient connections, installed by the yard are to be in accordance with the following table:

| ***System*** | ***Material*** |
|---|---|
| Bilge – Engine Room | Bronze / High Quality hose |
| Bilge – Outside of E.R. | Polyethylene/ABS or equivalent |
| Fresh Water piping | PEX Tubing |
| Engine Exhausts | Centek Exhaust tubing/ Shields reinforced exhaust hose |
| Hydraulics | Thick walled Copper and/or Parker Hydraulic hose |
| Oil -fuel | Copper and/or Parker hose |
| Sea water circulating | Shields hose |

All pumps and systems will be arranged with access for service and maintenance in mind.

**Cabin Ventilation System**
All cabins will have opening doors for emergency ventilation.

**HVAC Equipment**
The passenger cabin will be provided with a 360,000 BTU chilled water system air conditioning system by Flagship Marine. The pilothouse air conditioning will be a 13,500 BTU Sea Mach unit.
(2) Chiller units - 180,000 BTU @ 240V AC
(10) Air Handlers - 36,000 BTU @ 240V AC

**Engine Room Ventilation**
The engine room is to be ventilated by forced supply and natural exhaust. Air supply volume will meet requirements of engine manufacturer for depression and engine room temperature. Exhaust fans will be provided.

**Bilge System**
Each void will be equipped with a UL listed 2000 submersible bilge pump, to draw water from the bilge and discharge overboard in each hull.

**Fuel Oil**
Two aluminum ¼" wall fuel oil storage tanks of 1,000 gallons capacity each, port and starboard, pressure tested, will be installed with a total capacity of 2,000 gallons. Refueling is arranged from mid-ships with the fill and vent lines located in a single retention box. A graduated fuel meter for each tank will be located at the fill station. In addition there will be an ESI fuel polishing / transfer system using RACOR filters that can transfer from one tank to the other tank.

**Fresh Water**
Storage for 200 gallons of fresh water is to be provided in a Port integral tank. Both fill and vent connections will be located amidships. A tank level indicator is to be fitted with a gauge in the pilot house. Two Mach 5 Head Hunter pumps will be provided to supply the water to the galley and the bathrooms.

**Black Water**
There will be a 200 gallon Starboard integral holding tank . There will be discharge fittings on the main decks suitable for standard connection for pump out to shore or truck suction hose. All water drains will be led as directly as possible to the waste water holding tanks. All sanitation and service systems will be provided with adequate "P" traps. A waste water treatment system will be installed.

**Toilet System**
Two (2) Dometic push button electrical marine toilets will be fitted using the vessels fresh water pressure system for their supply water. Toilets are to discharge into suitable approved sewage retention system, as detailed above.

## FIRE SAFETY

**Engine Rooms**
Each engine room compartment will be fitted with a Fireboy MA-375 FE 241 manual / automatic fire suppression system.

**Portable fire extinguishers**
5 Portable fire extinguisher, B-I class, CO2 type, will be provided.

## ACCOMODATIONS

**Pilothouse Arrangement**
The Pilothouse is to incorporate all items of equipment required to navigate and control the craft and its machinery. A helm console will be fitted across the front of the Pilothouse. The Pilothouse and console finish will be in colors and styles selected from standard available and will be consistent with requirements with dark, matte finishes in the wheelhouse. A captain's chair made by Pompanette, Helm or equal, is to be provided. The helm console is to contain the following:

- Throttle and gear box controls for main engines
- Main engine display modules
- Main engine start/stop with keys
- Navigation System display
- Magnetic compass
- Navigation horn push
- Windscreen wipers/wash will be provided on forward facing windows.
- VHF radio
- Autopilot control head
- Navigation light control panel
- Internal light switchboards

**Luggage Storage**
Passenger luggage storage is located under stairs to upper deck.

**Handicap Accessibility**
All door openings and bathrooms will accommodate wheel chair passengers. Two wheel chair tie down positions will be located on the main passenger deck.

**Seating**
Fixed interior vinyl covered seating for 100 on the main passenger deck. Fixed fiberglass exterior seating for 58 passengers.

## OUTFITTING

**Sound Insulation**
'Soundown' 2" foam with lead barrier to be installed over each engine.

**Exterior Hardware**
**Cleats:**

- Eight (8) 15" Blue Water SS cleats.

**Anchors:**

- 110 lb Claw anchor with 250' ½" galv. Chain with 150' 1" anchor line.
- 66 lbs Claw anchor with 15' 1/2" galv. chain with 300' ¾" anchor line.
- Four mooring lines at 50 ft overall length of 1" – three strand.
- Two anchor and rode storage boxes.

**Stairs, Ladders and Handials**
Welded aluminum handrails, stair rails and roof posts to be sufficiently strong to take any loads that could reasonably be expected under normal operating conditions.

**Windows**
Seventeen (17) American Marine fixed anodized aluminum windows.

## DOORS

**Weather Doors:**

- The passenger deck will be fitted with six (6) American Marine exterior locking anodized aluminum doors. The pilot house will be fitted with two (2) American Marine exterior locking anodized aluminum doors.

**Head Doors:**

- The heads will be fitted with two (2) light weight interior locking American Marine doors.

**Deck Hatches**
Six (6) Bomar oval aluminum hatches will be fitted. Two (2) Custom composite engine access removal hatches will be fitted.

**Lifesaving Equipment**
As required for USCG Subchapter T - 149 passengers near shore route.

## MARKING

**Marking**
The Builder will complete forms as required to USCG document the vessel including marking.

The Vessel's name, to be advised by the Owner, will be applied in paint to the stern and forward hull sides. The home port will also be applied to the stern. Letters will be minimally 6" high and of proportionate length. Official number and the number denoting net/register tonnage will be permanently affixed to the main structure.

**Labels**

- A Bronze identification plaque will be installed in the main passenger salon, depicting the names of the Builder, Designer, the VESSEL and launch date.
- Permanent tags or labels will be applied to all wiring and piping for identification. All instrumentation, switches, valves, and other devices not readily identifiable will be clearly labeled.