

Welcome Aboard
The

Dreadnought

Operations Manual
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GENERAL INFORMATION

Vessel Name	Dreadnought
Builder	Chung – GWA Boats (CHB)
Hull No.	CHB 37024 0682
Length	37'
Beam	13'5"
Draft	4'0"
Engine	Lehman 120 HP
Cruising Speed	7-8 knots
Cruise Engine RPM	1800
Max Engine RPM	2200RPM
Fuel Capacity	300 US Gals (2 tanks)
Fuel Consumption	2.5 Gals/hr @1800rpm
Fresh Water Tanks	150 US Gals (2 tanks)
Electrical System	115VAC 12 VDC
Gen Set	Entec West Genset Westerbeke
Dinghy/Oars	10ft Sterling Sport Cat
Radio Call Sign	Dreadnought

Daily Pre-Departure Checks

Getting underway after dockside moorage

1. Check bilge area for abnormal water levels
2. Check engine oil level
3. Check engine coolant level
4. Check fuel quantity sight gauge
5. If you are on shore power, Switch off main AC Breaker and disconnect shore side power plug Bring power cord back aboard
6. Start engine. Turn key clockwise and hold until engine starts. Adjust throttle for idle speed of 800 RPM. Visually check for water discharge from aft port-side exhaust.
7. Turn on all radios and navigation equipment
8. Let engine warm-up prior to “letting go dock lines”

Getting Underway From Anchorage or Buoy Moorage

1. Check bilge areas
2. Check engine oil level
3. Check engine coolant level (Coolant level should be .5-1.0 in. below the neck of the heat exchanger filler)
4. Check fuel quantity
5. Check prop area for any trailing of lines
6. Reduce electrical load prior to engine start
7. Start engine. Turn key clockwise and hold until engine starts.
8. Adjust throttle for 800 RPM.
9. Check for water discharge from aft port-side exhaust.
10. Turn on all radios and navigation equipment
11. Allow engine to warm-up prior to weighing anchor or releasing moorage lines

Where to Check Fluid Levels

Engine Oil: Red dipstick on port side of engine. When engine is cold, oil should be between the full and add marks. *To add oil, remove cap on valve cover labeled “Engine oil Fill”. Please use funnel and do not over fill.*

Engine Coolant: While engine is cold, remove red cap located above front of engine to fill. Coolant level approx 1 – 1 ½ inches down from neck is ok.

Fuel Quantity Sight Gauge: The fuel sight tubes are located in the engine room on the port and starboard sides at the aft ends of the tanks. To read fuel level open both top and bottom gate valves, close them securely after reading fuel level.

Transmission Fluid: The transmission fluid dipstick is aft of the engine on the port side of the transmission.. You fill and dip from the same hole.

Fresh Water Level: The water tanks are located in the fwd cabin under the bed. Fill is located on the port side of the fwd deck

Fuel System

System Overview

The fuel system consists of two iron 150 gals (US) tanks located amidships port and starboard.. Fuel is filtered via a Racor type filter and through two engine mounted secondary filters. Each tank has a separate shut-off valve located at the lower aft end of the tank. Both valves should be open for normal running. See engine manual for engine “bleeding” procedures.

Deck Fills: Marine diesel fuel is added via deck fills located just aft of amidships on both the port and starboard side decks. Each is labeled “DIESEL”. Fuel will NOT transfer between tanks while refueling. Fuel MUST be added to both tanks. Please note that there are TWO deck fills on the Port side. The inboard fill of the two is used to fill the separate tank of kerosene used for the Webasto hot air furnace. Please make sure to use the outermost deck fill on the port side for refueling the main tank with diesel fuel.

Racor Filter: The Racor filters are positioned on the fwd engine compartment bulkhead. The vacuum gauge should always read in the green arc. If the vacuum indicates in the red arc, fuel contamination should be suspected. Spare filter element will be found in the square tan buck et at the aft wall of the engine room.

Heater: There is a separate fuel tank for the Webasto hot air furnace which supplies cabin heat. It is located on the port side fwd in the engine room. This tank is filled from a separate fitting on the port side of the main deck and contains kerosene. In the event that fuel is displaced in this tank, there is a valve on the port side of the engine room fwd bulkhead. This valve can be identified by its' handle hanging adjacent to it secured by a wire. Install this handle and turn valve to "on" to draw furnace fuel from the main fuel tank. The generator fuel feed comes from the top of the port fuel tank. There is a separate valve for this feed which should normally be "on".

Engine Operations

System Overview

The engine is a 120 HP Ford Lehman diesel. "Raw" water (sea water) is utilized to cool the engine and transmission oils and the engine exhaust. Fresh water coolant is utilized for engine cooling.

Normal cruise engine speed is 1800 RPM. Very little speed is gained with greater RPMs, but fuel consumption increases greatly.

Starting Engine:

1. Disconnect short power
2. The transmission **MUST** be in neutral prior to starter engagement.
3. Advance throttle slightly.
4. Turn key clockwise and hold until engine starts. The starter can be engaged for up-to 30 seconds, after which a 30 second starter "cool-down" period should be observed.
5. When engine starts, release key and set throttle to 800 RPM for warm-up. Engine alarms will sound until engine oil pressure increases
6. Visually check that water is being discharged from the port aft engine exhaust port. If water is not being discharged, this is an indication that the raw water pump is not working or that the sea strainer has clogged. Immediately shut down engine and investigate. **(Refer to page 10 for sea strainer information)
7. Allow engine to warm up for 5-10 minutes before getting underway.
8. Cruise at 1800 RPM.

Gear Shifting

1. Only shift when engine is at “IDLE”

Engine Shutdown

1. Allow engine to cool at idle speed prior to engine shutdown
2. The ignition key **MUST** be ON.
3. Press SHUT-DOWN button until engine stops
4. Turn Key OFF.

Engine Alarms

1. Low Oil Pressure
2. High Engine Coolant Temperature
3. If the alarm(s) sound, immediately shut the engine down and determine the cause.

Engine Fire Alarm

The ship's engine compartment is equipped with an automatic Halon fire extinguishing system located on the fwd bulkhead of the engine room. When fire is detected, extinguishing agent is automatically discharged into the compartment. If the Red light on the upper DC circuit breaker panel at the lower helm illuminates, it indicates that the fire extinguishing agent has been discharged. Immediately shut down engine.

Sea Strainer

The sea strainer is located on the starboard side of the engine.

If engine temperatures increase above normal or water is not being discharged from the engine exhaust port, the sea strainer may be clogged. Immediately shut down engine. Use the following check list to clear a clog.

1. Shut down engine.
2. Close seacock (the seacock is located just forward of the sea strainer) Turn the handle until it stops (approx ¼ turn).
3. Unscrew the cover on the sea strainer & clean out any debris.
4. Carefully replace the rubber gasket and cover assembly.
5. Do not over tighten the hold down screw. (Just “snug it down”.)
6. Reopen the seacock. Check for any leaks from the sea strainer.

7. Restart the engine. Observe water discharge from the engine exhaust port.

Note: If water is still not being discharged from the engine exhaust port, the problem is most likely with the raw water pump assembly.

Electrical Systems

System Overview

There are two separate electrical systems on board: 12V DC and 120V AC.

12V DC power is supplied by two banks of batteries. One bank of “house” batteries and one bank of “starting” batteries. The batteries are charged while underway via the engine driven alternator/battery charger and when shore power is connected thru the inverter/charger system.

Inverter –

Genset – It will provide power to charge the batteries when battery charger is on and use of the AC outlets

It is not necessary to “switch over” or “isolate” battery banks. Powering and de-powering electrical systems is automatically done via the circuit breaker (CB) panel located port side of the lower helm station.

Shore Power “Change Over”

1. The **Shore Power** master switch is located forward on the port side of the helm.
2. To utilize shore-based power:
 - a. Connect the shore power cable to the dockside receptacle and to the ships connector on the starboard side just forward of the starboard cabin door.
 - b. Switch the **Shore Power** master switch to **Shore Power**
3. To “change-over” from shore power to ship’s power, reverse the above steps.

DC Circuit Breaker Panel

ANCHOR LT.....Turns on the mast mounted anchor light. Must be on at night while at anchor.

SPREADER LIGHTS..... Turns on lights on mast to illuminate upper deck

RUNNING LTS..... Turns on all ship's navigation lights for night travel (not allowed for charter)

SALON LTS.....Overhead lights for main cabin spaces.

CABIN LTS.....Berthing and head lights.

DECK LIGHTS..... Port and Starboard main deck

RADIO..... Powers the electronics

ENGINE ROOM LTS..... Engine compartment.

HORN.....Radar at lower helm and ship's horn.

WIPER.....Wiper controls at lower helm.

FRESH WATER PUMP.....Activates freshwater system

BILGE PUMP.....Activates bilge pump.
(Note: Pump automatically discharges at preset levels.)

WINDLASS.....Anchor windlass. Foot switch by the anchor windlass raises the anchor only. Lowering is controlled by the friction lock on the side of the windlass

REFRIGERATOR.....120V AC/ 12V DC. Uses 12V DC while underway or anchored to conserve power or from Genset.

HOLDING TANK PUMP.....Liquefies waste in holding tank for easier Pumping.
DO NOT LEAVE ON FOR MORE THAN 30 SEC

PILOT..... Turns on auto pilot.

AC Circuit Breaker Panel

OUTLETS.....Energizes all 120 VDC power outlets.

REFRIGERATOR.....Preferred source of power.

WATER HEATER.....Powers fresh water heater while not underway.
(Engine cooling system supplies the hot water source while engine is running.)

Genset

Entec West genset controls are located to starboard of the lower helm wheel.

Electronics

Systems Overview

The VHF radios have independent power sources and independent antennae.

Lower Helm

VHF Radio	Genset	Engine Panel
Depth Sounder	Bow Thruster	Auto Pilot
Propane System Panel	Radar	Chart Plotter
Compass	CB Radio	Lap Top

There is a rotary switch at the lower helm marked “sonar”. This switches the depth transducer between the upper and lower depth sounders

“Pos 1” is for the depth sounder at the lower helm.

“Pos 2” is for the depth sounder at the upper helm.

Flying Bridge:

VHF Radio	Digital Depth Finder
CB Radio	Be sure to put the lower helm rotary in position “2” in order to make this unit work.
Compass	

Fresh Water System

System Overview

Fresh water capacity is approximately 300 gallons. The two fresh water tanks are located under the fwd stateroom bed. (Refill at every opportunity)

The Deck fill is located on the fwd main deck on the port side of the anchor pulpit. The fill cap is labeled “WATER”. The deck key for opening this cap, as well as the “fuel” and waste” caps, is located in the aft drawer under the port side salon settee.

Fresh water pump is controlled via the circuit breaker labeled FRESH WATER PUMP.

Deck Wash Down outlet on the forward deck, adjacent to the anchor pulpit is controlled by the DC circuit breaker labeled “blower”.

Hot water tank is controlled via the AC Circuit breaker labeled WATER HEATER.

***Important: If you run out of freshwater, turn off the PRESSURE PUMP and the WATER HEATER circuit breakers.

Caution

IF ENGINE HAS BEEN RUNNING FOR AN EXTENDED PERIOD OF TIME, *HOT WATER TEMPERATURES CAN BE VERY HIGH*

Galley/Propane System

System Overview

Propane is utilized for the stove and oven in the galley. The propane system consists of a 10 gal tank located in the enclosed spaces forward of the upper helm. The tank is removed for refilling. There is a manual ON/OFF valve on the tank as well as an electrical solenoid valve operated on the control panel at the lower helm station, port side.

Propane Stove/Oven

The stove and oven burners must be lit with an external flame source. Propane fueled lighters are on-board for this purpose.

It can take as long as 45 seconds for propane gas to reach the stove/oven for lighting. The stove burners are lit individually.

To light the oven, first light one of the stove burners. The oven burners are under the broiler plate.

Refrigerator/Freezer

The refrigerator is powered from either the AC or DC electrical circuit breaker panels. When docked and using shore power the refrigerator should be using 120V AC.

When anchored or underway, use 12V DC. Do not use the inverter, since you will drain the batteries faster. Be sure to latch the door.

Household Appliances

Regular appliances can only be used when on shore power or the generator is used.

Heads

System Overview

The head is equipped with a Marine toilet. The system uses raw salt water. Push silver lever to “flush,” water will come into bowl. After use pump several times while in “flush” position. Push lever to “dry” and pump several times. Be sure to pump enough to move waste into tank. Whenever possible use shore facilities for solids.

WARNING USE ONLY MARINE CERTIFIED TOILET PAPER.

Holding Tank

The toilet empties into a single holding tank. There are no “wye” valves to worry about.

To utilize a “pump-out” station, the waste deck cap is located on the starboard side of the fwd deck. It’s labeled “WASTE”.

The macerator is located on top of the waste holding tank beneath the floor hatch at the base of the stairs to the fwd cabins. The switch for the macerator is on the DC circuit breaker panel marked “Holding Tank Pump”.

Cabin Heating Systems

System Overview

Cabin heat is supplied by a 12volt DC Webasto diesel furnace located on the port side of the forward engine room bulkhead. The furnace provides hot air to the sleeping cabins as well as the salon. The on/off switch is located at the lower helm. Temperature control is accomplished via a thermostat, similar to a domestic thermostat, located to port of the lower helm station.

Anchoring

System Overview

There is approximately 200’ of anchor chain.

An electric windlass is operated with a foot pedal switch located at the bow. The foot switch controls only the raising of the anchor. Lowering the anchor is done manually. (A circuit breaker is located on the DC Circuit Breaker panel labeled “WINDLASS”)

Once the anchor is “set,” tie off the anchor line to the anchor post, not to the windlass.

Use the freshwater washdown hose bib and hose to clean mud off the anchor and chain before it goes back into the chain locker.

Miscellaneous

Know where all safety equipment is located.

Fire Extinguishers:

There are three portable “hand held” fire extinguishers. One is in the main cabin near the lower helm station by the starboard door. The second extinguisher is on the starboard side of the salon and the third is under the dressing table in the forward cabin. There is also a “fixed” automatic fire extinguisher system located in the engine compartment.

Emergency Flares

Located in the starboard aft cabinet in the main salon.

Life Jackets

There are life vests located underneath the flying bridge coaming and under the mid cabin lower berth.

Shop Vac

Located in the engine room port side aft.

Maintenance Supplies

Engine oil, anti-freeze fluids, and distilled water for batteries are located in the engine compartment in a plastic tub and on aft port storage shelves.