

# Tech



The Engineer on board is the person responsible for maintenance and repairs of all the technical and electrical. In operations, they switch to be the second RIB Driver. They also support with deck and guest care work, whenever other duties allow.

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# 1. Getting an overview

First we present all systems you will find on board of MARE\*GO. Don't trust them, everything is possible. You have to check properly and regular. Act accurate and sensible. If you have questions better ask before then do something you're not sure about.

## 1.1. Engines

All our engines are running with Diesel, they are of older age and need no electronic.

MARE\*GO main engine

- It's a 80's truck MAN engine
- 10 cylinder
- a passive gearbox with added Cooling System

MARE\*GO Bowthruster

- Peugeot engine
- 4 cylinder
- Its directly connected via an own gearbox to the bowthruster

MARE\*GO Generator

- Lister Petter
- 2 cylinder
- Air cooled

LNOB engine

- YANMAR 6LPA
- Mercury Duo Prop Z-drive

GREEN engine

- YANMAR 4JH3
- Castoldi Jet-drive

## 1.2. Pumps and Pipes

There are many pumps and pipes at MARE\*GO. You will find them for fresh water, water maker, blackwater, bilge, diesel, lubeoil. Check all of them permanently and keep the systems in mind, even if they are not in the maintenance lists.

## 1.3. Filters

- The engine filters you will find in the maintenance list. Details to them are described in the manuals.
- Diesel tanks filters are always SEPAR filters. Because of the water separation they need to be checked daily while in operation.

- MARE\*GO has seawater and fresh water filters, which have to be checked every time before departure.
- MARE\*GO has paper, foam and oil bath air filters. Look in the maintenance list.

## 1.4. Electric and Electric Management

- Electric is in a good status, electric plans are stored in the office.
- The electric management at MARE\*GO are 24 Volt, 12 Volt, 220 Volt, 400 Volt systems (in priority manners). Alternater and batteries guarantee the electric, last use inverter and generator. Your job is to take care of this systems.

## 1.5. Gas System

Gas is only needed to cook and bake. The gas bottles is located behind the hatch at starboard next to the bridge door. If one is empty, buy a new spare one. Once a week you check the gas system.

## 1.6. Hydraulic System

The 400 Volt hydraulic system is connected to the generator. It's needed for the crane. The steering hydraulic is passive or active, when the engine is running.

## 1.7. Safety Equipment

Crew Safety Equipment overview

- Life raft at monkey deck
- EPIRB starboard bridgehouse
- SART stairs to the bridge
- Fire extinguisher in every room
- Fire fight system in the engine room
- Fire blanket in the galley
- Smoke or gas detectors in every room
- Lifejacket for the crew
- Mobile bilge pumps in the engine room

Work Safety Equipment

- 3 life rafts on the main deck, 2 times 25 persons, 1 for 20 person
- 1 red raft and 1 yellow raft
- 4 Centifloats

## 1.8. Bunker Station

In the deck store you find a bunker station. Below you find the description, how it works.

## 1.9. Water Maker

It's located under the working bench in the engine room. The manual is attached to it. You have to start the generator to use it. Let it run at minimum once when you are out in high sea.

## 1.10. Household

- Stove (gas)
- Oven (gas)
- Extractor hood
- 2 fridges
- Washing machine (start the generator)
- Vacuum cleaner
- Some electric handheld devices stored in the engine room
- Compressor

## 2. Regular rounds

### 2.1. Daily Round

- empty blackwater tank
- check and if necessary (< 200 l) refill freshwater tank
- check bilge; best view is in engine room SB at the sea valves
- check grey water sump in the Galley
- check deck store for water in the sump
- check listing of MARE\*GO (< 1°)
- check battery monitoring on the bridge
- check the mooring ropes
- check the RIBs (shorepower connection and its credit at the distributing station, the mooring in respect to the weather forecast, the bilge)

### 2.2. Weekly Round

- Grease 11 Spots:
  - 1 Bow thruster; big pipe deck store
  - 1 on the rudder shaft
  - 1 big greasepump propeller shaft (4 valves)
  - 8 at the crane
- start main engine and let it run for half an hour
- turn rudder from side to side up to 35°
- drain the rudder angle compartment
- pressure-test the gas bottles
- refill cooling water of the bowthruster if necessary (if you stick your finger in the entrance, you should feel water)
- test bilge pumps in galley, deck store and engine room
- test smoke detectors in every room
- check visual the fire extinguisher, fire blanket and fire fight system

### 2.3. RIBs

Before Training in and especially out of the harbour you should check:

- the fuel tanks on board of the relevant RIB
- The toolbox being equipped and stored on LNOB
- Coolant level full and Over Pressure Tank empty
- Oil levels of the relevant parts checked

#### LNOB

- Trim
- Z Drive
- Engine
- Hydraulic

#### GREEN

- Jet Drive
- Engine

### 3. Bunkering

- Bunker the RIB's first before MARE\*GO
- Calculate the amount of Diesel you need
- You get the oil there as well
- Make a date with the bunkerstation via WhatsApp
- Be in time at the station
- After the mooring agree about the procedure and the comms with crew and the attendant
- Be aware that there is no automatic stop at the bunker pistol so:
  - Low speed, no stress
  - Calculate when the tank is full
  - Use your ears to hear when the diesel level is rising up
  - Make brakes to control the status
  - Have all the time a finger at the stop valve
  - Document the bunkering and the total amount of Diesel

### 4. Before Cast Off (+ Preparation)

- Fill water tank to 90%
- Check oil level and quality of the following:
  - Main engine and gear box
  - Bowthruster
  - Generator
- Refill coolant if necessary
  - Main engine
  - Bowthruster
- Check both RIBs as discussed
- Double-check all engines by letting them clutched out
- Check the inventory of spare parts and get them if needed (think of delivery time!)
- Release and store the shore power cables and put the charge on the transponder
- Make sure you and the crew got the same wording of machines and parts and you can explain all of them (if not, ask before doing something you don't know)
- After leaving your berth in Licata, your first stop is the bunkering station in the fishery harbour of Licata. Be sure you know how to bunker MARE\*GO, you will be the one surveying the process.

## 5. During the Deployment

Everyone needs to do the engine round while you're out. Instruct the crew what to care about, when to call you (e.g. oil on the floor, strange smells, smoke, ...) and how to do the Engine Round

### 5.1. Engine Round

- Grease the rudder and propeller shaft with the four valves being opened and turn the big grease pump - after feeling feedback - a quarter round
- Check the gearbox pressure (should be 8 bar +/- 2)
- Check the level of the main engine coolant, should be around the middle
- Check the day tank level, refill if necessary (only Technician)
- Check bilge, best view is in engine room SB at the sea valves
- Check the level of rudder oil, should be visible
- Have a look for every leakage, dust or smell

While travelling have permanently in vision:

- Engine temperature (should be less than 85°)
- Gear box temperature (should be less than 75°)
- Oil pressure main engine more than 1 bar
- Battery levels more than 75% charged
- Chart plotter, VHF and other communication platforms

### 5.2. Aggregates generally

- Open the relevant fuel valves and battery switch
- Start the aggregate of your choice in neutral
- Use the aggregate and consumers
- Bring the aggregate back in neutral
- Close all valves and switch off, after the engine is turned off

### 5.3. Generator

- Check oil level
- Do not run consumers before the generator is running smoothly
- Stop the consumers before switching off the generator
- Pull the red rope to stop the generator

### 5.4. Bowthruster

- Check oil level and coolant
- Start the Buggy from the bridge
- Preheat the engine 10 seconds with turning the key in first position to the right
- Give some throttle without clutching in
- Start the engine by turning the key in second position to the right

- Turn back the throttle fast when running
- Grease the shaft after usage

## 5.5. Fuel station

- Always work with minimum two crew members
- Prepare rags to avoid oil spills
- Lay the hose to the tank you need
- Open the valves
- Switch on the pump
- Switch off when your finished
- Close the valves
- Pull the pistol once again to release the pressure

## 6. After the Deployment

We know you probably had an intense time out at the sea, though the job is not done yet. MARE\*GO as well as the RIBs need to be in good shape and prepared for the next deployment. Therefore check the maintenance protocol and compare the listed intervals with the actual state filled in. Maintain the different technical parts and fill in the protocol accordingly to your work.

Also, to enable the next Tech-person fill in the inventory list by counting the spare parts and hand it out, so we are able to order early enough to get them in forehand of the next deployment.