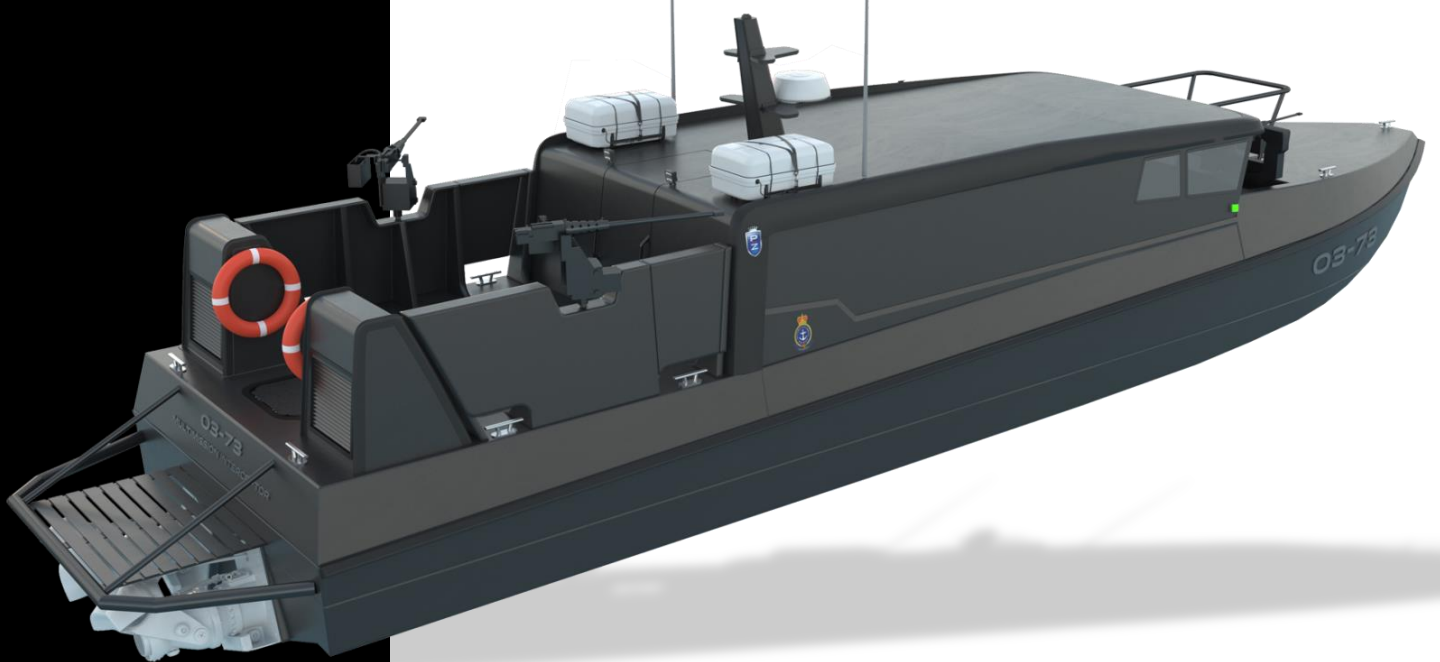


# INTERCEPTOR 2

Fast Boats for Professionals



# INTERCEPTOR 2

Professionals Fast Boat



## 15M MULTI MISSION INTERCEPTOR 2

Design: 019 | 5000-03-73  
Length overall, approx.: 16.1 m  
Beam overall, approx.: 3.7 m  
Capacity: 13 persons  
Engines: 2 x Water jet

### **OPERATIONAL FEATURES:**

Speed max.: +50 kt.  
Speed (cruise): +35 kt.  
Economical speed: +25 kt.

The boat has been built to meet the requirements from the competent authorities.

### **HULL, DECK AND SUPERSTRUCTURE**

The boat is made of a combination of glass- and carbon fibre as sandwich construction with PVC as core material. This core material acts as a natural buoyancy reserve material, due to its lightweight and zero water-absorption.

Moreover, the sandwich construction avoids the use of internal stiffeners, increasing the usable internal space and offers a natural insulation capability, improving the comfort in the cabin and manned compartments.

### **FENDER**

Fender system absorbs major impacts and retains integrity and shape.



## **DECK**

Deck is self-bailing  
Deck has an anti-skid surface. 6 x bollards.

**ENGINES, PROPULSION, STEERING etc.:** 2 x Waterjet

**TANKS:** 2 x 1.700 liters

## **ELECTRICAL SYSTEM & LIGHTING:**

All electrical wiring in marine cable.  
Shore power with control lamp, marked fuses, earth connection. Isolation transformer with earth plate for protection of galvanic corrosion. 24-volt electrical system.  
Main switches with separate battery systems for start, navigation and consumption.  
Battery charger with indicator.  
Navigational lights.

## **NAVIGATION & ELECTRONIC EQUIPMENT:**

Complete engine instruments supplied by engine manufacturer.  
Fuel gauge.  
Control panel for all lighting and other electrical equipment.  
1 x Magnetic compass.  
1 x Fixed VHF radio.

## **SAFETY EQUIPMENT:**

Bilge pumps.  
Automatic fire extinguish system in the engine room.  
Portable fire extinguishers will be supplied to meet the Code requirements.



## HULL

Hull construction and material Careful attention is constantly paid to weight control and detailed design, to produce a robust and sea-kindly craft fit for the demanding role of workboat operations. In view of the operational requirements, weight refinement is not taken to the minimum limits allowed by classification rules, but is carefully considered to combine robust construction with efficient operation. The main hull shell is a one-piece moulding produced in accordance with the hull construction drawing.

The hull shell shall have pigmented gel coat above and below the waterline.

### Structure

The first two laminates are of powder bound chopped strand mat reinforcement impregnated with resin.

Subsequent laminate is applied as dry fabrics and core material, and infused in one operation with vinylester resin.

In general, the complete structure is built as sandwich laminate, but in specific areas core is replaced with additional laminate.

The hull frames, stringers and longitudinals are built from of a combination of bi-directional fibers and uni-directional reinforcement, impregnated with vinylester resin, over foam sections.

Adequate limber holes are fitted throughout the craft to allow bilge water to drain.

Under the main engines limber holes are omitted so the framing will form a drip tray.

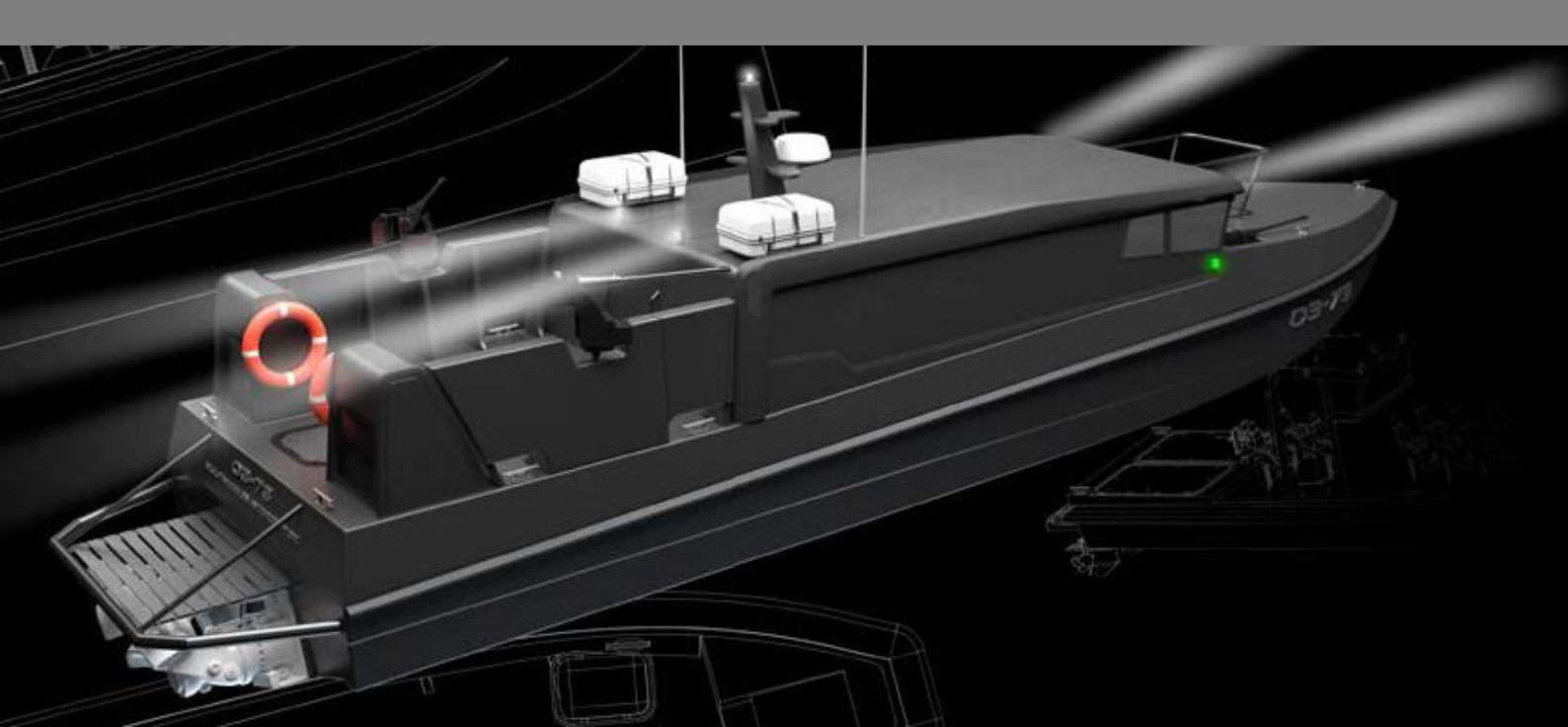
Throughout the structure compartments are finished in gel coat.

Primary stiffening is to be by longitudinal engine beds and the fuel tank construction.

Deck joint knees are bonded in at each frame.

All deck knees etc. shall taper in to frames as gradually as possible. Stiffeners are formed in WR with uni-direction tapes (UDT) reinforcement as necessary on stiffener faces.

A general arrangement plan is provided, together with details of the proposed hull, and the arrangement for the rest of the vessel.



## **ENGINE BEDS**

Within the machinery space and tank space the main longitudinals are built up and profiled to form engine beds to suit the specified engines.

Construction is of box section with tapping strips along their upper faces to accept the engine feet. The tapping strips are mild steel the full width of the bed and suitably abraded before inclusion in to the laminate.

## **Fuel tank/tanks**

The fuel tanks are positioned amidships port and starboard.

The tanks are constructed of composite and bonded in to the hull to become an integral part of the hull construction.

Baffles are fitted inside the tank to prevent surging.

Large tank lids are fitted in the top face of the tanks for easy access for cleaning the tanks.

The tank lids are molded from composite and are secured in place with a strong back.

The tanks will be subjected to a 0.2 bar pressure test.

A Tank Tender contents gauge will be fitted with the display head mounted in wheelhouse and a fuel filler locker is to be positioned on the main deck and is fitted with container to collect eventual spillage.

The filling system allows filling by normal fueling hose.

The fillers are routed down to the tank/s in flexible approved hoses. The vent lines will terminate inside the fuel filler locker and be fitted with a gooseneck.

## **Bulkheads**

The vessel will be fitted with watertight structural bulkheads dividing the vessel as follows:

- Forepeak
- Tank / technical compartment
- Engine Room

Main bulkheads are constructed from composite and fully bonded to the structure. Furthermore, the vessel is strengthened with open frames, to ensure hull and deck support, and to comply with relevant rules.



## **DECK**

### **Superstructure & Arrangement**

The superstructure is a one-piece moulding, manufactured in accordance with superstructure construction drawing. It is laminated to the main deck. The wheelhouse top shall incorporate a sandwich core to provide necessary stiffness.

The width of the windscreen mullions will be kept to the minimum to maximize forward visibility.

### **Minor Fabrications and Mouldings**

Generally, as many parts of the crafts structure as possible, will be formed in composite and bonded together to avoid corrosion issues. A number of smaller minor fabrications will be required and these will generally be fabricated in marine grade 316 stainless steel or marine grade aluminium. Seat plinths, console, and engine ventilation boxes are composite molded.

### **Doors**

A heavy-duty framed weather-tight door is to be fitted in the aft bulkhead of the superstructure.

### **Hatches**

Deck hatches are of a robust and reliable type with adequate securing clips for both internal and external opening.

They will be fitted as shown in the GA drawing.

All hatches will feature warning labels with the caption "Keep closed at sea ".

### **Windows & Port lights**

All windows will be with clear glass in glued into the structure / mounted in frames.

The configuration and number to be as shown on the GA drawing

All windows are to be fixed type and are single glazed.

Windows are bulletproof to level 3.



### **Windscreen Wipers**

Heavy Duty pantograph wipers will be fitted to the forward-facing screens.

### **Bollards**

A set of six bollards will be fitted.

Two bollards fitted forward and aft and two bollards midships.

### **Fendering**

The fender is constructed as D-shape rubber fenders.

Fender system absorbs major impacts and retains integrity and shape.

The fender system will be bonded and mechanically to the hull using a polyurethane adhesive system.

### **Handrails**

External and internally, handrails will be fitted as necessary, to allow crew to move around the vessel easily and with safety.

Generally, all grab and guard rails will be 30mm diameter and manufactured from either stainless steel or aluminum tube.

### **Mast**

The mast is a composite moulded structure, mounted at the aft end of the super structure.

The mast is fitted with brackets to carry all the navigation lights, VHF antennas, GPS, reflector, AIS, Radar, etc.



## **MECHANICAL AND PROPULSION**

### **Main engines and gear boxes**

The vessel is designed with a double Scania D113 diesel engines.

They will be arranged for electric start, be fitted with alternators, cooling water pumps and associated intake strainers and pipe work.

The machinery will be installed in accordance with the manufacturer's recommendations and the installation is to be approved by them upon completion.

Care and attention will be paid to providing a durable machinery installation with adequate support of piping and cable runs whilst minimizing weight gain.

Guards are fitted to rotating machinery as is required by health and safety legislation.

Each engine will be fitted with an alternator.

Care will be taken to ensure that pipework for systems are adequately sized and incorporate the minimum number of 90° elbows.

*Contact us for design review for a special engine / drive setup.*

### **Engine controls and monitoring**

Engine and gearbox control installed at helmsman's position in wheelhouse.

Standard instruments from engine supplier, will be installed at the steering console.

Controls for remote operation of fuel valves and discharge of the fire extinguishing system will be brought together to a single point in the form of an emergency panel.

Clear instructions for operation of the systems will be displayed by the panel.

### **Engine Removal**

Engine removal will be through a large deck hatch in the aft deck.

The hatch is located directly above the engines and it will be possible to lift the engines directly off the engine bed in a straight lift.



## **SYSTEMS**

### **Fuel system**

Fuel filters will be fitted to supply each main engine.

The fuel system will enable each engine to be fed independently from each tank.

Fuel lines to engines from tanks and return will be done in fixed steel pipes.

To reduce the likelihood of fire, care and attention will be paid to shielding of fuel lines and filters.

### **Engine cooling**

Cooling water will be drawn through hull mounted intakes, or supplied from jet (depending on jet model), fitted with correctly sized scoops.

Intakes will be fitted with isolating valves and clear top type strainers, one serving each engine.

Waste cooling water will be injected into stainless steel spray heads in the exhaust system to provide exhaust cooling.

### **Exhaust system**

Each main engine will be fitted with wet exhaust system with discharge through transom.

### **Engine room ventilation**

Air for combustion and ventilation in the machinery space is drawn from a pair of air intakes.

### **Bilge System**

Each compartment will be fitted with a remotely mounted, electrically operated, submersible bilge pump and a dedicated strum box. Each pump will have its own dedicated overboard discharge.

A dedicated manual bilge system is installed in each watertight compartment. One pump will be fitted above deck and connected with valves to bilge system.

All bilge suction points will be fitted at the lowest part of the bilge and fitted with a strum box. A bilge alarm system will be fitted which will monitor all compartments.

### **Sanitation**

In the forepeak, port side, a washroom with WC and a sink will be fitted.

### **Accommodation Ventilation**

The cabin is naturally ventilated with fresh air, through dorade vents fitted in the roof.

### **Fire detection and extinguishing**

Optionally, a fire extinguishing system can be fitted to protect the engine space.

The control panel will be located in the steering console at the emergency panel.

Clear instructions on the operation of the system and the fire flaps will be posted next to the panel.

Portable fire extinguishers will be supplied to meet the Code requirements.

### **Cathodic Protection**

An earthing plate is to be fitted to the hull. All relevant electrical systems are connected to this plate.

Sacrificial zinc or aluminum anodes are fitted to the drive. Anodes will be sized for a two-year lifespan.



## **ELECTRICAL SYSTEMS**

### **General**

The primary electrical system on the vessel will be 24v DC which will be distributed through a main switchboard located in the tank space.

The electrical system will be a two poled protected two-wire, insulated return system throughout.

Three banks of batteries are charged by main engine driven alternators or.

The supply to all equipment will be cable and/or flexible cord, insulated in fire retardant sheathing, to IEC 332-3. All wiring is to be carried in trunking and/or conduit.

Trunking and conduit will be secured in an approved manner using junction boxes and accessories for all internal circuits in watertight compartments and mounted as high as possible within the vessel.

Where wiring penetrates bulkheads or deck heads appropriate glands are used.

All external fittings will be of the highest waterproof marine quality.

All wiring on main engines and gearboxes is in proprietary cable. It will be adequately protected from mechanical damage and will be substantially clipped and where necessary protected.

The wiring will be routed to avoid contact with high temperature surfaces of the engine.

All circuits and switchgear to be labelled to show their function, sockets will be clearly marked with their voltage.

### **24V DC System**

The vessel is fitted with several banks of batteries supplying 24v DC.

There will be one engine starting bank for each engine and one service bank.

All batteries will be AGM gel type and will be charged through blocking diodes by the main engine alternators.

Secondary charging will be from shore supply via a 240v – 24v DC battery charger.

The engine starting and service batteries will be secured in battery boxes in the tank space which are vented to atmosphere.

Furthermore, a 12V/12V DC/DC converter will be installed to charge emergency battery (GMDSS).

Relevant equipment is connected to GMDSS bank according applicable rules.

### **Instrumentation**

Digital combined voltage and current meters will be fitted monitoring each battery.



## DC Equipment

The DC equipment fitted will include the following:

- Interior lights
- Portable hand light
- Navigation lights
- Windscreen wipers
- Bilge pumps
- Defroster blower

## Navigation lights

The following navigation lights will be fitted:

- Port
- Starboard
- Stern
- Anchor
- Masthead

All navigation lights will be of LED type.

## Search light/deck lights

LED floodlights will be fitted to illuminate the deck area.

**Navigation Equipment:** Magnetic compass

**Communication Equipment:** Fixed VHF

Illumination Internal lighting will be a mix of combined white/red LED fittings and white LED strip lights.

## **LAYOUT**

### **General**

The layout of the vessel is to comply with the GA drawings.

All accommodation areas will have sharp corners eliminated to prevent injury to personnel in extreme sea conditions.

Suitable and adequate hand rails and hand holds are provided for safe passage throughout the vessel whilst at sea.

The cabin is covered with bullet proof protection to meet requirement from MIL-STD-662F (Test Method Standard V50 Ballistic Test for Armor)

Starboard side of the interior is equipped with helms man steering position and 10 passenger seats.

Port side of the interior is equipped with a double console for crew, a combined pantry / chart table and 6 foldable bunks.

Between cabin and forepeak, a storage compartment is located starboard and a toilet port side. The forepeak is equipped with 4 foldable bunks and storage space for personal gear as well as cargo load.

The quality of fit-out is to a high standard.

All surfaces to be finished to a high standard, to provide a low maintenance finish.

Generally, all fittings will be best quality marine grade aluminum or stainless steel, and all fasteners of A4 quality.

### **Forepeak**

Access will be via a small corridor in the CL between helmsman and navigator position. Furthermore, a deck hatch is installed in the forepeak deck.

### **Tank space**

Access to the tank space is from the cabin through a deck hatch.

### **Engine Room**

Access to engine room is from one deck hatch at the aft deck.

The engine room arrangement is arranged to allow good easy access to engines for maintenance and repairs.

### **Signage**

Signs and decals applied to the craft topsides, deck and superstructure as necessary. Final configuration will be confirmed with customer.

Vessel name and port of registry will be affixed to the transom (vinyl letters).

## **PAINTING AND FINISHES**

### **External Finish**

External hull is prepared in gelcoat finish.

External superstructure is prepared in gelcoat finish or painted.

The deck is applied with non-slip screed applied

### **Internal Finish**

Wheelhouse: Composite painted.

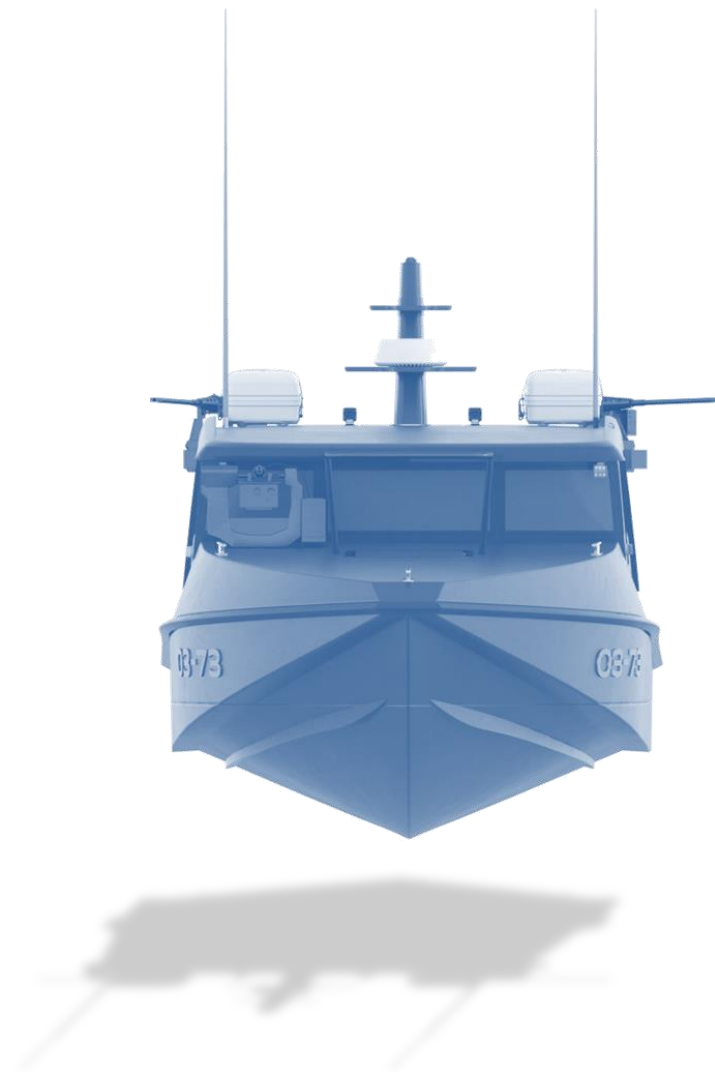
Forward compartment: All composite surfaces – Topcoat finish

Tank space: All composite surfaces – Topcoat finish

Engine space: All composite surfaces – Topcoat finish

Colour scheme: To be agreed with client.

Decals: To be agreed with client in compliance with the relevant rules.



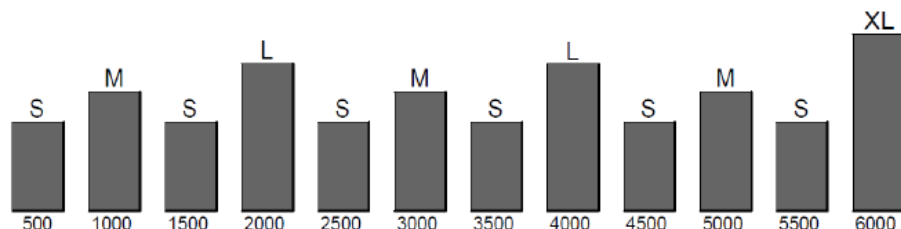
# MAIN ENGINE:

## Scania DI13 XPI

The maintenance program includes the following:

- R maintenance: One event when taken into service.
- S maintenance: Minimum basic maintenance.
- M maintenance: More extensive maintenance.
- L maintenance: Includes nearly all maintenance items in the form.
- XL maintenance: Includes all maintenance items in the form.

During a period, the sequence is S-M-S-L-S-M-S-L-S-M-S-XL.



MAINTENANCE POINTS	DAILY	FIRST TIME AT		INTERVAL (HOURS)					MINIMUM	
		FIRST START	500	500	1.000	2.000	6.000	ANNUALLY	EVERY 5 YEARS	
			R	S	M	L	XL			
<i>Main engine (Scania DI13 XPI)</i>										
<b>Lubrication system</b>										
Checking the oil level	X	X								
Changing the oil			X	X	X	X	X	X	X	
Cleaning the centrifugal oil cleaner			X	X	X	X	X	X	X	
Renewing the oil filter			X	X	X	X	X	X	X	
<b>Air cleaner</b>										
Reading the vacuum indicator	X		X	X	X	X	X			
Renewing the filter element						X	X			X
Renewing the safety cartridge						X	X			X
Renewing an air filter with a non-renewable element						X	X			X
<b>Cooling system</b>										
Checking coolant level	X	X	X	X	X	X	X	X		
Checking coolant antifreeze and corrosion protection		X				X	X	X		
Checking sacrificial anodes			X	X	X	X	X	X	X	
Checking the sea water pump impeller			X	X	X	X	X	X		
Changing the coolant and cleaning the cooling system								X		X
<b>Fuel system</b>										
Checking the fuel level	X	X								
Draining the water separating prefilter	X		X	X	X	X	X	X		
Renewing the fuel filters			X	X	X	X	X	X		X
<b>Other</b>										
Checking the drive belt		X			X	X	X	X	X	
Checking for leaks	X		X	X	X	X	X	X		
Checking and adjusting the valve clearance			X				X	X		

# PROPULSION SYSTEM:

Marine Jet Power (MJP) X310

MAINTENANCE POINTS	MAINTENANCE INTERVALS				
	IF VIBRATION	DAILY	WEEKLY	MONTHLY	1.000H / ANNUAL
<i>Water jet unit (MJP X310)</i>					
<b>ROUTINE CHECKS PERFORMED BY BOAT OWNER / OPERATOR</b>					
Intake free of debris		X			
Hydraulic fluid level for controls			X		
Condition of hydraulic fluid			X		
Hydraulic fluid leaks or oil in bilge		X			
Bearing housing drain hole clear			X		
Inspect for damage to intake grill					X
Inspect reverse / steering deflectors for damage				X	
Driveshafts rotate freely	X		X		
Condition of driveshaft U or CV joints	X			X	
Condition of impeller	X				X
Impeller free of debris	X			X	
Tension of hydraulic pump drive belts			X		
Security of hydraulic hoses fittings			X		X
Hydraulic hose condition				X	X
Anode condition (replace if required)					X
Electrical bonding between jet and hull				X	X
Security of steering links & tie-bar			X		X
Security of wiring harness & connectors			X		X
Electrical connectors are dry			X		X
Reverse deflector(s) fully up		X			
<b>ROUTINE ANNUAL SERVICE PERFORMED BY BOAT OWNER / OPERATOR</b>					
Grease thrust bearing				X	X
Replace hydraulic fluid filter					X
Check condition of hydraulic fluid					X
Check & record hydraulic pressures					X
Verify reversing & steering cycle times				X	X
Verify operation of control system				X	X
<b>SUGGESTED ANNUAL SERVICE PERFORMED BY OWNER OR BOATYARD DURING ANNUAL HAUL OUT</b>					
Check torque of reverse defl. pivot bolts				X	
Check torque of steering defl. pivot bolts				X	
Check condition of impeller				X	
Check & record impeller tip clearance				X	
Check condition of cutlass bearing				X	
Remove and inspect intake grill				X	
Check condition intake grill & fasteners				X	
Antifoul paint inside intake housing				X	
Reinstall intake grill				X	
Replace anodes				X	

