PAMBANSANG PUNONGHIMPILAN TANOD BAYBAYIN NG PILIPINAS
(National Headquarters Philippine Coast Guard)
139 25th Street, Port Area
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NHQ-PCG/CG-10 21 March 2025

STANDING OPERATING PROCEDURE
NUMBER 06-25

GUIDELINES IN THE OPERATION AND MAINTENANCE OF PCG DIESEL ENGINE HIGH-SPEED RESPONSE BOATS

1. PURPOSE

To prescribe policies on the operation and maintenance of all PCG High-Speed Response Boats (HSRBs) in order to ensure that they are operational and reliable when needed to support the accomplishment of PCG mission and functions.

2. SCOPE

This SOP applies to all PCG personnel involved in the operations and maintenance of PCG High-Speed Response Boat (HSRB).

3. DEFINITION OF TERMS

A. **Boat Operations Logbook** – is an official record that documents all activities and operations of the boat. This includes details of voyages, crew members on duty, fuel consumption, maintenance activities performed, any incidents or derangements and other relevant operational data.

B. **Derangement** – any failure or breakdown in the boat's systems, apparatus or parts that impairs its ability to operate. This could include technical concerns that need to be fixed to fully restore the boat's functionality, such as electrical problems or mechanical failures.

C. **Intermediate Level Maintenance** – shall be performed to address the repair requirements of floating assets that are beyond the ship's crew capability.

D. **Maintenance** – involves the regular and systematic activities performed to keep the boat in optimal working condition. This includes routine inspections, servicing, repairs and replacements of parts to prevent breakdowns and ensure the boat remains safe and reliable for operations.

E. **Maintenance and Repair Team** – a group of skilled personnel responsible for performing maintenance and repairs on the boat. This team includes technicians, engineers and other specialists who ensure that the boat remains in top working condition through regular servicing and addressing any derangements.

F. **Maintenance Schedule** – a predefined plan outlining when and what maintenance tasks should be performed on the boat. This schedule ensures that all components and systems are serviced at regular intervals to prevent unexpected failures and to maintain the boat's performance.

G. **Manuals** – are comprehensive guides and instructions provided by the manufacturer or relevant authorities. They include technical information, operational procedures, maintenance guidelines, safety protocols and troubleshooting steps for the boat and its equipment.

H. **Not Ready for Sea (NRFS) status** – refers to the condition wherein a ship or small craft is not capable to undertake any mission.

I. **Original Equipment Manufacturer (OEM)** – is generally perceived as a company that produces parts and equipment that may be marketed by another manufacturer.

J. **Personnel-In-Charge (PIC)** – is the individual responsible for overseeing the operations and maintenance of the boat. The PIC ensures that all activities are conducted safely, efficiently and in compliance with regulations and standards.

K. **Preventive Maintenance Program** – is the regular and routine maintenance of equipment and assets in order to keep them running and prevent any costly unplanned downtime from unexpected equipment failure.

L. **Ready for Sea (RFS) status** – refers to the state of readiness of a ship or small craft to undertake a mission within a prescribed period of time.

4. GUIDELINES AND POLICIES

A. Designated Personnel-In-Charge

i. **Boat Captain** – shall be responsible and accountable for the upkeep and maintenance of the boat. Ensure proper operation of the boat during missions, conduct pre- and post-operation checks, and report any irregularities.

ii. **Boat Engineer** – perform scheduled maintenance, address any reported issues and ensure the boat is ready for deployment. Ensure all lifesaving equipment such as life jackets, fire extinguishers and first aid kits are up-to-date and in good condition.

iii. **Boatswain's Mate** – oversee the implementation of this SOP, coordinate training thru Operator's Manual, and ensure compliance with maintenance schedules. Responsible for the maintenance and repair of deck equipment.

iv. **Quarter Master** – oversee the implementation of this SOP, coordinate training thru Operator's Manual, and ensure that all navigational equipment are functioning properly and are well-maintained.

v. **Electrician's Mate** – shall monitor switchboards, control equipment and electrical equipment. Operate and perform intermediate maintenance on power and lightning circuits, electrical fixtures, voltage and regulators, and other electrical equipment. Check for loose connections, corrosion and functionality of all electronic equipment.

vi. **Machinery Technician** – conducts routine maintenance and repairs on all mechanical system on the boat, including propulsion systems, hydraulics and auxiliary machinery. Provides technical support and advice to the Boat Engineer and other crew members on mechanical issues and repairs.

vii. **Damage Controlman** – oversees damage control equipment and shoring materials. Provides technical knowledge and capabilities such as carpentry, masonry and welding. Checks and monitors firefighting equipment and conducts regular firefighting drills.

viii. **Operations Specialist** – operates, monitors and maintains navigational equipment including but not limited to ECDIS, RADAR, GPS, communications such as radio, visual, PCG correspondence and COLREGS.

B. **Standing Operating Procedures, Maintenance Procedures and Schedules** (see ***Annex I)***

i. The PIC shall have with them the following: Operational Procedures, Maintenance Procedures and Schedules based from the Boat Operator's Manual and OXE300 User Manual for ready reference.

ii. It is the responsibility of the PIC to perform periodic inspections and maintenance on the boat and all its onboard equipment and machineries as prescribed by Original Equipment Manufacturer (OEM), in order to maintain them in their best condition.

iii. The PIC shall develop a Preventive Maintenance Program for the boat including all its equipment and machineries, and to keep records or documentations of the regular inspections and maintenance as prescribed by the OEMs. Failure to do so may adversely affect the applicability of the OEMs Warranty Policy.

C. **Documentation and Reporting Procedures**

The PIC shall maintain the operational efficiency and safety of the boat, it is essential to meticulously record and report all running hours, derangements and any other abnormalities. This documentation is crucial for preventive maintenance and troubleshooting.

i. **Running Hours**

a) **Logbook Entry**: Document engine starting and ending hours for each operation, including total trip hours and cumulative running hours.

b) **Daily Check**: Update running hours daily, cross-referencing with operational logs for accuracy.

ii. **Derangements**

a) **Immediate Reporting**: Report equipment failures immediately to the CGFleet (Attn: F-10) and NHQ-PCG (Attn: CG-10) with specific details.

b) **Logbook Entry**: Document derangement details, immediate actions taken and personnel involved.

c) **Follow-Up Actions**: Schedule and log repairs, noting the resolution and post-repair test results.

iii. **Abnormalities**

a) **Identification and Reporting**: Report any abnormal sounds, vibrations or behaviors promptly.

b) **Logbook Entry**: Document detailed observations and any preliminary diagnostics.

c) **Assessment and Action**: Record assessment findings and corrective actions, monitoring equipment closely afterward.

iv. **Logbook Maintenance**

a) **Daily Updates**: Ensure accurate and complete daily updates with running hours, derangements and abnormalities.

b) **Periodic Review**: Regularly review the logbook to identify patterns and inform maintenance schedules.

c) **Audit and Compliance**: Perform audits to ensure SOP compliance and address discrepancies promptly.

D. **Regular Training through Manuals**

i. Training through manuals ensures crew members are well-versed in the boat's operational procedures, maintenance routines and safety protocols. PIC must regularly read and study the manuals to stay informed about all aspects of boat management. They are also responsible for reproducing extra copies of the manuals for their use, ensuring that up-to-date information is always accessible. This approach supports standardized practices, enhances operational readiness, and promotes safety by providing clear comprehensive instructions.

ii. The incoming PIC, using boat Operator's Manual and OXE300 User Manual, shall familiarize the boat and its operations within the span of one (1) month and be knowledgeable/competent within the span of three (3) months. Meanwhile, the old PIC shall teach and coach the new PIC.

iii. The outgoing PIC shall properly turnover to the incoming PIC the manuals and list of equipment with corresponding Property Acknowledgement Receipt (PAR) to avoid misplace/loss of manuals.

E. **Policies**

i. Maintenance and Repair of HSRB is a Command responsibility.

ii. Maintenance shall be performed on the following maintenance levels (please see Definitions of Terms, Maintenance Level) to ensure proper accomplishment, taking into consideration all applicable regulations, urgency priority, crew impact, capability, capacity and the total cost:

a) Organization Level Maintenance
b) Intermediate Level Maintenance
c) Depot Level Maintenance

iii. Repair of any vessel of any of its sub-systems shall be in accordance with the following order of priority:

a) Hull and Structural Repair – to ensure watertight integrity of the vessel maintaining its stability.

b) Propulsion System and Auxiliary Machineries – to ensure continuous maintenance of main and auxiliary machineries for Deck, Engineering and Operations Department.

c) Automation and Electronic System – to ensure continuous maintenance of electrical system for Deck, Engineering and Operations Department.

d) Habitability Requirements – to provide comfortable living conditions and sanitary environment aboard ship.

e) Navigational/Communicational Equipment – to ensure safe and fast voyage.

iv. In order not to jeopardize operational commitments of the floating assets, the duration of the repair availability must be strictly adhered to the following Repair Types (*Please see Definition of Terms*):

a) Voyage Repair (VR) / In-House Repair (IR)
b) Restricted Availability (RA)
c) Regular Overhauling (RO)
d) Major Drydocking (MD)
e) Emergency Drydocking

v. Farm-out repairs shall not commence unless there is duly funded and approved work order or contract agreement and Notice to Proceed (NTP) by proper authorities in accordance with existing regulations. No growth repairs or offsetting from the approved contract/scope of works are allowed without the approval of CPCG.

5. DUTIES AND RESPONSIBILITES

A. Boat Captain

i. Shall act as the PIC of the boat.

ii. Shall ensure the safe navigation and operation of the HSRB at all times, and ensure to perform routine maintenance, tasks and promptly address any mechanical or technical issues. Conduct regular inspections of the boat to ensure it is in proper working condition.

iii. Shall designate PIC to every equipment and machineries onboard who will subsequently maintain history logbook for assigned equipment or machinery.

iv. Shall ensure full compliance to the scope, proper documentation/disposal of waste material and accept the same after satisfactory conduct of sea trial and endurance run if necessary.

v. Shall ensure that the maintenance being carried only by the ship's force is in accordance with the Maintenance Procedure Manual including the conduct of Preventive Maintenance System.

vi. Shall be responsible and over-all in-charge of the repair and maintenance of their respective vessel and ensure that the vessel is ready for sea (RFS) status at all times.

B. Commander, Coast Guard Fleet:

i. Facilitate the training of personnel on the new SOP, ensuring all operators and maintenance staff understand and can effectively execute the procedures.

ii. Monitor and assess operational effectiveness.

iii. Ensure boats are mission-ready at all times.

iv. Ensure crew and maintenance personnel are well-trained.

v. Shall assess/ evaluate the formulation of policies pertaining to maintenance and repair prior endorsement to Commandant, Philippine Coast Guard (Attn: CG-10).

vi. Shall endorse the pertinent documents and repair request thru the evaluation of CGFleet (Attn: F-10).

vii. Shall require all the Boat Captains to strictly adhere to the Shipboard Deck Equipment and Engineering Machineries Operating and Maintenance Manual.

viii. F-1, CGFleet in collaboration with Manning Group, CGFleet shall ensure assignment of appropriate ratings to ships who will operate and maintain the equipment and machineries onboard.

ix. Shall ensure proper validation of the repair prior endorsement to CGFleet.

x. F-12, CGFleet in collaboration with STG, CGFleet shall evaluate recommended maintenance and repair personnel who will participate in trainings/ seminars both domestic and foreign prior endorsement to C, CGFleet.

C. **Deputy Chief of Coast Guard Staff for Ships and Aircraft Engineering, CG-10:**

i. Monitor the enforcement of this SOP.

ii. Shall formulate, publish and disseminate plans and policies for PCG-wide maintenance program.

iii. Shall monitor the enforcement of maintenance plans and policies.

iv. Shall conduct technical inspection of vessels and equipment as necessary to ascertain how effective such plans and policies are being carried out and formulate necessary corrective actions.

v. Shall concur to nomination to the Education and Training Board thru CG-12 on names of Coast Guard personnel who will represent the PCG to take domestic and foreign seminars and schoolings.

vi. Shall review/validate all Work Requests to be performed by a private yard prior to preparation of PCG Work Order for the subsequent approval of CPCG.

vii. Shall be responsible for the formulation, dissemination and publication of plans, policies and instructions relative to the proper operation and maintenance of vessels and equipment.

viii. Shall coordinate with CG-1 for the hiring of Consultant/ Non-Uniformed Personnel highly skilled in ship building/ repair assist/ validate request made for the repair.

ix. To craft a 5-year Preventive Maintenance Program for PCG Commissioned and Non-Commissioned vessels.

D. **High-Speed Response Boat Crew**

i. Shall perform preventive maintenance in accordance with approved Maintenance Procedure Manual.

ii. Shall maintain complete reports and up-to-date records identified as Machinery and Equipment History which can be used as reference during the conduct of repair.

iii. Shall maintain and log properly all machineries and equipment running hours that can be used as a reference during the conduct of PMS.

iv. Shall recommend appropriate measures to keep the vessel adequately maintained and be able to meet every assigned mission.

v. Shall prepare repair request for repair activities that are beyond their capability (i.e. general overhauling, drydocking, technical troubleshooting, etc.) to be performed by either the MRG, Private Yard or Contractors, preparation and routing of repair request shall be in accordance with current procedures.

vi. Shall conduct minor repair of shipboard equipment, machinery, and electrical distribution system, and electronics, communication and navigation equipment within their ability.

vii. Shall perform the Organizational Level of repair activities.

viii. Shall ensure good quality and reliability of the component's installed/ fitted onboard ships or watercraft.

E. **Maintenance and Repair Group:**

i. Ensure compliance with maintenance standards and safety regulations.

ii. Monitor and assess the performance of the maintenance team.

iii. Oversee and record maintenance operations, diagnose mechanical issues, ensure safety protocols, complete tasks timely and efficiently and provide technical support.

iv. Facilitate communication between maintenance teams and boat operators to quickly address and resolve issues.

v. Specify preventive maintenance activities to reduce the risk of equipment failure.

vi. Create a skilled maintenance and repair team that is capable of Intermediate Level Maintenance.

vii. Shall maintain a pool of repair technicians and MRG personnel who are readily available for deployment.

viii. Shall validate and assess the extent of derangement prior endorsement to CGFleet (Attn: F-10).

ix. Shall provide and render technical assistance upon request by the personnel afloat due to their limited capacity to ensure proper conduct of maintenance and repair on equipment and machineries.

x. Shall determine repair priorities prior submission to NHQ-PCG for programming purposes.

xi. Shall supervise Depot Level of maintenance in the conduct of in-house and farm out repair activities of PCG floating assets.

xii. Shall optimize the utilization of Maintenance and Repair Teams (MRTs) upon availability of necessary spares and fast-moving items.

F. **PCG District Commander/Unit Commanders**

i. Strictly implement this SOP.

ii. Ensure that the PIC Crew is adequately trained in all operational procedures, emergency protocols and the specific handling characteristics of the HSRB .

iii. Conduct regular drills and simulations to maintain and assess crew readiness and effectiveness.

iv. Oversee routine and preventive maintenance schedules to keep the boat in optimal conditions.

v. Ensure that all mechanical, electrical and safety equipment is regularly inspected, serviced and repaired as needed to meet operational standards.

vi. Manage the supply chain for necessary parts, fuel and other consumables to ensure the boat is always ready for deployment.

vii. Shall ensure the submission of comprehensive inventory report to NHQ-PCG (Attn: CG-10) every 10th and 25th of the month.

viii. Shall designate at least one (1) PIC for the monitoring and inventory of spare parts and other related parts of HSRB.

6. RECISSION

All other publications in conflict with this SOP are hereby rescinded.

7. EFFECTIVITY

This SOP shall take effect upon approval.

BY COMMAND OF ADMIRAL GAVAN PCG:

OFFICIAL:

HOSTILLO ARTURO E CORNELIO
RADM PCG
Chief of Coast Guard Staff

JAYSIEBELL B FERRER
CDR PCG
Coast Guard Adjutant

Annexes:

I. – Standard Operational Procedures, Maintenance Procedures and Schedules
II. – Daily Maintenance Checklist
III. – Boat Operator's Manual
IV. – OXE300 User Manual

BAGONG PILIPINAS

Annex I: Standing Operating Procedures, Maintenance Procedures and Schedules

I. Operating Procedures *(see Boat Operator's Manual p67)*

General Safety Checklist

Before Starting the Engines

- ☐ Check fuel tank level.
- ☐ Check your on-board safety equipment.
- ☐ Check all seats and ensure they are firmly attached.
- ☐ Check the battery and electrical system for damage or corrosions.
- ☐ Check battery voltage and ensure it is within enough range to prevent damage to ECU or electronics.
- ☐ Check the steering for smooth operation through the full range of travels.
- ☐ Ensure that all loose items are safely and securely stowed.
- ☐ Check for any damage to the boat.
- ☐ Check engine fluid levels.
- ☐ Check your capacity rating and ensure your boat is not overloaded or overpowered.
- ☐ Check bilge for water, fuel and oil.
- ☐ Ensure you have a container to collect any garbage.
- ☐ Check the weather report.
- ☐ Always have someone along who can operate the boat if the captain becomes incapacitated.
- ☐ Make sure the crew or passengers are wearing approved personal floatation devices.
- ☐ Instruct the passengers on safety procedures and equipment on board.

After Starting the Engines

- ☐ Check that Engine gauges are reading accurately.
- ☐ Check Engines and fuel lines for any visible leaks.
- ☐ Let Engines warm up for at least 10 minutes before shifting out of neutral.
- ☐ Check steering and control systems are in good working condition.
- ☐ Check Engine cooling systems. You should see a stream of water ejecting from the tell-tale of the outboards.
- ☐ Stow any loose equipment.
- ☐ Fasten all lines and cables so they do not fall overboard and interfere with the propeller.

Post Trip

- ☐ Stow away required Safety Equipment in safe, accessible location.
- ☐ Check for any visible leaks.
- ☐ Inspect Bilge for leaks and Oil and/or debris build up.

Do's in Boat Operations

1. **Regular Maintenance:** Perform routine maintenance as per the manufacturer's recommendations to keep the engine and all onboard equipment in good condition.

2. **Use only Quality Fuel:** Use clean and high-quality fuel to ensure optimal engine performance. Use fuel within its shelf life, and if the boat will be stored for an extended period, run the engine with stabilized fuel before storage.

3. **Always Check Oil Levels:** Regularly check and maintain proper oil levels to prevent engine damage.

4. **Flush After Saltwater Use:** If used in saltwater, flush the engine with freshwater to remove salt deposits.

5. **Keep Intake Vents Clear:** Ensure that intake vents are clear of debris or any obstruction to prevent overheating.

6. **Trim Adjustment:** Learn how to use the trim function in case it is necessary to adjust the outboard's angle in the water, in order to optimize efficiency and ride comfort.

7. **Secure Loose Items:** Before acceleration, ensure loose items on the boat are secured to prevent injury or damage.

8. **Monitor Gauges Regularly:** Keep an eye on temperature, oil pressure, and other gauges while operating to detect issues early.

9. **Educate Passengers:** Ensure passengers understand safety guidelines, including the location of emergency shut-off switches and proper behavior while underway.

Don'ts in Boat Operations

1. **Overloading:** Avoid overloading the boat beyond the recommended weight capacity, as it can strain the engine and can also compromise the boat's stability and safety.

2. **Over-revving:** Avoid excessive RPMs, as this can lead to engine damage. Follow the recommended operating range.

3. **Cold Starts at High RPM:** Don't engage in high RPMs immediately after a cold start; allow the engine to warm up gradually.

4. **Ignoring Strange Noises:** Address any unusual noises or vibrations promptly. They could indicate a problem.

5. **Ignoring Vibrations:** Address any unusual vibrations promptly; they may indicate misalignment or other issues.

6. **Skipping Maintenance:** Neglecting regular maintenance can lead to avoidable issues and decrease the engine's lifespan.

7. **Ignoring Routine Checks:** Regularly inspect hoses, clamps, and connections for wear or leaks to prevent unexpected issues.

8. **Running Without Water:** Never run the outboard engine out of the water for extended periods, as it requires water for cooling.

9. **Ignoring Engine Warnings/Alarms:** The boat is equipped with Engine Monitoring System, if prompted with warnings, don't ignore them. They indicate potential issues that need attention.

10. **Using fuel from unreliable source:** It's essential to avoid using fuel that may be contaminated with water, debris, or other impurities, as this can lead to engine problems and reduced performance. Always refuel from reliable sources and use a fuel filter to further protect the engine from potential contaminants.

11. **Abrupt Movements:** Avoid sudden throttle changes or sharp turns, as they can strain the engine and affect its longevity.

12. **DIY Repairs Without Knowledge:** Avoid attempting complex repairs without sufficient knowledge. Consult a professional for major issues.

13. **Weather Monitoring:** Stay informed about weather conditions before heading out, and be prepared for changing weather during the trip.

14. **Ignoring Tides and Currents:** Be aware of tidal changes and currents, especially in coastal or tidal waters, to avoid navigation challenges.

15. **Running Aground:** Avoid shallow waters and navigational hazards to prevent running aground, which can damage the propeller and engine.

II. Maintenance Procedures *(see Boat Operator's Manual p58)*

Daily Maintenance Checklist
Outboard Engines Maintenance Schedule
Outboards Daily Check-up

Checklist							
Check Daily	Check	Drain	Fill up if necessary	Clean	Clean if necessary	Change/ Replace	Refer to
Before start-up:							
Seawater strainer	X				X		
Engine oil dip stick	X		X				
Water separator, engine fuel filter		X					
Start engine:							
Alternator loading	X					Display Manual	
Tell-tales not blocked, clean using pipe cleaner	X			X			

Outboards inspection prior to each service event

Checklist							
Check Daily	Check	Drain	Fill up if necessary	Clean	Clean if necessary	Change/ Replace	Refer to
Starting and warming up engine -Water/oil/fuel leakage -Power trim, function and leakage -No DTCs are triggered -Unusual engine transmission sounds	X						
Stop Engine -Engine oil and filter						X	User Manual
Restart Engine -Oil pressure -Oil leakage	X						Display Manual

- **Maintenance Service at 200rh (yearly), 800rh (every 3yrs)** ***(see OXE300 User Manual p67)***

  For Maintenance Checklist and Procedures at 200rh (or once a year) and 800rh (or once every 3 years), please refer to the provided OXE300 User Manuals.

- **Recommended Fluids and Grease for Outboard Diesel Engines** ***(see OXE300 User Manual p78)***

  Only use prescribed fuel, lubricants, etc., in accordance with OXE Marine AB regulations. Otherwise, the manufacturers' liability for defects will not apply.

Fluid	Quality	Quantity	
		Metric	US Units
Fuel	EN 590 (with national environment and cold weather standards) ASTM D 975 No.1 and No.2 JIS KK 2204 NATO Code F54 and F75		
Engine Oil	OXE Engine Oil (300) Or BMW Longlife -04/API SL,API SM or BMW Longlife -01 or BMW Longlife-01 or BMW Longlife-98	8 litres	8.5 quarts
Gearbox and primary transmission oil	OXE Gearbox Oil Or Fully Synthetic Dual Clutch Transmission Fluid-DCT	2.5 litres	2.6 quarts
Coolant	OXE Coolant Or Frostox-HT12	10.2 litres approx.	10.6 quarts approx.
Grease	OXE Grease Or DIN 50502:KP2.5K-20 ISO 6743:ISO-L-XBCEB2.5	-	-
PTT (Power Trim and Tilt Unit) Oil	OXE PTT Oil Or Ford WSS-MSS-M2C204-A	0.5-0.7 litres	0.5-0.7 quarts
Lower Unit Oil	OXE Belt Oil Or Fully Synthetic Transmission Fluid-ATF	2.0 quarts	2.1 quarts

- **Cleaning the Outboards / Hull and Deck Care / Electrical Systems Care/Air Conditioning System (*see Boat Operator's Manual p60*)**

Annex II: **Daily Maintenance Checklist**

Daily Maintenance Check List		Sheet 1 to 4
Vessel No.:	**PCG-_____**	Date:
Vessel Make:	**DM8 Composites Inc.**	Time:

Port Outboard Engine	**Engine Serial No.:**				
Inspection/Task	**Engine State**	**Performed?**		**Results/Remarks**	**Performed by: (Name and Initial)**
		Yes	No		
Check and Record engine running hours **Is the Engine due for service? Refer to User Manual**	Stopped				
Check Sea Water Strainer *(see footnote)	Stopped				
Engine Oil dip stick (top-up oil if necessary)	Stopped				
Drain water (if any) from the water separator, engine fuel filter	Stopped				
Record alternator loading shown on the Engine Display	Running				
Tell-tales not blocked, (Clean using pipe-cleaner)	Running				
Cleaning and flushing of cooling passages after outing/operation	Stopped				

STBD Outboard Engine	**Engine Serial No.:**				
Inspection/Task	**Engine State**	**Performed?**		**Results/Remarks**	**Performed by: (Name and Initial)**
		Yes	**No**		
Check and Record engine running hours **Is the Engine due for service? Refer to User Manual**					
Check Sea Water Strainer *(see footnote)					
Engine Oil dip stick (top-up oil if necessary)					
Drain water (if any) from the water separator, engine fuel filter					
Record alternator loading shown on the Engine Display					
Tell-tales not blocked, (Clean using pipe-cleaner)					
Cleaning and flushing of cooling passages after outing/operation					

Fuel Tank				
Inspection/Task	**Performed?**		**Results/Remarks**	**Performed by: (Name and Initial)**
	Yes	**No**		
Take A fuel sample from the fuel tank's drain to check for any signs of contamination				

Acknowledged by: (Boat Owner/Representative)	Name:	Signature:

Daily Maintenance Check List

Vessel No.:	PCG-_____	Date:
Vessel Make:	DM8 Composites Inc.	Time:

Bilge Area and Bilge System

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Inspect the bilge of a hull compartments. (Keep the bilges dry. Further investigate if there are signs of leak)				
Bilge Pump Aft – Function Test				
Bilge Pump Mid Compartment – Function Test				
Bilge Pump Toilet/Cabin Floor Drain- Function Test				
Bilge Pump Forward – Function Test				
All Bilge Pumps are set to Auto at the Dashboard during normal operation				

Hull and Deck

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Cleaning and Washing of hull and deck (Use soft tools only)				
Polishing with Marine – Grade wax				
Visual Inspection of hull for signs of scratches, dents or signs of impact				
Gelcoat Check – check for cracks or chips				
Record alternator loading shown on the Engine Display				
Antifouling coating check and under water scrubbing. (See boat manual)				

Boat Interior Spaces

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Cleaning of interior spaces, toilet, passenger spaces, windows and Dashboard				
Housekeeping and proper stowage of loose equipment				
Check for any damages or scratches of the gelcoat surfaces				
Check hull interior for any signs of cracks				

Acknowledged by: (Boat Owner/Representative)	Name:	Signature:

Daily Maintenance Check List

Vessel No.:	**PCG-_____**	Date:
Vessel Make:	**DM8 Composites Inc.**	Time:

Battery Maintenance

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Inspect Engine Battery 1 (See tasks below)				
Inspect Engine Battery 2 (See tasks below)				
Inspect House Battery (See tasks below)				
Inspect Aircon Battery (See tasks below)				

Task 1 : Check Terminals for signs of corrosion (clean if necessary).
Task 2 : Check for loose connections (tighten if necessary).

Electrical Cables and Wirings

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Visual Inspection of cablings and wirings (Check for signs for wear and damaged insulation				
Check terminals for loose connection (tighten if necessary)				

Fuses and Circuit Breakers

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Check all circuit breakers. (Reset breaker if necessary)				
Check that fuses of various amperage are available on board.				

All Conditioning Units and Vents

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Clean the air filters (Replace if worn out)				
Check ducts and vents for proper air flow.				
Inspect and clean Sea Intake Strainers to prevent clogs.				
Check the efficiency of cooling. (To decide if professional maintenance inspection is necessary.)				

Acknowledged by: (Boat Owner/Representative)	Name:	Signature:

Daily Maintenance Check List

Vessel No.:	PCG-_____	Date:
Vessel Make:	**DM8 Composites Inc.**	Time:

Compartment Lighting & Navigational Lighting

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Function Test of all compartment lighting				
Function Test all Navigation lighting.				
Check that mounting of accessories are all secured.				

Dashboard, Navigational Equipment and Accessories

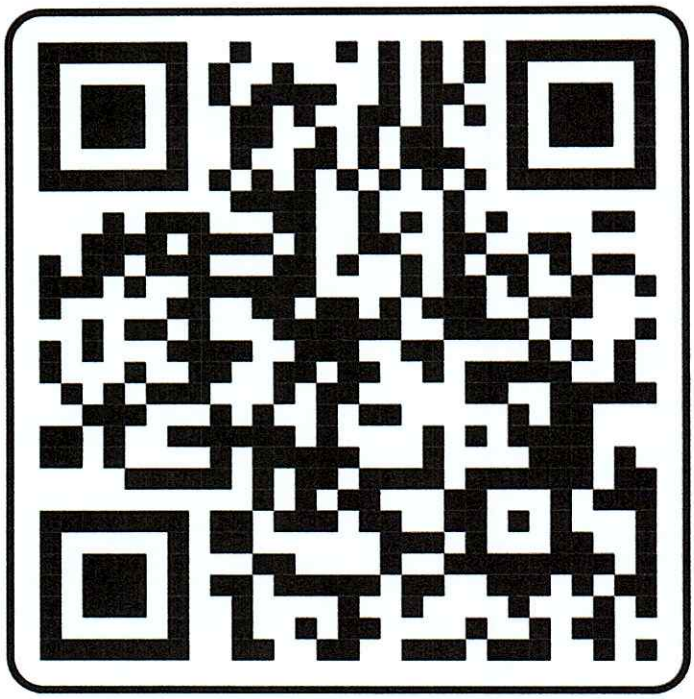
Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Check the Windscreen Washer and Wipers. Ensure that reservoirs are filled to the appropriate level.				
Check that the Fuel, Fresh Water & Waste Water Level Gauges are in good condition.				
Check that the Battery Volt Meter is in good working condition.				
Test all radio devices (Built-in VHF Radio including Handheld) and GPS units and transceivers to make sure they are all operational.				
Check that the Multi-function Display and all its related functions are in good working condition.				
Check that the Camera and its Remote Control is in good working condition.				
Check that the Engine Display and all its related functions are in good working condition.				
Check that the Ship's Horn and the Loudhailer are in good working condition.				

Deck Equipment & Fittings and Life Saving Appliances

Inspection/Task	Performed? Yes	Performed? No	Results/Remarks	Performed by: (Name and Initial)
Check for completeness of Deck Equipment and Life Saving Appliances. (See boat manual for the Equipment and Accessories List)				
Check for any damaged Deck Fittings. (See boat manual for list of Deck Fittings)				

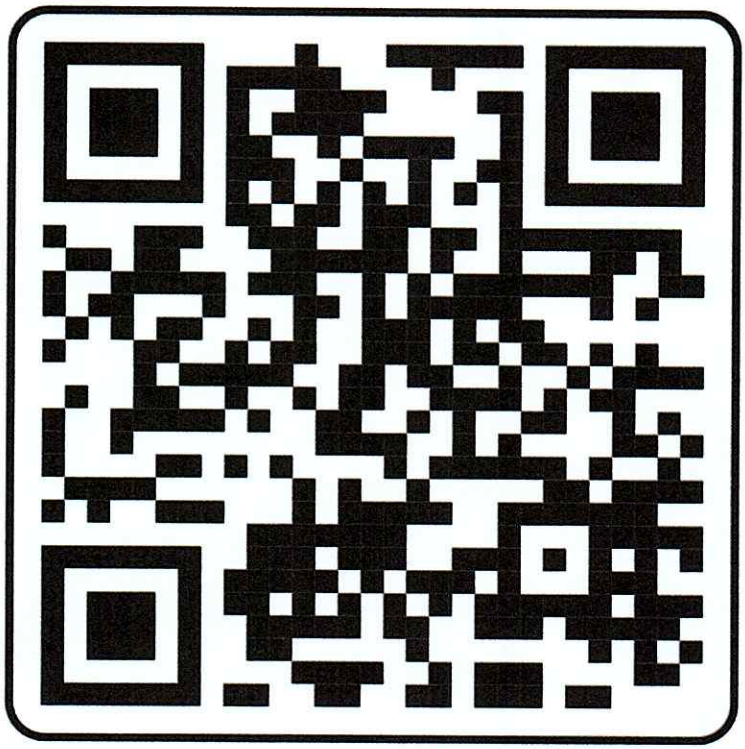
Acknowledged by: (Boat Owner/Representative)	Name:	Signature:

Annex III: **Boat Operator's Manual**



OPERATOR'S MANUAL

***Annex IV*: OXE300 User Manual**



OXE300 User Manual