

# Planned Maintenance System Services



**SENTINI MARINE**  
Engineering Supplies and Services

## **Planned Maintenance System Services - Provided by Sentini Marine**

During the new-build/restoration period, it is of utmost importance that the crew is available to monitor the quality of installations on board the vessel. By outsourcing the building of the Planned Maintenance System (PMS) to Sentini Marine, it allows the crew more time on board the ship, attending inspections, production meetings, factory acceptances etc. and less time in the office.

Sentini Marine offers a bespoke service in building a PMS for your vessel, tailored to your needs to establish a system which keeps the vessel in operation and, in future, can be maintained by the crew. Sentini Marine will populate your chosen PMS software, creating equipment lists, spare parts inventories, purchasing systems and clear planned maintenance tasks to reduce down time and maximize the availability of the vessel to the Owner.

A successful PMS is underpinned by using data that is gathered and verified in an expert manner, which is what Sentini Marine offers; all work is carried out by MCA qualified engineers. In the following pages we will lay out the different levels of consultation and services available in order to achieve the PMS that suits your needs.

Our aim is to create and bring into play, a PMS that covers our fee many times over by improving vessel availability and cost effectiveness.

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## **Introduction**

Value can be maintained long into the operating lifetime of a vessel by commissioning a well populated PMS. Records of maintenance, scheduled maintenance tasks and reliable spare gear purchasing and inventory control all contribute to reducing downtime and swiftly repairing and re-ordering parts for broken down equipment.

The services we offer are split into four stages: Core equipment data preparation, Equipment support and information preparation, Preliminary integration of equipment and support information and, lastly, Final development and integration with vessel procedures. We understand that you may not require all of these; you may wish to commission Sentini Marine just to initiate the process with a thorough equipment survey or, in some circumstances, to build on existing data and move through the process from a later stage.

If you do not require a Planned Maintenance System building from scratch, Sentini Marine can also survey an existing vessel maintenance system and make recommendations.

### **Crew Involvement**

The level to which the crew interacts with Sentini Marine is completely vessel dependent. The services proposed are bespoke and at any stage the project personnel can involve themselves by taking on specific work packages; remote support will be provided where necessary. Crew training and coaching can be provided throughout the entire relationship to ensure that the transition at completion is smooth.

## **Stage 1 - Core Equipment Data Preparation**

The equipment data will be collated and prepared for import into the particular Planned Maintenance System software selected by the client. Normally, a generic vessel equipment list will be created, listing all equipment to be installed, including Owner supply items, it is very important that all known Owner supply items are declared at this stage. The format will be suitable for a bulk data import to most PMS software databases. The level to which this will be developed will be agreed beforehand; advice will be provided by Sentini Marine.

Data plate photographs are a recommended additional feature that can be added; this is beneficial when ordering spare parts, especially for older vessels. The data plate photograph can be attached to a spare gear request or technical query when contacting the manufacturers. In many cases, equipment types change (or manufacturers are bought out by third parties) and the company's own record of equipment data is brought into question. Providing the manufacturer with a photograph of the data plate clears doubt in these circumstances. Furthermore, over time, the plates can become worn out, damaged or are painted over and are no longer readable. The data plates are edited to improve clarity and the image file linked to the equipment in the PMS.

Vessel drawings, if available, will be used and cross-referenced with the equipment list to improve data accuracy and cross-referencing.

### **Maintenance and Documentation**

By cross-referencing with the custom prepared equipment list, we can ensure that the full technical documentation has been delivered/is available, and request missing items from the manufacturer where required.

## **Stage 2 - Equipment Support and Information Preparation**

### **Prepare Maintenance Tasks**

Based on the technical documentation, the planned maintenance for each piece of equipment will be prepared for installation into the selected PMS.

### **Contacts, Manufacturers and Suppliers**

All the contact data for suppliers, sub-contractors and manufacturers will be collated and formatted.

Collating of all contact, manufacturer and supplier data is beneficial when looking for spare parts or if a technical query needs to be raised with the manufacturer. Email addresses can normally be hyperlinked in the PMS.

### **Spare Parts Lists**

So that the vessel can prepare for departure, a recommended spare parts list will be requested from every equipment manufacturer and shipyard subcontractor.

Sentini Marine can assist with spare parts strategy if the vessel itinerary is known.

### **Data Plates Edited**

The data plate photographs will require image enhancement; this includes cropping and improving the contrast of text (particularly on polished metal with stamped characters) ready for metadata linking and importing to the chosen PMS.

### **Purchasing System Process**

The management requirements for vessel spares and equipment purchasing should be established so that they can be integrated into the selected PMS. A Process Flow Diagram is normally created to properly understand the wider management processes for effective integration.

Sentini Marine recommend that a separate system is used for the initial purchase of spares so that there is sufficient time to fulfill the vessel requirements and not delay the process of buying necessary spares for the all-important first cruising season with the Owner. When the vessel is in operation, the purchasing procedure is likely to be different, and the PMS will be set up for this.

Sentini Marine can assist in establishing the preliminary purchasing procedures whilst the PMS is under development and provide advice on effective and efficient purchasing procedures for operation.

## **Stage 3 - Preliminary Integration of Equipment and Support Information**

### **Equipment Import**

The entire equipment list will be imported in bulk. (Depending on PMS manufacturer, there may be an additional fee for this service.)

### **Technical Documentation**

The electronic copy of the documents can be linked to the equipment and accessed easily in the PMS.

### **Maintenance Tasks**

The maintenance tasks that were prepared in Stage 2 can be scheduled into the PMS. The particular method of implementation will be agreed. For example, a simple reference to a document and page number in the technical manual for individual tasks, or fully formatted instructions for each task can be installed in the planned maintenance database so that the instructions automatically appear with the scheduled task. Documentation can be linked to the job and the equipment, if required.

### **Data Plates Attached**

The data plate photographs will be attached to the equipment in the PMS.

### **Contacts, Manufacturers and Suppliers**

All the contact data for suppliers, sub-contractors and manufacturers collated in Stage 2 will be installed in the PMS.

### **Purchasing System**

The system will be set up in line with company requirements and authorisation limits for all crew. Purchase orders can be generated automatically and sent out to preferred suppliers, ensuring the best deal, on lead-time or price, depending on the need of the crew or the Owner. Purchasing and spending status can be monitored and reports generated on demand.

### **Spares and Consumables**

From the recommended spare parts lists provided by the manufacturer and the sub-contractors, a final list can be established. Owner supply items are to be provided by the vessel.

The level to which the vessel spare gear is prepared is dependent on: the vessel itinerary and cruising pattern of the Owner, the equipment fitted onboard, and the frequency and type of shore side or shipyard support available. All of the above can be analyzed by Sentini Marine to help establish which spares are required on board and which can be stored for onward shipment. The logistic support strategies are as varied as the itineraries.

Spares and consumables lists can be prepared for purchasing by Sentini Marine and approved by the vessel. Using the equipment list as a controlled and live document ensures that recommended spare parts for all equipment are accounted for.

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## **Stage 4 – Final Development and Integration with Vessel Procedures**

### **Good Practices**

With the technical manuals and ship's drawings, a list of good practices can be drafted for review with the vessel's crew. All jobs can be reviewed technically, edited and added to the PMS, as required.

### **Inventory**

As the spares and consumables are delivered, they should be added to the PMS and assigned to the relevant pieces of equipment. Re-order levels are to be agreed and automatic purchase order generation to be set up.

Bar code tracking of spares and consumables can be implemented, if required. Bar code tracking does require that the vessel inventory numbering format is compatible and this will partly be dependent on the PMS software selected. Sentini Marine can assist with all aspects of bar coding to get the full benefit of this recommended form of data entry.

### **Storage Solutions**

Once storage on board the vessel is finalized, the spares and consumables can be moved on board and the database updated to reflect locations on board the vessel. In the meantime, equipment can be delivered to a shore storage unit. On arrival, equipment can be bar code labeled and stored. Sentini Marine has a proven system that will allow gear to be located ashore and easily migrated onboard at time of delivery, saving time and avoiding confusion during the final stages of delivery.

Sentini Marine can help in utilizing the available space onboard, thereby increasing the vessel's capacity to carry spare parts. Bespoke storage solutions can be developed with the vessel's crew.

### **ISM/SMS**

A list of safety tasks can be created for review by the DP (ISM 'Designated Person') and vessel crew and implemented into the database in accordance with ISM/SMS.

Sentini Marine can draft provisional SOP's (Standard Operating Procedures) from system drawings and manufacturer documentation, making final documents with crew input, if required. Assistance with logging ships' certificates can also be provided.

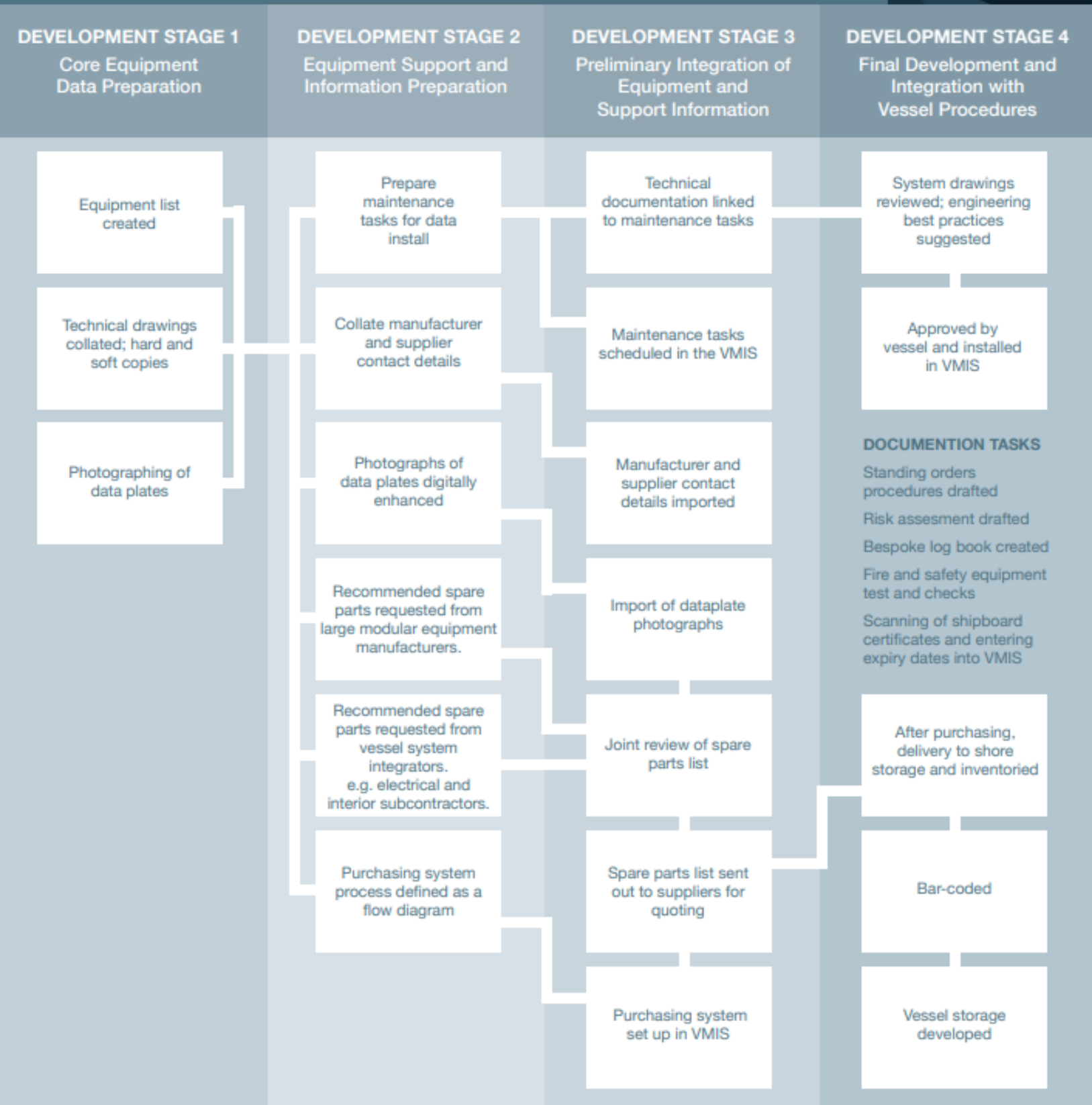
### **Log Book**

We encourage developing a custom Engineering Log Book with the vessel's Engineers so that the watch keeping technical data is recorded in a traditional way. Sentini Marine can create a vessel specific engine room log book. We hope, by this time, to have developed a professional, trusting relationship with the vessel and her crew and would be prepared to support the vessel remotely on a retainer basis.

# Vessel Management System Information Development Process

The Flow diagram outlines the basic requirements for the development of the technical backbone of any vessel's operation.

Sentini Marine can assist in the implementation at any stage of the services outlined.





## Conclusion

Review the above services and consider which you require to build a premium Planned Maintenance System that will keep your vessel operational and availability to the Owner maximized.

Please contact us either via email or phone to discuss moving forward with your project.

We look forward to hearing from you.

Jonathan Lee Director



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