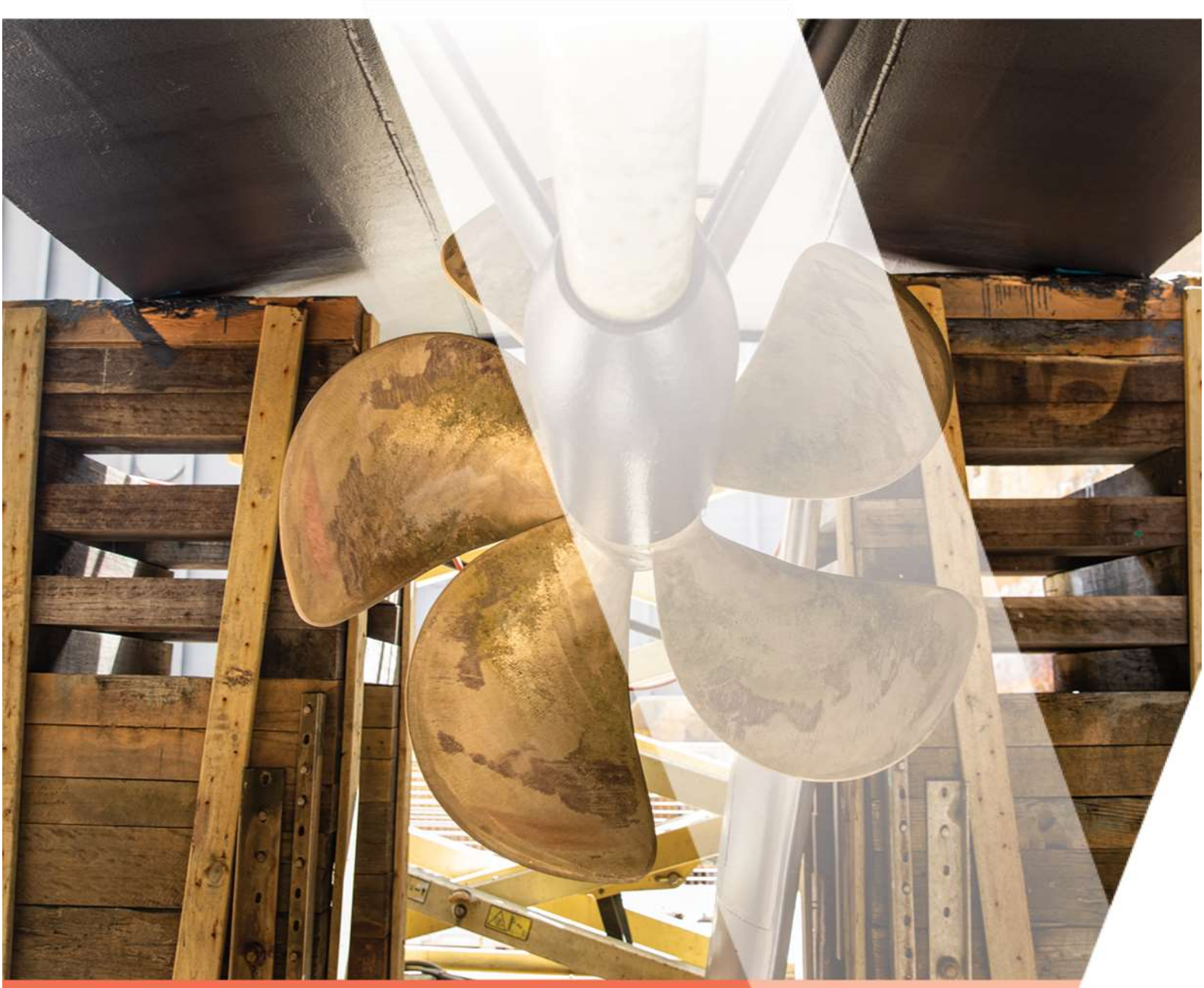
transdev

Proud operator of Sydney Ferries



TDSF Response to DNV & TfNSW Vessel condition assessment report in 2023

30-Sept-2023

ASSETS

Table of Contents

1. Executive Summary

TfNSW engaged DNV to conduct a condition assessment of all the public transport ferries operated by Transdev Sydney Ferries. Vessel condition assessments were also performed in 2015 and 2019 by DNV as part of the previous contracts. However, this latest assessment had broader scope and included a review of the planned maintenance system, spare parts inventory, contractor engagement and several other items.

A detailed review of the DNV findings identified some inconsistencies in the number of defects and in the relevance of the findings to the standards applicable to the Sydney Ferries fleet. However, TDSF is committed to address all provided findings in relation to the condition of the fleet and overall maintenance.

The rectification status of vessel defects and corrective actions related to other process-related items are detailed in the subsequent sections of this document.

TDSF also developed a plan of action to address the issues related to the low planned/corrective maintenance ratio and ineffective husbandry.

Most of the DNV defects were fixed, and all defects were reviewed and required actions raised for completion in Hexagon EAM. Other areas for improvement have a plan to achieve the industry benchmarks.

2. TDSF's response to the defects and recommendations from DNV

2.1 High-level overview of the DNV report

The assessment report from DNV (Report no. 2023-9359, Rev 2) was delivered to TDSF on 09 August 2023, along with a spreadsheet with relevant defects for each vessel class. The report also outlined other feedback regarding the planned maintenance system, improvement opportunities and further expectations from TfNSW.

TDSF commenced review immediately after the above documents were provided. This review was primarily performed by various Engineering team members and the Fleet Performance Manager. Although the DNV report indicated a total of 464 defects, the spreadsheet they provided contained only 425 items for the fleet. It is assumed that the remaining 39 defects are low priority, and details will be provided later when access to the DNV dashboard is possible.

It was acknowledged that maritime experts conducted the inspections. However, various defects were either outside the NSCV regulation (applicable to Sydney Ferry operations) or not required by OEM (e.g. shielding of high-pressure fuel lines). TDSF have applied their professional experience and knowledge of the specific rules to those cases, which has led to some defects being assigned a lower risk rating. TDSF remains committed to rectifying all defects in a reasonable manner and timeframe.

2.2 DNV defects rectification

The overall status of the DNV defects review and rectification is provided in the figure below. TDSF reviewed all the defects by the class and used three levels to track the progress of the review.

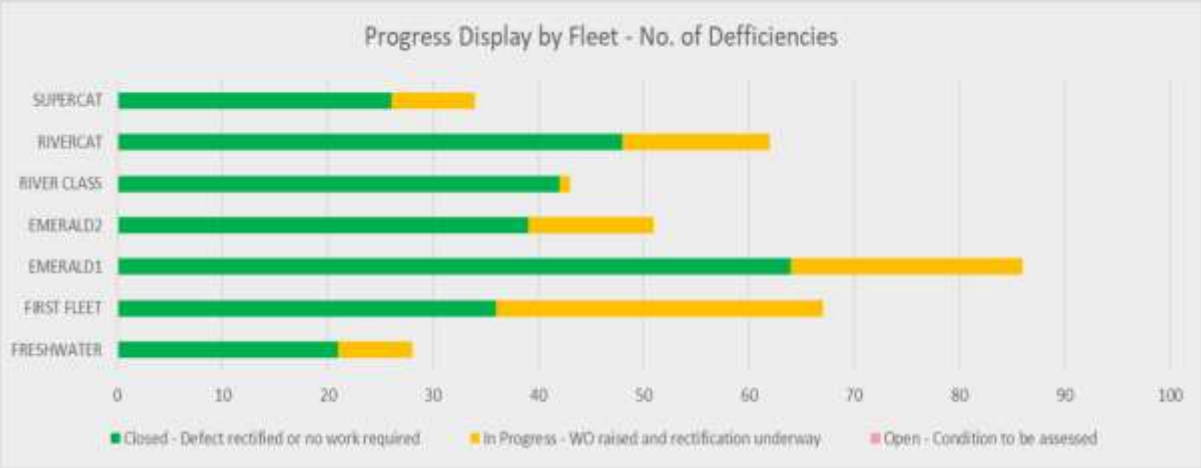


Figure 1. The status of DNV defect rectification (by numbers)

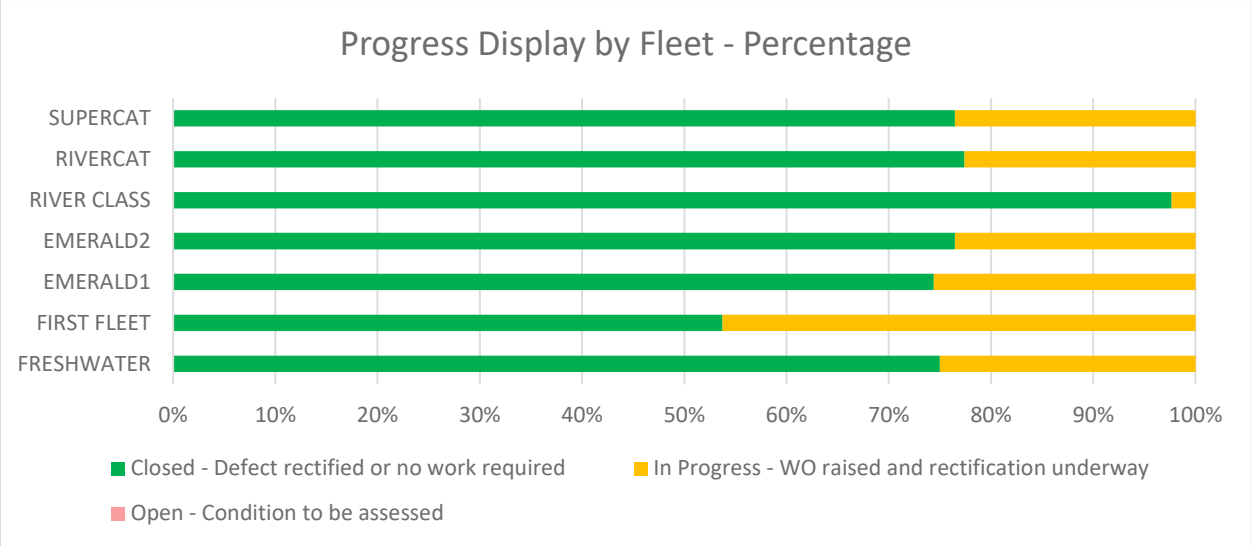


Figure 2: Progress display by fleet (percentage completion)

Initially, all defects were assigned the red status, indicating that review and rectification are required. The status changed to yellow once the item was reviewed and the work order was created. When the defect was confirmed to be rectified, or the vessel left the service (Collaroy, Harbourcat class), the defect was marked as green. It is worthwhile noting that the majority of the urgent defects were fixed before TDSF obtained the report and after the DNV inspection, as in some cases, a few months passed between the DNV inspection and the report being provided to TDSF. Also, some defects were identified by TDSF and fixed through docking and regular maintenance.

TDSF created work orders for all the open defects in August 2023. The work has been conducted through August-September to close most defects, as indicated in Figures 1 and 2. Other defects will be fixed during October or in later months if docking is required to fix the defects. TDSF identified all the DNV defects with the 'DNV' keyword in the names of the work orders to highlight their importance to the maintenance crew. Planners assigned the DNV defects to all the maintenance work packages to speed up the completion.

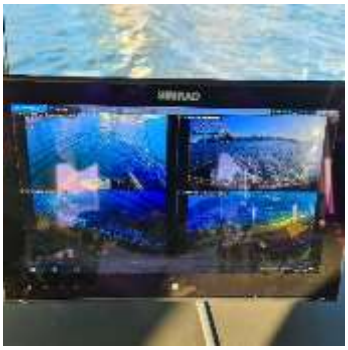
The following sections explain at class level the defect rectification efforts.

2.2.1 Freshwater class

1. The urgent defects on *Collaroy* were rectified last month.
2. Many of the remaining items are the result of its lifecycle, and the vessel has recently stopped operating following the expiry of the survey certificate.
3. It has been removed from the list of active vessels, and renewal docking will be required to lift the condition.
4. Several oil and water leaks were noted in the engine room on *Freshwater*. All these were found to be minor, and some were being actioned prior to the inspection. New sections of pipes were installed in some areas.
5. The oil absorbent pads in steering spaces are a precautionary measure to address minor weeps from the pumps. Fittings were tightened.
6. Almost 70% of defects have been rectified, and the average condition of the class should improve even further after the *Queenscliff* returns to service.

2.2.2 First Fleet

1. Eight vessels in this fleet have completed the life extension program. The *Alexander* was not included in that program owing to its different configuration. Additionally, the vessel is due for renewal docking in 2024. Hence, the condition rating of that vessel is lower than others.
2. The defects related to safety systems and machinery on the *Alexander* have been reviewed and actioned appropriately.
3. The intermediate docking of *Sirius* is currently in progress, and all defects noted are expected to be closed before it returns to service next month.
4. The intermediate docking of *Fishburn* is scheduled to commence in November 2023. Many of the defects noted on that vessel will be rectified in that project.
5. The other actionable defects on the remaining vessels are scheduled for completion by the end of October.
6. More clarity is required for some of the pending defects, as the report's details are insufficient.
7. The observation by DNV regarding the delay of the life extension project of the *Supply* is correct. That project was indeed delayed by several months as the overall program delivery was being reviewed by TfNSW and TDSF.
8. The condition rating of all life-extended vessels has improved appropriately following the completion of the program.



2.2.3 Emerald Gen I

1. The defects related to safety systems and machinery have been mostly rectified.
2. The lack of cleanliness of the bilges has been well noted. Several fleet-wide actions have been initiated for this purpose. Those have been listed in a subsequent section.
3. The main engines on these vessels do have high-pressure fuel lines. However, the OEM (Yanmar) do not provide (or recommend) the engines with any protective covering on the fuel line fittings. But TDSF has installed it on one vessel and intends to roll it out on the remaining soon.
4. A small section of the cable penetration in the Port engine room was opened during the installation of the new VDRS for the steering system. It was intended to be sealed up following the period of usage.
5. All these vessels have items such as a toaster and microwave for crew members. There is no intention to remove these items from the wheelhouse due to the long duration of shifts.
6. Some pending items will require more clarity as existing information is not sufficient.

7. There was also a comment regarding the docking of *May Gibbs* not being completed in 2020. However, our records indicate that it was indeed completed in Dec 2020.
8. DNV inspectors will be requested to attend again before summer to review the vessel condition on behalf of TDSF. It is expected to be higher following the completion of the rectification.

2.2.4 Emerald Gen II

1. Some defects, such as cable penetrations and shielding of fuel lines, are similar to Gen-1 vessels.
2. The lack of cleanliness of bilges has also been well noted on these vessels.
3. Painting of gangways has been initiated as a standard task.
4. Rudders were noted to be out of sync. However, these rudders have to be synchronised (via a button in the wheelhouse) before departure in the morning. That is a normal process.
5. The remaining defects will be completed by the end of October.
6. DNV inspectors will be requested to attend again before summer to review the vessel condition on behalf of TDSF. It is expected to be higher following rectification.

2.2.5 River class

1. This class had the highest condition rating as it only commenced operation to its full extent last year.
2. The major defect related to stern tube corrosion was not noted/found during these inspections.
3. Most of the rectification has already been completed.
4. It is also noted that the drain plugs for fuel save-alls are only utilised during fueling of the vessels. They are not required otherwise.

2.2.6 Rivercat

1. Most of the safety system and machinery-related defects have been rectified.
2. The defects listed for *Betty Cuthbert* have been excluded from review as the vessel was removed from service in Feb 2023.
3. The hull corrosion-related defect on *Marlene Mathews* was inspected by AMSA accredited surveyors (MSA) and deemed as lower risk. It is a non-structural part of the hull, and only a minor rectification effort was required.
4. Some vessels (MM & MJ) were in the dock earlier this year for planned works. Many of the defects were rectified in that period, including the above on Mathews.
5. The remaining defects will be completed by the end of October.



2.2.7 Supercat

1. One breakdown work order was closed after 188 days. This was related to the engine speed actuator on the Port main engine.
2. However, the actual defect was rectified after a few days by replacing the actuator. At the time, there was some confusion about further modifications that did not eventuate. That led to the work order not being closed in a timely manner.
3. Both vessels are due for disposal in early 2024, and some of the condition-related defects reflect that appropriately.
4. The other defects related to safety systems and machinery have been mostly rectified.


2.2.8 Harbourcat

1. The *Pam Burridge* was disposed off in August 2023.

2.3 Planned Maintenance

TDSF's planned vs. corrective ratio is below the industry benchmark by about 20%, sitting at nearly 50% in September 2023. TDSF put significant efforts into improving the use of the CMMS for maintenance scoping, scheduling and planning. Thus, the notable increase in the ratio from 40%, as noted in DNV, is reported and measured in Figure 3 for the beginning of 2023.

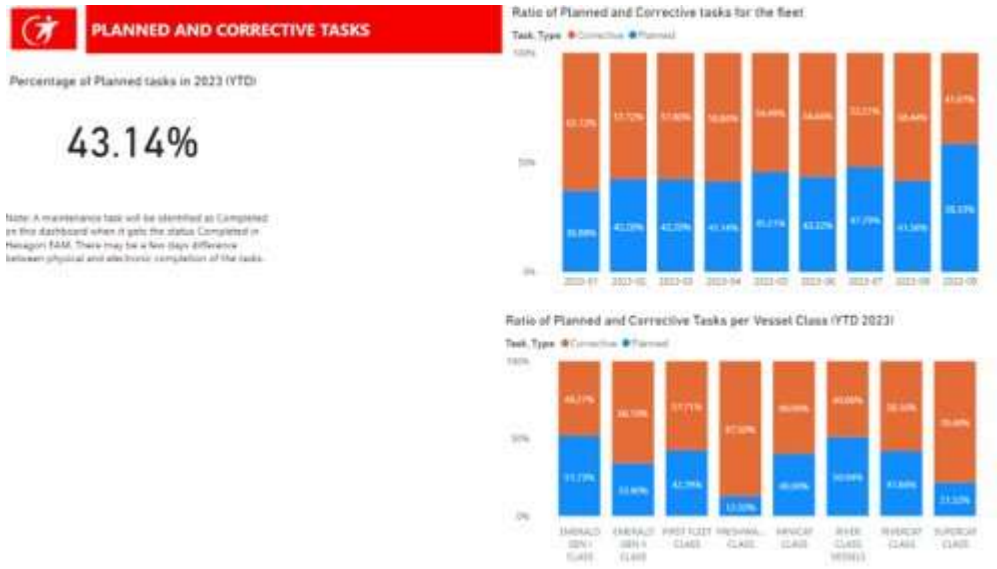


Figure 3: Planned vs Corrective Maintenance Ratio

TDSF developed short (3 - 6 months) and long (6-24 months) term strategies to improve the ratio to 60-65%.

As an initial action, TDSF created a one-page summary report distributed weekly to monitor the Planned vs. Corrective maintenance ratio (Figure 3).

2.3.1 Short-term actions

Short-term actions to improve the maintenance ratio to 50%-55%:

- Over 1000 instances of the new TMP tasks were activated into the system from May 2023 using the upgraded TMP with checklists. (Completed)
- Maintenance staff were trained in using the mobile version of the CMMS to access and complete the work orders with checklists. That occurred after the roll-out of the latest version of Hexagon/Infor for the TDSF use as their CMMS. (Completed)
- Backlog monitoring increased significantly to ensure planned tasks were completed in a timely manner. Backlog stayed under the target for the last 4 months since May 2023, which led to the decrease in target for September and the following months. (Completed)
- Forward-planning horizon increased from 1 week to 2-3 weeks to allow for better allocation of the trades to the specific maintenance events. Thus increasing the chance of maintenance completion and avoidance of the backlog growth.
- Continuous improvements are encouraged within the maintenance crew to provide feedback about the TMP's possible improvements.
- Better usage of the existing maintenance data will be created to monitor the ratio and identify ways for improvement, including the introduction of the new internal KPIs.

- Further updating the structure of the TMPs for the major services, thus allowing better visibility to the supervisor in completing the work and daily work planning.

2.3.2 Long-term actions

TSDF aims to develop internal capabilities and processes to further increase the ratio. However, these actions require longer implementation; therefore, they are included in the long-term plans.

Long-term actions to achieve 55-65% of planned maintenance:

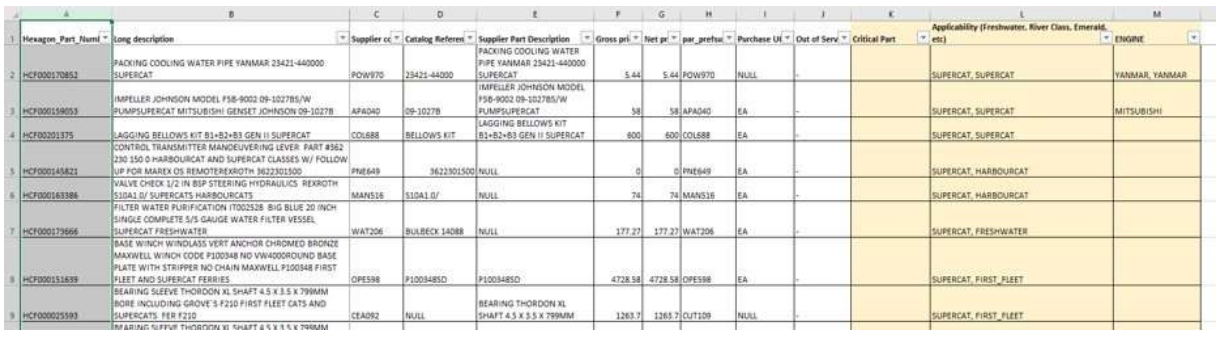
- All members of the engineering and planning teams completed the training program for Reliability Centered Maintenance (RCM).
- Strengthen the existing reliability program by including a systematic review of the corrective actions.
- Conduct FMECA analysis for safety critical systems and update TMPs accordingly.
- Implement defect categorisation and condition monitoring using the existing CMMS functionality.
- Develop metrics to monitor RCM implementation and the effectiveness of the reliability program.
- Improve the quality of the yard maintenance via the introduction of the new internal KPIs and develop actions to address the identified undesirable performance.

2.4 Spare Parts review and corrective actions

DNV has identified several opportunities for improvement in stock handling. The engineering team has begun a review of 7200 listed stock items to identify critical spares.

The following items are either completed or in progress:

1. Parts list reviewed to identify the applicability to various vessel classes.
2. Obsolete stock items were identified to be removed from the stock and the ordering system.
3. Critical spares are in the process of identification. We expect to complete this review by the end of October.
4. The changes from the spreadsheet are gradually uploaded to Hexagon which controls the configuration, spare parts and stock levels.



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Hexagon_Part_Numl	Long description	Supplier cc	Catalog Referen	Supplier Part Description	Gross pri	Net pr	par_prefsu	Purchase UI	Out of Serv	Critical Part	Applicability (Freshwater, River Class, Emerald, etc)	ENGINE
2	HCF000170852	PACKING COOLING WATER PIPE YANMAR 23421-440000 SUPERCAT	POW970	23421-44000	PACKING COOLING WATER PIPE YANMAR 23421-440000 SUPERCAT	5.44	5.44	POW970	NULL	-		SUPERCAT, SUPERCAT	YANMAR, YANMAR
3	HCF000159053	IMPELLER JOHNSON MODEL F58-9002 09-1027B5/W PUMPSUPERCAT MITSUBISHI GENSET JOHNSON 09-1027B	APA040	09-1027B	IMPELLER JOHNSON MODEL F58-9002 09-1027B5/W PUMPSUPERCAT	58	58	APA040	EA	-		SUPERCAT, SUPERCAT	MITSUBISHI
4	HCF000201375	LAGGING BELLOWS KIT B1+B2+B3 GEN II SUPERCAT	COL688	BELLOWS KIT	LAGGING BELLOWS KIT B1+B2+B3 GEN II SUPERCAT	600	600	COL688	EA	-		SUPERCAT, SUPERCAT	
5	HCF000145821	CONTROL TRANSMITTER MANOEUVERING LEVER PART #362 230 150 0 HARBOURCAT AND SUPERCAT CLASSES W/ FOLLOW UP FOR MAREX OS REMOTEREXROTH 3622301500	PNE649	3622301500	NULL	0	0	PNE649	EA	-		SUPERCAT, HARBOURCAT	
6	HCF000163386	VALVE CHECK 1/2 IN BSP STEERING HYDRAULICS REXROTH S10A1.0/ SUPERCATS HARBOURCATS	MAN516	S10A1.0/	NULL	74	74	MAN516	EA	-		SUPERCAT, HARBOURCAT	
7	HCF000173666	FILTER WATER PURIFICATION IT002528 BIG BLUE 20 INCH SINGLE COMPLETE S/S GAUGE WATER FILTER VESSEL SUPERCAT FRESHWATER	WAT206	BULBECK 14088	NULL	177.27	177.27	WAT206	EA	-		SUPERCAT, FRESHWATER	
8	HCF000151639	BASE WINCH WINDLASS VERT ANCHOR CHROMED BRONZE MAXWELL WINCH CODE P100348 NO VW4000ROUND BASE PLATE WITH STRIPPER NO CHAIN MAXWELL P100348 FIRST FLEET AND SUPERCAT FERRIES	OPE598	P10034850	P10034850	4728.58	4728.58	OPE598	EA	-		SUPERCAT, FIRST_FLEET	
9	HCF000025593	BEARING SLEEVE THORDON XL SHAFT 4.5 X 3.5 X 799MM BORE INCLUDING GROVE'S F210 FIRST FLEET CATS AND SUPERCATS PER F210	CEA092	NULL	BEARING THORDON XL SHAFT 4.5 X 3.5 X 799MM	1263.7	1263.7	CUT109	NULL	-		SUPERCAT, FIRST_FLEET	

Figure 4: Review of the spare parts

2.5 Ship Husbandry Improvements

TDSF acknowledges that many of the vessel defects eventuated due to poor housekeeping or maintenance by onboard crew members. Several internal discussions with the

Operations team and senior management have been conducted to address this matter. The following actions have been initiated recently:

1. A safety alert has been issued via the crew WHS committee members to allow entry of crew members into the engine rooms of Emerald Class ferries. That had ceased earlier this year following the failure on Clontarf.
2. A new toolbox talk has been issued to all operational staff at the beginning of September that outlines the expectations regarding defect reporting, cleaning of bilges and other routine activities.
3. An audit framework for all vessel classes is being prepared. This will include monthly inspections by technical superintendents and SHEQ personnel.
4. Technical Maintenance plans are also being reviewed to include more detail regarding bilge cleaning whilst at the yard.

MONTHLY TOOLBOX talk

September 2023 (SMTT75)- Vessel and Engine Room Housekeeping

PROMPTS- FACILITATOR GUIDE (All staff must complete this toolbox)

Background

This Toolbox talk has been raised to remind Masters and Engineers of the importance of machinery space and general vessel housekeeping.

Meticulous machinery space housekeeping is crucial to safety and the protection of the environment. An Engineer allocated to a vessel is responsible for the housekeeping of all machinery spaces of that vessel. On vessel's where there is no Engineer, the Master allocated is responsible for the housekeeping of that vessel. From time to time the Engineer/Master may delegate tasks to the General Purpose Hand's based on training and skill levels.

Housekeeping Items

Rags and Oil Soaker Pads

When finished with rags or soaker pads it's important to dispose of them appropriately. Leaving rags/pads in the bilge poses a significant risk to the vessel should a flooding event occur by causing the bilge suction pipework to choke up. The presence of oil or fuel soaked rags and absorbent pads in the engine room also increased the risk of engine room fire which means their timely removal from the space is of the upmost importance.

Bilge Cleanliness

Keeping your bilges clean and dry ensures that you can identify any new issues or leaks that may arise throughout your shift and better monitor their rate of flow. Keeping your bilges clean and dry also reduces the promotion of corrosion to vessel hull plates by prolonged exposure to seawater and other fluids. If you're bilge requires pump out, please liaise with control to come to BSY for pump out.

transdev

SAFETY

MONTHLY TOOLBOX talk

Dogging Hatches

Making sure your hatches are dogged ensures the water integrity of the vessel and reduces the likelihood of water ingress from rain or vessel washdowns at night. From time-to-time after maintenance, hatches can be left in the open state or work their way open through vibration. It is important that we ensure they are closed when in operation regardless of who left them open.

Engine Lagging

If you notice the exhaust lagging wires have backed off or a piece of lagging is loose, please secure the item back in place. If you're unsure of how to complete this task you can contact CQ trades, the training department, or the relevant technical superintendent who can talk you through the process and assist you. Removing a piece of lagging is unacceptable and dangerous for you and your fellow employees.

If you notice exhaust lagging is deteriorating and replacement is required or there is hot exhaust pipework uncovered, please log a descriptive work request and email a photo to the relevant technical superintendent.

Walkways, stairwells and ladders

Accessways are to be kept clear and free of rags, oil, fluids and tooling to ensure the safe entry and exit from void/machinery spaces by personnel

Spare machinery oil should never be stored in engine rooms as it increases the fire hazard.

transdev

SAFETY

Authority

Document Status	Approved
Document Owner	[redacted]
Amendment Authority & Responsibility	[redacted]
Document review month	Sept 2023
Date first published	30-Sept-2023
Effective Date	01-Oct-2023

Confidentiality

This document contains information that is confidential to Transdev Sydney Ferries and its workers or contractors and is only to be used by authorised persons.

Document History

Revision	Revision Date	Description	Prepared By	Reviewed by	Approved by
1.0	29/09/23	Release	[redacted]	[redacted]	[redacted]