

**Exercise Sheet Plan Template
(Instructor's Copy)**

Course Title	New MLC for Engine Officers Function 3
Exercise No. 1	A4.1 - A
Exercise Title	Managing safe and effective maintenance and repair procedures of main propulsion
Duration	30 minutes briefing, 7 hours exercise proper, and 30 minutes debriefing
Function	Maintenance and repair at the management level
Competence	Manage Safe and Effective Maintenance and Repair Procedures
KUP	Manage Safe and Effective Maintenance and Repair Procedures
Intended Learning Outcome/s	At the end of the exercises, the trainee must be able to manage and monitor the safe and effective maintenance and repair procedures of the following in accordance with operational manual and technical specifications through a given scenario.
Training Equipment / Materials	<ul style="list-style-type: none"> • Appropriate PPE • Generator engine cylinder liner of 240 mm bore • Aux engine piston & piston rings at least 150mm bore • Inside micrometer caliper to measure cylinder liner bore
Scenario Description	The vessel is in anchorage area. As per PMS, V-type main engine has been dismantled as it was due for routine maintenance. The 2nd Eng'r was task to do inspection of the piston and piston rings and cylinder liner bore, measure dimensions and clearances. Make recommendations from the result of the inspection in order to restore to operating condition.
Initial Condition	The vessel is in anchorage area. As per PMS, V-type main engine has been dismantled for routine maintenance.
Instructor's Action	<p>The instructor should follow these steps for the entire duration of the exercise to ensure the effective and safe conduct of the practical exercise:</p> <ul style="list-style-type: none"> • Coordinate with staff to ensure that facilities are safe and the equipment are fully operational; • Before the start of the exercise, ensure that the facilities and equipment are ready to be used; • Conduct briefing; • Give the trainee enough time to prepare prior to starting the simulation; • Check if right scenarios are loaded and initial conditions are met before commencing the exercise. • Start the practical exercise;

	<ul style="list-style-type: none"> • Monitor the trainees' performance using the checklist (Practical Exercise Record Sheet); • Monitor the performance of the trainees during the execution of the practical exercise; • Remind the trainee of the time left and actions not related to the exercise • Stop the exercise if there is any deviation from the required procedure, then explain the reason and give further instruction; and; • Make sure the simulator runs smoothly without malfunctions; • Complete the performance task done or not done • Conduct debriefing.
Exercise Procedure	
Briefing	<p>Before the start of the exercise, ensure that the following are fully understood and done by the trainees:</p> <ul style="list-style-type: none"> • The measures to be observed during the execution of the exercise • The specified intended learning outcomes and execution of the performance criteria of the exercise; • The attitude, as a management level officer, to be shown by the trainee during practical exercises • The need to treat the activity as it is a real-life situation; • The best management practices applicable; and • The monitoring and assessment to be conducted during and after the completion of exercise; • Seek clarifications and concerns regarding the instructions given prior commencing the simulation exercise
Trainee's Action	<ul style="list-style-type: none"> • Manage safe and effective maintenance of the main propulsion • Monitor the adherence to safe working practices of any particular engine room maintenance or repair activity in accordance with legislative requirements, codes of practice, permit to work, and environmental concerns.
Debriefing	<p>Start the debriefing by stating the purpose of the debriefing and encourage peer review and discussions then:</p> <ul style="list-style-type: none"> • ask the trainees how they went about the exercise and what challenges they encountered; • state whether the intended learning outcomes were achieved;

	<ul style="list-style-type: none"> • provide the result of the evaluation using the checklist provided based on the criteria for assessing the competence; • discuss the positive accomplishment as well as the points for improvements, if any; and • always be diplomatic in any objection of the trainee and take note of the comment regarding the exercise.
Monitoring Checklist	
<i>Trainees should be required to repeat the execution if any of the performance criteria is not done or not acceptable</i>	

PERFORMANCE CRITERIA	DONE	NOT DONE	OBSERVATIONS/ COMMENTS
1. Identified appropriate tools, spare parts, equipment and PPE for the activities are identified and prepared <ul style="list-style-type: none"> - Implementation of safety procedures is satisfactory. - Selection, and use of equipment is appropriate - Selection of procedures for the conduct of repair and maintenance is in accordance with manuals and good practice. 			
2. Conduct tool box meeting <ul style="list-style-type: none"> - Lead the meeting - Discuss forthcoming task among the teammates - Answer clarifications from teammates - Discuss the necessary communication with the bridge and/or company 			
3. Monitor and supervise the overhauling - Liners, piston and piston ring <ul style="list-style-type: none"> - Lead the assessment of the performance of the cargo pump in accordance with the procedure manual, and safety procedures - Supervise the testing after the rectification or communicate with the company or maker if in the assessment of the C/E, the cargo pump cannot be rectified with the available manual and resources. 			
4. Request the C/O for post operation watchkeeping			

<ul style="list-style-type: none"> - Evaluate the implementation of safety procedures after the rectification/repair of the equipment. Ask C/O for post operation Watchkeeping. 			
<p>5. Report the progress report to the Master</p> <ul style="list-style-type: none"> - Assess and report the progress to the Master regarding the assessment of the performance of the rectified/repared equipment in accordance with the manual, and safety procedures. 			
<p>6. Record the activity in the engine room logbook</p>			

Date

Trainee's Name & Signature

Instructor's Name & Signature

Note: This sample practical Exercise Sheet was used during the conduct of pilot testing, MTI may enhance this taking into account the Resources they have.

PISTON RING No.	Piston Ring Width			BUTT "d" CLEARANCE	RING "e" HEIGHT	Piston ring / Groove Clearance
	"a"	"b"	"c"			
1	7.65	7.7	7.7	18.8	6.75	0.10

