TROUBLESHOOTING SCENARIOS	
F0RM NO	CRO004. Rev. 2
SCENARIO NAME	Main Engine Slowdown – Exhaust Valve No. 5 burned out
SYSTEM NAME	Main Engine
Max Time	(First step to stop the engine 30 sec). Total scenario 15 minutes
SYSTEM DESCRIPTION	Main Engine onboard simulated ship is a crosshead engine of two-stroke type. The engine is equipped with scavenging ports and exhaust valve. Exhaust valve opens at the end of combustion/expansion process and creates uniflow scavenging system within engine cylinder. Exhaust valve is operated hydraulically either by mechanical or electrical activation. In this particular simulator it is assumed that exhaust valve is operated mechanically. Exhaust valve is submitted to high mechanical and thermal overstresses and therefore is subject to potential failures. One of the potential failures is exhaust valve burning. That might happen due to various reasons, mainly due to poor combustion process, fuel quality and/or material quality.
Describe the problem	During engine running exhaust valve burning happened due to poor material quality. Temperature of exhaust gas temperature rises and exhaust gas temperature deviation occurs. The engine has to be stopped and exhaust valve with complete casing need to be exchanged with spare one.
Preparation	• Check availability of spare valve • Check safety measure
SCENARIO ALGORITHM	Scenario chronology: 1. Heavy Alarm sound and Signal light column for machinery alarm is illuminated 2. Message on ECR computer panel will appear: “ME CYL 5. EXHAUST GAS TEMP. HIGH” in red letters 3. Local Temperature gauge at Cylinder No. 5 show 400˚C 4. Student will have to press ACKNOWLEDGE BUTTON in ECR computer panel 5. The alarm horn will SILENT and light on signal column will go OFF 6. The letters on message on ECR computer panel “ME CYL 5. EXHAUST GAS TEMP. HIGH” will change color to yellow 7. Student will physically have to operate telegraph lever/push button in ECR to stop the main engine as soon as possible. 8. Switch off ME LO Pump in ECR at main SWBD by pressing STOP button 9. Switch off ME FO Pump in ECR at main SWBD by pressing STOP button 10. Loose and remove nuts at exhaust valve casing 11. Remove exhaust valve casing 12. Install spare exhaust valve and casing 13. Install and tight nuts at exhaust valve casing

	14. Start ME LO Pump in ECR at main SWBD by pressing GREEN START button 15. Start ME FO Pump in ECR at main SWBD by pressing GREEN START button 16. Start ME by operate telegraph lever/push button in ECR to the main engine 17. Temperature gauge at each Cylinder Temperature Gauge is 360˚C FINISHED SCENARIO
QUESTIONS	1. What is cylinder exhaust gas temperature? 2. What can happen as a consequence of high exhaust gas temperature? 3. What was exact alarm message? 4. What is procedure to repair damaged valves?
LEARNING OUTCOME	To respond to repair engine after breakdown To ensure to monitor cylinder exhaust gas temperature To ensure understanding of main engine slowdown