

TROUBLESHOOTING SCENARIOS	
FORM NO	<i>BUL006. Rev. 2</i>
SCENARIO NAME	<i>„BLACKOUT” in the STEERING GEAR</i>
SYSTEM NAME	<i>STEERING GEAR</i>
Max Time	10 min
SYSTEM DESCRIPTION	The STEERING GEAR SYSTEM is used to steer the ship during its movement to maintain a straight course, to make turns and when maneuvering to enter or leave a port, as well as for maneuvers when berthing to a quay and unberthing from a quay wall. The system consists of two working cylinders with pistons that drive the rudder lever to deviate it at a certain angle from the central line to maintain a straight course of the ship or make turns to change the course. Two hydropumps, driven by two electric motors create pressure in the working cylinders in the Steering Gear. When the ship sails in the open sea, only one hydraulic pump works and creates the necessary pressure in the working cylinders.
DESCRIBE THE PROBLEM	<i>Lack of electrical power – “BLACKOUT”</i> If the electrical power supply is interrupted the Steering Gear stops working. On the Control Panel in the Navigation Bridge appears alarm message: “Steering Gear failure” and “BLACKOUT”.
PREPARATION	• Check emergency instructions. • Check safety measures.
SCENARIO ALGORITHM	Scenario chronology:

	1. Heavy Alarm sound and Signal light column for machinery alarm is illuminated. Message on the Control panel in the Navigation Bridge will appear: "Steering Gear failure" and "BLACKOUT". 2. Student Press "Acknowledge" button on the keyboard. 3. Student waits for starting Emergency Generator (EmGS). 4. In case you cannot control the steering with above procedures – Student proceeds to the Steering Gear Room. (It takes a few minutes you to go down). 5. Student have to check electric power supply of HYDROPUMP Port side (HP-Ps) and HYDROPUMP Starboard side (HP-Stbs). 6. Student have to Check fuse of the electric power supply in the pumps control panels. 7. Student Starts procedures to steer by Emergency Steering Handle: 8. Student have to be sure that at least one Hydropump is running; 9. In case the control unit power is "ON" (if the student forget to turn "OFF" the control stand switch), turn "OFF" the switch inside the control unit switch board; 10. Student starts to Steer by lever movement. FINISHED SCENARIO.
QUESTIONS	1. What is the purpose of the STEERING GEAR SYSTEM? 2. What is power supply sources for the steering gear pumps? 3. How to start steering gear pumps locally? 4. How to swap command from bridge to steering gear room? 5. What was exact alarm message?
LEARNING OUTCOME	To learn the construction and the principle of operation of the Steering Gear. To understand power supply for Steering Gear. To understand remote and local steering. To respond steering gear operation during black out. To understand communication with bridge for local steering. To know and understand alarm messages.