TROUBLESHOOTING SCENARIOS

F0RM NO	***GRE001.*** *(Scenario 16)*
SCENARIO NAME	**Overloading Of The Main Electrical Generator**
SYSTEM NAME	Electrical Generators System-**EGS**
Max Time	4 min
SYSTEM DESCRIPTION	**Purpose of EGS system:** The system has been manufactured for the appropriate production and supply of the whole necessary electrical energy in a ship. It consists of at least two main generators driven by independent auxiliary diesel engines (generators set) located in electrical room. Generally, only the first generator operates and serves the electrical loads, but when multiple electromechanical machines are required to operate simultaneously, there might be an overload. In this case, a second generator must be in line to supply part of the electrical loads. The two generators must be synchronized, meaning they must operate at the same electrical parameters (e.g. voltage and frequency). To achieve this similarity, many electrical meters and controllers are placed on the generator panels and participate in the synchronization process.
Describe the problem	The current in the bus bar is greater than the rated current of the Main Generator (manufacturer's limit 1100 A).
ALARM TYPE As a result of the problem mentioned above, alarms to triggered	When we have overload at main generator < 1100 A, activated following alarms and changes will be triggered: • You will hear heavy sound in E℘R • Signal light column for machinery alarm is illuminated • On E℘R computer panel will appear the message: "OVERLOAD GENERATOR 1" with red letters • On GSP at Generator's 1 ammeter will show 1100 A
SCENARIO CHRONOLOGY	1. Alarm sound and Signal light column for machinery alarm is illuminated 2. Message on E℘R computer panel will appear: "ALARM:19 OVERLOAD GENERATOR 1-1100 A" with red letters 3. Generator's 1 Ammeter at GSP will show 1100 A 4. Press ACKNOWLEDGE BUTTON in E℘R computer panel 5. The alarm horn will SILENT and light on signal column will go OFF 6. The letters on message on E℘R computer panel: "OVERLOAD GENERATOR 1-1100 A"will change color to black letters 7. We have to go physically from E℘R in front of GSP generators syncronization panelboard. 8. Select MANUAL mode 9. Check that G1 is running on load. The G2 needs to be started and synchronized with G1. 10. Press the "Start" Button of G2. 11. Check to see the values of V1, V2 & F1, F2. 12. If F1 and F2 values are different, manually raise (by pushing increase speed button) or lower (by pushing decrease speed button) the GM2 until they are equal. 13. Switch on the SY selector to No2. 14. If the needle of the SY rotates in the "clockwise" direction the speed of GM2 should be decreased by pushing decrease speed button of GM2. 15. If the needle of the SY rotates in the "anti-clockwise" direction the speed of GM2 should be increased by pushing increase speed button of GM2. 16. Watch the SY (Normal rotation - clockwise)

	17. Push the ACB2/On Button at 12 o'clock. 18. Select position OFF at the synchronizing selector, immediately after the ACB2 closes which means that green light indicator turns on. 19. FINISHED SCENARIO
QUESTIONS	➢ What was exact alarm message? ➢ What is load of Generator 1? ➢ What is G2's frequency? ➢ What is rotation of synchronoscope (clockwise or anticlockwise)?
OUTCOMES	▪ To achieve synchronizing two generators ▪ To understand thw usefullness of synchronoscope ▪ To understand the purpose of governor generator