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| Departemen_Perhubungan.wmf | FORM SKENARIO LABORATORIUM/SIMULATOR/ WORKSHOP | Nomor Dokumen : FM.USW.01.02a |
| Tgl. Ditetapkan : 02 November 2015 |
| Revisi No : 02 |
| Tgl. Diberlakukan : 09 Januari 2017 |
| Made By : | Reviewer : |
| PIP SEMARANG | AMAD NARTO, M.Pd., M.Mar.E | ADI OKTAVIANTO, S.T, M.M |
|  | Mengetahui |
|  | Kanit Laboratorium, Simulator & Workshop | Kepala Bagian Adminitrasi Akademik &Ketarunaan |
|  |  |  |
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| Type Facilities :* Laboratorium
* Simulator
* Other
 | Name Laboratorium/ Simulator/ Other :METI |

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| **Criteria on STCW Code** | Operation are planned and carried out in accordance with operating manuals, establish rules and engineering systems consistently meets requirements, including bridge orders realting to changes in speed and direction |
| **Function & Level** | Marine Engineering at The Operational Level (ATT : III)\* |
| **Program** | **Preparation, Starting And Synchonizing Over Turbo Generator** |
| **Referensi STCW** |  STCW code table AIII/1 page 89 |
| **aim of Exercise** |  |
| **Objective** | Upon completion of this training the student should be able to:1. Respond to CE according changes of ship speed (RPM)
2. Open the guidance booklets
3. Identify appropriate list
4. Prepare TG prior to starting
5. Start TG properly
6. Put TG to correct RPM, Voltage and Frequency
7. Set TG in parallel operation
8. Safely report to CE
 |
| **Initial condition** | 1. Ship just in Navigation Full
2. No.1 & 2 DG in running parallel
3. Auxiliary boiler auto condition
4. Saturated and Superheated steam pressure produce by Exhaust. Gas Economiser
5. All steam valve to TG are close
6. Electric demand is 50% from available
 |
| **Briefing** | 5 minutes |
| **Exercise Duration** | 30 minutes |
| **Debriefing** | 5 minutes |

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| **MEASURABLE CRITERIA** : Student action to be measured: | : |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Time frame (minutes)** | **Student action** | **Check** | **Mark** | **Actual time** | **Remark** |
| Y | N |  |  |  |
| 1 | 2 | Respond to CE order to star-up and put on parallel of T/G |  |  |  |  |  |
| 2 | 1 | Open the operating manuals |  |  |  |  |  |
| 3 | **10** | Preparing prior to start T/G1. Go to Turbo Generator
2. Aux. condenser circulation water valve : OPEN
3. S.W to vacuum pump valve : OPEN and Start (ON)
4. Cooling system F.W to T/G LO Cooler : OPEN
5. Aux. condenser circulation water pump : STAR
6. LO system valve : OPEN
7. Fill L.O T/G sump tank until 50-80%. (From L.O Storage)
8. Steam line from boiler stop valve : OPEN
9. Gland steam valve : Open, set pressure to 1-20 kPa
10. Vacuum pump START Confirm Aux Condenser vacuum:  **–**92 % until **–**95 %
11. F.W line from hot well to Atmos Drain Tank : OPEN Condensate pump : START
12. Drain vv for Emergency. Shut off valve from steam separator to drain blow : OPEN;

Drain vv: CLOSE1. T/G priming LO pump : START

Turning bar : OFF; Turning bar of TG 2 minutesTurning bar : SET ON |  |  |  |  |  |
| 4 | **15** | Starting of Turbo Generator |  |  |  |  |  |
|  |  | 1. T/G control panel : Source : PREES
2. Trip reset : PRESS
3. Emergency. Shut off valve : OPEN (slowly)
4. T/G running **400**min -1 for 10 minutes, to reach **1800** min -1 (confirm)
5. T/G Lamp : Flicker
6. T/G rev. : App 1800 min. -1
7. T/G voltage : App 450 Volt
8. T/G frequency : App 60 Hz
9. T/G synchronize
10. Adjust synchroscope pointer turning slowly to clockwise direction by controlling remote governor
11. Close ACB of incoming TG when synchroscope pointer is pointing upward (nearly 12 o’clock direction)
12. Put synchrounous selector to off position
13. Share generator load evenly
14. Reduce KW of Generator Parallel
15. Check Load all manchinery
16. Check steam pressure Aux Boiler in Drum Press 0.9 MPa
 |  |  |  |  |  |
| 5 | 2 | Safely report to CE that the T/G is running parallel with other generator |  |  |  |  |  |
|  | **30** |  |  |  |  |  |  |

\*Critical performance below must get record **“Yes”** mark will lead the final result to mark **FAIL**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Critical Performance** | **Y** | **N** |
| 1 | Vacuum Condensor  **–**92 %  until **–**95 %   |  |  |
| 2 | Adjusting Turbo Generator 1800 Min-1until 2000 Min-1 before Parallel |  |  |
| 3 | Preming LO Turbo Generator system |  |  |
| 4 | Start Condensor system pump  |  |  |

**Time factor**

|  |  |  |  |
| --- | --- | --- | --- |
| <30 minutes = 1 | 31 – 40 minutes = 0.9 | 41 – 50 minutes = 0.8 | >50 minutes = 0.5 |

**Total Time : ………………minutes Time Factor : …………….**

**Total Score : Total Mark X Total Factor = …………… x ……………. = …………….**

**Final Result : PASS / FAIL ( Passing Grade = 70 )**