

LEMBAR KERJA
PENGOPERASIAN SIMULASI PEMBANGKIT LISTRIK TENAGA GAS



Proses	Penanggung Jawab		Tanda tangan
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PROGRAM STUDI PEMBANGKIT TENAGA LISTRIK
JURUSAN TEKNIK MESIN
POLITEKNIK NEGERI JAKARTA


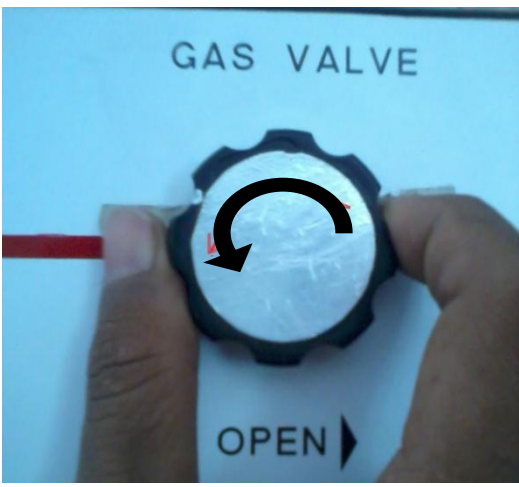
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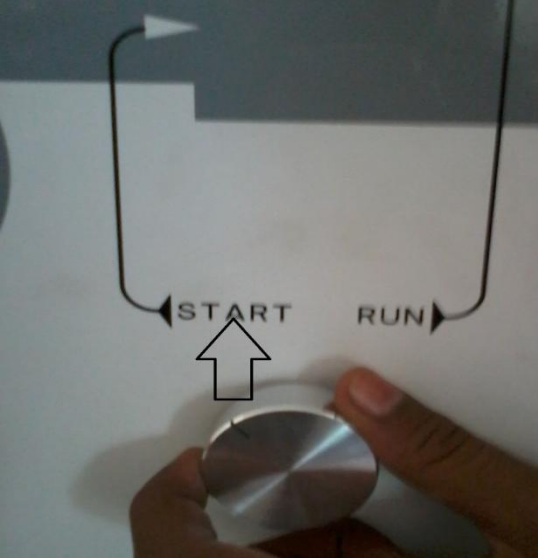




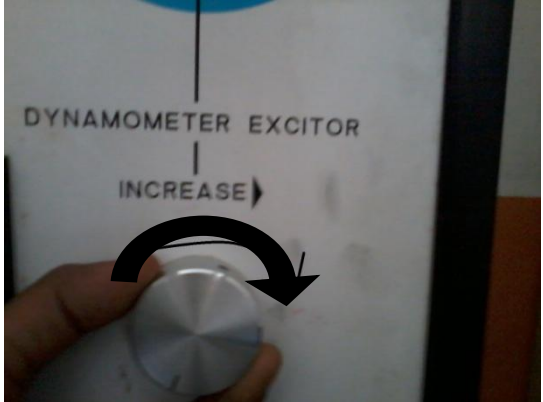
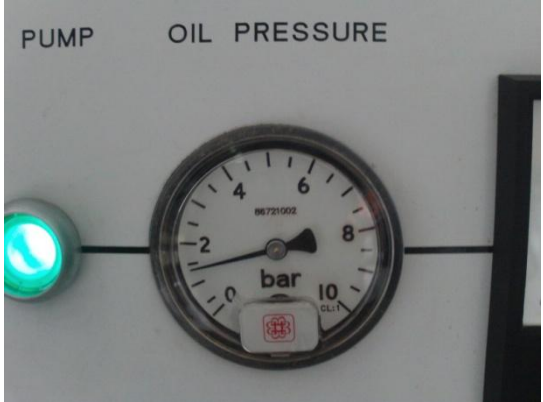
SAFETY REQUIREMENT

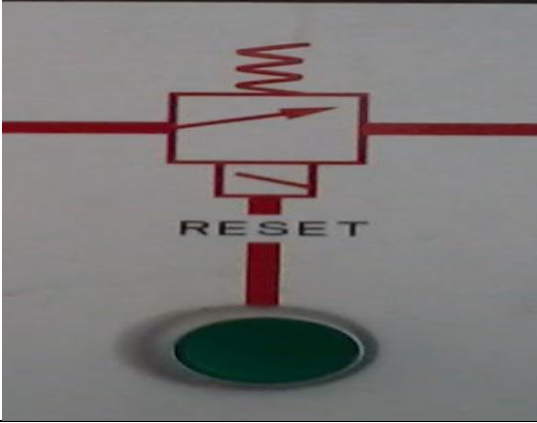
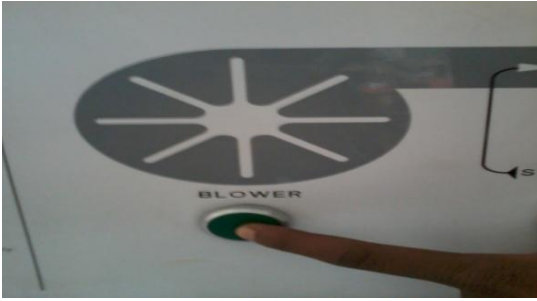
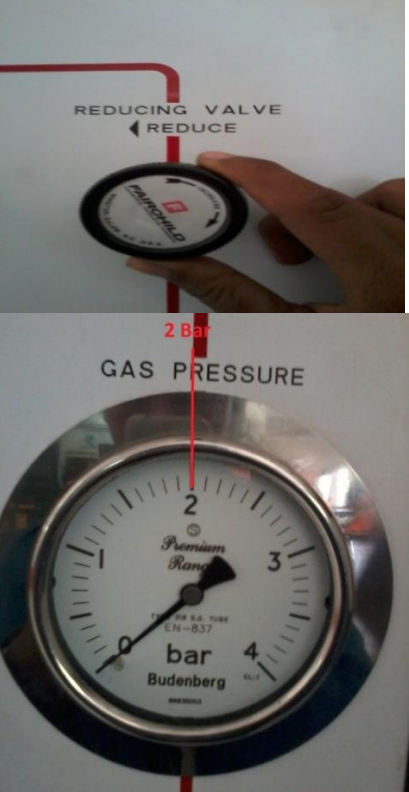
PERSONAL SAFETY REQUIREMENT	
EAR PLUG	SAFETY SHOES
	



STANDARD OPERASIONAL PROCEDURE

Step	Activity	Figures
1. Starting	<p>1. Connect the cooling water supply and drain</p> <p><i>Sambungkan penyuplai air pendingin dan pengeluaran</i></p>	 <p>The top photograph shows a person's hands connecting a red hose to a green hose. The bottom photograph shows a person's hands connecting a yellow hose to a black drain pipe in a tiled floor.</p>
	<p>2. Close the gas valve on the front panel</p> <p><i>Tutupkatup gas pada panel depan</i></p>	 <p>The photograph shows a hand turning a black gas valve knob clockwise. The knob is labeled 'GAS VALVE' at the top and 'OPEN' with a right-pointing arrow at the bottom. A black curved arrow indicates the clockwise direction of rotation.</p>

	<p>3. Connect the electrical supply</p> <p><i>Sambungkan dengan sumber listrik</i></p>	
	<p>4. Set the air inlet control to the start position</p> <p><i>Atur control udara masuk pada posisi mulai</i></p>	
	<p>5. Connect the gas bottle</p> <p><i>Sambungkan ke tabung gas</i></p>	

	<p>6. Open the gas bottle valve</p> <p><i>Buka katup tabung gas</i></p>	
	<p>7. Set the dynamometer excitation to maximum</p> <p><i>Atur penguat beban dynamometer sampai posisi maksimum</i></p>	
	<p>8. Start the oil pump and wait for the oil pressure to reach 1.5 bar (150 kPa)</p> <p><i>Nyalakan pompa pelumas dan tunggu sampai tekanan pelumas mencapai 1.5 bar (150 kPa)</i></p>	

	<p>9. Press the reset button</p> <p><i>Tekan tombol reset</i></p>	
	<p>10. Start the blower</p> <p><i>Nyalakan blower</i></p>	
	<p>11. Set the gas pressure to 2.0 bar (200 kPa) with the reducing valve</p> <p><i>Atur tekanan gas sampai 2.0 bar (200 kPa) dengan membuka katup</i></p>	

	<p>12. Press and hold the ignition button whilst opening the gas valve to give a gas flow of 0.5 g/sec</p> <p><i>Tekan dan tahan tombol ignition sambil membuka katup gas untuk memberikan aliran gas sebesar 0.5 g/sec</i></p>	
	<p>13. If ignition does not occur (as shown by an increase in T_3) within 5 seconds of the gas flow commencing. Then close the gas valve and allow unburnt gas to clear the system before repeating the start procedure from step 11</p> <p><i>Jika penyulutan tidak terjadi (seperti yang terlihat pada kenaikan T_3) selama 5 detik, lepas tombol ignition. Kemudian tutup katup gas dan biarkan gas yang keluar untuk membersihkan system sebelum mengulangi langkah dari langkah 11</i></p>	
	<p>14. Once ignition has occurred, release the ignition button</p> <p><i>Ketika penyulutan terjadi, lepas tombol ignition</i></p>	

15. Slowly open the gas valve until the gas generator speed is 1000 rev/sec.

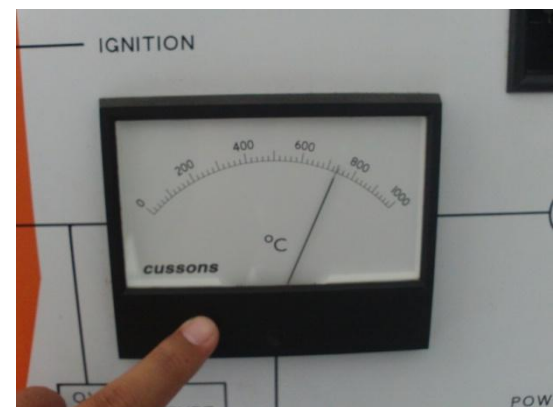
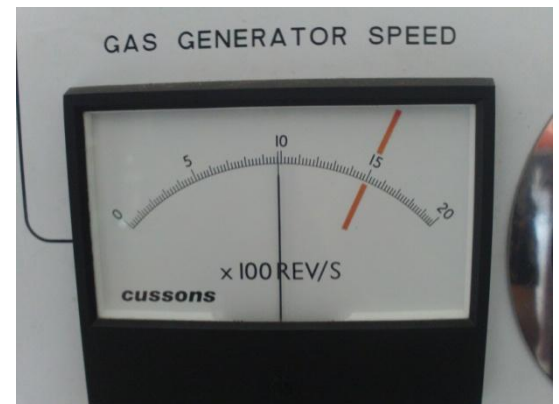
Perlahan buka katup gas sampai kecepatan generator gas 1000 rev/sec


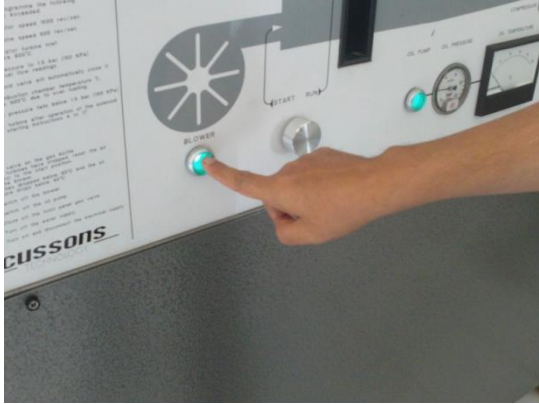
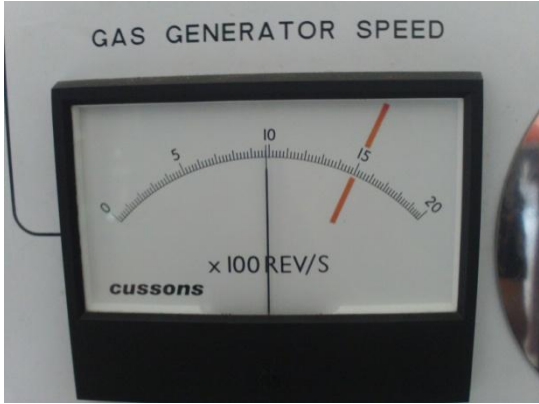
Taking care to keep the combustion chamber temperature below 850 °C.

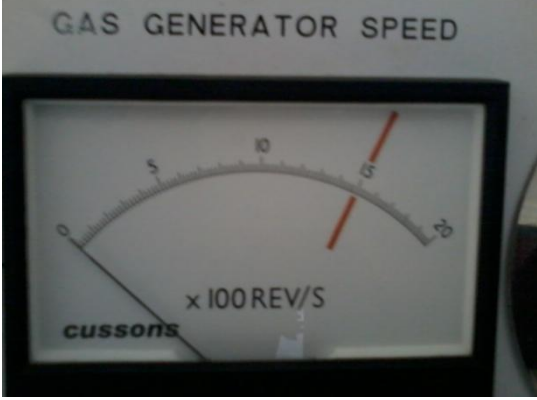

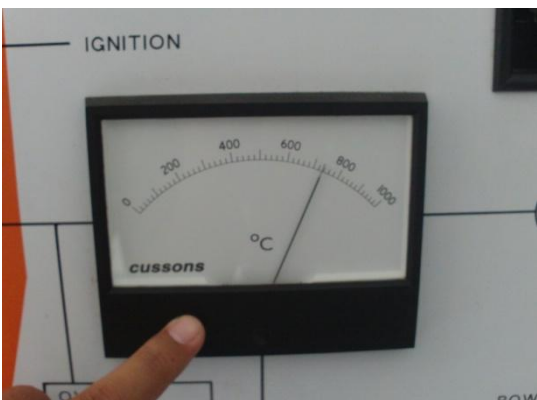
Jaga temperature ruangbakar dibawah 850°C.


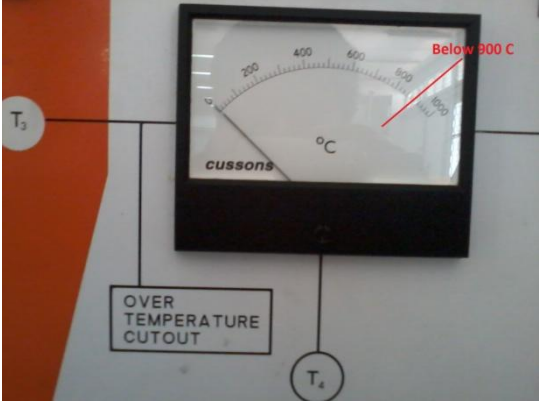
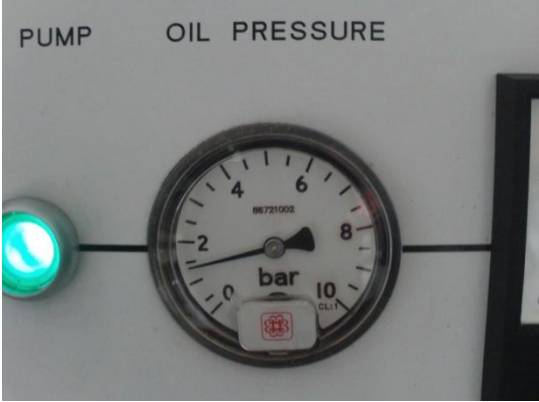
This may take several minutes depending on oil temperature.

Dan ini mungkin terjadi beberapa menit tergantung dari temperature pelumas.



	<p>Turn the air inlet control to the run position</p> <p><i>Atur control udara masuk pada posisi berjalan.</i></p>	
	<p>16. Switch off the blower</p> <p><i>Matikan blower</i></p>	
	<p>17. Allow the gas generator to stabilize at 1000 rev/sec</p> <p><i>Biarkan generator gas stabil pada posisi 1000 rev/detik</i></p>	

<p>2. Operating Limitation</p>	<p>1. During the test programme the following limits must not be exceeded.</p> <p><i>Selama program berjalan limit tidak boleh lebih dari :</i></p> <ul style="list-style-type: none"> Gas generator speed 1500 rev/sec <p><i>Kecepatan gas generator 1500 rev/sec</i></p> <ul style="list-style-type: none"> Power turbine speed 600 rev/sec <p><i>Kecepatan power turbin 600 rev/sec</i></p> <ul style="list-style-type: none"> Gas generator turbine inlet temperature 800°C <p><i>Temperature masuk turbin gas generator 800°C</i></p>	 <p>GAS GENERATOR SPEED</p> <p>0 5 10 15 20</p> <p>x 100 REV/S</p> <p>CUSSONS</p>  <p>POWER TURBINE SPEED DYI</p> <p>0 2 4 6 8</p> <p>x 100 rev/s</p> <p>CUSSONS</p>  <p>IGNITION</p> <p>0 200 400 600 800 1000</p> <p>°C</p> <p>CUSSONS</p> <p>POW</p>
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	<p>2. Set the gas pressure to 1.5 bar (150 kpa) before taking fuel flow readings</p> <p><i>Atur tekanan gas sampai 1.5 bar (150 kPa) sebelum mengambil data aliran bahan bakar</i></p>	
	<p>3. The fuel solenoid valve will automatically close if :</p> <p><i>Katup solenoid bahan bakar akan otomatis tertutup jika :</i></p> <ul style="list-style-type: none"> • The combustion chamber temperature T_3 exceeds 900°C due to over fuelling <p><i>Temperature ruang bakar T_3 melebihi 900°C karena bahan bakar berlebih</i></p> <ul style="list-style-type: none"> • The oil pressure falls below 1.5 bar (150 kPa) <p><i>Tekanan pelumas dibawah 1.5 bar (150 kPa)</i></p>	 
	<p>4. To start the turbine after operation of the solenoid valve follow starting instructions 4 to 17</p> <p><i>Untuk memulai kerja turbin setelah katup solenoid beroperasi mulailah petunjuk 4 sampai 17</i></p>	

