



# PHARMA DEVILS

## ENGINEERING DEPARTMENT

### STANDARD OPERATING PROCEDURE

**Department:** Engineering

**SOP No.:**

**Title:** Operation of Diesel Generator

**Effective Date:**

**Supersedes:** Nil

**Review Date:**

**Issue Date:**

**Page No.:**

#### 1.0 REVISION HISTORY

Rev. No.	Details of changes	Reason for change
00	NIL	NEW SOP

#### 2.0 OBJECTIVE

The objective of this SOP is:

- 2.1 To describe the procedure for operation of Diesel Generator.
- 2.2 To monitor the performance of the Diesel Generator.

#### 3.0 SCOPE

- 3.1 This SOP is applicable for the operation of Diesel Generator at.....

#### 4.0 RESPONSIBILITY

- 4.1 The Plant Operator shall be responsible for:

- 4.1.1 The operation of Diesel Generator.
- 4.1.2 Monitoring the operation.
- 4.1.3 Reporting for abnormal behavior.

- 4.2 The Engineer shall be responsible for:

- 4.2.1 Corrective action in case of any deviation.
- 4.2.2 Verifying the performance parameters as per acceptance criteria



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#### 5.0 ACCOUNTABILITY

Head –Engineering Services

#### 6.0 PROCEDURE:

##### 6.1 PRIMARY CHECKS:

**6.1.1** Check the water level in the radiator and the fuel level in fuel storage tank of both Diesel Generator Sets.

**6.1.2** Ensure the level of lubricating oil level in DG Sets.

##### 6.2 STARTING PROCEDURE:

**6.2.1** Select the mode of operation (MANUAL).

##### 6.3 MANUAL MODE:

**6.3.1** In MANUAL mode press the engine START of any one of the DG Sets.

**6.3.2** Observe that the RPM of DG increases. Wait till the RPM reaches 1500.

**6.3.3** Now observe that DG Sets runs with out any load. In case the set does not start check and rectify.

**6.3.4** Check and ensure that the voltage is  $415 \pm 5$  volts and frequency is between 49 and 51 Hz.

**6.3.5** Check and ensure that the oil temperature and water outlet temperature are between  $80^{\circ}$  to  $105^{\circ}$  C and  $75^{\circ}$  to  $95^{\circ}$  C respectively.

**6.3.6** Press the ACB (Air Circuit Breaker) close breaker control switch.

**6.3.7** Ensure that ACB is “ON”.

**6.3.8** PRESS the START push button of other D.G Set.

**6.3.9** Now observe the DG Sets Run without load, if the set does not START. Check and rectify it, if required.

**6.3.10** Observe that the RPM of DG increases. Wait till the RPM reaches 1500.

**6.3.11** Check and ensure that the voltage is  $415 \pm 5$  volts and frequency is between 49 and 51 Hz.

**6.3.12** Check and ensure that the oil temperature and water outlet temperature are between  $80^{\circ}$  to  $105^{\circ}$  C and  $75^{\circ}$  to  $95^{\circ}$  C respectively.

**6.3.13** Now the generator set supply is ready for feeding the main panel.



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#### 6.4 STOPPING PROCEDURE:

##### 6.4.1 MANUAL MODE:

- 6.4.1.1 For stopping first disconnect load and allow both set to run in idle mode.
- 6.4.1.2 Press ACB trip push button of DG Sets.
- 6.4.1.3 Press engine STOP push button of DG sets.

#### 7.0 ANNEXURES:

Annexure-1 : Diesel Generator Performance Log Sheet.

#### 8.0 References (S)

NIL

#### 9.0 Glossary

SOP : Standard Operating procedure  
No : Number  
DG : Diesel Generator  
RPM : Revolution per Minute  
ACB : Air Circuit Breaker



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#### Annexure I

**NOTE:** Record the following parameters on hourly basis.

START TIME	STOP TIME	VOLTS	AMP.	HZ.	KW.	KWH METER	HOUR METER	OIL PRESSURE	WATER TEMP.	HSD		HSD CONSUMPTION	REMARKS	OPERATOR'S SIGNATURE
										INITIAL	FINAL			

NOTE: Ensure fuel level is just below in return line in service tank.

#### ACCEPTANCE CRITERIA:

Frequency	Power	Oil Pressure	Oil Pressure	Water Temp.	Maximum Level	Minimum Level	Unit Generation	Checked By: (Engineer)
50±2 % Hz	*NMT 1000 KW	NMT Kg/cm <sup>2</sup>	**NLT 2 Kg/cm <sup>2</sup>	NMT 90° C	1000 Liters	300 Liters		