

ENGINEERING DEPARTMENT

Title: Cleaning, Lubrication, Tightening and Inspection of Utility Equipment

SOP No.:	Revision No.:	00
Effective Date:	Supersedes No	o. Nil
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1.0 OBJECTIVE:

To lay down a Procedure for Cleaning, Lubrication, Tightening and Inspection of Machine in all Utility Area.

2.0 SCOPE:

This SOP is applicable for all utility equipment.

3.0 RESPONSIBILITY:

Officer / Executive - Engineering

4.0 ACCOUNTABILITY:

Head Engineering

5.0 ABBREVIATIONS:

CLTI Cleaning, Lubrication, Tightening, Inspection

QA Quality Assurance

SOP Standard Operating Procedure

L.T Low Tension
D.G Diesel Generator

Freq. Frequency Resp. Responsibility

6.0 PROCEDURE:

6.1 UTILITY EQUIPMENT:

- **6.1.1** Utility section shall be included following equipment/ machine.
 - Transformer
 - L.T panel
 - D.G set
 - Boiler
 - Compressor
 - Air Dryer
 - Nitrogen Plant
 - Material Lift
- **6.1.2** Transformer shall be checked for its all functionality as per **CLTI** Checklist **Annexure-I** before startup the operational activity.



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- **6.1.3** L.T panel shall be checked for its all functionality as per CLTI Checklist **Annexure-II** before startup the operational activity.
- **6.1.4** D.G set shall be checked for its all functionality as per **CLTI** Checklist **Annexure-III** before startup the operational activity.
- **6.1.5** Boiler shall be checked for its all functionality as per **CLTI** Checklist **Annexure-IV** before startup the operational activity.
- **6.1.6** Compressor shall be checked for its all functionality as per **CLTI** Checklist **Annexure-V** before startup the operational activity.
- **6.1.7** Air Dryers shall be checked for its all functionality as per **CLTI** Checklist **Annexure-VI** before startup the operational activity.
- **6.1.8** Nitrogen plant shall be checked for its all functionality as per **CLTI** Checklist **Annexure-VII** before startup the operational activity.
- **6.1.9** Material lift shall be checked for its functionality as per daily checklist (**Annexure-VIII**) with a frequency of once in a month. All the check point of material lift as mention in **Annexure –VIII** shall be checked by engineering team with safety department team.

7.0 ANNEXURES:

ANNEXURE No.	TITLE OF ANNEXURE	FORMAT No.
Annexure-I	CLTI Check List for Transformer	
Annexure-I	CLTI check list for L.T panel	
Annexure-III	CLTI check list for D.G set	
Annexure- IV	CLTI check list for Boiler	
Annexure- V	CLTI check list for Compressor	
Annexure- VI	CLTI check list for Air dryer	
Annexure- VII	CLTI check list for nitrogen plant	
Annexure- VIII	Daily Checklist for Material Lift	

ENCLOSURES: SOP training record

8.0 DISTRIBUTION:

• Controlled Copy No. 01 Quality Assurance

• Controlled Copy No. 02 Engineering

Master Copy
 Quality Assurance

9.0 REFERENCES:

Not Applicable



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10.0 REVISION HISTORY:

CHANGE HISTORY LOG

Revision No.	Change Control No.	Details of Changes	Reason for Change	Effective Date	Updated By



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ANNEXURE-I CLTI CHECK LIST FOR TRANSFORMER

Month:

S. No.	PART	WHAT	HOW		FREQ	RESP	1	2	3	4	5	9	7	8	6	10	11	12	13	14	15	16	17	10	61 65	2 2	22.	23	24	25	26	27	28	29	30
1	Leakages of the Transformer OIL	If found then check gasket	tight properly		w	О																													
2	Clean the area of Transformer	Check the cleaning			W	O																													
3	Loose nuts and bolts of the radiator and foundation	Check for looseness	required	ans J	W	O																													
4	Silica Gel	Check the condition s	Change if required		W	O																													
5	Earthing of Transformer	Check the value	<1.5 OHM		W	O																													
6	Winding Temperature of Transformer	Check the condition s		ans)	W	О																													



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7	Oil temperature of Transformer	Check the condition s	Check the RTD for the accuracy	935 S	W	О											
8	Conservator Tank	Check the condition s	Top up the oil level of conservato r Tank	Jes Q	W	О											

Abbreviation :-	
О	Operator
Е	Engineer
D	Daily
W	Weekly

IF check point is not Available for your machine please write NA in check box..

√ for Ok

X for Not ok

Done By Sign & Date





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ANNEXURE-II CLTI CHECK LIST FOR L.T.PANEL

Month:

S.No.	CHECK POINT	WHAT	нош	FREQ	RESP	-	2	3	4 v	9	7	8	6	10	;	7 5	14	15	16	17	19	20	21	22	23	25	26	27	28	30	31
1	Indication	Check the condition	If damage, replace	D	О																										
2	Voltage of LT Panel	Check the Voltage	should not less than 415V AC	n	О																										
3	Ampere Meter	Check the Amp.	Checked in three phase	D	О																										
4	Cleaning of LT Panel	Check the Conditions	To be clean when plant will shut down or National Holiday	D	0																										
5	Nuts and Bolts	Check the Conditions	Tight them properly if required		О																										
6	Rubber Mat	Check the Conditions &position	it should be in front of LT Panel	D	О																										



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S.No.	CHECK POINT	WHAT	ном	FREQ	RESP	- 0	3	4 u	9	7	0 0	10	11	13	14	15	17	18	19	20	22	23	24	25	27		31
7	Cleaning of LT Panel surrounding	Check the Conditions	Clean if necessary	D	О																						

Abbreviation :-	
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Е	Engineer
D	Daily
W	Weekly

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ANNEXURE-III CLTI CHECK LIST FOR D.G. SET

Month:

S.No	CHECK POINT	WHAT	но	W	FREQ	RESP	-	2 %	4 1	7	7	x 0	10	1 5	13	14	15	17	18	19	21	22	23	25	26	27	29	30	31
1	Clean the DG	Check the Cleaning	To be clean	Sans Sans	D	О																							
2	Battery Voltage	Check the voltage	It should be more than 24 volts	San	D	О																							
3	Loose Nut and Bolts	Check the loose nut & bolts	Tight them properly if required	Sans S	D	0																							
4	HSD day tank	Check the level of the day tank	If low then fill with HSD	and and	D	О																							
5	Check the oil leakages	Check the leakages if occur	Then rectify the same	ANY.	D	О																							
6	Check the abnormal sound in the machine	Loose nut and bolts/ Motor foundations bolts if	Tight them properly if required	and and	D	O																							



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S.No	CHECK POINT	WHAT	нош	FREQ	RESP	1	2	ω <	٠	9	7	∞ <	9	11	12	7 7	15	16	10	19	20	21	27 6	24	25	27	28	29	31
7	Belt Condition of Turbo Motor	Damaged or worn out	Replace it	D D	0																								
8	Lub. Oil Level	Check the oil level of Engine	If found low then top up	D D	О																								
9	Abnormal sound in Engine	Check the engine properly	Repair or call the service engineer	D D	О																								
10	Leakages of Lub. Oil	Check the leakages	Replaced the gasket or seal if required	D D	О																								
11	Earthing of DG Sets	Check the condition	Check the value of earthing <1.5 OHM	D D	0																								

Abbreviation :-	
0	Operator
Е	Engineer
D	Daily
W	Weekly

Done By Sign & Date IF check point is not Available for your machine please write NA in check box..

✓ for Ok X for Not ok



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ANNEXURE-IV CLTI CHECK LIST FOR BOILER

Equ	ipment ID:																							M	ont	h:							
Sr. No	CHECK POINT	WHAT	ноч	W	FREQ	RESP	-	2	3	٦ ١	٧ ٧	٥ /	8	6	10	_ ;	13	14	15	16	18	19	20	2.1	22	23	24 25	26	27	28	29	30	31
1	Check the water of Boiler	Check the level	If Low then Top up	Sans Sans	D	o																											
2	Check the FO Day Tank	Check the level	If Low then Top up	Sans S	D	o																											
3	Clean the boiler	Check for cleaning	To be clean	AND T	D	0																											
4	Check the Diffuser Plate of the Burner	Check the conditions	To be clean if required	Sans.	w	0																											
5	Check the leakages of fuel	Check the leakages if	Then rectify the same if required	Sans S	D	o																											
6	Check the Pumps of water	Loose nut and bolts/ Motor foundations bolts if	Tight them properly if required	Sans Sans	D	0																											
7	Check the blower Damper	Check the conditions	Repair it if possible	AND T	D	o																											



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8	Check the photo sensor	Not working	if not, Repair or replace with spare	Sant J	D	O								
9	Check the nozzles of the boiler	Check the conditions	wash it properly or replaced with new one	San	D	0								
10	Check the electrode of boiler	Check the gap between the electrodes	Adjust it if required	Sant J	D	0								
11	Blow down of boiler	Check the conditions	then blow down it after 8 hours	Sans Sans	D	0								
12	Check the PPP Pumps	Check the running condition	if not ok then rectify the same	ans.	D	0								
13	Check the leakages of steam	Check the conditions	stop it if required	Sun		0								
14	Pressure of Boiler	Check the conditions	It should not be less than 7.0 Kg/cm ²	A STATE OF THE PARTY OF THE PAR		0								
15	Temperature of steam	Check the conditions	It should not be less than 175 Degree C	ans.	D	0								

Abbreviation :-

IF check point is not Available for your machine please write NA in check box..

for Ok

X for Not ok





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О	Operator
E	Engineer
D	Daily
W	Weekly

Done By Sign & Date



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ANNEXURE-V CLTI CHECK LIST FOR COMPRESSOR

Eq	uipment id:																	N	Ion	th:													
S. No	CHECK POINT	WHAT	ном	V	Freq.	Res p.	_	2	α	4	5	9 1	,	0 0	10	11	12	13	14	15	17	18	19	20	21	22.	24	25	26	27	% 20	30	31
1	Check the V- belts of the main motor	Check the condition	If damage, replace	AND TO	D	О																											
2	Clean the machine	Check for cleaning	To be clean	AND THE PROPERTY OF THE PROPER	D	О																											
3	Check the Air leakages from the machine	Check the leakages	To be arrested	and a	D	О																											
4	Check the oil leakages in the machine	Check the leakages	Then rectify the same	ans J	D	0																											
5	Check the abnormal sound in the machine	Loose nut and bolts/ Motor foundations bolts	Tight them properly if required	San	D	О																											
6	Pressure transmitter	They should function properly	If not, repair or replace	ANN TO	D	О																											
7	Belt tension	Check for loosing	Adjust belt tension	Sant J	W	О																											



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8	Oil Level	Check the oil level of Air compressor	If found low then top as per requirement	Salar	D	О										
9	Motor	Abnormal noise level	Adjust bearing / Replace if required	Sept.	W W	0										
10	Check the suction filters of the machine	Check the conditions	If required then clean	925	w	0										

Abbreviation :-	
0	Operator
Е	Engineer
D	Daily
W	Weekly

IF check point is not Available for your machine please write NA in check box..

✓ for Ok

X for Not ok

Done By Sign & Date



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ANNEXURE-VI CLTI CHECK LIST FOR AIR DRYER

S.No.	CHECK POINT	WHAT	НО	W	FREQ	RESP	1	2 ′	7 -	† ~	9	7	∞ ⊂	10	11	12	4	15	17	18	19	20	22	23	24	25	27	28	29	30 31
1	Supply of the Machine	Check the conditions	If not ok then connect it	MALY.	D	O																								
2	Dew point of Air Dryer	Check the conditions	It should be in between 3-7°C.	ans)	D	О																								
3	Clean the Air dryer	Check the cleaning	To be clean if required	Sars.	D	О																								
4	Temperature Indicator	Functional properly	otherwise replaced with new one	ans)	D	О																								

Abbreviation :-	
O	Operator
E	Engineer
D	Daily
W	Weekly

IF check point is not Available for your machine please write NA in check box..

✓ for Ok

X for Not ok

Done By Sign & Date



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ANNEXURE-VII CLTI CHECK LIST FOR NITROGEN PLANT

S.No.	CHECK POINT	WHAT	ном		FREQ	RESP	1	3	4	5	9	7	8	10	1	13	14	15	16	18	19	20	21	77	24	25	26	27	28	20	31
1	Cleaning of machine	Cleaning	with wet/dry cloths	E .	D	О																									
2	Leakages	check all joints for leakages	repair or replace	6 2 3 3 3 3 3 3 3 3 3 3	D	O																									
3	Pressure Gauge	check pressure gauge for any damage	repair or replace		D	0																									
4	Electrical panel	Check for loose connection	Tight it properly	S. S.	D	O																									
5	PPM	Check 0.2 PPM	NMT 0.2 micron	() E	D	O																									
6	PSA Tower pressure	check for pressure gauge	Check drain Valve	6 2 3 3 3 3 3 3 3 3 3 3	D	О																									
7	Filter	Cleaning	Check indicator for cleaning		D	О																									



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S.No.	CHECK POINT	WHAT	ном	F	REQ	RESP	1	2 0	ω 4	5	9	8	9	11	13	14	15	17	90	2.0	22	23	24	26	27	87	30	31
8	Outlet pressure	Check Outlet Valve	Pressure	ins J	D	O																						

Abbreviation :-	
O	Operator
Е	Engineer
D	Daily
W	Weekly

✓ for Ok

X for Not ok

Done By Sign & Date



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ANNEXURE-VIII CHECKLIST OF MATERIAL LIFT

Equipment ID: Frequency: Monthly Done Date: Next Due Date:

S.No.	Description / Check Points	Obse	ervation	Remarks
S.NO.		OK	Not OK	
1.	Drum Pulley			
a)	Check condition of grooves			
b)	Check rotation and condition of bearings			
c)	Check rope wire guide			
d)	There should not be any grease in the grooves of drum pulley			
2.	Wire Rope			
a)	Check condition of wire rope			
b)	Check condition of D-Shuckle of sling joint			
c)	There should not be any grease on wire rope.			
d)	Check tightness of wire rope with cage.			
3.	Base Frame with gear drive			
a)	Check fitment of base frame with steel- structure.			
b)	Check alignment of base frame with cage			
c)	Check condition of gear drive			
d)	Check and ensure that there is no vibration and abnormal sound.			
	On/OFF Limit switch mounted on drum pulley			
4.	for guide of wire rope			
a)	Check linear motion of guide on drum pulley			
b)	Check condition and function of On/Off limit switch.			
c)	Check and ensure that electrical cable for limit switch is not hanging.			
5.	Lift Cage			
a)	Check the condition of lift cage.			
b)	Check the fitment of lift cage on T-rail.			
c)	Check the correct upward & downward motion of lift cage on T-rail.			



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S.No.	Description / Check Points	Obse	ervation	Remarks
5.110.		OK	Not OK	
d)	Check the condition of collapsible gate of lift cage.			
e)	Check interworking of collapsible gate with respect to opening and closing on each floor.			
6.	Ground floor operation			
a)	Check alignment of cage with respect to finish floor level & ensure that gap is adequate.			
b)	Check condition of collapsible door provided in lift cut-out.			
c)	Check condition of interlocking, lift cut-out collapsible gate should note open if attempted to open.			
7.	First floor operation			
a)	Check alignment of cage with respect to finish floor level & ensure that gap is adequate.			
b)	Check condition of collapsible door provided in lift cut-out.			
c)	Check condition of interlocking, lift cut-out collapsible gate should note open if attempted to open.			
8.	Second floor operation			
a)	Check alignment of cage with respect to finish floor level & ensure that gap is adequate.			
b)	Check condition of collapsible door provided in lift cut-out.			
c)	Check condition of interlocking, lift cut-out collapsible gate should note open if attempted to open.			
9.	Third floor operation			
a)	Check alignment of cage with respect to finish floor level & ensure that gap is adequate.			
b)	Check condition of collapsible door provided in lift cut-out.			
c)	Check condition of interlocking, lift cut-out collapsible gate should note open if attempted to open.			

Checked by (Engg): Sign& Date

Reviewed by (Safety): Sign & Date