



**DALMIA CEMENT (B) LIMITED – CEMENT PLANT  
ARIYALUR  
ELECTRICAL MANUAL**



Issue No:02	Rev. No: 00	Effective Date: 01.11.2019	ELEC/SOP/045
Issued By: M.R		Approved By: HOD - ELECTRICAL	
SOP for 3200 KW BHEL Motors Bearing Replacement			

**Scope** : Replacement of DE and NDE bearing of 3200 KW BHEL Motor.

**Responsibility** : Electrical Engineer

**Accountability** : Section Head

**PPE:**

1. Goggles
2. Asbestos hand Gloves
3. Cotton Gloves
4. Safety shoes
5. Safety helmet

**Tools:**

1. Hand Blower
2. Waste Cloth
3. Suitable spanner
4. Hammer
5. Shaft extension Arrangement.
6. Induction Heater.

**Hazards:**

Risk Associated  
Electrical Shock  
Minor body injury

Mitigating Measures  
Electrical Safety Gloves  
Safety shoes, gloves, helmet, goggles

**Training needs:**

1. Emergency preparedness



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**Procedure:**

1. Take the LOTO for the particular Motor as per ELEC/SOP/001.
2. Clean the Motor Bearing housing area with Hand Blower / Cloth.
3. Make necessary arrangement for extension of shaft in case of NDE bearing replacement.
4. Support the Motor Rotor on two no's 100 Ton Jack.
5. Removed the bearing housing and bearing grease cup bolts
6. Removed bearing housing it will come along with bearing outer race.
7. Clean the grease from the Shaft by cloth and remove the Inner race Slip Ring Chamber, Carbon Brushes & Holders with hand blower and cloth, while cleaning use PPEs like Nose mask, goggles and hand Gloves.
8. Check the Condition of Carbon Brushes, Measure the Length of Carbon Brushes.
9. Replace the Carbon Brushes, if worn out.
10. Check the Spring Tension of the Carbon Brush Holders properly.
11. Check the Condition of Insulators in all the Terminal Box and Slip Ring & Carbon Brush Holders.
12. Check the Insulation Resistance, Winding Resistance and Inductance of the Motor winding.  
After checking the Insulation resistances again discharge the motor terminals with discharge rod.
13. Close the all Motor Terminal box cover and box up with Silicon Paste to restrict the dust entry.
14. Check the oil level in the bearings. Top up if the level is less than the normal indicated level.  
For make up oil level, use proper instrument and avoid spillage of oil in the ground.
15. In case of any oil spillage while working, it is to be collected and returned store for recycling as per SOP / ELEC / 022.



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16. Clean the LPB and Check the Control Wiring Tightness, while cleaning use PPEs like Nose mask, goggles and hand Gloves.
17. Check the Motor and LPB Body earthing.
18. Check the Condition of LPB Actuators and Contacts.
19. Close the LPB Door Properly.
20. Clear the LOTO as per ELEC/SOP/002 and Check the Healthiness of the motor with CCR.
21. Take Trial if Possible and record all Check point in the concern Check list.

**Emergency / Emergency Shut OFF:**

1. If electrical shock injury or burn are there, give First aid and inform to the Safety department or Call Emergency number 3108/9865152222/9750963761.

**Records/Annexure:**

1. Refer LOTO permit.
2. JSA as enclosed below.



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**JOB SAFETY ANALYSIS :( JSA)**

Job Safety Analysis	Job: LT panel maintenance	Date:	Analysis by:	Reviewed by:
Title of employee doing job: Electrician	Supervisor: Section Engineer	Department: Electrical	Section:	Approved by:
Req'd/recommended PPE: Nose mask, Goggles, Electrical safety Gloves,Cotton Gloves,Safety shoes, Safety helmet				
Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job Procedure	What Could Go Wrong	Corrective Action
Put on PPE, Take Permit				
Cleaning of motor	Eye irritation,	Wear goggles	Damaged goggles/non standard goggles	Periodic replacement
	Respiration problem	Wear Nose mask	Damaged nose mask	Periodic replacement
	Body injury	Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job
Discharge the motor terminals by open the motor door, Check the tightness of Power and control terminals	Electrical shock	Use Electrical safety gloves	Damaged Gloves	Periodic replacement.
	Body injury	Use proper tools	Nonstandard /damaged tools	Training for tools handling/ Periodic replacement
		Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job
Check the motor carbon brushes,	Eye irritation,	Wear goggles	Damaged goggles/non standard goggles	Periodic replacement
Clean the motor cooler cooling Tubes	Respiration problem	Wear Nose mask	Damaged nose mask	Periodic replacement
	Body injury	Use proper tools	Nonstandard /damaged tools	Training for tools handling/ Periodic replacement
		Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't



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Check the motor Door earthing, close the door properly. Clear permit	Body Injury	Use proper tools  Wear safety helmet, safety shoes , hand gloves	Nonstandard /damaged tools  Tools and material may fall on human body	perform the job  Training for tools handling/ Periodic replacement  Without PPE don't perform the job
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