



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



Issue No. 01	Rev. No: 02	Effective Date: 20.09.2017	SOP/INST/045
Issued By: M.R		Approved By: HOD - INSTRUMENTATION	
SOP for Checking or Replacing of Secondary Crusher Tilt Switch			

Scope: Checking or Replacing Secondary Crusher Tilt switch.

Responsibility: Instrumentation technician.

Accountability: Instrumentation - Section Engineer.

PPE:

- Safety helmet
- Safety shoe
- Mask
- Goggles
- Hand gloves

Tools required:

- Multimeter
- Tester
- Screw Driver
- Torch Light / Hand lamp

Hazard Analysis:

Risks associated

Electrocution

Coating may fall

Mitigating Measures

Use Insulated hand glove

Clean the coating



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1. Procedure:

- 1.1 Use Proper PPE.
- 1.2 Carry all the necessary tools in a tool bag.
- 1.3 Ensure the signal interlocks and block the interlock if necessary.
- 1.4 Ensure the Crusher circuit is in stopped condition.
- 1.5 Check the terminal tightness inside controller.
- 1.6 Check and ensure coating free around the area of tilt switch.
- 1.7 Take the lengthy rod and tilt the switch about 30 Deg. through inspection door from the top.
- 1.8 Check the relay contact change over from controller.
- 1.9 Check and ensure the signal state change in DCS screen also.
- 1.10 Straighten the tilt switch and ensure the relay normal position in controller.
- 1.11 Ensure the signal state change to normal state in DCS screen.

2. Replacing the Tilt Switch/Controller:

- 2.1 If Tilt switch not works then take LOTO for 211BC1, 211CR2A & 2B.
- 2.2 Put the confined space permit for secondary crusher chute entry.
- 2.3 Start the drive & ensure not running.
- 2.4 Press the emergency stop for both Crusher drives and Belt conveyor at LPB.
- 2.5 Enter through inspection door after removing the door.
- 2.6 Check whether the coating is near the switch or not by using torch light.
- 2.7 Remove the faulty switch and fix new or spare switch.
- 2.8 Lay the cable of switch through the conduit.



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2.9 Connect the cable controller side.

2.10 Tilt the switch about 30 Deg. And ensure the relay change over as well as signal state change in DCS.

2.11 If Controller faulty, remove the control supply and controller.

2.12 Change the controller with spare or new one.

2.13 Then check and ensure the operation by repeating the procedure from 1.7 to 1.11.

2.14 Remove the LOTO, close the confined space entry permit & ensure the drive healthiness in CCR.

2.15 Give the clearance for CCR operation after de-blocks the signal.

Emergency / Emergency Shut OFF:

1. If any unconsciousness is there, give First aid and inform to the Safety department or Call Emergency number 3108/9865152222/9750963761.

Records/Annexure:

1. JSA as enclosed below.

JOB SAFETY ANALYSIS: (JSA)

Job Safety Analysis	Job: Tilt Switch checking or Replacing.	Date: 20.09.2017	Analysis by:	Reviewed by:
Title of employee doing job: INST - TECHNICIAN	Supervisor: SECTION ENGINEER	Department: INSTRUMENTATION	Section: CRUSHER	Approved by:
Req'd/recommended PPE: SAFETY HELMET, SAFETY SHOES, GOGGLES, DUST MASK, and HAND GLOVES.				



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Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job Procedure	What Could Go Wrong	Corrective Action
1. TIGHTEN THE TERMINAL BLOCKS USING SCREW DRIVER/TESTER.	LIVE SUPPLY IS EXPOSED AT THE METTALIC PART OF THE SCREW DRIVER/TESTER.	ENSURE THE METTALIC PART OF THE TESTER/SCREW DRIVER IS INSULATED PROPERLY.	RESULT IN ELECTROCUT ED	USE INSULATED HAND GLOVES & TOOLS.
2.CHECK THE CABLE CONDITION AND SWITCH HEALTHINESS	CABLE MAY DAMAGE OR LOOSE CONNECTIONS.	USE HAND GLOVES.	RESULT IN ELECTROCUT ED	USE INSULATED HAND GLOVES, TESTER.
3.CHECK THE COATING NEAR BY AREA OF SWITCH	COATING MAY FALL	CLEAN THE COATING.	RESULT IN INJURY OR FRACTURE.	ENSURE COATING CLEANED BEFORE CHECKING AND USAGE OF GOGGLES.
4.ENSURE POWER ISOLATION HAS TAKEN	MOTOR MAY RUN	PUT LOTO FOR 211CR2A, 211CR2B AND 211BC1	RESULT IN INJURY OR FATALITIES.	ENSURE LOTO PUT ON PARTICULAR FEEDERS AND EMERGENCY STOP ACTED LPB.



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5. ENTERING IN CONFINED SPACE CHUTE.	OXYGEN LEVEL MAY BE LOW OR LOW ILLUMINATION .	CHECK OXYGEN LEVEL & ILLUMINATION	RESULT IN UNCONSCIOUS OR INJURY.	ENSURE THE DRIVES NOT STARTED BY PRESSING START PUSH BUTTON FROM LPB. KEEP INSPECTION DOOR IN OPEN.
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