

Issue No.	Rev. No:02	Effective Date: 17/10/2017	SOP/MEC/101
Issued By: MR		Approved By: HOD MECHANICAL	
ACCUMULATOR REPLACEMENT WORK			

**Scope** : This SOP is applicable to Safe working for Accumulator maintenance  
**Responsibility** : **Section Engineer.**  
**Accountability** : **Section Head – Mills**

**PPE:**

1. Safety helmet
2. Safety shoe
3. Dust Mask,
4. Gloves.
  - Cotton knitted
  - Leather
5. Safety belt
6. Goggles
7. Welding Shield

**Tools:**

1. 01T chain block-2nos
2. Nylon belt slings- 1Nos.
3. Grinding machine
4. Ring and fix Spanner set

**Auxiliaries**

1. Welding Set
2. Cutting Set

**Hazards:**

**Risks associated**

Body injury

**Mitigating Measures**

- 1.Safe and tested tools and tackles
2. on job training

**Training needs:**

1. Emergency preparedness
2. On job training
3. Assembly procedure

LOTO required for:

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1. Tension hydraulic system
2. Mill main drive.

**Procedure:**

1. Make the tension pressure and lift pressure to zero.
2. Take electrical shutdown permit of roller hydraulic, with LOTO system.
3. The Permit Paper should be with the person who is responsible for the job.
4. Trained Worker will be engaged for working with related PPE's.
5. Take Height work permit and hot work permit to perform the job.
6. Use certified chain block to hold the accumulator.
7. Cut the old support of the accumulator holding clamp
8. Loosen the bolt and remove the accumulator
9. Change the damaged accumulator by new one which is already in spares for emergency situation.
10. After changing the accumulator, tighten the bolt.
11. Fill the nitrogen gas in bladder and require pressure to set
12. Weld the new support of the accumulator holding clamp
13. Remove the Chain block.
14. Get the line clearance and informed to CCR person.

**Emergency / Emergency Shut OFF:**

If any injury takes place, provide First aid and inform to the Safety department or Call  
Emergency number 3108/9865152222

Records/Annexure:

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1. Refer Line clearance/permit in mechanical department.
2. JSA is enclosed below.

### **JOB SAFETY ANALYSIS :( JSA)**

<b>Job Safety Analysis</b>	Job: Accumulator replacement	Date: 0.09.12	Analysis by; Section Engineer	Reviewed by: Section Head
Title of employee doing job: Section Engineer	Supervisor: Section Head, Out Sourcing Supply Supervisor	Department: Mechanical	Section: Mills	Approved by: HOD
eq'd/recommended PPE: Helmet, Shoe, Nose mask, Cotton Gloves, Leather gloves, Ear plug, Safety belt, Goggles, Shield				
<b>Sequence of Basic Job Steps</b>	<b>Potential Hazards</b>	<b>Recommended Safe Job Procedure</b>	<b>What Could Go Wrong</b>	<b>Corrective Action</b>
Put on PP	Exposure to fumes due to welding operation	Wear Goggles	Damaged goggl	Periodic replacement, Watch person should ensure
Chain Block lifting	Leg and hand injury	Use proper tools and tackles with certification	Chain block may slip from its lifting position	Check the condition of lifting equipments. 1. Lifting Belts 2. Chain block  Periodical replacement is recommended for belts and ropes. Periodical servicing required for Chain blocks.
Chain Block fixing	Body injury	Use proper PPE (safety belt)	Safety belt failure	Check the condition of PPE Periodical replacement is recommended for belts
Accumulator flange bolt loosening/tightening	Hand injury	Use proper tools and tackles with certification	Spanner slip /Broken	Check the condition of spanner
Accumulator holding clamp cutting	Body injury	Use proper cutting set with flash back arrester	Hose pipe damage	Check the condition of hose pipe. Periodical replacement is recommended

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Grinding the Accumulator holding clamp positioning area	Eye and body injury	1. Use proper guard/locking and tested grinding machine 2. Ensure life of the grinding wheel	.Wheel may slip out from the machine 2. wheel broken	1. To cross check the tightness of wheel 2. check the expiry date of the grinding wheels.
Spare accumulator Replacement	Hand injury	1. Use proper tools and tackles with certification	Chain block may slip from its lifting position	Check the condition of lifting equipments. 1. Lifting Belts 2. Chain block  Periodical replacement is recommended for belts and ropes. Periodical servicing required for Chain blocks.
Welding operation	Hand and Eye injury	Use proper leather hand gloves and welding shield	Damage the welding shield glass and hand glove	Cross check the Periodical replacement of PPE

SL No	Activity				Tag / Name of the Equipment
					Isolation Type
					<div>Electrical Energy</div> <div>Other Energy</div>

16	Accumulator replacement	Name and Tag for the Equipment	561MD2 / Mill Main Motor	561HP1 / Tension Hydraulic PUMP								
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