

Job Plan:	M06065_S1	Job Plan Status:	Active
Description:	132 Mill 504 HOUR Sequence PM Work Roll Change		
Assigned To:	Works Repair	Downtime Required: Y	Work Order Priority: 6
Lead Craft:	Interruptible: N		
Estimated Duration:	8 Hours		

Job Plan Steps: 16

This job plan covers the following: 132" mill work roll change - 504 hours

Parts:

- 132" mill work rolls

NOTE

Bottom back up roll jacks and work roll jacks now have different fittings that are not interchangeable. The store's #'s for these fittings are listed below. Do not change from one type to the other.

- Gauge block stores# 71301133
- Bottom back up jack quick disconnect fittings: 20070110
- Coupling-hose fitting .500 NPTF- Hansen series socket #4-h26- 4-hk (h4-62) 20070111
- Coupling-hose fitting .500 NPTF- Hansen series plug #4-k26- 4-hk (h4-63)
- Work roll jack quick disconnect fitting, male and female couplings: catalog-id.: 20-06-0108 type: a stores item coupling-Hansen style .500 female- stainless steel parker #sst-4 quick coupler

Special Tools:

- Roll transfer car
- Fork truck and flatbed truck
- 132" roll change cables
- Floor plate hooks
- Overhead crane

Initial Conditions:

Check roll balance jacks for leaks before locking mill out for roll change. Report any leaks to your supervisor so he can schedule repairs before the next use.

Special Precautions & Lockouts:

Perform lockout for 132" mill roll change per lockout manual. Include lockout for 132" mill edger hydraulics - pressure & return lines.

Personal Protective Equipment Required:

- Eye protection
- Hearing protection
- Safety shoes

Hazards:

- Pinch points
- Open pit

MSDS information:

N/A

Confined space:

Follow KACC Confined Space Policy and secure a Confined Space Entry Permit before entering a confined space. No JSP available for confined space.

Elevated Work:

- Working around mill pits when floor plates are removed is considered elevated work. JSP 601.8
- A Fall Protection Plan must be filled out prior to starting elevated work.
- Personal fall protection equipment is required. Inspect equipment prior to each use.

Job Specific:

- JSP 432.10 Reversing Mill Roll Changes
- JSP 432.13 Roll Hauling With Overhead Crane and Cables
- JSP 432.2E Resetting the Reversing Mill Limit Switches
- JSP 601.1 Operation of overhead cranes
- JSP 601.7 General Rigging
- JSP 601.12 Mobile equipment operation
- JSP 601.18 Working on Hydraulic systems

Documents:

Review the following JSPs before starting work:

- 432.13 roll hauling with overhead crane and cables
- 432.10 reversing mill roll changes

Job Procedure:**Set Up Mill (WR & EM)**

1. Spot work rolls so flats on end of rolls are in vertical position. Verify switch for moving top or bottom roll is returned to **both** position, located in 132" mill pulpit.
2. Wash mill down of oil, grease, and aluminum fines.
3. Disconnect coolant and kerosene supply hoses to top spray bars, entry and exit.
4. Raise screw downs to 19" opening to allow for stripper table clearance.
5. Raise entry and exit strippers, lock into **up** position. Open stripper table manual pressure supply valve for each valve. Raise stripper tables. Using actuator install stripper pins. Close and lockout shutoff valves.
6. Install horseshoe shims between work roll chocks.
7. Lower screws to within 2" of shims.
8. Lower top workroll with pistol grip located at southeast corner of pulpit.
9. Raise top backup roll 19" using screw downs.
10. Lock top backup in position by turning backup control in **neutral** position - located at southeast corner of pulpit.
11. Close backup valve under valve stand at southeast corner of mill valves #3 and #4 - marked (red).
12. Disconnect workroll hydraulic and lube hoses - both sides of mill.

Set Up Mill (WR & EM) *continued from page 2*

13. Turn accumulator pumps off with selector switch in box on 12" pipe post at south side of pulpit.
14. Lower accumulator until it is off of upper limit switch by using bleed valve located in basement above pumps. {marked normally closed}.
15. Raise bottom work roll using bottom backup roll jacks. Open bottom backup roll jack raise/lower, pressure and return valves- marked (blue). Pull bottom backup roll jack actuator to the east- marked (yellow). Select roll balance to direct by pushing button marked **direct** at southeast corner of pulpit. Turn on roll balance pump.

NOTE

If not enough pressure building to lift bottom work roll, make sure valves for spindle support are closed.

16. Install horseshoe shims between work roll and backup chock.
17. Lower bottom work roll onto horseshoe shims using valve labeled top roll and roll change valve #5 - marked (yellow). Turn on roll balance pump. Push bottom backup roll jack raise/lower - marked (yellow) - to the west to lower.
18. Close backup roll jack. Raise/lower, pressure and return shutoff valves- marked (blue).
19. When running pumps on direct, watch gauge located in northwest corners of roll change hydraulic stand. When it reaches 3000 lbs. psi, turn pumps off.
20. Remove west floor plate in front of mill. Raise east floor plate and block up with wood. This gives clearance for roll change sled.
21. Rope off area and install signs for 132" work roll change. Call east gate and tell them the roadway in front of 132" mill is blocked.
22. Raise stack with push button at corner of pulpit- hold in until light comes on. Accumulator pumps must be in direct. When stack is all the way up, shut off pumps.

NOTE

Verify that manual shut off valves - marked (green) - are open to get pressure to stack lift cylinders.

NOTE

Regulate pressure by shutting pumps off and on. (Pressure should be below 3000 psi).

Remove Rolls From Mill (WR)

1. Run roll change sled under bottom backup roll.
2. Lower roll stack onto sled. Verify both bottom stack lift cylinders are fully retracted or cylinders will be damaged.
3. Switch roll balance hydraulic system back to accumulator.
4. Remove all hydraulic and lube hoses from bottom backup and work rolls on both operator and drive sides of mill.
5. Retract work roll and bottom backup roll latches using valve located at northeast corner of mill housing.
6. Install slings around spindles on back side of mill. Check condition of turnbuckles and slings before installing. Raise pump pressure to 1000 psi on gauges. Ensure there is stroke left on cylinders when spindles are being held by slings.
7. Run roll change sled from mill housing. Set rolls out onto floor using 132" roll change cables.

Inspect Hoses and Muffs & Adjust Shim Stack (WR)

1. While rolls are out of mill, the following must be performed. Visually check every nozzle orifice on both bottom spray bars. There cannot be any restrictions or damage.
2. Check the coolant supply hoses, including the ¼" air supply hoses for any damage or air leaks.
3. Check all grease hoses and repair as needed. Check grease lines on strippers.
4. Check hydraulic hoses and repair as required.
5. Calculate shim pack for new roll diameters. Follow instructions in pink book in foreman's office. Input new roll diameters into 132" mill pc (EM).
6. Make visual inspections of liner plates in top and bottom spindle muffs. Very important to grease roll necks on new rolls before they go into muffs. Replace any damaged shims as needed. Clean out any debris in muff. Grease zerks on outside of muff.



CAUTION

Install shims in designated location - marked (yellow) on mill housing. If shims are not installed properly they will cause errors in roll passline.

7. Change shim pack to match calculation. Very important to use least amount of shims as possible. This prevents errors in passline of rolls.
8. Inspect kerosene spraybar that is attached to the stripper table. Verify it is in good condition and nozzle is directed into roll bite.

Install Rolls and Set Strippers (WR)

1. Inspect spraybar mount brackets and mounting bolts on top work roll spraybars. All bolts and hardware must be tight and secure.
2. Set new roll stack onto roll change sled.

NOTE

Rolls need to be positioned on sled with end of rolls lining up with marks on sled. This assures that you can get all the way into mill without driving off rack gear.

3. Run stack into mill. Leave out clearance to connect hoses on drive side.

NOTE

Grease roll necks before driving them into muffs.

4. Connect grease and hydraulic hoses on drive side of mill to bottom back up roll.
5. Run rolls rest of the way into mill.
6. Close latches while still on normal roll balance pressure.
7. Lower spindle hydraulics. Remove spindle slings.
8. To raise roll stack, ensure stack lift pressure. Make sure manual shutoff valves for stack lift are open - marked (green). Push stack raise button at the southeast corner of pulpit hold until stack raises.
9. Raise roll stack.
10. Run roll changer out from under mill.
11. Lower roll stack.

Install Rolls and Set Strippers (WR) *continued from page 4*

12. Connect remaining grease and hydraulic hoses.

NOTE

When connecting hoses, check hoses by pulling on hose. This verifies that hose will not blow off when being used. Install all floor plates in front of mill.

CAUTION

When running pumps on direct, watch gauge located in northwest corner of roll change stand. Verify that it does not pass 3000 psi. If it does, shut pumps off.

13. Raise work roll from back up roll and remove shims. Open bottom backup roll jack raise/lower, pressure and return valves - marked (blue). Pull bottom backup roll jack actuator to east - marked (yellow). Select roll balance to **direct** by pushing bottom marked direct at southeast corner of pulpit. Turn on roll balance pump.

NOTE

If not enough pressure to lift work rolls, verify spindle support hydraulics are closed.

14. Put system back onto accumulator. Lower bottom work roll by shifting handle west - marked (yellow).

15. Open top backup raise/lower pressure shutoff valve - marked (red).

16. Switch top backup valve to **raise**.

17. Run top back up down to about 2" from top work roll using screwdowns.

18. Raise work rolls and remove shims.

19. Raise top backup to about 19" using the screwdowns.

20. Lower strippers, monitor to gap. Shimming may be required because of changes in roll diameters.

NOTE

While lowering strippers, monitor ¼" air line hoses going to bottom spray bars so they do not get crushed or pinched. Stripper clearance should be ⅜" to ¾".

Inspect Resolvers (WR)

Inspect following items on screw down resolvers and correct as needed:

- Belts: check condition and tension.
- Pulleys and couplings: check set screws for tightness and check coupling condition and alignment.
- Pillow block bearings: check bolts for tightness and bearing condition.
- Mounting and tension adjustment bolts: check that all bolts and nuts are tight.
- Resolvers and limits: check mounting bolts for tightness.

Level Mill and Set Limits (WR & EM)

1. Verify that switch for moving top or bottom roll is returned to **both** position. Use 2" x 2" x 48" long aluminum bars 6" on drive and operator side of mill. Run screws down to get at least a 30% or .600 reduction on aluminum bars.
2. If screws will achieve this without kicking out, run about 36" of the length of the bars through the mill.
3. Using a micrometer measure both aluminum bars. Side set mill twice the difference between the 2 bars.

Level Mill and Set Limits (WR & EM) *continued from page 5*

4. If first pair of blocks were off more than .005, run another set of bars. Set digital read outs to match actual mill setting. Side set mill until operator side and drive side read the same.



Do not jam screws.

5. Set lower limit at 1.500". Set slowdown to come in at 2".
6. Set upper limits at 29" with slow down limit kicking in at 28".

U-joint Lube (WR & EM)

1. With an operator in mill pulpit and oiler on back side of mill, lube spindle U-joints. Operator will rotate the spindles at direction of the oiler.
2. Make visual inspections of spindle trip switch wires to make sure they were not damaged during roll change process.

Remove Lockout

Required Testing: N/A

Material List:				
Stock#		Description	Quantity	
Labor Estimate:	2			
Step	Craft	Description	Quantity	Hours
10	EM	Electrical Maintainer	1	2.75
10	WR	Works Repairer	5	7.10