Job plan steps: 9

This job plan covers the following:

132" mill work roll change- 504 hours

Parts

132 mill work rolls. Caution: the bottom back up roll jacks and work roll jacks now have different fitting that are not interchangeable. Do not change from one type for the other.

The stores #'s for these fittings are listed below.

Gauge block store# 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

A) Roll transfer car. B) Fork truck and flatbed truck. C) 132 roll change cables. D) Floor plate hooks. E) Overhead crane.

Initial conditions:

Check the roll balance jacks for leaks before locking the mill out. Report any leaks to your supervisor

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

Warning: personal protective equipment required: A) eye protection. B) hearing protection. C) safety shoes.

Hazards: A) pinch points. B) open pit.

Confined space: A) follow the 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 the mill pits when the floor plates are removed is considered as elevated work.

Jsp 601.8 elevated work A) a fall protection plan must be filled out prior to starting elevated work. B) 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: 504 hour 132" mill work roll change

Review the following jsp's before starting work: 432.13 roll hauling with overhead crane and cables. 432.10 reversing mill roll changes.

1 Set up mill (wr & em)

A) Spot work rolls so the flat end of rolls are in the vertical position. Located in the 132 mill pulpit confirm the the top or bottom roll is switch is moved to the both position.

B) Wash mill of oil, grease, and aluminum fines.

C) Disconnect coolant and kerosene supply hoses to the entry and exit top spraybars.

O) Move screwdown to 19 inch opening for the stripper table clearance.

E) Raise entry and exit strippers, lock into the up position. Open stripper table manual pressure supply valve for each valve. Raise stripper tables using the actuator. Install the stripper pins. Close and lockout shutoff valves.

F) Install horseshoe shims between work roll chocks.

G) Lower screws to within 2 inches of shims.

H) Lower top workroll with pistol grip located at southeast corner of pulpit.

I) Raise top backup roll 19 inches using screw downs.

J) Lock top backup in position turn backup control to neutral position- located at southeast corner of pulpit.

K) Close backup valve under valve stand at southeast corner of mill valves #3 and #4.marked (red in color)

L) Disconnect workroll hydraulic and lube hoses-both sides of mill.

M) Turn accumulator pumps off with selector switch in box on 12 inch pipe post at south side of pulpit.

N) Lower accumulator until it is off of upper limit switch by using bleed valve located in basement above pumps. {marked normally closed}.

O) Raise bottom work roll using the bottom backup roll jacks. Open bottom backup roll jack raise/lower, pressure and return valves marked (blue).

1 Pull bottom backup roll jack actuator to the right marked (yellow).

2 Select roll balance to direct by pushing the button marked direct at the southeast corner of the pulpit .

3 Turn on the roll balance pump.

CAUTION: Verify the valved for the spindle support are closed, if not enough pressure building to lift bottom work roll.

CAUTION: When running pumps directly watch the gauge located on the north west corners of the roll change hydraulic stand. Turn off the roll balance pumps before reaching 3000 psi.

P) Install horseshoe shims between work roll and backup chock.

1 Using valve labeled "top roll and roll change valve #5 marked (yellow)) lower bottom work roll onto horsehoe shims .

2 Turn on roll balance pump. Push bottom backup rolljack raise/lower lever (yellow) to the left to lower.

R) Close backup roll jack raise/lower, pressure and return shutoff valves marked (blue).

S) When running pumps on directly, watch gauge and when it reaches 3000 lbs. Psi, turn pumps off.

T) Remove the west floor plate in front of mill.

1. Raise the east floor plate and block up with wood to give clearance for the roll change sled.

U) Rope off area and install signs for 132 work roll change.

1. Call east gate and tell them that the roadway in front of the 132 mill is blocked.

CAUTION: Verify that manual shut off valves marked (green) are open to pressurize stack lift cylinders. Note: regulate pressure by shutting pumps off and on. (pressure should be below 3000 psi).

V) 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.

2 Remove rolls from mill. (wr)

A) Roll change sled under bottom backup roll.

CAUTION: Verify both bottom stack lift cylinders are fully retracted or cylinders will be damaged.

B) Lower roll stack onto sled.

C) Switch roll balance hydraulic system back to accumulator.

D) Remove all hydraulic and lube hoses from bottom backup roll and work rolls on both operator and drive sides of mill.

E) Retract work roll and bottom backup roll latches using valve located at the upper right corner of mill housing.

CAUTION: Check turnbuckles condition and slings before installing.

F) Install slings around spindles on back side of mill. Raise pump pressure to 1000 psi on gauges. Ensure that there is stroke left on the cylinders when spindles are being held by the slings.

G) Run roll change sled from mill housing.

H) Set rolls out onto floor using the 132 roll change cables.

3 Inspect hoses and muffs & adj.shim stack.

CAUTION: While rolls are out of mill, the following must be done.

A) Visually check every nozzle orifice on both bottom spraybars. There cannot be any restrictions or damage.

B) Check the coolant supply hoses, including the ¼ inch air supply hoses for any damage or air leaks.

C) Check all grease hoses and repair as needed. Check the grease lines on the strippers.

D) Check hydraulic hoses and repair as required.

E) Calculate the shim pack for the new roll diameters. Follow the instructions in the pink book in the foreman's office. Input the new roll diameters into the 132 mill pc (eem).

F) Inspect liner plates in top and bottom spindle muffs. Grease the roll necks on the new rolls before they go into the muffs. Replace any damaged shims as needed. Clean out any debris in the muff. Grease the zerks on the outside of the muff.

G) Change the shim pack to match calculation. Use the least amount of shims as possible. This will prevent any error in passline of the rolls.

Note: install shims in designated location marked in yellow on mill housing. If shims are not installed properly they will cause a error in the roll passline.

H) Inspect kerosene spraybar attached to the stripper table. Verify spraybar is in good condition and the nozzle is directed into the roll bite.

4 Install rolls and set strippers. (wr)

CAUTION: While lowering strippers, pay special attention to the ¼ inch air line hoses going to the bottom spraybars so they do not get crushed or pinched. Stripper clearance should be ⅜ inch to ¾ inch. Lower strippers, paying special attention to the gap.

A) Inspect the spraybar mount brackets and mounting bolts on the top work roll spraybars. All bolts and hardware must be tight and secure.

B) Set new roll stack onto roll change sled.

Note: that the rolls need to be positioned on the sled with the end of the rolls lining up with the marks on the sled. This assures that you can get all the way into the mill without driving off the rack gear. Important grease roll necks before driving them into the muffs.

C) Run stack into mill leave out far enough to hook up hoses on the drive side.

D) Connect grease and hydraulic hoses on the drive side of the mill to the bottom back up roll.

E) Run the rolls the rest of the way into the mill.

F) Close latches while on normal roll balance pressure.

G) Lower spindle hydraulics. Remove spindle slings.

H) To raise roll stack to ensure stack lift pressure verify the manual shutoff valves for stack lift are on open (marked green). Push the stack raise button at the southeast corner of the pulpit hold till stack raises.

I) Raise roll stack.

J) Run roll changer out from under mill.

K) Lower roll stack.

L) Connect the remaining grease and hydraulic hoses.

Note: when hooking up hoses, check hoses by pulling on hose. Doing this will ensure the hose will not blow off when being used.

M) Install all floor plates in front of mill.

N) Raise work roll from back up roll. Remove shims. Open bottom backup roll jack. Raise/lower pressure and return valves marked (blue). Pull bottom backup roll jack actuator to the east marked (yellow). Set roll balance to direct by pushing the button marked direct at the southeast corner of the pulpit. Turn on the roll balance pump.

Note: Verify that the spindle support hydraulics are closed if not enough pressure to lift the work rolls.

Note: Watch the gauge located in the northwest corner of roll change stand. Verify pressure does not go past 3000psi. If it does turn pumps off.

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

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

Q) Switch top backup valve to "raise".

R) Run the top back up down to about 2 inches from the top work roll using the screwdowns.

S) Raise work rolls and remove shims.

T) Raise the top backup to about 19 inches using the screwdowns.

Note: Shimming may be required because of the changes in roll diameters.

5 Inspect resolvers: (wr)

Note: Inspect the screw down resolvers and correct as needed:

A) Check condition and tension of belts.

B) Check set screws for tightness on pulleys and couplings.

C) Check coupling condition and alignment on pulleys and couplings.

D) Check bolts for tightness and bearing condition on pillow block bearings.

E) Check that all bolts and nuts are tight on mounting and tension adjustment.

F) Check mounting bolts for tightness on resolvers and limits.

6 Level mill and set limits. (wr) (em)

A) Return switch for moving the top or bottom roll to “both” position. Use 2 inch by 2 inch by 48 inch long aluminum bars set 6 inches in on drive and operator side of mill.

B) Run screws down to get at least a 30% or .600 reduction on the aluminum bars.

Note: if the screws achieve this without kicking out run about 36 inches of the length of the bars through the mill.

C) Use a micrometer to take a mic reading on both aluminum bars. Side set the mill twice the difference between the 2 bars.

D) If the first pair of blocks were off more than .005 inch then run another set of bars. Set digital readouts to match the actual mill setting then side set the mill until the operator side and drive side read the same.

CAUTION: Do not jam screws.

E) Set lower limit at 1.5 inches. Set slowdown to come in at 2 inches.

F) Set upper limits at 29 inches. Set slow down limit at 28 inches.

7 Lube u-joints (wr) (em)

Note: There needs to be an operator in the mill pulpit and oiler on back side of mill.

A) Lube the spindle u-joints. Operator rotates the spindles at direction of the oiler.

B) Make visual inspections of the spindle trip switch wires to verify they were not damaged during the roll change process.

8 Remove lockout.

9 Required testing.