

Langa Nhlabathi



APPENDIX 04: BABCOCK & WILCOX MILLS

Mzwakhe Simelane



TASK: RING CHANGE "C" SERVICE

SERVICE ACTIONS

MILL PARTICULARS

UNIT:

MILL:

DATE: a) SERVICE ISSUED:...../...../.....

b) SERVICE COMPLETE:...../...../.....

c) SERVICE RETURNED:...../...../.....

RUNNING HOURS: a) MILL TOTAL:h

G/BOXhrs

b) RINGS: (I) TOP:h

(ii) BOTTOMh.

c) BALLS:h

d) TO NEXT SERVICEh

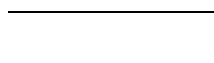
e) SERVICE HOURSh

MILL WEAR RATE: RINGS

TOP.....

SER NO: TOP OLD..... NEW.....

THICKNESS:

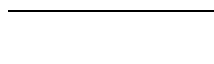


HRS/mm

BOT.....

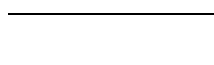
BOT OLD..... NEW.....

THICKNESS:



HRS/mm

BALLS



HRS/mm

NUMBER OF BALLS.....

SIZEmm

1. Serial numbers of major components

- 1.1. Mill Gearbox
- 1.2. Mill Motor
- 1.3. Feeder Gearbox
- 1.4. Feeder Motor
- 1.5. Clean out conveyor motor.
- 1.6. Clean out conveyor gearbox.
- 1.7. Bottom & Top Ring
- 1.8. Balls NB: The numbers are painted on the balls.

2. BALLS

- 2.1. Inspect balls and record condition (visible crack damage).
- 2.2. Record existing / removed ball sizes. (NB: each individual ball).
- 2.3. Record fitted ball sizes. (NB: each individual ball).

3. RINGS

- 3.1. Examine rings for cracks, chipping wear and record same.
- 3.2. Take dimensions "A" and "C", on old/existing rings as shown on diagram for both the top and bottom rings.
- 3.3. Record dimensions A and C on new rings.

4. CLASSIFIER & DISCHARGE DUCTING

- 4.1. Check classifier cones and repair if required.
- 4.2. Check skirts and repair if required.
- 4.3. Check inner cone and repair if required.
- 4.4. Check the classifier vanes for erosion and the vane spindles for wear, as well as vane bottom caps. Make sure the vanes are adjusted to the settings obtained from Engineering Department (BAB/M1/V2/SS/PG 20). (37 Degrees as of March 2000).
- 4.5. Check discharge ducting and repair if required.
- 4.6. Inspect vane seals and repair if required.
- 4.7. Inspect vortex finder and carry out any necessary repairs.

5. SPIDER

- 5.1. Check the ball and socket coupling connecting the loading rams to the top ring spider plates. The clearance "X" must not be less than 6mm.
- 5.2. If clearance is less, the coupling must then be renewed. Clean out the coal from under ball before measuring. If pins are broken, renew pins.
NOTE: Pins must always be more than half way into slot to prevent RAM from rotating.
- 5.3. Measure the thickness of all spider wear plates. If the guides are less than 25mm thick, all the plates must be renewed.
- 5.4. Measure the thickness of the Mill guide plates, and if there is a significant step on the leading wear plate it must be turned or renewed to have a smooth surface.
- 5.5. Measure the spider guide gaps. If the gaps are more than 12mm all the wear plates are to be renewed, turned or slooped and shimmed at the leading spider wear plates to a minimum clearance of 10mm. Ensure that all four spider arms are in contact on the leading side. (BAB/M1/V1/S3/PG50).
- 5.6. Measure the gap between the spider and top ring at places provided counting from left to right once inside inspection door. If the gap is more than 0,4mm, inform the Supervisor for action to be taken.
- 5.7. Renew spider arm and carrier bolts, torque setting 740Nm.

5.8. Inspect sealant between spider and top ring.

6. LOADING RAMS

- 6.1. 10 Reconditioned loading rams to be fitted.
- 6.2. 10 New dust bellows to be fitted.
- 6.3. Re-tension all bellows.
- 6.4. Hydraulic cabinet to be cleaned out and new oil to be put in system. - HLP 68 in Auto Loading Cabinet.
- 6.5. Hydraulic hand-pump to be overhauled. - HLP 100 in Hydraulic Cabinet.
- 6.6. Both filters on system to be renewed.
- 6.7. System to be pressure tested and all leaks repaired (gas and oil).

7. YOKE

- 7.1. Measure the gap between the yoke and bottom ring through the reject brush inspection door at places provided. Turn table clockwise and count position 1 as first position after table key. If gap is more than 0,4mm, inform your Supervisor for action to be taken. (BAB/M1/V1/S3PG 38).
- 7.2. Inspect sealant between yoke and bottom ring and record condition.

8. MILL BODY

- 8.1. Check that all bolts and nuts inside and on Mill body are tight and check that all the locking arrangements on the nuts are intact.
- 8.2. Check for damaged or broken components and renew if required.
- 8.3. Check Mill body liner plates for wear and renew where required.
- 8.4. Check and tighten the Mill foundation bolts.
- 8.5. Check throat plates for wear and cracks and repair/renew if required. Throat area to be 0.59m² (Throat area to be measured and filled in on sheet specified in section 16).
- 8.6. Check all compensators for leaks.
- 8.7. Ensure lagging and cladding on inlet ducts and on underside of mill.

9. REJECT SYSTEM

- 9.1. Check relief gates for free movement and sealing.
- 9.2. Check the condition of the reject brush ploughs and renew if required.
- 9.3. Measure the clearances between the brushes and rejectchamber liner plates. The brushes are to be renewed/re-adjusted if gap is more than 50mm (BAB/M1/V1/S2/PG44).
- 9.4. Inspect the reject chamber liner plates and renew if required and check the reject box inspection doors gaskets and renews if required. Check the gas releaser on the reject boxes for correct operation and repair if required.
- 9.5. Check reject boxes inner door for correct operation and the spindle gland and repack if required.
- 9.6. Check rejects line and renew or replace sections where necessary. (DO NOT PATCH LINE)
- 9.7. Check the jet pulsation pump isolating valve for correct operation and repair if required.
- 9.8. Remove the audco valve spindle extension and install a grease stick after overhauling.
- 9.9. Operate and check the valve for correct operation.
- 9.10. Check the seal water-isolating valve for correct operation and repair if required.
- 9.11. Check the water seal drain valve for correct operation and repair if required.
- 9.12. Remove the water seal drain plug and clean out the water seal. Replace the drain plug ensuring that it will not leak.
- 9.13. Renew jet pulsation pump nozzle if necessary.
- 9.14. Inspect jet pulsation pump and renew discharge venturi if pump is not functioning properly.
- 9.15. Inspect reject box casing and gratings.

10. GEARBOX

- 10.1. Remove the bibby coupling guard and open the coupling springs. Clean off all the grease and remove the springs. Inspect the springs and coupling for wears and renews if required.
- 10.2. Measure the gap between the couplings and check the alignment at four places. Re-align motor to gearbox if required. If the alignment is out and the gearbox has moved, inform the Supervisor immediately before re-aligning the motor.

WITNESS POINT: (THE SUPERVISOR IS TO CHECK ALIGNMENT BEFORE THE COUPLING IS BOXED UP RECORD THE READING). BAB/M1/V2/S6/PG102.

- 10.3. Ensure that the gearbox seal grease nipples are open and inject 0,5 kg grease into the labyrinth seal and fill the automatic lubricator on the input shaft seal with BP Energrelse LS –EP 2.
- 10.4. Inspect the condition of the crown wheel and pinion gears that are visible. Report any abnormalities to your Supervisor\Plant specialist.
- 10.5. Clean and check the lubricating oil filters. If any metal particles are found inform your Supervisor.
- 10.6. Measure the backlash on the input shaft coupling. BAB/M1/V2/S6/PG86/88.
- 10.7. Inspect gear lubricant nozzles for functioning and record.
- 10.8. Inspect and clean gearbox breathers.
- 10.9. Inspect gearbox lube oil pump.
- 10.10. Torque to be checked on gearbox casing bolts.
- 10.11. Torque to be checked on gearbox foundation bolts.
- 10.12. Lube oil system to be filtered.
- 10.13. Check oil nozzles if they are functioning.
- 10.14. Inspect oil cooler and pipework for any leaks.

11. MILL SUMP

- 11.1. Check the Mill foundation springs and report any abnormalities i.e. broken springs and Engineering to your Supervisor.
- 11.2. Inspect gerb dampers and advise your Supervisor if water is present.
- 11.3. Inspect sump pump and record condition and check operation.

12. COAL FEEDER

- 12.1. Feeder to be opened for inspection and to verify scope of work. (Belt to be removed at this stage).
- 12.2. Clean out conveyor chain to be removed, links to be inspected for wear and free movement. All drive sprockets also to be inspected for wear and to be renewed if required.
- 12.3. Clean out conveyor drive shearing pin bushes and shearing pin to be renewed.
- 12.4. Clean out conveyor take up pulley together with adjuster to be serviced, bearings to be renewed.
- 12.5. Feeder loading table to be inspected for wears and renewed if required. (i.e: if thinner than 4mm).
- 12.6. Inlet chute side skirting plates to be renewed with new VRN 500 plates.
- 12.7. Top support rollers to be inspected, repaired or replaced as required. Bearings to be renewed.
- 12.8. Drive head pulley, together with gearbox drive coupling to be inspected, pins and head pulley bushes to be replaced as required. Non drive end side bearing to be replaced as required together with seals.
- 12.9. Tension rolls and tension roll pivot to be inspected and repaired. Bearings to be renewed.
- 12.10. Belt take-up and cleaning take-up pulley assemblies to be serviced. Bearings to be renewed. Chamber on takes up pulley to be checked. Grease pathways to be cleaned out and checked to ensure they are clean and clear.
- 12.11. Clean out conveyor drive shaft assembly to be inspected including main worm gear and bearing and repaired. Coupling to gearbox must be in good condition, replace or repair as required. Check and ensure that setscrew on coupling is tight to secure the key. Sprocket to be inspected and renewed if required. Non drive end bearing assembly to be inspected and repaired as required.
- 12.12. Chain returns supports to be checked for wear. Repair or replace as required.
- 12.13. Clip jointed belts to be installed on feeder during assembly.
- 12.14. All access doors and inspection doors to be checked.
- 12.15. Belt takes up spindle rubbers to be checked and changed if required.
- 12.16. All flexible grease pipes to be cleaned out and new grease installed. All pipes to be clipped out of way from moving parts.
- 12.17. Gearboxes to be filled with correct lubricant. (GRXP-320) – Main gearbox. GRXP-680 – Clean out conveyor.
- 12.18. Seal air supply valve to be checked and repaired as required. Pipes to be cleaned out.
- 12.19. Check no coal on belt alarm and coal outlet blockage paddles alarm and repaired as required.
- 12.20. Angle iron to be fitted above clean out conveyor chain12.20) Raw coal pipe squares to round to be inspected for wear and repaired.
- 12.21. Check the clearance between the coal inlet chute side skirting and the upper surface of the belt. The clearance must not exceed 8mm at leading edge (side closest to door).Re-adjust if required, to 6mm, at leading

edge with rear edge gap being at least 9mm (skirt to be set up at an angle to ensure coal is not drawn in and trapped between belt and skirt)

NOTE: MAKE SURE ALL THE BEARINGS IN THE FEEDER HAVE BEEN RENEWED. (USE 6209-2RS BEARING TYPE FOR THE TAKE-UP PULLEY)

“Spring washers are to be used when attaching the feeder back plate.”

12.22. Measure feeder bar for height above belt as shown on diagram. A tolerance of 1mm is allowed. If distance is larger, re-adjust distance to 135mm. (Profile area to be $0,072m^2 \pm 0,001$).

12.23. Check the feeder belt tension. The tension is correct when the grease nipple on the tension roller is opposite the centre mark on the indicator plate. Re-adjust tension if required. To tension the feeder belt, carry out the following procedure:

- a) Set the two counters, situated one on each side of the access door, to Zero.
- b) Adjust the belt tension by turning the take-up screw in a clockwise direction.
- c)

NOTE: DO NOT TURN ANY ONE OF THE TENSION NUTS MORE THAN FOUR TURNS AT A TIME.

- d) The counter readings must always be the same after both the tension nuts have been turned any time.
- e) Measure the sag of the clean out conveyor chain and if necessary, adjust the sag by turning the tension nuts. The sag should not be more than 3% of the centre distance between the drive sprocket and driven sprocket. BAB/M1/V2/S7/PG68.
- f) Arrange for the plant isolation permit to be cleared and apply for a "Sanction For Test" on the feeder Conveyor. NOTE: DO NOT ATTEMPT TO DO ANY WORK INSIDE THE FEEDER ONCE THE PERMIT AS BEEN CLEARED.
- g) The feeder belt has a guide ridge running along the centre of the underside of the belt. The ridge runs in a groove in the pulley and should the tracking of the belt be incorrect, the guide ridge will move out of the groove and a hump will appear on the upper surface of the belt. (BAB/M1/V2/S7/PG64).
- h) Via agreed communications ask the appointed person to run the feeder belt at slow speed for at least 10 revolutions of the belt. Check the general condition of the belt and look for signs of humping at the head and tail pulley. If intermittent humping is seen, it could be as a result of a build-up of coal dust in the pulley grooves. Therefore, first check and clean the pulley grooves before attempting to correct the tracking.
- i) If no humping occurs at slow speed, ask for the belt to be run high speed. Again check the head and tail pulley for humping.
- j) If the belt is humping at slow or high speed and the pulley grooves are clean, adjust the tracking.

12.24. Tracking the Feeder Belt. (BAB/M1/V2/S7/PG66).

- a) To track the head pulley, increase the tension of the take-up screw on the same side of the feeder, towards which the belt is required to move. Take care not to over adjust the tracking.
 - b) To track the take-up pulley adjust the tension pulley setting on the opposite side of the feeder, towards which the belt is required to move. Take care not to over adjust the tracking.
- NOTE: AFTER TRACKING BELT ON ONE PULLEY ALWAYS CHECK THE TRACKING ON THE OTHER PULLEY.**
- c) After all tracking adjustments have been made, ask for the belt to be run at fast speed and finally check the tracking.
 - d) When checking the belt for final tracking, also check the clean-out conveyor for worn links and broken scraper blades.

NOTE: IF ANY REPAIRS ARE NECESSARY ON THE CLEAN-OUT CONVEYOR, REQUEST THE RESPONSIBLE PERSON TO RE-APPLY FOR A PLANT ISOLATION PERMITS ON THE FEEDER.

13 RAW COAL PIPES

- 13.1. Record condition of raw coal Pipe Square to round. If worn renew square to round.
- 13.2. Record condition of second sections raw coal pipe. If worn, renew second section raw coal pipe.
- 13.3. Record condition of third sections raw coal pipe.
- 13.4. State condition of the raw coals compensatory and if worn renews.
- 13.5. State condition of fourth section raw coal pipe and renew if necessary. Also record distance between bottom of 4th stage and mill table on form stipulated in section 16.

12 CW SYSTEM

- 14.1. Check CW system for leaks and repair if necessary.
- 14.2. Clean and pressure test cooler.
- 14.3. Clean out and repair CW flow indicator and clean sight glass.

13 MILL MOTOR

- 15.1. Drain motor bearing oil.
- 15.2. Refill motors bearings with oil (THB 46) and inspects for oil leaks.
- 15.3. Check foundation bolts for tightness.

NOTE: Attached Babcock Mill performance sheet to be filled in and a copy to be sent to Milling plant system engineer.

14 PF OUTLET DUCT

- 16.1. Inspect outlet compensator for damage
- 16.2. Inspect duct tiles & plate work for wear (including area \pm 3 metres past outlet compensator) and repair tile work if required, also ensure that platershop does plate repair.
- 16.3. Do not place tiles on top of worn tiles. Remove section of tile work and retiles using 12mm thick tiles.
- 16.4. Inspect outlet thermocouple protection flatbar for wear. If worn inform platershop to renew same and inspect on final acceptance inspection if done.
- 16.5. Ensure thermocouples are connected
- 16.6. Vortex finder height to be measured and recorded in form stipulated in section 16.

WITNESS POINT:-

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Mill Specialist Signature Date

Notification No:

5.6 HISTORY REQUIREMENTS

				INSTR. NO A	H	B	I	1	0	5	3
				INSTR. NO B	H	B	I	1	0	5	8
				INSTR. NO C	H	B	I	1	0	5	9

DUVHA POWER STATION - BABCOCK MILL SERVICE INSTRUCTION

INFORMATION REQUIREMENTS SECTION: HMD MILL SECTION

A SERVICE

INTERNAL INSPECTION

3 DAYS

PROJECTS

B SERVICE

INTERNAL INSPECTION AND BALL CHANGE

7 DAYS

MILL

C SERVICE

INTERNAL INSPECTION, BALL AND RING CHANGE

15 DAYS

PILOT

Nr.	SERVICE			ACTIVITY DESCRIPTION	INSPECTION	REFERENCE
	A	B	C		SHEET NO.	NO.
				SERIAL NUMBERS OF MAJOR COMPONENTS		
1	X	X	X	a) MILL GEARBOX	NM1001/PAGE1	BAB/M1/V2/S6
	X	X	X	b) MILL MOTOR	NM1001/PAGE1	
	X	X	X	c) FEEDER GEARBOX	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	d) FEEDER MOTOR	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	e) CLEAN OUT CONVEYOR MOTOR	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	f) CLEAN OUT CONVEYOR GEARBOX	NM1001/PAGE1	BAB/M1/V2/S7
	-	-	X	g) BOTTOM AND TOP RING	NM1001/PAGE1	BAB/M1/V2/S3
	-	X	X	h) BALLS	NM1001/PAGE1	BAB/M1/V2/S3
2				GRINDING BALLS		BAB/M1/V1/S3
	X	X	X	a) INSPECT BALLS & RECORD CONDITION (CRACKS, DAMAGE)	NM1001/PAGE2	BAB/M1/V1/S3
	X	X	X	b) RECORD EXISTING/REMOVED BALL SIZES	NM1001/PAGE1	BAB/M1/V1/S3
	-	X	X	c) RECORD FITTED BALL SIZES	NM1001/PAGE1	BAB/M1/V1/S3
3				GRINDING RINGS		BAB/M1/V1/S3
	X	X	X	a) INSPECT RINGS AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S3

				(CRACKS, CHIPPING, ABNORMAL WEAR)		
	X	X	X	b) RECORD EXISTING/REMOVED RING DIMENSIONS	NM1001/PAGE1	BAB/M1/V1/S3
	-	-	X	c) RECORD NEW RINGS DIMENSIONS	NM1001/PAGE1	BAB/M1/V1/S3

5.6 HISTORY REQUIREMENTS

Nr.	SERVICE			ACTIVITY DESCRIPTION	INSPECTION	REFERENCE
	A	B	C		SHEET NO.	NO.
				SERIAL NUMBERS OF MAJOR COMPONENTS		
4				CLASSIFIER		
	X	X	X	a) INSPECT CLASSIFIER CONE & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S5
	X	X	X	b) INSPECT SKIRTS & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S5
	X	X	X	c) INSPECT INNER CONE & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S5
	X	X	X	d) INSPECT CLASSIFIER VANE BLADE & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S5
	-	X	X	e) INSPECT PF DISCHARGE DUCT & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S5
	-	-	X	f) INSPECT/REPACK VANE SEAL	NM1001/PAGE2	BAB/M1/V2/S5
	-	X	X	g) INSPECT VORTEX FINDER AND RECORD CONDITION		BAB/M1/V2/S5
5				SPIDER		
	X	X	X	a) RECORD CLEARANCE "X" ON SWIVEL CUP	NM1001/PAGE1	BAB/M1/V2/S3
	X	X	X	b) INSPECT COUPLING & PINS AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S3
	-	X	X	c) RECORD THICKNESS OF SPIDER GUIDE WEAR PLATES	NM1001/PAGE1	BAB/M1/V2/S3
	-	X	X	d) RECORD THICKNESS OF MILL GUIDE PLATES	NM1001/PAGE1	BAB/M1/V2/S3
	-	X	X	e) RECORD THE SPIDER GUIDE GAPS ON THE NDE WEARPLATES WITH ZERO GAP ON THE SIDE OF SPIDER ARM WEARPLATES	NM1001/PAGE1	BAB/M1/V2/S3
	-	-	X	f) RECORD GAP BETWEEN THE SPIDER & TOP RING AT PLACES PROVIDED	NM1001/PAGE1	BAB/M1/V2/S3

	-	-	X	g) RENEW SPIDER ARM & CARRIER BOLTS	NM1001/PAGE2	BAB/M1/V2/S3
	-	X	X	h) INSPECT SEALANT BETWEEN SPIDER AND TOP RING	NM1001/PAGE2	BAB/M1/V2/S3

5.6 HISTORY REQUIREMENTS

Nr.	SERVICE			ACTIVITY DESCRIPTION	INSPECTION	REFERENCE
	A	B	C		SHEET NO.	NO.
				SERIAL NUMBERS OF MAJOR COMPONENTS		
6				LOADING SYSTEM		
	X	X	X	a) CHECK BELLOWS FOR PERISHING & RENEW IF REQUIRED		BAB/M1/V1/S4
	X	X	X	b) RETENTION ALL BELLOWS		BAB/M1/V1/S4
	-	-	X	c) HYDRAULIC CABINETS TO BE CLEANED OUT AND NEW OIL TO BE PUT IN SYSTEM		
	-	-	X	d) HYDRAULIC HAND PUMP TO BE OVERHAULED		
	-	X	X	e) BOTH FILTERS ON SYSTEM TO BE CLEANED		
	-	-	X	f) ALL HYDRAULIC PIPES TO BE FLUSHED		
7				YOKE		BAB/M1/V1/S3
	-	X	X	a) RECORD GAP BETWEEN THE YOKE & THE BOTTOM RING	NM1001/PAGE1	BAB/M1/V1/S3
	-	X	X	b) INSPECT SEALANT BETWEEN YOKE & BOTTOM RING AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S3
8				MILL BODY		BAB/M1/V1/S2
	X	X	X	a) INSPECT ALL BOLT & NUTS INSIDE & ON MILL BODY FOR TIGHTNESS & LOCKING ARRANGEMENT	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	b) INSPECT MILL FOR DAMAGED COMPONENTS & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	c) INSPECT MILL LINER PLATES & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	d) INSPECT MILL FOUNDATION BOLTS FOR TIGHTNESS	NM1001/PAGE2	BAB/M1/V1/S2

	X	X	X	e) INSPECT THROAT PLATES FOR WEAR & CRACKS	NM1001/PAGE2	BAB/M1/V1/S2

5.6 HISTORY REQUIREMENTS

Nr.	SERVICE			ACTIVITY DESCRIPTION	INSPECTION	REFERENCE
	A	B	C		SHEET NO.	NO.
				SERIAL NUMBERS OF MAJOR COMPONENTS		
9				REJECT SYSTEM		BAB/M1/V1/S2
	X	X	X	a) INSPECT RELIEF GATE FOR FREE MOVEMENT & SEALING. RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	b) INSPECT REJECT BRUSH PLOUGHS & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	c) RECORD CLEARANCES BETWEEN THE BRUSHES & REJECT CHAMBER LINER PLATES	NM1001/PAGE1	BAB/M1/V1/S2
	X	X	X	d) REPLACE ALL REJECT BOX INSPECTION DOOR GASKETS & INSPECT REJECT BOX VENT VALVE	NM1001/PAGE2	BAB/M1/V1/S2
	-	X	X	e) INSPECT THE REJECT BOX INNER DOOR SPINDLE GLAND	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	f) INSPECT REJECT LINE AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	g) INSPECT JET PULSION PUMP ISOLATING VALVE & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	h) GREASE JET PULSION PUMP ISOLATING VALVE & CHECK OPERATION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	i) INSPECT SEAL WATER ISOLATING VALVE & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	j) INSPECT WATER SEAL DRAIN VALVE & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S2
	X	X	X	k) CLEAN THE WATER SEAL	NM1001/PAGE2	BAB/M1/V1/S2
	-	-	X	l) OVERHAUL JET PULSION PUMP	NM1001/PAGE2	BAB/M1/V1/S2

5.6 HISTORY REQUIREMENTS

Nr.	SERVICE			ACTIVITY DESCRIPTION	INSPECTION	REFERENCE
	A	B	C		SHEET NO.	NO.
				SERIAL NUMBERS OF MAJOR COMPONENTS		
10				GEARBOX		
						BAB/M1/V2/S6
	-	X	X	a) INSPECT THE BIBBY COUPLING & SPRINGS & RECORD CONDITION. GREASE AS REQUIRED & BOX UP	NM1001/PAGE2	BAB/M1/V2/S6
	-	X	X	b) RECORD THE GAP BETWEEN THE TWO COUPLINGS & STATE THEIR ALIGNMENT	NM1001/PAGE1	BAB/M1/V2/S6
	-	X	X	c) GREASE THE LABYRINTH AND INPUT SHAFT SEAL		BAB/M1/V2/S6
	-	-	X	d) INSPECT THE VISIBLE CROWN WHEEL & PINION GEARS & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S6
	X	X	X	e) CLEAN AND INSPECT OIL FILTERS & RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S6
	-	X	X	f) RECORD THE BACKLASH ON THE INPUT SHAFT	NM1001/PAGE1	BAB/M1/V2/S6
	X	X	X	g) INSPECT GEAR LUBRICANT NOZZLES FOR FUNCTIONING	NM1001/PAGE2	BAB/M1/V2/S6
	X	X	X	h) TOP UP GEAR BOX OIL LEVEL & REPLACE BREATHERS		BAB/M1/V2/S6
	-	X	X	i) INSPECT GEARBOX LUB OIL PUMP		BAB/M1/V2/S6
	-	X	X	j) TORQUE TO BE CHECKED ON GEARBOX CASING BOLTS		BAB/M1/V2/S6
	-	X	X	k) TORQUE TO BE CHECKED ON GEARBOX FOUNDATION BOLTS		BAB/M1/V2/S6
	-	-	X	l) LUB OIL SYSTEM TO BE FILTERED		
11				MILL SUMP	NM1001/PAGE2	BAB/M1/V2/S8
	X	X	X	a) INSPECT THE MILL FOUNDATION	NM1001/PAGE2	BAB/M1/V2/S8

				SPRINGS AND RECORD CONDITION		
	X	X	X	b) INSPECT GERB DAMPERS AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S8
	X	X	X	c) INSPECT SUMP PUMP OPERATION AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V2/S8

5.6 HISTORY REQUIREMENTS

Nr.	SERVICE			ACTIVITY DESCRIPTION	INSPECTION	REFERENCE
	A	B	C		SHEET NO.	NO.
				SERIAL NUMBERS OF MAJOR COMPONENTS		
12				COAL FEEDER	NM1001/PAGE2	BAB/M1/V2/S7
	X	X	X	a) INSPECT AND SET FEEDER BAR	NM1001/PAGE2	BAB/M1/V2/S7
	X	X	X	b) INSPECT COAL FLOW & DISCHARGE ALARM PADDLE FOR FREE MOVEMENT AND RECORD CONDITION	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	c) INSPECT ALL FEEDER BEARINGS GREASE PIPES & SEALS AND RECORD CONDITION	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	d) CHECK GAP BETWEEN COAL INLET CHUTE SIDE SKIRTING & BELT	NM1001/PAGE2	BAB/M1/V2/S7
	X	X	X	e) INSPECT FEEDER BELT TENSION & RECORD BELT CONDITION	NM1001/PAGE2	BAB/M1/V2/S7
	X	X	X	f) RECORD THE SLACK OF THE CLEAN OUT CONVEYOR CHAINS AT POINTS 'E' & 'F'	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	g) INSPECT THE CHAIN SUPPORT PLATES AT BOTH ENDS OF THE CONVEYOR FOR WEAR AND RECORD CONDITION	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	h) INSPECT CLEAN OUT CONVEYOR AND RECORD CONDITION	NM1001/PAGE1	BAB/M1/V2/S7
	X	X	X	i) INSPECT FEEDER TABLE FOR WEAR	NM1001/PAGE2	BAB/M1/V2/S7
	X	X	X	j) TEST RUN FEEDER & CHECK BELT ALIGNMENT & TRACKING AT LOW/HIGH SPEED	NM1001/PAGE2	BAB/M1/V2/S7
13				RAW COAL PIPE	NM1001/PAGE2	BAB/M1/V1/S1
	X	X	X	a) INSPECT THE RAW COAL PIPE SQUARE TO ROUND AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S1
	X	X	X	b) INSPECT SECTION TWO OF RAW COAL PIPE AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S1

	X	X	X	c) INSPECT SECTION THREE OF RAW COAL PIPE AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S1
	X	X	X	d) INSPECT THE RAW COAL COMPENSATOR AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S1
	X	X	X	e) INSPECT SECTION FOUR OF RAW COAL PIPE AND RECORD CONDITION	NM1001/PAGE2	BAB/M1/V1/S1

5.6 HISTORY REQUIREMENTS

Nr.	SERVICE			ACTIVITY DESCRIPTION	INSPECTION	REFERENCE
	A	B	C		SHEET NO.	NO.
				SERIAL NUMBERS OF MAJOR COMPONENTS		
14				CW SYSTEM		
	X	X	X	a) INSPECT FOR LEAKS AND REPAIR		
	-	-	X	b) CLEAN & PRESSURE TEST OIL COOLER		
	-	-	X	c) CLEAN OUT & REPAIR CW FLOW INDICATOR		
15				MILL MOTOR		
	-	-	X	a) DRAIN OIL FROM BEARINGS		
	-	-	X	b) OPEN AND INSPECT BEARINGS		
	-	-	X	c) BOX UP BEARINGS REFILL WITH OIL & INSPECT FOR OIL LEAKS		
	-	X	X	d) CHECK FOUNDATION BOLT TIGHTNESS		
	-	-	X	e) BIBBY COUPLING TO BE SPLIT ALIGNMENT DONE AND BOXED UP		
16	X	X	X	FILL IN ATTACHED BABCOCK MILL PERFORMANCE SHEET		

BABCOCK MILL SERVICE INSPECTION RECORD

UNIT	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>/</td> <td>/</td> <td></td> <td></td> </tr> </table>	1	2	3	4	/	/			MILL	<table border="1"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> <td>F</td> </tr> <tr> <td>/</td> <td></td> <td>/</td> <td></td> <td></td> <td></td> </tr> <tr> <td>/</td> <td></td> <td>/</td> <td></td> <td></td> <td></td> </tr> <tr> <td>/</td> <td></td> <td>/</td> <td></td> <td></td> <td></td> </tr> </table>	A	B	C	D	E	F	/		/				/		/				/		/				SERVICE TO BE DONE BY HMD MILL SECTION
1	2	3	4																																	
/	/																																			
A	B	C	D	E	F																															
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		(I) SERVICE ISSUED II) SERVICE COMPLETED III) SERVICE RETURNED																																		
RUNNING HOURS		(I) MILL TOTAL	<table border="1"> <tr> <td>HRS</td> </tr> </table>	HRS	SERVICE	<table border="1"> <tr> <td>A</td> <td>B</td> <td>C</td> </tr> </table>	A	B	C																											
HRS																																				
A	B	C																																		

	(II) RINGS: TOP	HRS	NAME	
	BOTTOM	HRS		
	(III) BALLS	HRS		
PREVIOUS SERVICE	(I) SERVICE HOURS	HRS	SIGN	
	(II) BALL SIZE	MM		
	NEXT SERVICE	(I) HOURS	HRS	DATE
(II) BALL SIZE		MM		

5.6 HISTORY REQUIREMENTS

SI No. 1	SERIAL No. OF MAJOR COMPONENTS	
COMPONENT	EXISTING/ REMOVED	REPLACED
MILL GEARBOX		
MILL MOTOR		
FEED GEARBOX		
FEEDER MOTOR		
BOTTOM RING		
TOP RING		
BALL No. 1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

SI No. 5		SPIDER DIMENSIONS IN mm			
THICKNESS OF ...		SPIDE GUIDE WEAR PLATE		MILL GUIDE PLATE	
		LEADING	TRAILING	LEADING	TRAIL-ING
NORTH		mm	mm	mm	mm
EAST		mm	mm	mm	mm
SOUTH		mm	mm	mm	mm
WEST		mm	mm	mm	mm
SI No. 5		SPIDER GUIDE GAPS ON THE NDE WEARPLATE			
		BEFORE WORK			AFTER WORK
NORTH		mm			mm
EAST		mm			mm
SOUTH		mm			mm
WEST		mm			mm
SI No. 5		GAP BETWEEN SPIDER & TOP RING			
NUMBER 1		mm			
2		mm			
3		mm			

5.6 HISTORY REQUIREMENTS

SI No. 2	GRINDING BALL SIZES IN mm	
	EXISTING/REMOVED	REPLACED
BALL NO. 1	mm	mm
2	mm	mm
3	mm	mm
4	mm	mm
5	mm	mm
6	mm	mm
7	mm	mm
8	mm	mm
9	mm	mm
10	mm	mm
11	mm	mm

SI No. 6	YOKE DIMENSIONS IN mm
GAP BETWEEN YOKE AND BOTTOM RING	
NORTH	mm
EAST	mm
SOUTH	mm
WEST	mm

SI No. 8	REJECT SYSTEM DIMENSIONS IN mm	
CLEARANCES BETWEEN BRUSHES & REJECT CHAMBER LINER PL		
ANGLE BRUSH INNER EDGE		mm
ANGLE BRUSH INNER EDGE		mm
STRAIGHT BRUSH INNER EDGE		mm
STRAIGHT BRUSH INNER EDGE		mm

SI No. 3	GRINDING RING SIZED IN mm			
	EXISTING/REMOVED		REPLACED	
	BOTTOM	TOP	BOTTOM	TOP
NORTH WEST 'A'				
NORTH EAST 'A'				
SOUTH WEST 'A'				
SOUTH EAST 'A'				
NORTH WEST 'C'				
NORTH EAST 'C'				
SOUTH WEST 'C'				
SOUTH EAST 'C'				
INNER DIAMETER				
OUTER DIAMETER				

SI No. 9	GEARBOX DIMENSIONS IN mm			
BACKLASH ON THE INPUT SHAFT			mm	
GAP BETWEEN THE TWO COUPLING			mm	
ALIGNMENT	BEFORE ALIGNMENT		AFTER ALIGNMENT	
	RADIAL	AXIAL	RADIAL	AXIAL
<p>→</p> <p>+ -] [- + -] [-</p>				

ST No. 11	COAL FEEDER DIMENSIONS IN mm
SLACK OF CLEAN OUT CONVEYOR	
"E"	mm
"F"	mm

ST No. 5		SPIDER DIMENSIONS IN mm	
CLEARANCE “X” ON THE SWIVEL CUP			
No. 1	mm	No. 6	mm
No. 2	mm	No. 7	mm
No. 3	mm	No. 8	mm
No. 4	mm	No. 9	mm
No. 5	mm	No. 10	mm

CONTINUED

5.6 HISTORY REQUIREMENTS

REF. NO.						N	M	1	0	0	1	
DUVHA POWER STATION BABCOCK MILL SERVICE INSPECTION RECORD												
UNIT	1	2	3	4	MILL	A	B	C	D	E	F	
<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 2px;">/ /</div> <div> (I) SERVICE ISSUED (II) SERVICE COMPLETED (III) SERVICE RETURNED </div> </div>					<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 2px;">/</div> <div style="border: 1px solid black; padding: 2px;">/</div> </div>			<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 2px;">/</div> <div style="border: 1px solid black; padding: 2px;">/</div> </div>			SERVICE TO BE DONE BY HMD MILL SECTION	
SERVICE						A	B	C				
SI No. 2 GRINDING BALLS					CONDITION							
BALLS					OK NOT OK	REMARKS						
SI No. 3 GRINDING RINGS					CONDITION							
(a) TOP RINGS					OK NOT OK	REMARKS						
(b) BOTTOM RING					OK NOT OK	REMARKS						
SI No. 4 CLASSIFIER					CONDITION							
a) CLASSIFIER CONE					OK NOT OK	REMARKS						
b) SKIRTS					OK NOT OK	REMARKS						
c) INNER CONE					OK NOT OK	REMARKS						
d) VANE BLADES					OK NOT OK	REMARKS						
e) DISCHARGE DUCT					OK NOT OK	REMARKS						
f) VANE SEALS					OK NOT OK	REMARKS						
g) VORTEX FINDER					OK NOT OK	REMARKS						
SI No. 5 SPIDER					CONDITION							
b) COUPLING & PINS					OK NOT OK	REMARKS						
g) BOLTS (TIGHTNESS)					OK NOT OK	REMARKS						
h) SEALANT CONDITION					OK NOT OK	REMARKS						
SI No. 6 YOKE					CONDITION							
b) SEALANT					OK NOT OK	REMARKS						
SI No. 7 MILL BODY					CONDITION							
a) BOLTS (TIGHTNESS)					OK NOT OK	REMARKS						
b) DAMAGED COMPONENTS					OK NOT OK	REMARKS						
c) MILL LINING					OK NOT OK	REMARKS						
d) FOUNDATION BOLTS					OK NOT OK	REMARKS						

e) THROAT PLATES REPAIRED	OK NOT OK	REMARKS	
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5.6 HISTORY REQUIREMENTS

SI No. 8 REJECT SYSTEM	CONDITION		
a) RELIEF GATE	OK NOT OK	REMARKS	
b) REJECT BRUSH PLOUGHS	OK NOT OK	REMARKS	
d) INSPECTION DOOR GASKET	OK NOT OK	REMARKS	
e) INNER DOOR SPINDLE GLAND	OK NOT OK	REMARKS	
f) REJECT LINE	OK NOT OK	REMARKS	
g) JET PULSION PUMP V/V	OK NOT OK	REMARKS	
h) SEAL WTR ISOLATING V/V	OK NOT OK	REMARKS	
l) WTR SEAL DRAIN V/V	OK NOT OK	REMARKS	
j) WATER SEAL	OK NOT OK	REMARKS	
l) OVERHAUL JET PULSION P/P	OK NOT OK	REMARKS	
SI No. 9 GEARBOX	CONDITION		
a) BIBBY COUPLING & SPRINGS	OK NOT OK	REMARKS	
c) LABYRINTH & INPUT SHAFT SEAL GREASED	OK NOT OK	REMARKS	
d) CROWN WHEEL & PINION GEARS	OK NOT OK	REMARKS	
e) OIL FILTERS	OK NOT OK	REMARKS	
g) GEAR LUBRICATION NOZZLE FUNCTION	OK NOT OK	REMARKS	
SI No. 10 MILL SUMP	CONDITION		
a) FOUNDATION SPRINGS	OK NOT OK	REMARKS	
b) GERB DAMPER	OK NOT OK	REMARKS	
c) SUMP PUMP OPERATION	OK NOT OK	REMARKS	
SI No. 11 COAL FEEDER	CONDITION		
a) FEEDER BAR	OK NOT OK	REMARKS	
b) FEED FLOW ALARM PADDLE	OK NOT OK	REMARKS	
b) DISCHARGE ALARM PADDLE	OK NOT OK	REMARKS	
c) GREASE PIPES & SEALS	OK NOT OK	REMARKS	
d) BELT TENSION	OK NOT OK	REMARKS	
f) CHAIN SUPPORT PLATES	OK NOT OK	REMARKS	
g) CLEANOUT CONVEYOR	OK NOT OK	REMARKS	
h) FEEDER TABLE WEAR	OK NOT OK	REMARKS	
l) TEST RUN FEEDER	OK NOT OK	REMARKS	
SI No. 12 RAW COAL PIPES	CONDITION		

a) SQUARE TO ROUND PIPES	OK NOT OK	REMARKS				
b) SECOND SECTION	OK NOT OK	REMARKS				
c) THIRD SECTION	OK NOT OK	REMARKS				
d) COMPENSATOR	OK NOT OK	REMARKS				
e) FOURTH SECTION	OK NOT OK	REMARKS				
NAME:		SIGN:		DATE:		