
**IRI Power Plant Maintenance
Job Performance Measure (JPM)**

Mechanical Technician

(MM10-JPM)

Performance Measure: Metal Cutting Band Saw

Name: _____

All Parts Satisfactorily Completed:

(Supervisor's Signature)

(Date)

Supervisor's Comments: _____

References:

- Training Module MM10

Materials Needed:

- Pencil and Clipboard
- Equipment Maintenance Description – Metal Cutting Band Saw (UTA-MM10-EMD)
- Equipment Maintenance Procedure – Metal Cutting Band Saw (UTA-MM10-EMP)
- Associated Maintenance Checklist, Charts, Parts List, Technical Manuals

Safety/Environmental:

- Wear hard hats, safety glasses, safety toe shoe, and ear plugs as required.
- Discuss environmental hazards associated with performing maintenance of the equipment.
- Discuss any safety precaution that must be observed while performing the procedure.

Note: Always observe all plant safety rules in accordance with IRI Power Plant Utility Services Safety and Health Procedures and all Federal, State and/or Local Standards.

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Part A: Locate Equipment

Locate and identify the following equipment and major components.

1. Metal Cutting Band Saw

Satisfactorily Completed _____

Part B: Controls/Breakers

Locate and identify the following isolation devices.

1. Safety Switch
2. ON-OFF Pushbuttons

Satisfactorily Completed _____

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Part C: Preparation for Maintenance

This is to be performed under direction of the Shop Supervisor.

Demonstrate the following preparation for use of the Metal Cutting Band Saw including:

1. Prior to performing any work with the Metal Cutting Band Saw, clear the work area of scrap material and ensure adequate lighting exists to perform the desired work.
2. Place material supports as needed for cutting long pieces of material (stock).
3. Check that the saw blade is in good operating condition with all teeth in place and sharp and change if necessary.
4. Ensure there is an adequate amount of coolant in the reservoir when making a “wet” cut.
5. Check for an adequate amount of oil in the pivot point oil cups.
6. Check that the chip pan has adequate room for the amount of chips that will be produce during the cutting operation and empty if necessary.

Satisfactorily Completed _____

Part D: Operating Procedure

This is to be performed under direction of the Shop Supervisor.

Demonstrate the following operational steps for the safe and efficient operation of the Metal Cutting Band Saw.

1. Check that the saw bed is clear of any debris or previously cut material scraps.
2. Raise the saw head to clear the stock (material) being cut.
3. Place material supports as need for the length of stock (material) being placed in the saw.
4. Place material to be cut between the vise jaws and under the saw blade.
5. Bring the vise jaws up to the material but do not tighten until the material cut point is established under the blade.
6. Lower the saw head using the hydraulic dash-pot cylinder to a point just above the material to be cut.
7. Adjust the blade support guides as needed to clear both sides of the material in the vise, bringing the guides as close as possible without actually touching the material.
8. Measure and adjust the material as needed to attain the desired cut piece length.
9. Tighten the vise jaws, start the saw and open the lubricant/cooling fluid supply valve for the desired amount of lubricant/cooling fluid flow. (If not dry cutting)
10. Lower the saw head to the material by slowly opening the needle valve on the hydraulic dash-pot cylinder to start the blade cutting the material.

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Part D: Continued

11. Once the blade is cutting the material, open the hydraulic dash-pot cylinder needle valve all the way to allow the saw head pressure to feed the blade through the material.
12. In some cases it will be necessary to use the hydraulic dash-pot cylinder to control the downward feed of the saw through the material.
13. Once the saw cuts through the material it will automatically stop when shutoff device depresses the saw "OFF" pushbutton switch.
14. Shut the lubricant/coolant supply valve.
15. Close the hydraulic dash-pot cylinder valve and raise the saw head up to clear it from the work piece. (With the valve closed the saw will remain up away from the bed of the saw)
16. Loosen the vise jaws and remove the material/stock from the saw and place it back in the appropriate storage location.
17. Remove the cut off piece from the saw.
18. Cleanup any lubricant/coolant that has trailed its way to the floor and wipe any chips or other debris from the saw table and vise jaws.

Satisfactorily Completed _____

Part E: Preventive Maintenance

This is to be performed under direction of the Shop Supervisor.
Demonstrate the steps on the Metal Cutting Band Saw required to perform the following preventive maintenance tasks.

Pivot Pin Lubrication

1. Ensure power is off to the saw.
2. Open pivot pin oil cups and check oil levels.
3. Add 10 or 20 weight oil as needed based on current oil levels.

Blade Wheel Bearing Greasing

1. Ensure power is off to the saw.
2. Raise blade cover.
3. Decrease tension on the saw blade by turning the blade tension handle counter clockwise (CCW) enough to facilitate the removal of the blade from the saw.
4. Using protective gloves, carefully remove the saw blade from the drive and idler wheels and place it somewhere out of the way of personnel.

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Part E: Continued

5. Disassemble the idler and drive wheels from the saw.
6. Remove idler and drive wheel support bearings from their respective mounting locations.
7. Clean and repack bearing with a No.2 general-purpose grease.
8. If after cleaning the bearings they appear, by feel, to be rough, replace with the appropriate bearing(s).
9. Reinstall bearings in their respective mounting locations.
10. Reinstall the blade wheels on the saw head.
11. Using protective gloves, replace the saw blade on the wheels making sure that the teeth are pointed in the correct direction (teeth pointed in the direction of rotation or movement of the blade)
12. Apply enough tension to the saw blade by turning the tension handle in the clockwise (CW) direction to keep it from falling off the blade wheels.
13. Turn saw on and tighten blade tension handle (CW) until all blade vibration or flutter disappears.
14. Increase tension on the blade 1½ additional turns of the tension handle in the clockwise direction.
15. Close the cover and turn the saw off by depressing the “OFF” pushbutton switch.

Hydraulic Dash-Pot Cylinder Oil Replenishment

1. Add light oil to the cylinder, as needed based on operating conditions.

Satisfactorily Completed _____

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Part F: Corrective Maintenance

This is to be performed under direction of the Shop Supervisor.
Demonstrate the steps on the Metal Cutting Band Saw required to perform the following corrective maintenance.

Blade Wheel Bearing Replacement

1. Ensure power is off to the saw.
2. Raise blade cover.
3. Decrease tension on the saw blade by turning the blade tension handle counter clockwise (CCW) enough to facilitate the removal of the blade from the saw.
4. Using protective gloves, carefully remove the saw blade from the drive and idler wheels and place it somewhere out of the way of personnel.
5. Disassemble the idler and drive wheels from the saw.
6. Remove idler and drive wheel support bearings from their respective mounting locations.
7. Replace with like bearings.
8. Reinstall bearings in their respective mounting locations.
9. Reinstall the blade wheels on the saw head.
10. Using protective gloves, replace the saw blade on the wheels making sure that the teeth are pointed in the correct direction (teeth pointed in the direction of rotation or movement of the blade)
11. Apply enough tension to the saw blade by turning the tension handle in the clockwise (CW) direction to keep it from falling off the blade wheels.
12. Turn saw on and tighten blade tension handle (CW) until all blade vibration or flutter disappears.
13. Increase tension on the blade 1½ additional turns of the tension handle in the clockwise direction.
14. Close the cover and turn the saw off by depressing the “OFF” pushbutton switch.

Blade Replacement

1. Ensure power is off to the saw.
2. Raise blade cover.
3. Decrease tension on the saw blade by turning the blade tension handle counter clockwise (CCW) enough to facilitate the removal of the old blade from the saw.
4. Using protective gloves, carefully remove the saw blade from the drive and idler wheels and dispose of it properly.
5. Using protective gloves, carefully uncoil the new replacement blade
6. Place the saw blade on the wheels making sure that the teeth are pointed in the correct direction (teeth pointed in the direction of rotation or movement of the blade)
7. Apply enough tension to the saw blade by turning the tension handle in the clockwise (CW) direction to keep it from falling off the blade wheels.

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Part F: Continued

8. Turn saw on and tighten blade tension handle (CW) until all blade vibration or flutter disappears.
9. Increase tension on the blade 1½ additional turns of the tension handle in the clockwise direction.
10. Close the cover and turn the saw off by depressing the “OFF” pushbutton switch.

Satisfactorily Completed _____

Part G: Personnel and Equipment Safety

Performed all aspects of the JPM using safe operating practices and following plant safety and environmental procedures.

Satisfactorily Completed _____