# Operating a Metal Lathe

<table>
<thead>
<tr>
<th>Title</th>
<th>Work Task</th>
<th>Hazards</th>
<th>Controls</th>
</tr>
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<tbody>
<tr>
<td><strong>Preplan the Work</strong></td>
<td>1. Obtain personal protective equipment before the job.</td>
<td>1. None</td>
<td>1. Personal Protective Equipment (PPE) consisting of:</td>
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<td>-Safety glasses with side shields</td>
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<td>-Sturdy footwear</td>
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<td></td>
<td>-DO NOT wear jewelry or gloves that could get caught in equipment</td>
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<td>during operation. Long and loose hair must be contained.</td>
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<td><strong>Pre-operation Check</strong></td>
<td>2. Perform an equipment preoperational check.</td>
<td>2a. Entanglement in unguarded moving parts.</td>
<td>2a. Inspect guards prior to work.</td>
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<td>2b. Injury due to improper machine operations</td>
<td>2b. Locate and ensure you are familiar with all machine operations</td>
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<td></td>
<td>and controls.</td>
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<td><strong>Site Preparation</strong></td>
<td>3. Inspect for unsecured tools and objects on the lathe.</td>
<td>3. Tools and objects can fall and be propelled at the operator.</td>
<td>3. Remove unsecured tools and objects from the lathe.</td>
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</table>
| **Don PPE** | 4. Put on personal protective equipment before performing the job. | 4. None | 4. Personal Protective Equipment (PPE) consisting of:  
- Safety glasses with side shields  
- Sturdy footwear  
- DO NOT wear jewelry or gloves that could get caught in equipment during operation. Long and loose hair must be contained. |
|---|---|---|---|
| **Operation** | 5. Mount chuck or collet | 5a. Hand/finger contusion due to tool slippage from securing chuck or collet  
5b. Foot injury from dropping chuck/tool  
5c. Strain/sprain from transporting heavy and/or awkward chuck. | 5a. Use correct tool to secure chuck or collet  
5b. Wear recommended footwear  
5c. Use mechanical lifting device or get assistance |
| | 6. Set spindle speed | 6. Damage to cutting tool and/or spindle drive system | 6. Refer to operations manual and set proper spindle speed for material type/diameter to be machined |
| | 7. Set lathe feed | 7. Bodily injury and/or damage to workpiece from incorrect feed rate | 7. Refer to operations manual and set proper lathe speed |
| | 8. Select proper cutting tool and sharpened tool | 8. Dull tools and improper height lead to bad surface finishes, out of tolerance parts and potentially a hazardous situation. | 8. Use correct and properly sharpened tool |
| | 9. Set up workpiece in chuck or collet | 9a. Hand/finger contusion due to tool slippage from tightening chuck jaws or collet  
9b. Damage to workpiece due to loose and/or off center installation of workpiece into chuck  
9c. Strain/sprain from heavy and/or awkward workpiece  
9d. Damage from chuck key flying off  
9e. Long workpieces can bend and strike operator | 9a. Use correct tool to secure chuck jaws and collet to workpiece  
9b. Ensure workpiece is secure and evenly tightened into chuck or collet. Use dial test to center workpiece.  
9c. Use mechanical lift or get assistance from co-worker  
9d. Never leave key in chuck. For newer models, use spring-loaded or self-ejecting chuck key  
9e. Use workpiece of minimum length or use a bar feed tube to hold workpiece |
<table>
<thead>
<tr>
<th>Section</th>
<th>Task Description</th>
<th>Precautions/Actions</th>
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</table>
| 10. Lathe in operation | 10a. Injury to exposed body parts at points of operation  
10b. Eye injury from debris  
10c. Heat damage to part and cutting tool  
10d. Injury during measurements or adjustments | 10a. Keep body parts and clothes away from the point of operation  
10b. Wear PPE during operation  
10c. Start at low speed and slowly increase to avoid overheating; use coolant  
10d. Stop operation of lathe before performing measurements or adjustments |
| 11. Completing work | 11a. Injury to exposed body parts at points of operation  
11b. Strain/sprain from heavy workpiece  
11c. Trip/fall on other tools/materials  
11d. Foot injury from dropping workpiece | 11a. Ensure equipment has stopped prior to placing hands near the point of operation  
11b. Use mechanical lift or get assistance from co-worker  
11c. Clean work areas  
11d. Wear recommended footwear |
| Doff PPE | 12. Remove personal protective equipment after completing the job. | None |
| Training | -“Hands-On” training on lathe operation by competent person.  
-Machine Guarding self-study  
-Personal Protective Equipment | -Inexperienced operators must be supervised by a competent person |
| Created | Kim Haley, University IH  
Date Created: March 29, 2016 |
| Referenced Material | Environment, Health and Safety Manual; Chapter 5, Personal Protective Equipment  
Industrial Maintenance and Construction/Support Services Safety Manual; Machine Guarding Requirements |
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