

## B-07: Set Up Machine (3-Jaw, Collets, Etc.)

### SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.

### EQUIPMENT

- required holding device: 3 jaw chuck
- basic Toolmaker measuring devices
- piece

### RESOURCES

- job process sheet
- print
- manufacturer's programming/operating manual

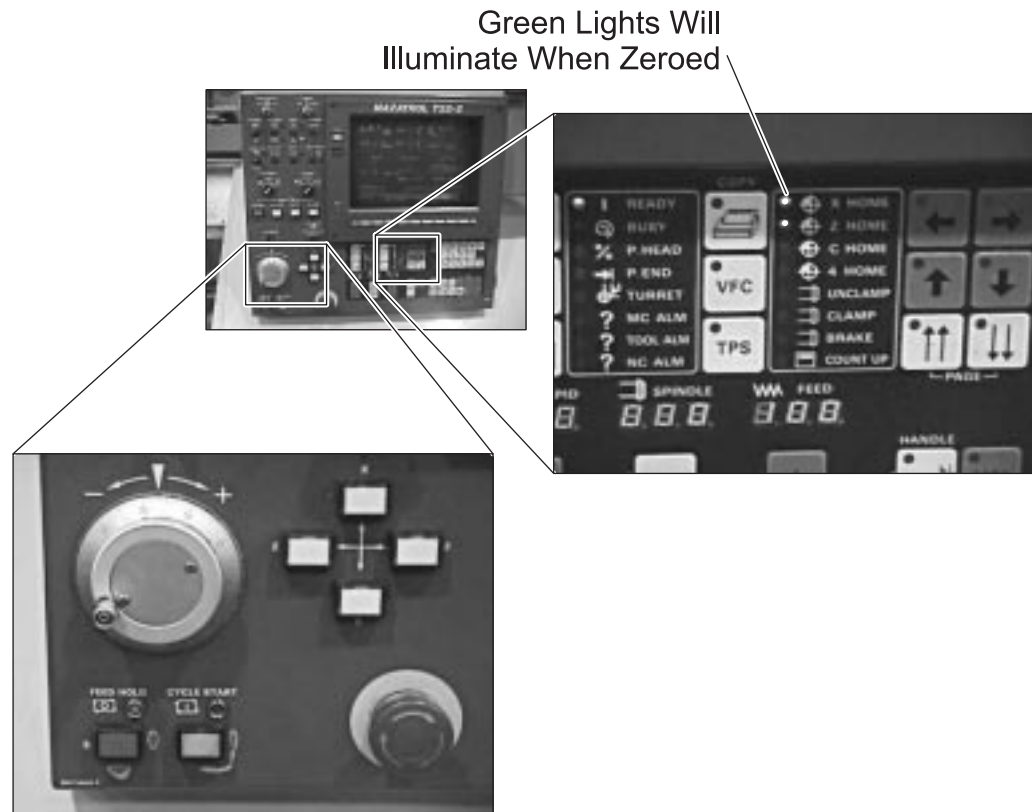
### Set Up Machine (3-Jaw, Collets, Etc.)

1. **Turn ON the machine power.**
2. **Set the machine in the Home position.**
  - Press the <Home> key.



Red Light Will Illuminate  
When Button is Pressed

- Manually move the X and Z axes until the green lights illuminate on the respective axis, and the screen shows X and Z are both at zero.



**3. Clean the machine.**

- Blow or wipe metal scraps and debris from the work area.

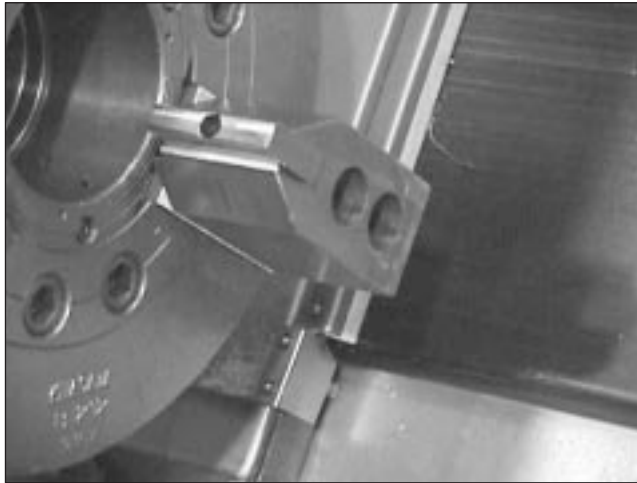
**4. Determine the required holding device.**

- The 3 jaw chuck is the most common on the lathe.

**5. Install the required jaws.**

- Verify that the jaws are free of debris.

- Match the jaw number with the spindle slot number.



### Matching Jaw and Spindle Slot

6. Center the part in the holding device.

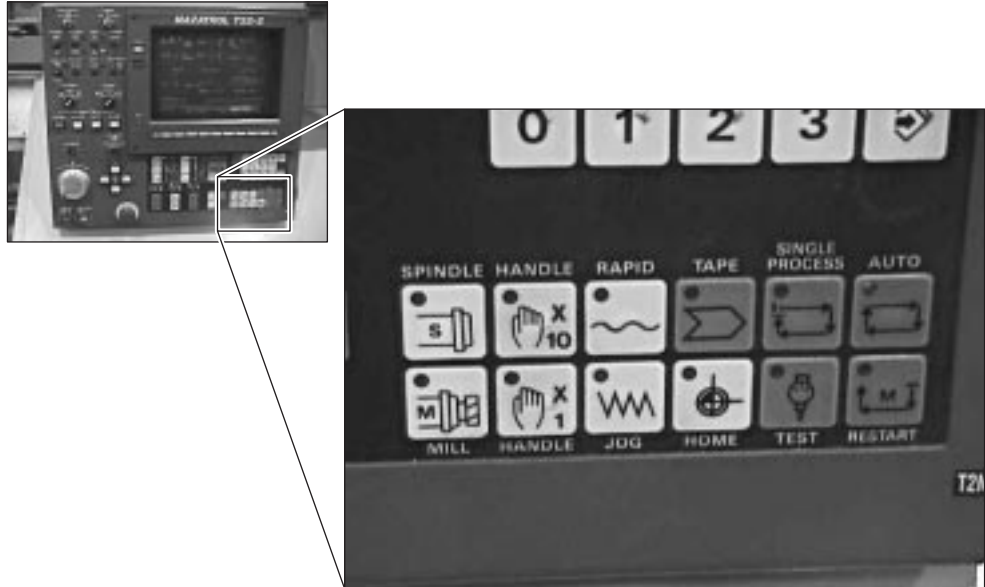
- Use a scale or count the number of teeth at the end of each insert.



### Centering the Part

**7. Verify the part setup.**

- Press the Handle X10, manual setting button.



- Set a low spindle speed.
- Start the spindle.
- Visually verify that the part is centered and not wobbling; adjust as required.

**8. Tighten the clamps, hammer-tight.**

**9. Set the chuck hydraulic pressure.****Hydraulic Pressure Setting**

- Do not exceed nameplate data for pressure specifications.
- Adjust the pressure, according to specifications for the various types of material.

**10. Select the required rough tooling.**

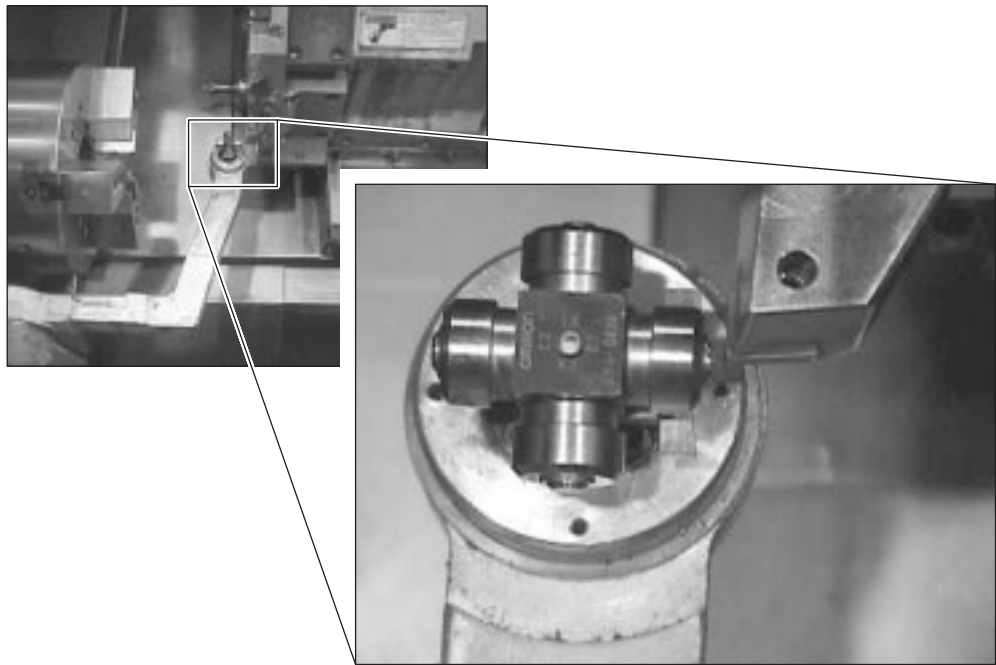
- Inspect the insert for damage and sharpness, replacing as needed.
- Check the tool cutting angle for proper clearance as shown in the manufacturer's manual.

**11. Set up to requalify the tool in the part center line.**

- Press the left green page softkey.
- Press the tool data softkey.
- Press the <Msr Unit On> softkey to turn on the measuring unit.



- Manually move the tool to the end of the Z axis part of the measuring unit.



### Tool Measuring Unit

- Press the <Tool Set Measure> softkey to measure the tool.

### 12. Requalify the Z axis.

- Press and hold down the left Z axis manual key until an audible beep sounds.
- Notice the Z value changes on the screen.

**13. Requalify the X axis.**

- Manually move the tool to the top of the X axis part of the measuring unit.

**Qualify the X Axis**

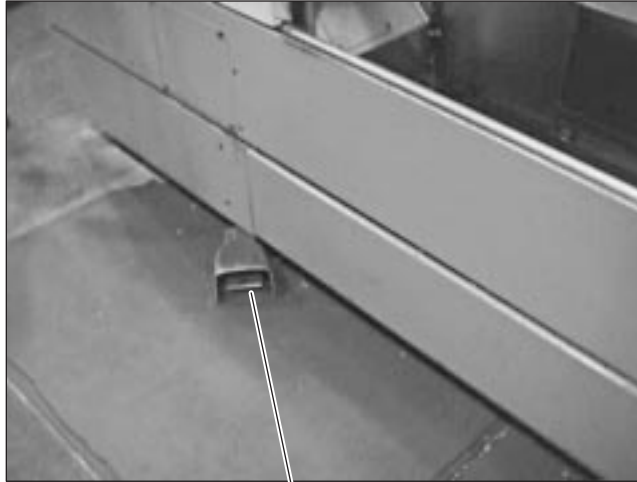
- Press the tool set measure softkey to measure the tool.
- Press and hold down the down X axis manual key until an audible beep sounds.
- Notice the X value changes on the screen.

**14. Turn off the measuring unit.**

**Caution:** Retract the tools to clear the measuring arm. You could damage the tool or the measuring arm.

**15. Install the piece.**

- Press the foot pedal to clamp the piece.



Jaw Pressure Foot Pedal

**16. Program the lathe according to the Toolmaker procedures.****17. Set a zero on the part.**

- Press the left green page button.
- Press Set Up.
- Press the right arrow key two times.
- Press Teach and type the required Z value.
- Press 0 for a chuck barrier.
- Type the jaw data number.
- Type the Grip Diameter value.
- Type a 1 for no tail barrier.
- Type a 1 for no tail stock.
- Distance, reference of tailstock to the chuck.

**18. Follow the Toolmaker procedures to program the CNC Lathe.**