

AA-03: Set Up Machine

SAFETY FIRST

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

EQUIPMENT

- shadow graph
- required holding device
- template, if required

RESOURCES

- print, if available
- shadow graph manufacturer's manual

Shadow Graph (Optical Comparator)

- 1. Determine piece requirements to optimize the dimensions on the shadow graph.**
 - Read the ticket or the print to determine what dimensions to check.
 - Evaluate the piece to determine the type of holding device required to optimally display the desired surface.
- 2. Verify the angular setting of the shadow graph table.**

- Verify that the setting is on 0 degrees unless another setting is required.



Angular
Setting

3. Select the shadow graph magnification level.



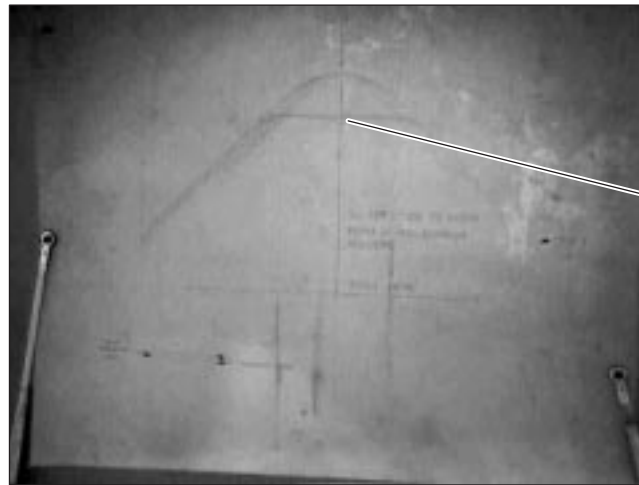
Magnification Level

- Set magnification according to the part requirements. Smaller parts may require higher magnification settings.

Templates

Note: Use a template when the piece must meet a preset angle or shape as shown in the template.

1. **Position the template on the shadow graph screen.**
2. **Line the X and Y axes of the template with the X and Y axes of the shadow graph screen.**



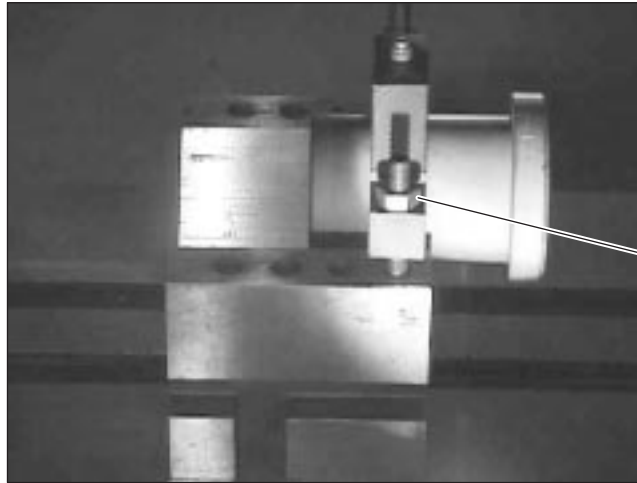
Matching Template and Shadow Graph Crosshairs

3. **Clamp the template into place, adjusting the clamps as needed.**
4. **Set up the piece in the required holding device according to the corresponding section steps listed below.**

V-block

1. **Position the V-block in the middle of the shadow graph table.**
2. **Position the piece in the V-block so that the edge you need to measure shows on the screen.**

- Secure the piece to the V-block as required.



Secure the
Piece as Needed

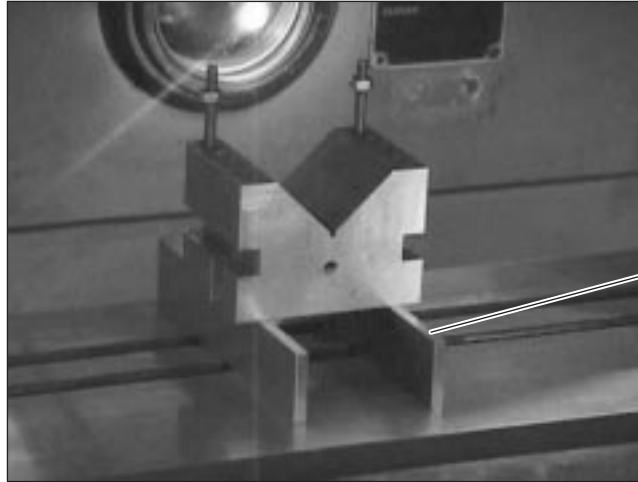
V-block Setup

3. Follow the Toolmaker procedures to set and check the size.

Parallels

1. Select a set of parallels to use to raise a piece or raise another holding device.

2. **Position the parallels so the piece, or holding device, is raised to provide the maximum illumination on the desired section of the piece.**



Use Parallels to
Raise the Piece

Parallels Setup

Tapered Pot

1. **Set up the tapered pot so the piece will extend in front of the shadow graph lamp.**
2. **Position and secure the piece in the tapered pot.**

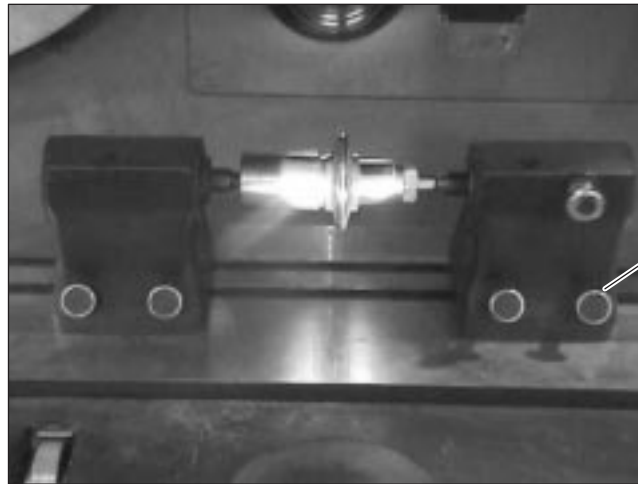


Tapered Pot Setup

3. Follow the Toolmaker procedures to set and check size.

Between Centers

1. Set up the centers in front of the illuminated lamp.
2. Install the piece to the centers.
3. Adjust the centers as needed to secure the piece.



Secure the Centers
After the Piece
is Lined Up

Between Centers Setup

4. Follow the Toolmaker procedures to set and check size.