

MP101/RB110 Manufacturing Processes

Layout Lab

Name: _____ Lab Section: _____ Date: _____

OBJECTIVE: To familiarize the student with the process and tools used to do Layout Work for a machined part. Layout Work is done to help guide the machinist/machine operator in machining features such as holes, slots, cutouts, angles, etc. in the correct location on the part per specifications given on the engineering part drawing.

Tools:

Surface plate
Layout dye (Blue Dykem is most common)
Scribe
12" or 6" scale
Height gage (vernier or dial)
Protractor
Dividers
Hermaphrodite caliper
Steel square or combination square

One 4" x 4" x 1" thick aluminum rectangular block

PROCEDURE:

Reference the "O-Ring Block" drawing.

1. Measure the dimensions of the block and verify the overall actual dimensions to drawing dimensions and tolerances.
2. Place the block on paper towels on top of a piece of cardboard. Use the blue layout dye (not much is required on the brush) and completely paint one of the 4" x 4" faces. Let dry.
3. Stand up the block so that the dye covered 4" x 4" face is perpendicular to the surface plate. Check perpendicularity using a precision square or combination square.
4. Referencing the drawing, use a vernier or dial height gage with scribe attachment to scribe the location of the centerlines of the O-ring groove. Scribe the location of the centerlines of the four Ø.450 holes.
5. Use a set of dividers to scribe the location of the outer and inner diameter circles of the O-ring groove.

6. Use a set of dividers to scribe the location of the Ø2.750 “bolt hole circle” for the six Ø.250 holes. Scribe the locations of the six Ø.250 holes
7. Scribe the outline of the hexagonal pocket.
8. Verify that all layout lines are in relation to the part drawing dimensions.
9. Have your instructor sign this sheet to verify that all locations are accounted for and the layout lines are complete and in the correct positions

***** STUDENTS DO WRITE BELOW THIS POINT *****

Instructor Name: (print)_____

Instructor signature: _____

Date: _____

Verification of dimensions _____

Grade _____

Comments:

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