

## MITUTOYO SERIES 180 PROTRACTOR CALIBRATION PROCEDURE #4

### ENVIRONMENT:

The environment must be relatively dust free. Clean the surrounding inspection area with Citri-Clean. Clean all the measuring instruments and gage blocks with an alcohol based cleaner.

### A. VISUAL INSPECTION

1. Inspect the measuring surfaces for nicks and burrs. Resurface if necessary.
  - a) Spray toolmakers ink on the measuring surfaces, let dry – 2 minutes.
  - b) Remove any burrs with a small file.
  - c) Inspect the surface using a straight edge/light penetration.
  - d) Remove high spots until measuring surface is sufficiently flat.
2. Inspect the casting body for cracks and nicks.
3. Inspect the blade and protractor plate for wear, nicks and readability.
  - a) Deburr or replace if necessary.
4. Inspect the clamping bolt assembly for wear. Do this for the swivel clamp and blade clamp.
  - a) If wear is excessive, replace components as required.

### B. CLEANING

1. Clean all components.
  - a) Disassemble protractor head.
  - b) Once disassembled use WD-40 to clean the components.
  - c) Remove excess WD-40 and oily residue with a clean, dry, lint free cloth.
  - d) Apply molycoat lubricant to bolt threads and main casting swivel.
  - e) Assemble components.

### C. INSTRUMENT PERFORMANCE

1. Inspect the function of the blade/swivel clamp. The blade and swivel should clamp tight with moderate pressure being applied to clamp bolts.
2. Ensure blade/swivel slide and rotate smoothly when unclamped.

**D. CALIBRATION**

1. Ensure all contact surfaces on protractor and gauge instruments are clean.
2. Complete upper portion on Measuring Instrument Inspection Report.
3. Inspect accuracy of protractor as outlined in lower portion of Inspection Report and document findings.
4. If applicable, calculate combined repair costs.
5. Clean all gauge instruments and return them to their proper place.
6. Clean the surrounding measuring instrument area.