

Manual Mill Setup & Operation Checklist

Step 1: Job Planning

- - ☐ Review print or drawing thoroughly.
- - ☐ Identify critical features (faces, holes, slots).
- - ☐ Determine material type and dimensions.
- - ☐ Choose appropriate tooling (end mills, drills, etc.).
- - ☐ Plan machining sequence (facing first, then features).

Step 2: Machine Preparation

- - ☐ Inspect machine for cleanliness and function.
- - ☐ Verify vise is installed properly.
- - ☐ Inspect and clean vise jaws and parallels.
- - ☐ Select and install correct cutting tools.
- - ☐ Check tool condition (sharpness, integrity).

Step 3: Workpiece Preparation

- - ☐ Clean workpiece surfaces.
- - ☐ Verify dimensions of raw stock.
- - ☐ Deburr sharp edges if necessary.

Step 4: Workholding Setup

- - ☐ Place parallels in vise (if needed).
- - ☐ Set workpiece firmly against parallels.
- - ☐ Lightly tighten vise, tap workpiece flat with mallet.
- - ☐ Final tighten vise securely.
- - ☐ Verify part is parallel and flat.

Step 5: Indicating and Zeroing

- - ☐ Use dial indicator or edge finder to locate edges.
- - ☐ Set X and Y zeros accurately.
- - ☐ Face the top surface and set Z zero.
- - ☐ Double-check all zero references before cutting.

Step 6: Machining Operations

- - ☐ Verify RPM and feed rate settings.
- - ☐ Perform facing to clean top surface.
- - ☐ Machine slots, pockets, or holes as per plan.
- - ☐ Drill features carefully, peck drilling if deep.
- - ☐ Chamfer or deburr machined edges as needed.

Step 7: Measurement and Inspection

- - ☐ Measure critical features (dimensions, squareness).
- - ☐ Use micrometers, calipers, or indicators.
- - ☐ Compare measurements to blueprint tolerances.
- - ☐ Record all findings for review.

Step 8: Cleanup and Review

- - ☐ Remove part and clean machine.
- - ☐ Remove tooling and inspect for wear.
- - ☐ Return all tools and gages to their proper locations.
- - ☐ Reflect on process: What went well? What could improve?

