

# Portable Router Bit Change and Depth Setting Standard Operating Procedure

## 1.0 Maintenance Objective & Frequency

The objective of this procedure is to safely and accurately change router bits and set the depth of cut on portable routers. Proper bit changes prevent collet damage, reduce runout, and ensure consistent cutting performance. Depth setting is critical for achieving precise joint geometry and avoiding overloading the motor. This procedure should be performed each time a bit change is required, or when depth adjustments are needed for a new operation.

## 2.0 Lockout/Tagout (LOTO) & Safety

- **Electrical Isolation:** Unplug the router from the power source. Verify the cord is disconnected and the switch is in the OFF position.
- **Personal Protective Equipment (PPE):** Wear safety glasses, hearing protection, and cut-resistant gloves. Do not wear loose clothing or jewelry.
- **Work Area:** Ensure the router is placed on a clean, stable workbench. Secure the router in a router table or a vise with padded jaws if necessary.
- **Hot Tool Warning:** If the router has been used recently, the collet and bit may be hot. Allow to cool before handling.

## 3.0 Required Tools, Parts & Lubricants

- Router collet wrench (typically two wrenches: one for the collet nut, one for the spindle lock)
- Router bit (correct shank diameter and type for the operation)
- Depth setting gauge or caliper (optional, for precise depth)
- Clean, lint-free cloth
- Light machine oil or collet lubricant (optional, for sticky collets)
- Torque wrench (if specified by OEM, typically not required for portable routers)

## 4.0 Step-by-Step Maintenance Procedure

1. Unplug the router from the power source and confirm the switch is in the OFF position.
2. If the router has a spindle lock, depress and hold it to prevent the shaft from rotating. If no spindle lock, use the second wrench on the collet nut.
3. Using the collet wrench, loosen the collet nut by turning it counterclockwise. Do not remove the nut completely; loosen only enough to release the bit.
4. Remove the old bit from the collet. Inspect the collet and the bit shank for debris, rust, or damage. Clean the collet and shank with a lint-free cloth.
5. Insert the new bit shank into the collet. Ensure the shank is inserted at least 3/4 of the collet length (typically 1/2 inch or more) but not so deep that the flutes contact the collet.

6. While holding the spindle lock, tighten the collet nut by hand until snug. Then use the wrench to tighten an additional 1/8 to 1/4 turn. Do not overtighten; excessive torque can damage the collet or bit.
7. Release the spindle lock and rotate the bit by hand to ensure it is seated straight and runs true. If wobble is felt, loosen, reseal, and retighten.
8. To set the depth of cut, place the router on a flat surface or on the workpiece. Loosen the depth adjustment lock lever or knob.
9. Lower the router base until the bit contacts the surface. For plunge routers, use the plunge lock to hold the bit at the desired depth.
10. Adjust the depth stop rod or turret to the desired depth. Use a depth gauge or caliper to verify the measurement. Tighten the depth lock.
11. For incremental depth passes (e.g., in a router table), set the turret to the first pass depth. Ensure the bit does not extend more than 1/4 inch below the base for the first pass.
12. Double-check that all locks are tight and the bit is secure. Remove any tools or debris from the work area.

## 5.0 Verification & Return to Service

1. Plug the router into the power source. Ensure the area is clear of bystanders and debris.
2. Turn on the router and let it reach full speed. Listen for unusual vibrations or noises. If any are present, stop immediately and recheck the bit installation.
3. Perform a test cut on a scrap piece of the same material. Verify the cut quality, depth, and edge finish.
4. Measure the depth of the test cut with a caliper or depth gauge. Adjust if necessary.
5. If the router is used in a router table, verify the bit height and fence alignment.
6. Sign off on the PM work order in ServiceGrid, noting the bit type, depth setting, and any observations.

**Regulatory Disclaimer:** This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.