

Drill Grinding Attachment Instruction Sheet

⚠️ WARNING

To reduce risk of serious personal injury when using this tool:

- Make sure the drill bit is firmly held in the grinder attachment, and the attachment is securely fastened to the workbench before starting the operation.
- Always wear ANSI approved eye protection when grinding.
- Read and follow the grinder manufacturer's safety precautions.
- When side-grinding, always use a grinding wheel that is specifically designed and approved for that purpose.

Identification (see Figure 2)

- A. **Lip Rest:** Keeps the drill bit from rotating during the operation.
- B. **Clamp:** Secures the drill bit in place against the trough.
- C. **Trough:** Keeps the drill bit in position relative to the grinding wheel.
- D. **Feed Screw:** Supports the bottom of the drill bit.
- E. **Feed Wheel & Lock Wheel:** Fine tunes the position of the feed screw and drill bit.
- F. **Adjustable Slide Bracket:** Provides initial positioning of the drill bit to the grinding wheel.
- G. **Mounting Base:** Allows the tool to be mounted to a workbench with $\frac{3}{8}$ " fasteners.
- H. **Pivot Tension Plate:** Controls the tension on the pivot stud.
- I. **Pivot Stud:** Allows the drill bit to turn in an arc against the grinding wheel.
- J. **Angle Adjustment:** Adjusts the angle of the trough to 1 of 5 available angles relative to the grinding wheel. This setting will produce the drill bit point angle.

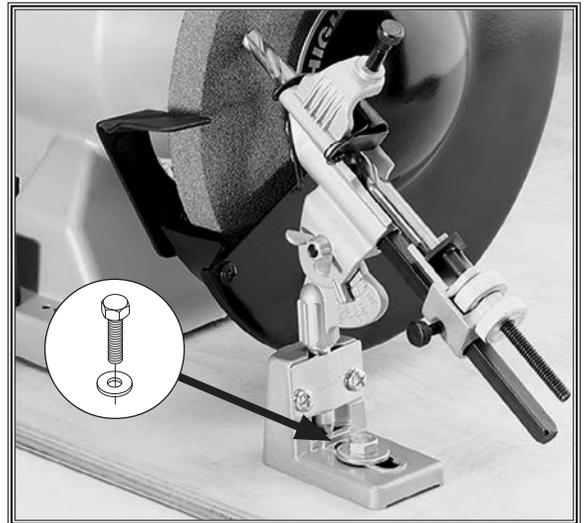


Figure 1. Model D4144 secured to a workbench.

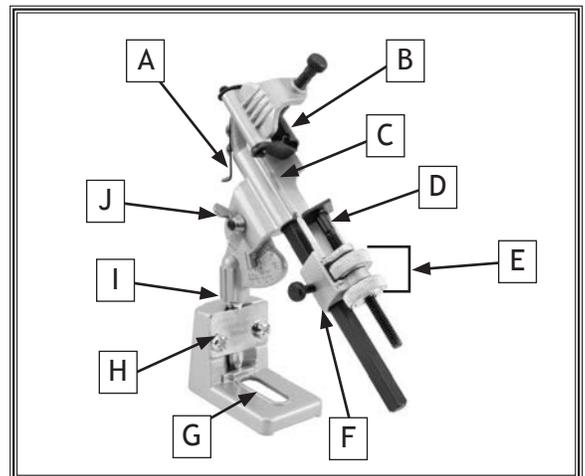


Figure 2. Model D4144 identification.

- J. **Angle Adjustment:** Adjusts the angle of the trough to 1 of 5 available angles relative to the grinding wheel. This setting will produce the drill bit point angle.

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Mounting

Mount the drill grinding attachment firmly to the workbench at a distance from the grinding wheel that will allow you to properly sharpen the drill bit as instructed below.

Typically, using a $\frac{3}{8}$ " x $1\frac{1}{2}$ " lag screw and $\frac{3}{8}$ " flat washer works well for most workbenches (see **Figure 1** on the previous page). Pre-drill the hole with a $\frac{5}{16}$ " drill bit, then hand-tighten the lag screw to avoid cracking the tool base.

Operation

1. DISCONNECT GRINDER FROM POWER!
2. Refer to the chart in **Figure 3** and select the correct point angle setting for the drill bit application, then use the angle adjustment wing nut and angle scale below it to set the trough to the selected angle. This angle will provide the point angle of the bit (see **Figure 4**).
3. Loosen the clamp thumb screw and place the drill bit in the trough.
4. Use the adjustable slide bracket to position the end of the drill bit past the lip rest by the correct overhang amount as directed in the chart (see **Figure 5** for an example). This will provide an adequate bit length for sharpening.
5. Move the lip rest up against the inside flute of the bit, then tighten the two screws to secure it in place. The lip rest will keep the bit from rotating when grinding.
6. Use the feed wheel to fine tune the position of the drill bit, then tighten the feed lock wheel and the clamp thumb screw to hold the bit in place.

| Application | Point Angle | Overhang |
|-----------------|-------------|--------------------|
| Thin Sheets | 88° | $\frac{1}{16}$ " |
| Hard Materials | 68° | 50% Drill Diameter |
| General Purpose | 59° | 50% Drill Diameter |
| Soft Materials | 49° | 50% Drill Diameter |
| Countersinks | 41° | As Needed |

Figure 3. Point angle and overhang chart.

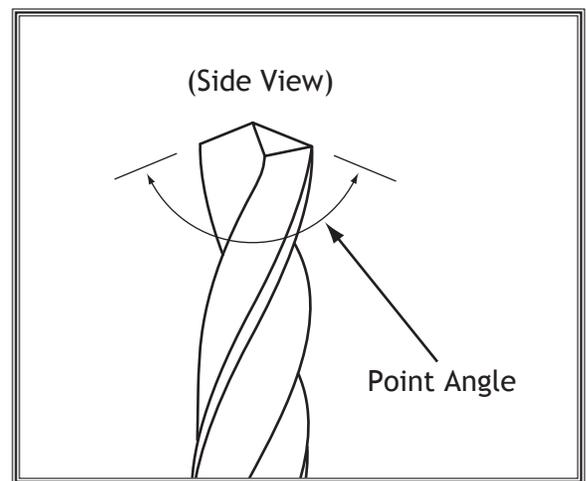


Figure 4. Drill bit point angle.

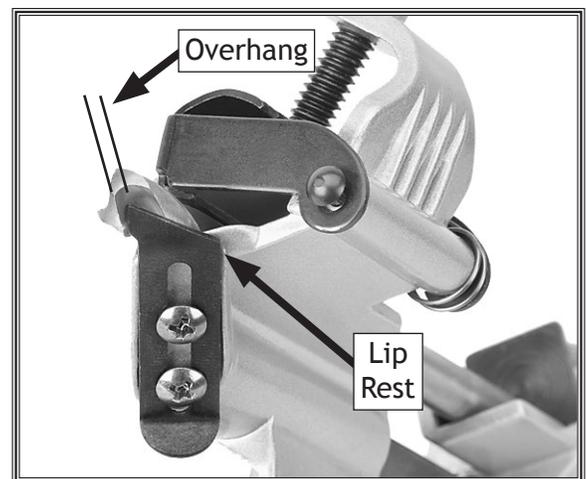


Figure 5. Drill bit positioned past the lip rest by the proper overhang amount.

7. Loosen the mounting fastener that secures the tool base, then slide the tool toward the grinding wheel so that the bit touches the wheel.
8. Pivot the tool left and right to make sure the pivot stud is loose enough and that the drill bit is properly positioned. If necessary, tighten or loosen the pivot tension plate to adjust the movement of the pivot stud.
9. Put on safety glasses, then connect the grinder to power and turn it **ON**.
10. When the wheel has reached full speed, pivot the drill bit left and right across the face of the grinding wheel until the drill bit no longer makes contact with the wheel.
11. Turn the grinder **OFF** and wait for the grinding wheel to completely stop.
12. If necessary, loosen the clamp thumb screw and use the feed and lock wheels to advance and secure the drill bit toward the grinding wheel for additional sharpening, then repeat **Steps 9-11** until you are satisfied with the cutting edge of the bit (see **Figure 6**).
13. Without changing the settings of the feed screw, loosen the clamp thumb screw, rotate the drill bit 180°, then re-tighten the clamp. This will ensure both cutting edges are sharpened the same amount.
14. Repeat **Steps 9-11** to complete the grinding operation.
15. When the grinding wheel is completely stopped, remove the drill bit and inspect the heels behind the cutting edges. To enable the drill to properly cut material, the heel must be lower and slope down from the cutting edge, as shown in **Figure 6**.
 - If the heels are not lower and do not slope down from the cutting edge, use a flat file to make sure they do. As you do this, take care not to change the cutting edge with the file.

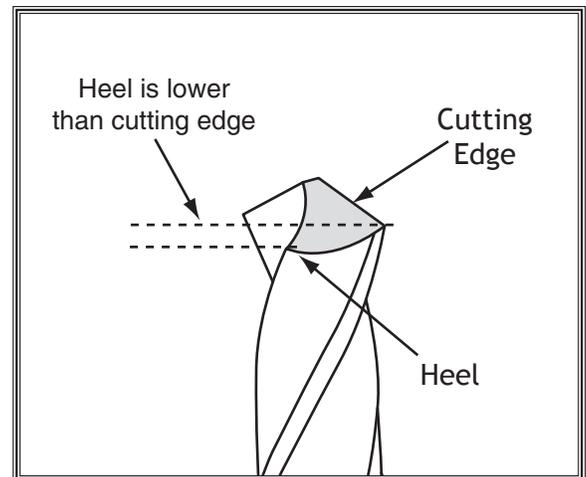


Figure 6. Heel must be lower than the cutting edge.