



Engine turning on gun parts, also known as damascening or jewelers, has been used for many years as both a decorative and functional feature on bolt action rifle bolts and followers, shotgun bolts, the water tables of side-by-side shotguns, flat parts such as hammers and triggers and the inside, flat areas of revolver frames and side plates. Since Engine Turning Brushes are used with abrasive compounds, the gunsmith has great control over the diameter, depth and brilliance of the swirl pattern that the Brush will cut into the part.

On flat hammer and trigger sides, revolver frames and sideplates, and shotgun lockplates, engine turning cuts down on internal friction by reducing the area of contact on the parts. It also does a much better job of holding lubricant on the surface than plain, polished parts can.



WARNING



Never attempt to disassemble or reassemble a firearm unless you are absolutely certain that it is empty and unloaded. Visually inspect the chamber, the magazine and firing mechanism to be absolutely certain that no ammunition remains in the firearm. Disassembly and reassembly should follow the manufacturer's instructions. If such instructions are not immediately available, contact the manufacturer to see if they are available. If they are not available at all, then you should consult other reference sources such as reference books or persons with sufficient knowledge. If such alternative sources are not available and you have a need to disassemble or reassemble the firearm, you should proceed basing your procedures on common sense and experience with similarly constructed firearms.

With regard to the use of these tools, the advice of Brownells Incorporated is general. If there is any question as to a specific application it would be best to seek out specific advice from other sources and not solely rely on the general advice and warnings given.

WARNING!

You are working in close proximity to revolving parts in a drill press/milling machine. Read and follow all safety instructions from the machinery manufacturer. Be certain the machinery will not grab clothing, jewelry or hair, by using appropriate safety precautions.

HOWTO USE

The Brownells Engine Turning Brush Set contains six brushes, twelve ¼" O-rings and a 4" length of heat-shrink tubing. The amount that the brush will flare out when it is revolving is controlled by using one or two O-rings or a section of heat-shrink tubing applied to the wire bristle section of the brush. The tighter the brush bristles are contained, the smaller the swirl it will make when it is revolved and pressed against the workpiece.

To apply the Heat-Shrink Tubing to the Brush: Cut off an ½" to ¾" long section of the tubing provided. Slip this piece over the bristles of the Brush, so that it butts up to the body of the Brush. Use a hot air heat gun, home hair blow dryer, match or lighter to heat the heat-shrink tubing until it contracts tightly around the brush bristles. Experiment by engine turning polished pieces of scrap steel to determine the best length of heat-shrink tubing for the swirl size desired.

To apply the O-rings to the Brush: Slip one or two O-rings onto the ½" shaft of the brush and roll the O-ring(s) down onto the bristles of the brush. Again, experiment to determine the best number of O-rings (one or two) and the proper down pressure of the brush against the work to give the desired results.

The proper size engine turning swirl to use will vary with the gun and application. Higher grade firearms, as well as small-sized parts, have traditionally used a finer, smaller sized swirl pattern than lower grade guns and larger parts. The type and amount of surface polishing done before engine turning will also have an effect on the finished job. We recommend that the surface be polished to at least a 400 grit Polish-O-Ray™ finish, with 500 grit being better.

To Engine Turn the parts: Place the part to be engine turned in an appropriate holding fixture on the milling machine or drill press milling table. Mix a teaspoon or so of 120 grit Silicon Carbide abrasive with enough Brownells Do-Drill™ (or other good quality cutting oil) in a glass or plastic container to make up a medium-thin paste. Hold the Engine Turning Brush

BROWNELLS® ENGINE TURNING BRUSH SET

READ & FOLLOW THESE
INSTRUCTIONS

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in a Brownells Engine Turning Brush Holder mounted in the machine's chuck, or hold the Brush directly in the chuck. Determine the location of the first swirl. Smear a thin coat of the abrasive paste on the part, turn on the machine's motor at a fairly high rpm and lower the brush onto the part. You will have to determine the appropriate amount of down pressure on the brush through experimentation and observation. Raise the brush from the part and index it the proper amount so the swirls will overlap as desired. Lower the brush back to the work, and continue making/creating overlapping swirls until the pattern is finished.

To clean up the parts after engine turning: If Do-Drill has been used to mix the abrasive compound, use a mineral spirits-based solvent or Brownells TCE Cleaner Degreaser. Use an appropriate catch basin and pour the solvent over the part to clean off the bulk of the abrasive compound. Carefully use a soft bristle brush with more, clean solvent to remove the remainder of the abrasive compound. Be careful NOT to scratch the surface of the freshly engine turned part when cleaning. Clean the holding fixture thoroughly and oil the parts and the holding fixture with an appropriate lubricant to prevent rust. Be absolutely certain that no abrasive compound remains on locking lugs, cocking cams, sear engagement surfaces, etc., of any moving part or surface that contacts a moving part.

Reassemble the firearm according to the manufacturer's instructions. Check for proper functioning using **ACTION PROVING DUMMIES**. Make sure **ALL SAFETY MECHANISMS** are fully functional as designed and approved by the manufacturer. If these tests prove satisfactory, test-fire the firearm with live ammunition in a **SAFE** and **APPROPRIATE** manner. **IMPORTANT!** Start the live ammunition tests by first loading an **ACTION PROVING DUMMY**, then a live round, into the magazine. Only after several tests have been conducted in this manner should additional rounds be placed in the magazine and fired.