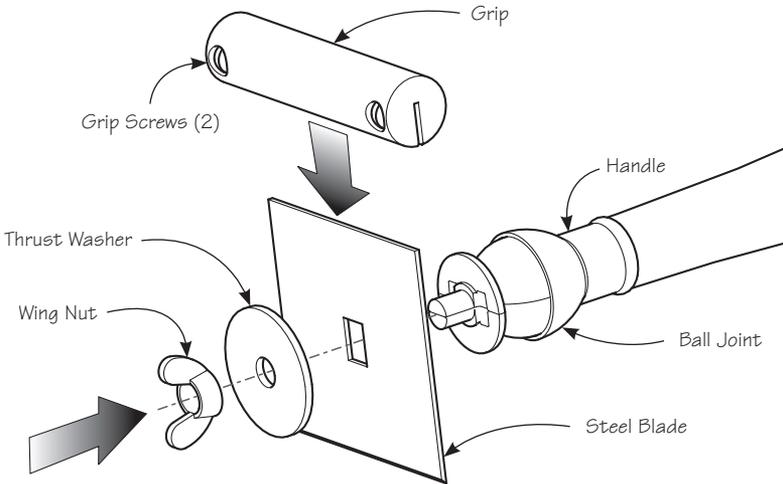


## Ball-Joint Scrapers

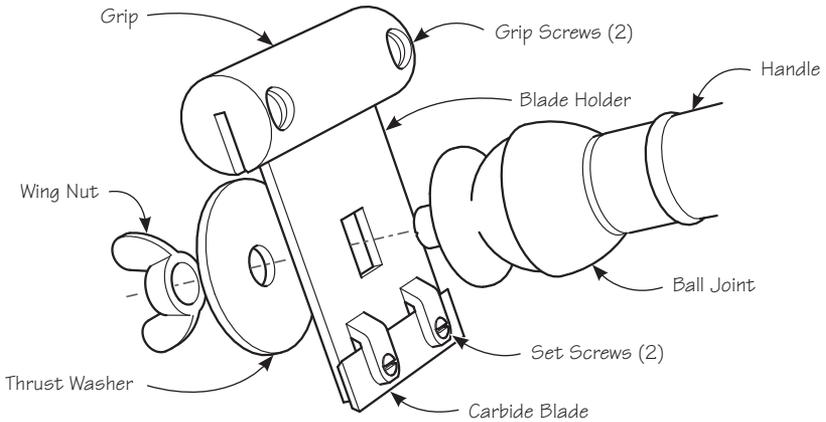
---

The Veritas® Ball-Joint Scraper is based on a tool originally made by L.S. Starrett Tool Company but out of production for many years. Originally made and still useful for preparing hardwood floors prior to finishing, this tool also excels at many jobs, from cleaning up a workbench top to removing dried glue before planing. The scraper equipped with a high-carbon steel (HCS) blade (05K21.01) is extremely versatile as it provides at least three different working edges, each of which can be sharpened straight, curved or custom ground to any desired profile. The blade comes ready to use with a 45° bevel on one edge. The integral ball joint allows the blade to be securely locked at any desired angle with a twist of the handle.

The scraper equipped with a carbide blade and holder (05K21.04) is for the most demanding scraping jobs. The 2" wide carbide blade not only stays sharp many times longer than steel, it excels at removing paint, glue and accumulated dirt. The reversible blade is securely fastened to a formed-steel holder with two set screws. For working in tight spots, the wooden grip can be removed. The carbide blade is also slightly wider than the holder to allow scraping right into a corner.



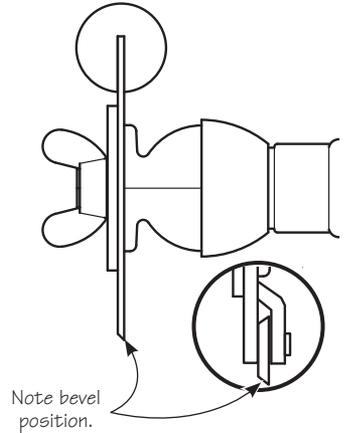
**Figure 1: Scraper assembly, HCS blade (05K21.01).**



**Figure 2: Scraper assembly, carbide blade and holder (05K21.04).**

## Assembly

1. Remove all parts from the box.
2. Unscrew the wing nut and remove the thrust washer.
3. Place the appropriate blade as shown in **Figure 1** or **2**, ensuring the rectangular hole lines up with the shoulder on the ball joint so the blade sits flat against the ball-joint flange. Orient the bevel as shown in **Figure 3**.
4. Replace the thrust washer and re-install the wing nut. **Do not use pliers or any similar tool to tighten the wing nut!** Finger tight is more than adequate.



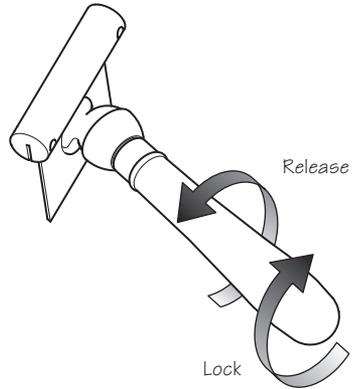
**Figure 3: Bevel orientation.**

5. Place the grip on the edge opposite the bevel. Back off the grip screws as required and insert the blade in the grip slot. Make sure the handle is fully engaged, with the bottom of the slot in contact with the blade edge. Tighten the grip screws until the grip cannot be pulled off by hand. To avoid overtightening the brass screws (and possibly stripping them or the threaded inserts), the first time you try this, advance each of the screws just a quarter turn at a time, testing how firmly the grip holds the blade each time.

6. **Carbide Blade Only:** Install the carbide blade with the bevel oriented as shown in **Figure 3** (inset). Tighten the set screws just until the blade is no longer loose, then rotate them one additional quarter turn. **Do not** overtighten the set screws as this will bend the holder. Install grip as shown.

### Blade Adjustment

1. To release the ball joint for blade adjustment, check that the ball-joint scraper is fully assembled and the grip securely installed.
2. Grasp the grip with one hand, and the handle with the other. Twist the handle counterclockwise as shown in **Figure 4**.
3. Position the handle at the desired angle. Lock the position by twisting the handle clockwise.

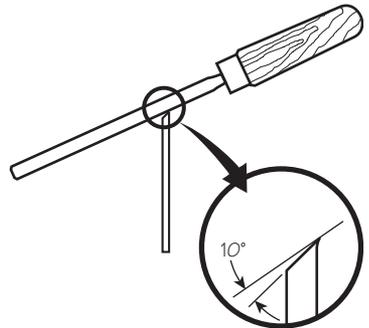


**Figure 4: Blade adjustment.**

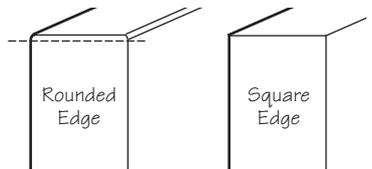
### Sharpening, Steel Blade Only

Depending on how you want to use the ball-joint scraper, there are three to six different edges available to use. The blade is provided with one bevelled edge, which may be used as supplied or reground to a different angle or square as desired. The edges adjacent to the bevel may also be prepared for use by grinding on a bevel, leaving them square, or burnishing them. Bevelled edges are usually ground at 45°, honed to a keen edge and then used as is or burnished at about 10° if you prefer a hook.

Square edges are most easily prepared on a belt sander. All you want is to strip off any worn portion to recreate a sharp arris.



**Figure 5: Bevelled edge.**



**Figure 6: Square edge.**

**Warning:** **Do not** grind a bevel on the edge where the grip is installed. If the grip ever split or broke in use, the blade could come in contact with the user's hand.

## Step 1: Burnishing

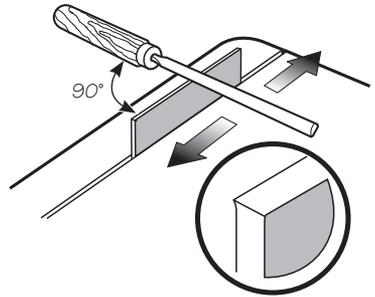
Some people prefer to work with a more aggressive scraping action than a square edge, but without going to the trouble of preparing and maintaining a bevelled edge. This role is filled by a square edge with a hook burnished onto it. Any burnisher will do, providing it is harder than the blade (which is Rc49-50) and is polished to avoid creating a ragged hook. The Veritas® Tri-Burnisher (05K32.01) is a good choice. This teardrop-shaped burnisher is able to do both straight and curved edges. For the ultimate in ease of use and consistency in hook angle, we suggest using the Veritas® Variable Burnisher (05K37.01) for straight edges.

Burnishing is best done with the blade removed from the handle and clamped in a vise so that the blade stands erect. Draw the burnisher along the flat of the edge with firm pressure (**Figure 7**).

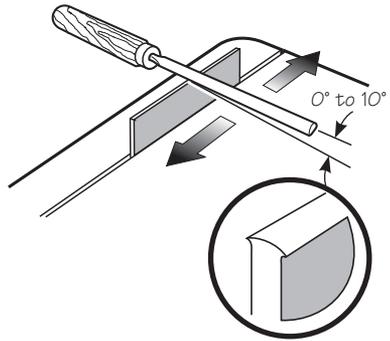
After two or three strokes, a burr is formed. For fine work this may be adequate. Usually you will have to tilt the burnisher a few degrees to get enough hook (**Figure 8**). Only for heavy work (e.g., paint scraping) should the angle be greater than  $10^\circ$ . The amount of hook will depend on the burnishing angle, the pressure used, and the number of strokes.

## Step 2: Resharpening

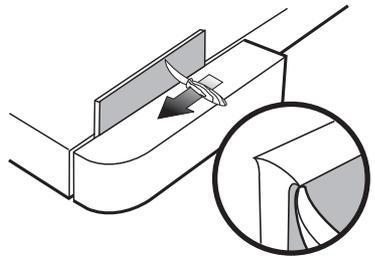
An edge can be “picked up” once or twice by running a sharp point along the edge under the hook (**Figure 9**). But if there are any nicks in the hook, you should repeat the sharpening process, starting with *Step 3: Jointing*.



**Figure 7: Initial burnishing.**



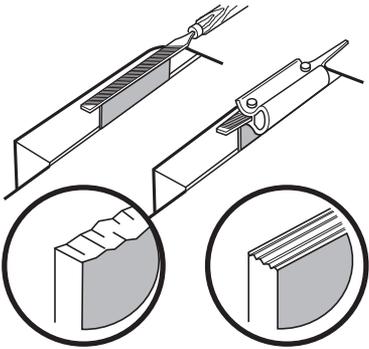
**Figure 8: Burnishing a hook.**



**Figure 9: Resharpening.**

### Step 3: Jointing

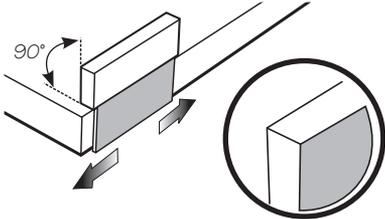
Using a mill bastard file, the edge to be used should be squared so that it is a continuous smooth plane without nicks or shear marks. This can be done by holding the blade against an erect surface such as a bench or, even better, in a vise (**Figure 10**). For greater accuracy and a true edge, we suggest using the Veritas® Jointer and Edger (05M07.01).



**Figure 10: Jointing.**

### Step 4: Stoning

After filing, the blade edge will have small serrations that should be removed by stoning. You can do this by first sitting the stone on top of your bench while projecting it a bit over the side; then, while holding the blade against the front of your bench, slide it back and forth underneath the stone until you have removed any file marks (**Figure 11**). If you use a water stone, you should use the edge of it since the blade will scratch the stone. After the jointed edge has been stoned, the adjoining flats should be lightly stoned to remove any residual burrs. You are then ready to reburnish the blade.



**Figure 11: Stoning.**

## Care and Maintenance

The following precautions will ensure the ball-joint scraper provides years of service.

- Never use the ball-joint scraper to strike a workpiece (such as for use in place of an adze).
- Never strike the blade with a hammer or any other hard object.
- If desired, a small amount of light machine oil may be applied to the mating threads of the locking mechanism but **never** apply any kind of oil or other lubricant to the mating spherical surfaces of the ball joint.
- **Never** use pliers or any other similar tool to tighten the wing nut. Finger tight is quite sufficient to hold the blade firmly.
- Keep the ball-joint scraper from water or humid storage conditions. Under such conditions, the wooden parts can swell and split, while the blade and other steel parts will rust. A light coat of wax or mineral oil on the steel parts (except the mating surfaces of the ball joint) will help prevent rust.

## Carbide Blade Tips

- When scraping old finish down to bare wood, we suggest you round the corners (one edge only) of the carbide blade to help minimize gouging the surface. (We don't recommend rounding both edges since a square edge is often useful when working into a corner.) While almost any kind of abrasive wheel *can* be used, unless it is specifically made for carbide, it will wear quickly.
- Since the carbide blade is not resharpenable, you can save unnecessary wear and tear by switching to the HCS blade. The HCS blade is easily resharpened and will usually provide the best results on bare wood, or when removing varnish and light finishes such as oil or shellac, or minor discoloration from water damage.
- When the carbide blade becomes too dull for paint removal, you can use it for rough scraping jobs such as removing dried glue squeeze-out prior to planing, loose rust on ironwork, or adherent grit on masonry formwork.

## Accessories

- 05K21.02** Replacement High-Carbon Steel Blade
- 05K21.06** Replacement Carbide Blade
- 05K21.07** High-Carbon Steel Blade Assembly
- 05K21.05** Carbide Blade Assembly