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The Ultimate Sharpening Station

In this plan you will be getting:

- Step by Step construction instruction.
- A complete bill of materials.
- Exploded view and elevation drawings.
- How-to photos with instructive captions.
- Tips to help you complete the project and become a better woodworker.

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WJ120


Odorless
Mineral
Spirits

The Ultimate Sharpening Station

There seems to be a strong correlation between the amount of time woodworkers spend in the shop and the shape of their tools. Novices rarely sharpen, while the pros are almost fanatical about slurries, grits and bevel angles. During editor Rob Johnstone's quarter of a century as a professional woodworker, he's accumulated most of the elements of a great sharpening station. Trouble was, the tools and supplies were so widely scattered around the shop that an otherwise calming activity — sharpening — was becoming more and more of a headache. Then the resolve came: Time to stop searching for stuff and start building them a proper home.

Starting with the Carcass

Melamine-coated particleboard is a great choice for the carcass of this station because it's durable, inexpensive and resistant to the fluids involved in sharpening. It's heavy, too, and this extra weight doesn't hurt; the station needs to be solid to absorb the vibrations of machines and the elbow grease of a determined woodworker.

Begin construction by cutting parts to the dimensions shown in the Material List on the next page. After counterboring and predrilling for the screws (see the Technical Drawings on page 14 for locations), glue and screw the bottom trim (pieces 1) to the bottom edge of two of the sides (pieces 2). Use three 2" screws (pieces 3) to secure each piece of trim.

The remaining side serves as a center divider and is attached to the bottom (piece 4) with screws. Lay out and predrill the countersunk holes in the bottom as shown in the Technical Drawings. Before attaching it, bore countersunk holes through two faces of the divider cleat (piece 5) and mount it to the back end of the divider, as shown in the Carcass Exploded View on page 13. Attach the center divider to the bottom, using care to keep the pieces square.

Next, glue and clamp trim (pieces 6 and 7) to the side and bottom edges of the back (piece 8). Now, with the T-shaped subassembly on a large flat surface, glue and clamp both sides to the bottom.

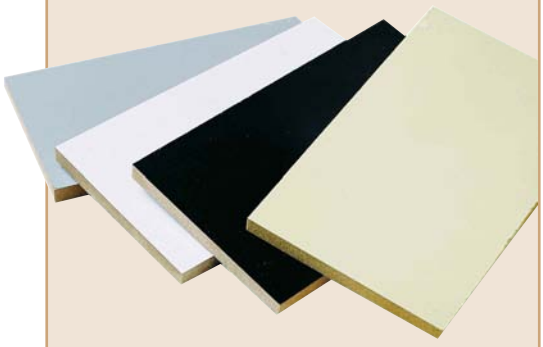
After the glue cures, glue and clamp the back to the sides and the bottom. Next, make sure the center divider is perfectly square within the cabinet cavity and drive screws into the back through the remaining holes in the divider cleat. To keep the assembly from moving, tack a temporary cleat across the top of the three sides with short brads. You can remove it once the face frame is in place.

The left-hand bay of your new carcass receives a shelf (piece 9) supported by four cleats (pieces 10 and 11). Predrill three of the cleats for 1¼" screws (pieces 12) at the locations shown on the *Technical Drawings*, then fasten the cleats in place. Drive screws up through the cleats to secure the shelf. The last cleat will be attached to the face frame later.

Making the Face Frame

With the rough treatment this sharpening station will receive over the years, it

MELAMINE



If you happen to have a chemistry lab attached to your shop, heat up a bucket of dicyandiamide and you'll have the chief component for making melamine resin. Add formaldehyde and you're on your way to a nice laminated plastic. Now all you have to do is impregnate some Kraft paper with phenolic resin and bond it to your melamine layer.

Too much? The alternative is to walk into a building supply center and ask for melamine board. They'll show you a stack of particleboard with a plastic covering that works great for projects like this sharpening center. Melamine comes in several colors and is sold oversized at 49" x 97" to allow for trimming.

Four Steps to Chip-free Cutting

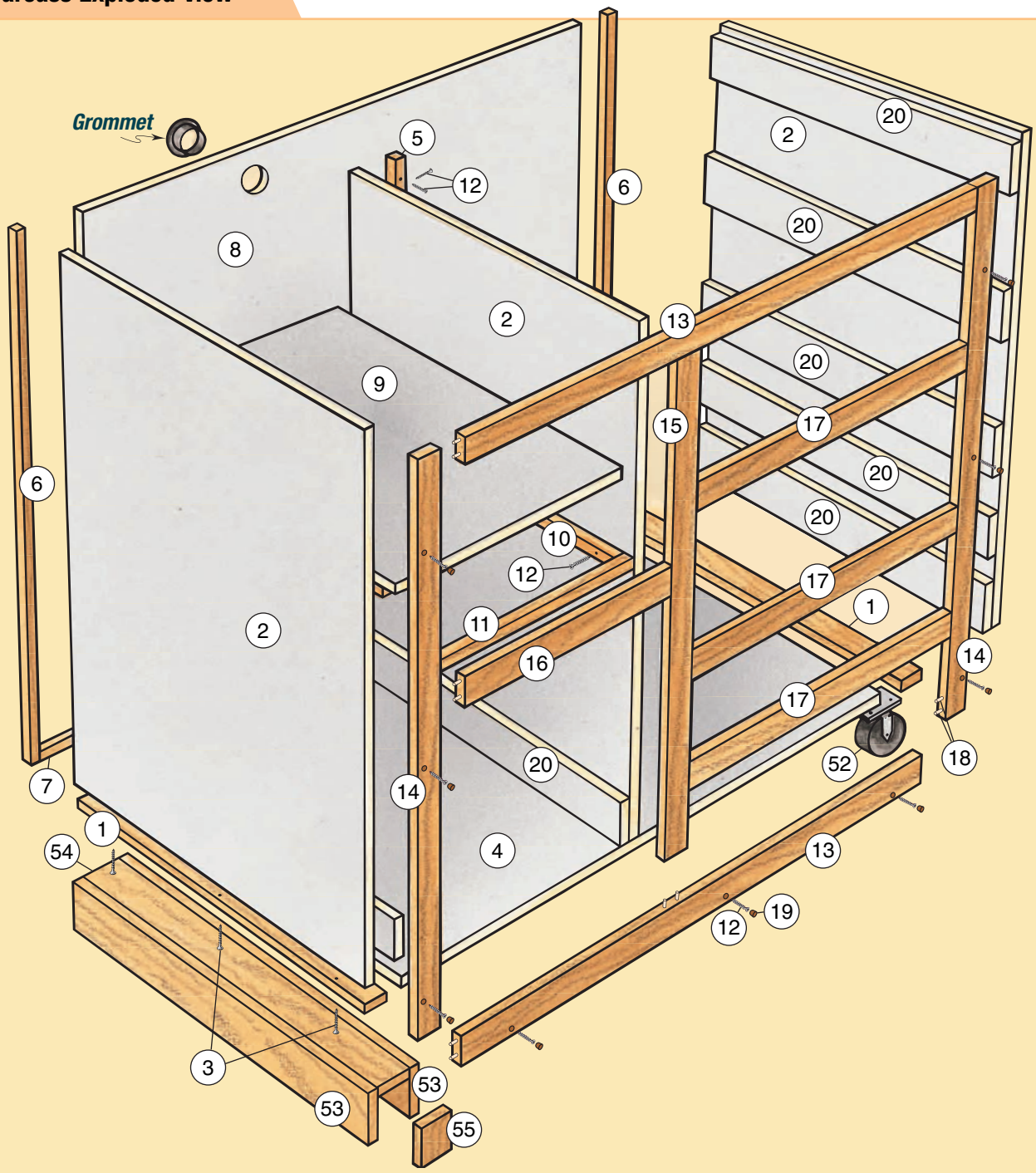
1. Use a zero-clearance insert.
2. Cut pieces slightly oversized.
3. Use a straightedge and a sharp knife to score the material at the exact size you need.
4. Put a carbide plywood-cutting blade (very slight set on the teeth) in your table saw and cut to exact size.

A zero-clearance insert is the real key to creating clean, chip-free edges when cutting melamine-coated materials on a table saw.

MATERIAL LIST—*CARCASS & DRAWERS*

		T x W x L
1	Bottom Trim, Sides (2)	¾" x 1½" x 24"
2	Sides (3)	¾" x 24" x 28½"
3	Large Screws (50)	#8 x 2"
4	Bottom (1)	¾" x 24" x 35½"
5	Divider Cleat (1)	¾" x ¾" x 28½"
6	Back Trim, Sides (2)	¾" x ¾" x 29¼"
7	Back Trim, Bottom (1)	¾" x ¾" x 37"
8	Back (1)	¾" x 28½" x 37"
9	Shelf (1)	¾" x 14½" x 24"
10	Shelf Cleats, Sides (2)	¾" x ¾" x 22½"
11	Shelf Cleats, Front and Back (2)	¾" x ¾" x 14½"
12	Small Screws (50)	#6 x 1¼"
13	Frame Top & Bottom Rails (2)	¾" x 1½" x 35½"
14	Frame Side Stiles (2)	¾" x 1½" x 29¼"
15	Frame Middle Stile (1)	¾" x 1½" x 26¼"
16	Frame Left Rail (1)	¾" x 1½" x 13"
17	Frame Right Rails (3)	¾" x 1½" x 21"
18	Frame Dowels (26)	⅜" *Dia. Fluted*
19	Trim Plugs (26)	⅜" *Oak face grain*
20	Drawer Spacers (7)	¾" x 2½" x 20⅝"
21	Drawer Slides (6 pairs)	22" *Blum ¾ extension*
22	Tray (1)	¾" x 20" x 23¼"
23	Tray Liner (1)	¼" x 20" x 23¼"
24	Tray Front (1)	¾" x 1½" x 20⅞"
25	Left Drawer Front & Back (2)	¾" x 14" x 10½"
26	Left Drawer Sides (2)	¾" x 14" x 22"
27	Left Drawer Bottom (1)	¼" x 12" x 22"
28	Left Drawer Face (1)	¾" x 12½" x 14½"
29	Upper Drawer Front & Back (2)	¾" x 4½" x 18½"
30	Upper Drawer Sides (2)	¾" x 4½" x 22"
31	Upper Drawer Bottom (1)	¼" x 20" x 22"
32	Upper Drawer Face (1)	¾" x 5¾" x 20½"
33	Large Drawer Front & Back (2)	¾" x 6¼" x 18½"
34	Large Drawer Sides (2)	¾" x 6¼" x 22"
35	Large Drawer Bottom (1)	¼" x 20" x 22"
36	Large Drawer Face (1)	¾" x 7½" x 20½"
37	Small Drawer Fronts, Backs (4)	¾" x 1¾" x 18½"
38	Small Drawer Sides (4)	¾" x 1¾" x 22"
39	Small Drawer Bottoms (2)	¼" x 20" x 22"

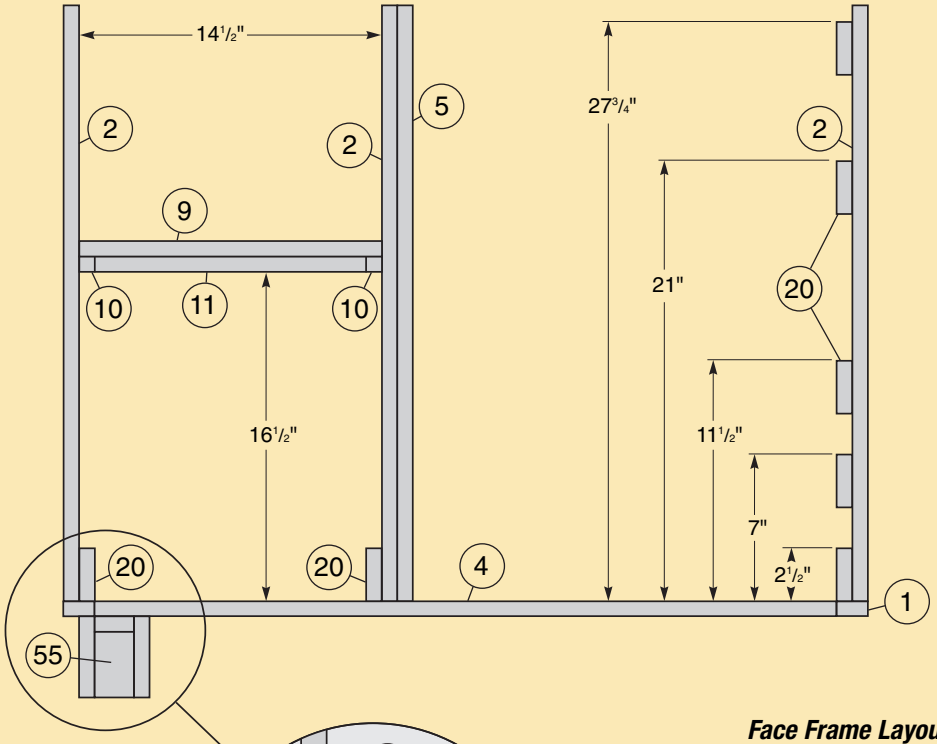
Carcass Exploded View



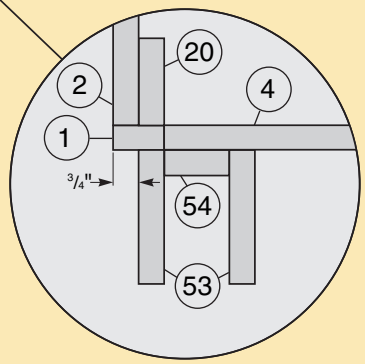
MATERIAL LIST—*CARCASS & DRAWERS*

		T x W x L
40	Small Drawer Faces (2)	¾" x 2½" x 20½"
41	Drawer Face Trim (1)	¼" x ¾" x 264"
42	Drawer Edge Tape (1)	1/32" x ¾" x 384"
43	Drawer Pulls (5)	*Wood*
44	Drawer Knob (1)	*Wood*

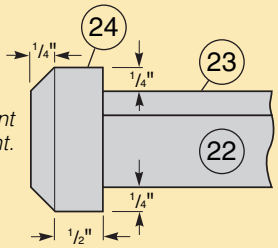
Carcass Joinery: Cleat and Spacer Locations
(Front View)



Foot Detail
(Section View)

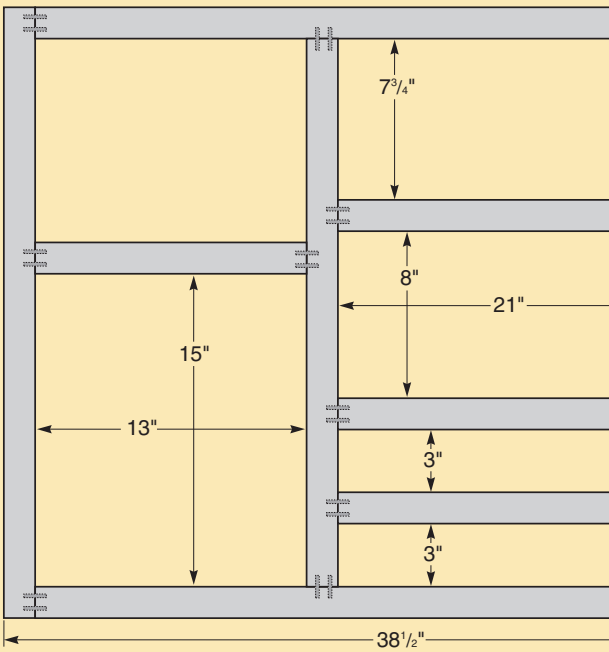


Chamfer the front edges of the tray front.

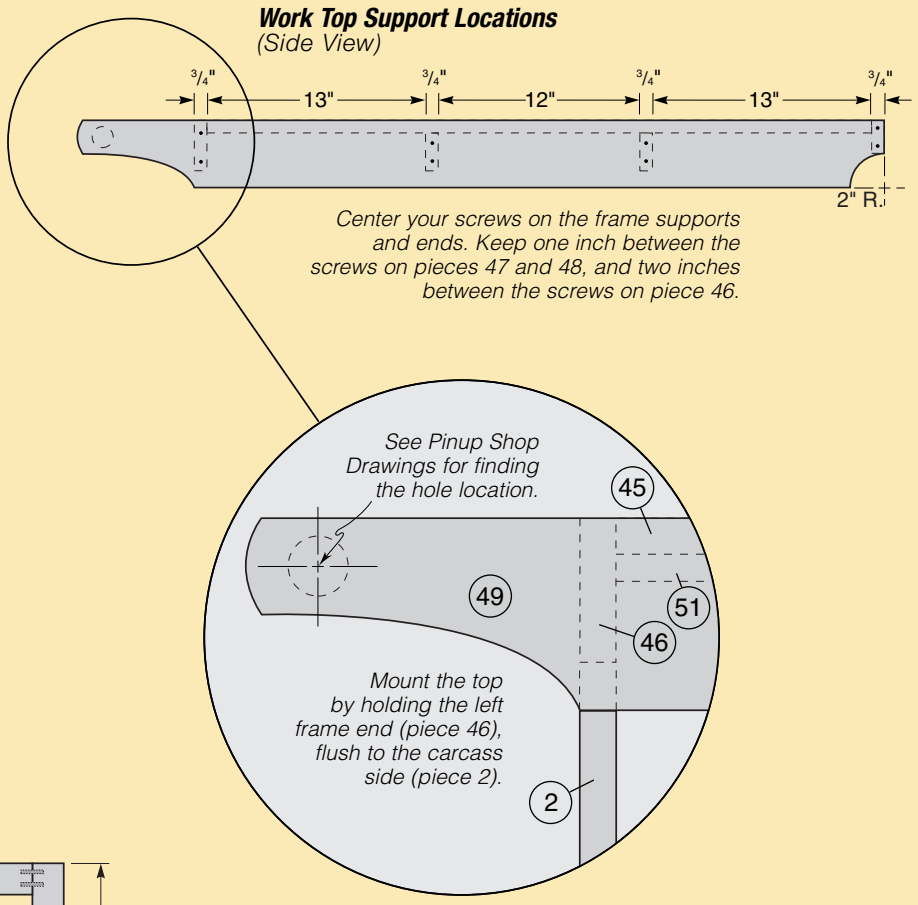


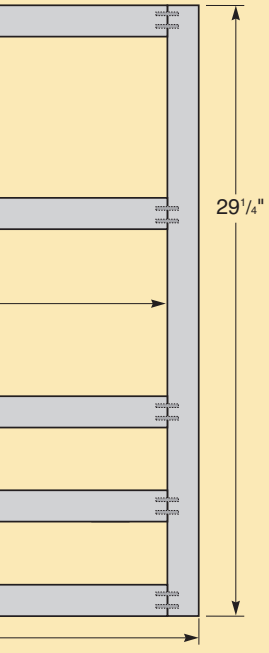
Tray Assembly
(Side View)

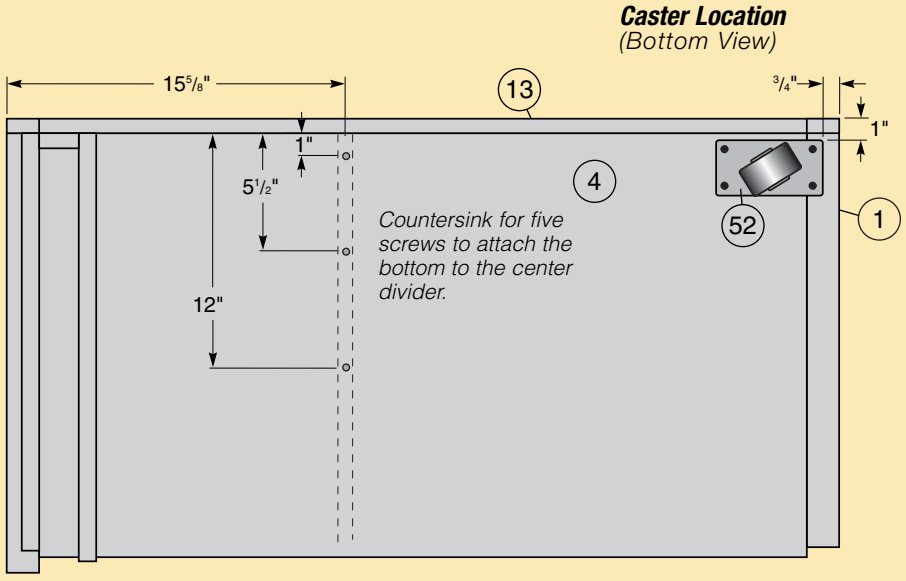
Face Frame Layout
(Front View)



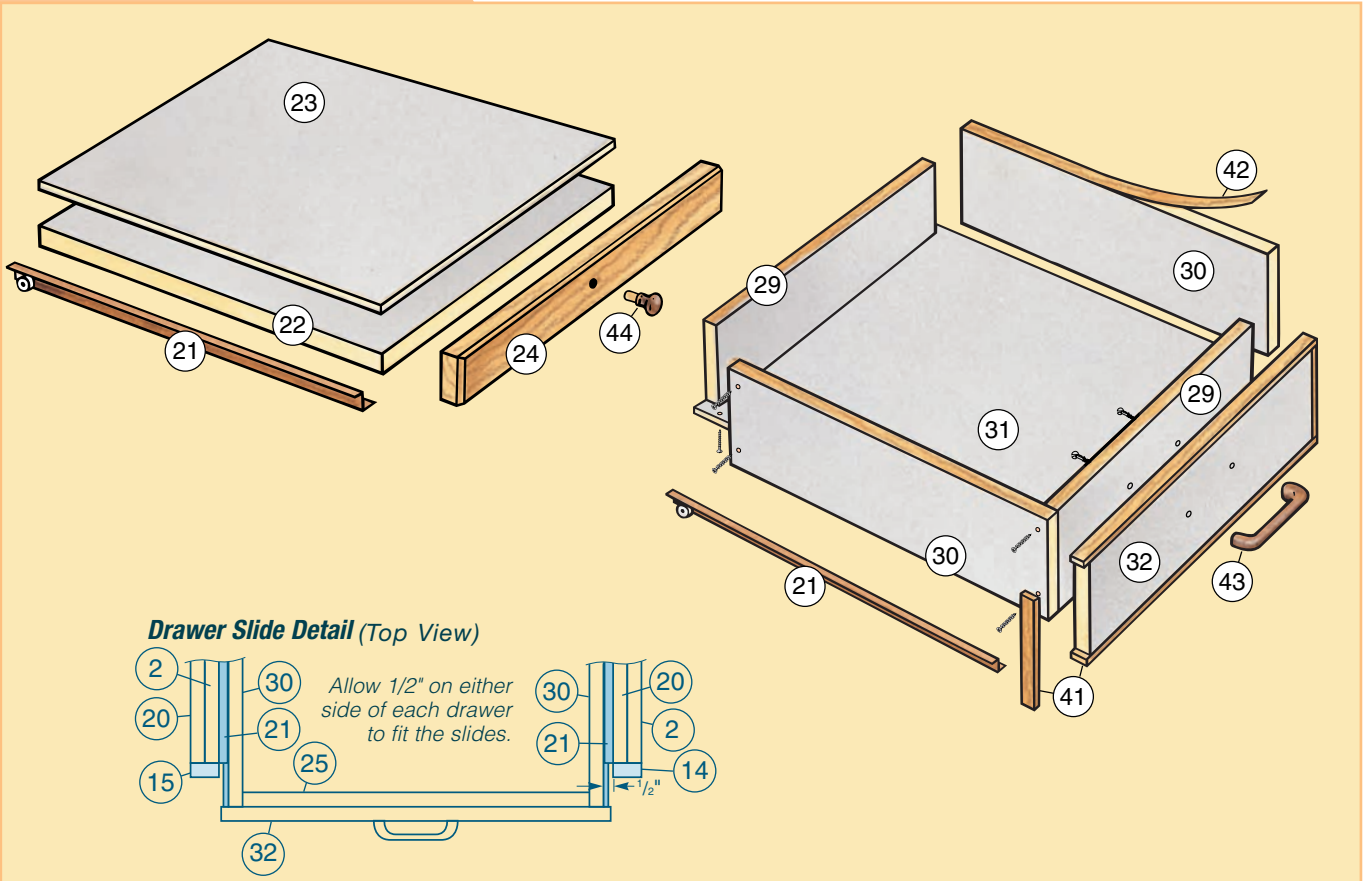
The work top frame fits outside of the carcass and rests on the work frame supports.


Work Top Support Locations
(Side View)
3/4"
13"
3/4"
12"
3/4"
13"
3/4"
2" R.
Center your screws on the frame supports and ends. Keep one inch between the screws on pieces 47 and 48, and two inches between the screws on piece 46.
See Pinup Shop Drawings for finding the hole location.
45
49
51
46
Mount the top by holding the left frame end (piece 46), flush to the carcass side (piece 2).
2


29 1/4"


Caster Location
(Bottom View)
15 5/8"
13
3/4"
1"
1"
5 1/2"
12"
4
52
1
Countersink for five screws to attach the bottom to the center divider.

Tray and Drawer Exploded View



made sense to construct the face frame (pieces 13 through 17) out of a tough hardwood. We chose white oak because of its durability and good looks. All the joints are simple butts, each kept in line with a pair of ⅜" fluted dowels (pieces 18). Dry-fit all the parts according to the *Face Frame Layout* on the *Technical Drawings*, test their fit on your assembled carcass, and, when everything looks right, glue and clamp your frame together. Note: The right edge of the center stile lines up flush with the right face of the center divider. Make sure the frame remains flat and square during clamping.

Let the glue dry overnight, then remove the clamps and sand the frame smooth. Chisel out any excess glue in the inside corners. Make sure the lower edge of the face frame is flush with the bottom of the carcass, then predrill for countersunk screws (pieces 3) and join the subassemblies. Glue ⅜" oak plugs (pieces 19) in all the counterbored screw holes in the carcass, and sand them flush.

Adding Some Inside Details

The face frame is flush with the left side of the large carcass opening, but you'll need to build out the right side before installing the drawer slides. Glue and screw these spacers (pieces 20) in place now, following the locations on the *Technical Drawings*. Attach the remaining shelf cleat to the face frame at this time.

Building the Drawers

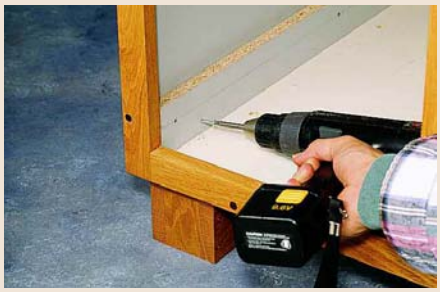
Storage is a primary concern with sharpening supplies, so this station features five drawers and a slide-out tray. All six units are mounted on 22" drawer slides (pieces 21). The tray (piece 22) is ¾"-thick melamine with a ¼" melamine liner (piece 23) glued to its top face. Place a heavy weight on it while the glue dries. Chamfer the front edges of the tray front (piece 24) with a chamfering bit chucked in your router, as shown in the *Technical Drawings*. Attach the front to the tray with glue and finish nails, predrilling pilot holes for the nails, then setting and filling their heads.

All five drawers (pieces 25 through 40) are built alike, and all are flush-mounted (that is, they don't overlay the frame). This is a workshop project, so the construction process was kept simple. Butt the fronts and backs to the sides, securing them with glue and screws. Attach the bottoms with glue and screws, then trim all four edges of each face with ¼" hardwood stock (piece 41). Attach this trim with glue and 3d finish nails

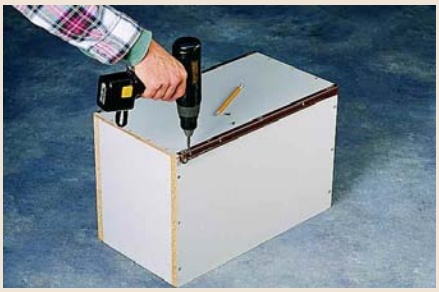
driven through predrilled pilot holes, setting and filling the heads as you go. Center the drawer faces on the drawers (See *Drawing* and *Sidebar* on these two pages) and attach them from the inside, predrilling the screw holes first. Wrap up the drawers by sealing the exposed top edges of the sides, fronts and backs with iron-on hardwood tape (piece 42), then drill holes in each drawer face for the pulls (pieces 43). Install the pulls and tray knob (piece 44), slide the drawers in place, and you're all set to start building the work top.

HOW TO INSTALL DRAWER SLIDES

This sharpening station uses Blum's low profile 3/4 extension slides. This all-purpose, bottom mounted steel slide features an epoxy coating and is self-closing, a nice feature on a project like this. Rated at up to 100 pounds per drawer, this is one of the easiest slides on the market to mount—just follow the four steps below. Remember, you'll need 1/2" on each side of the drawer to accommodate your slides.



1. In the case of this sharpening center (and many other cabinet projects), spacer blocks are installed to provide a mounting surface flush with the face frame.



2. Once the spacers are installed, use your drill to mount the inside slide component to the bottom edge of your drawer bottoms. Be sure to drill pilot holes first.

3. With the drawer components in place, move on to the casework components and mount them to the spacer blocks or cabinet sides, predrilling your pilot holes.

4. Locate the drawer fronts on the drawers. An old trick is to use double-sided tape to tack the drawer face in place before you secure it with screws.

Constructing the Work Top

The work top (piece 45) is a slab of ¾" thick melamine-coated particleboard surrounded by a hardwood frame. The frame is composed of two ends (pieces 46 and 47), a pair of supports (pieces 48), two shaped sides (pieces 49), a handle and towel bar (piece 50).

Transfer the profile of the sides from the elevations found on the Pinup Shop Drawings, then band-saw them to shape. Clean up the saw cuts with a drum sander and drill the stopped holes on their insides for the handle. The work top is surrounded by the hardwood frame and held securely by glue blocks (pieces 51) and screws, as shown in the Exploded View on page 18.

Building the Frame Assembly

The white oak frame is held together with screwed butt joints. Temporarily clamp the frame elements together, then counterbore and predrill for the large screws. You'll find all the locations on the *Technical Drawings*. While you have the frame clamped, dry-fit it to the carcass. A half inch of the face frame's top rail should be peeking out below the bottom of the shaped sides. When everything fits, glue and screw the top frame together, trapping the handle as you do. Plug the screw holes as you did earlier and make sure the handle remains free to turn.

Place the frame on top of the carcass, locating it as shown on the *Drawings*. Then glue and screw it in place, driving the screws from the inside of the cabinet into the frame.

Wrapping Up the Final Details

While you won't be moving this station around too much, it's always nice to be able to rearrange the workshop to accommodate new tools or big projects. Have a friend help you lift the project onto a couple of sawhorses, then bolt a pair of swivel casters (pieces 52) to one end of the bottom, at the locations shown in the *Technical Drawings*.

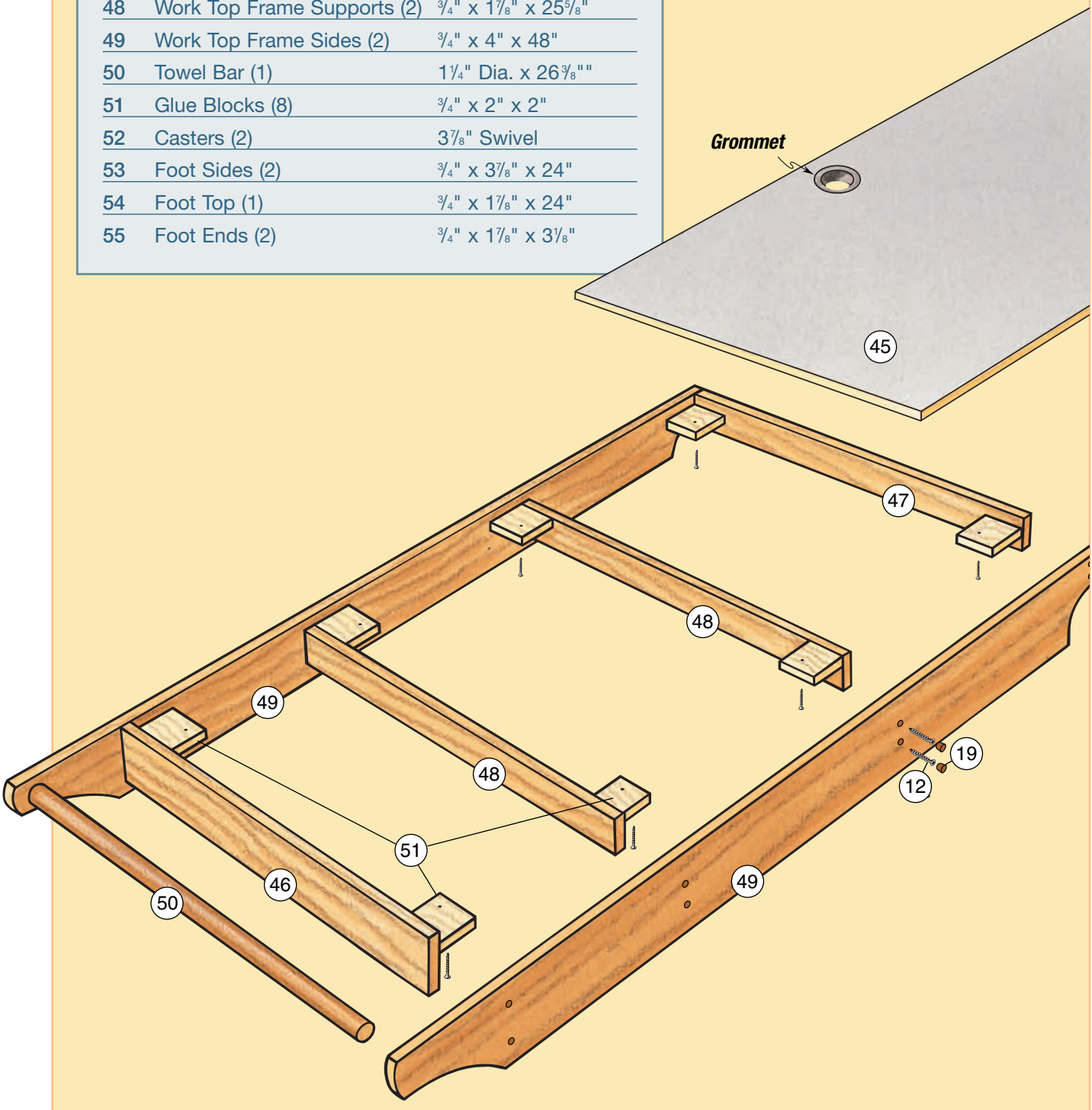
Bolt a matching foot on the other end: this is a simple hollow box made up of two sides, a top and two ends (pieces 53, 54 and 55). Butt joint, glue and clamp the foot together, then glue and screw it in place to complete the footings.

There isn't a lot of finishing to this project. Start by filling any nail holes you missed, then glue hardwood plugs over the tops of all the counterbored screws. Mask the melamine along all the hardwood edges, then clamp a square or a metal ruler along these same edges while you lightly sand the wood. Apply three coats of clear satin varnish to the hardwood, then install the drawers, adding the pulls and knob. If you have a

Work Top Exploded View

MATERIAL LIST—*TOP SUBASSEMBLY*

		T x W x L
45	Work Top (1)	¾" x 25⅝" x 40½"
46	Work Top Frame Left End (1)	¾" x 3" x 25⅝"
47	Work Top Frame Right End (1)	¾" x 2" x 25⅝"
48	Work Top Frame Supports (2)	¾" x 1⅞" x 25⅝"
49	Work Top Frame Sides (2)	¾" x 4" x 48"
50	Towel Bar (1)	1¼" Dia. x 26⅜""
51	Glue Blocks (8)	¾" x 2" x 2"
52	Casters (2)	3⅞" Swivel
53	Foot Sides (2)	¾" x 3⅞" x 24"
54	Foot Top (1)	¾" x 1⅞" x 24"
55	Foot Ends (2)	¾" x 1⅞" x 3⅛"



power sharpening system and plan to use a magnifying lamp for better viewing (a good idea, by the way), bore an access hole through the work top for running the power cords neatly behind the station. Protect the cords from abrasion with a grommet inserted in the access hole (see the *illustration* on the previous page).

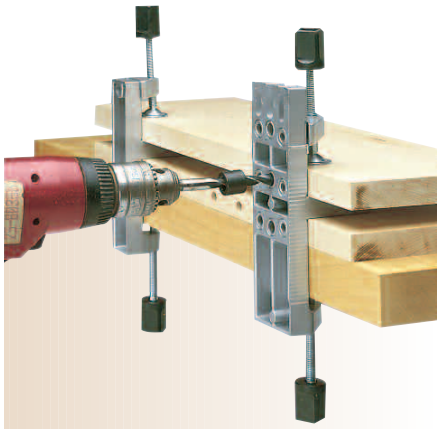
Now the fun begins. Start a search through your shop for all your containers of oil and mineral spirits, emery paper, stones and files. You'll probably be amazed at how much you've accumulated over the years. While you're at it, pick a couple of plane irons and chisels to give your new sharpening station a christening!

THE TORMEK SHARPENING SYSTEM

One of the premier sharpening machines on the market, the Tormek sells for about $400. At that price it may not be for everyone, but its versatility demands a look. Replete with tons of gizmos to put an edge on everything from a curved gouge to a long planer knife, this British import is the real deal. Pair it with a traditional grinder and the only thing you won't be able to sharpen is your wits.

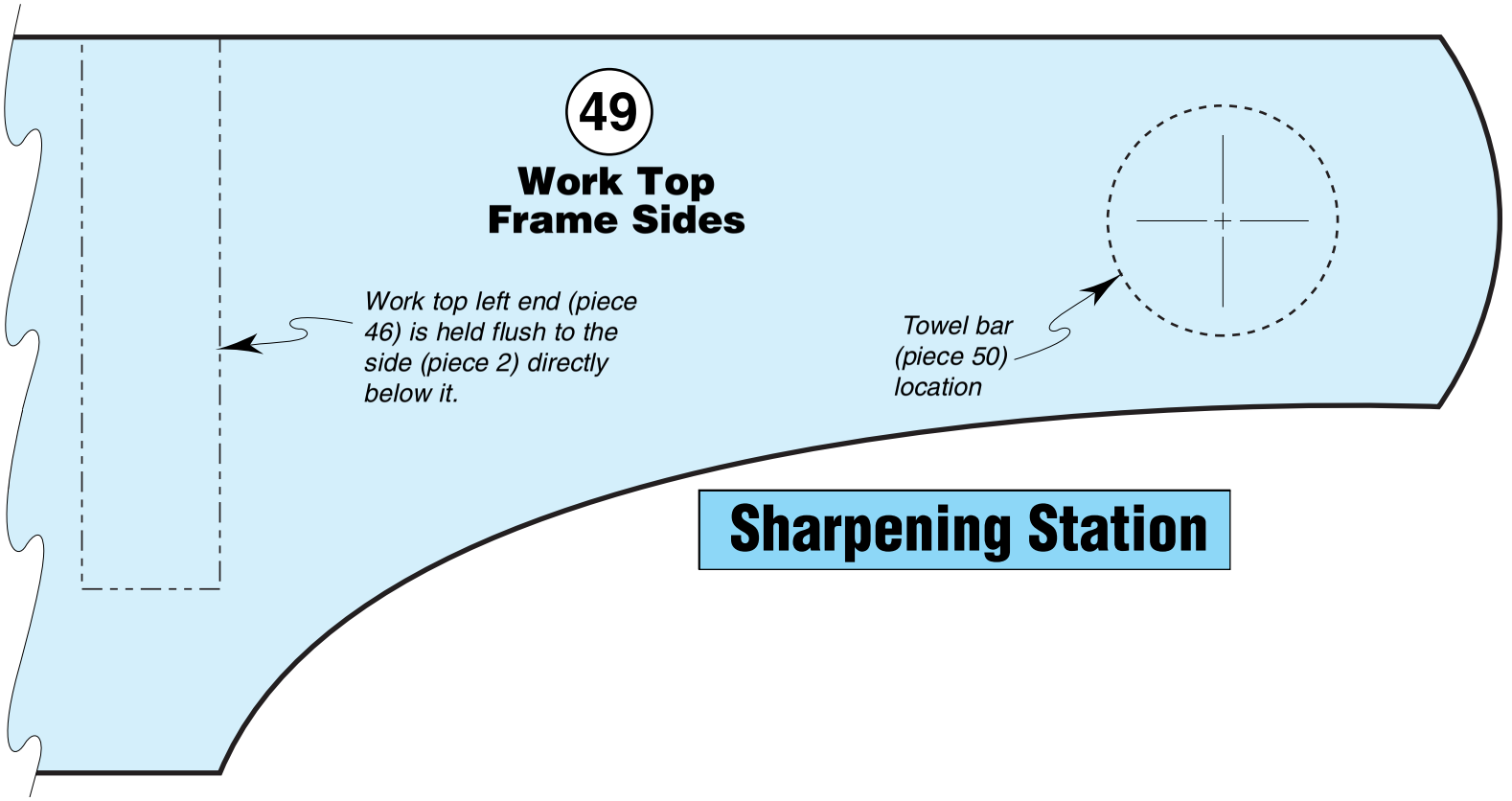
Two auxiliary sharpening aids team up to hone curved gouges, making a difficult task much easier.

Keep the knives of your benchtop planer or jointer razor sharp on the water-bathed honing wheel.



Use a Doweling Jig

Dowels are easier to install accurately for face frame and other joinery if you can drill their holes squarely. Fixtures like the Dowel Pro Jig shown here are a slick and easy way to use dowels like a pro. They provide drilling guides, and most also center the holes automatically on the thickness of your material.


49
Work Top
Frame Sides
Work top left end (piece 46) is held flush to the side (piece 2) directly below it.
Towel bar (piece 50) location
Sharpening Station