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Torsion-Box Workbench and Expandable Assembly Table

Double your work space without doubling your shop space.

By Randy Johnson and Luke Hartle

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In our shop, we used to pile tools, parts and hardware on top of a wobbly workbench made from 2x4s. When we had to glue a project together, we shoved everything aside. Finally, we got tired of searching for tools and space and set out to make a new style of workbench.

Our new workstation is two benches in one. The best part is a rolling storage unit that opens into a huge assembly table. Closed, it tucks right under the bench. We built the bench's top as a torsion box, so it can span the distance over the assembly table without sagging. Both parts are made from home-center materials using simple joinery. Two work surfaces, lots of drawers and shelves —what a great excuse to

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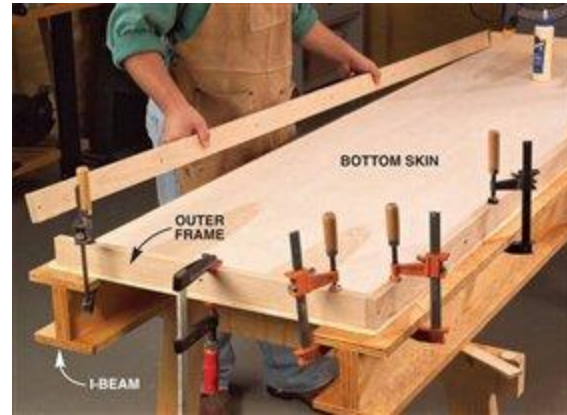
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The Workbench

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A **torsion box** is composed of two sheets of plywood, or skins, separated by a frame. The first step is to glue the outer frames to the bottom skin. Clamping the parts to a flat surface, such as these wooden I-beams, guarantees that the top will turn out flat.



Cut the bridle joints on the inner torsion-frame parts with a dado blade. You can cut them as a group by clamping them against an auxiliary fence on your miter gauge.



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Test-fit the inner torsion-frame assembly. It should slip into place using hand pressure only. Then remove it, add glue and reinstall it. Hold it in place by adding screws through the outer frame parts.

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Flip the assembly and screw the bottom skin to the inner torsion frame. Then flip it back and add the top skin. Keep the torsion box clamped to the I-beams during each step to ensure that it stays flat.



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Glue the trim boards to the torsion box. Install them flush with the torsion box's bottom. This will create a recess on the top side for the removable work top to fit into.

Make long clamps by joining short clamps with couplers.

Install the work top. Screw it to the torsion box and use wooden plugs to hide the screws. The top should fit loosely into the recess, so it's easy to remove if you wish to replace it.

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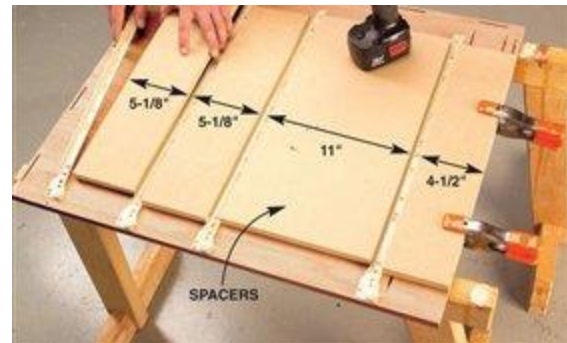
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Use spacers to position the drawer slides for mounting to the sides of the base cabinets. It's best to mount the slides before the cabinets are assembled, because it's hard to fit a cordless drill inside cabinets after they are put together.

Add levelers to the base cabinets if your shop floor is uneven. These heavy-duty levelers are easily adjusted from inside the cabinet through an access hole in the bottom.

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The Expandable Assembly Table

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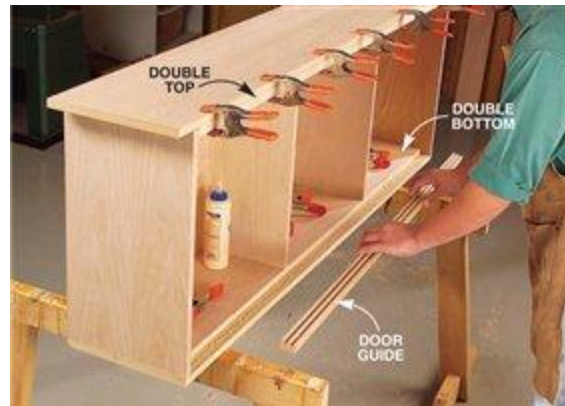
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The assembly table is composed of two identical cabinets. Joinery is simple; it's all held together with dadoes and biscuits.

Glue and clamp the door guides to the doubled-up top and bottom. Doubling the top makes the work surface extra solid. Doubling the bottom provides a strong place to attach the wheels.

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Install the hinged panels to the back of one cabinet, using spacers to center the panel between the top and bottom. The hinged panels must be installed perpendicular to the bottom so they open and close square to the cabinets.

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Attach the hinged panels to the back of the second cabinet.

Make sure the spacing between the hinged panels on the second cabinet is identical to the spacing on the first cabinet or binding will occur when you fold the cabinets together. When the panels are folded together, the panels fold into the recess at the back of the cabinets.



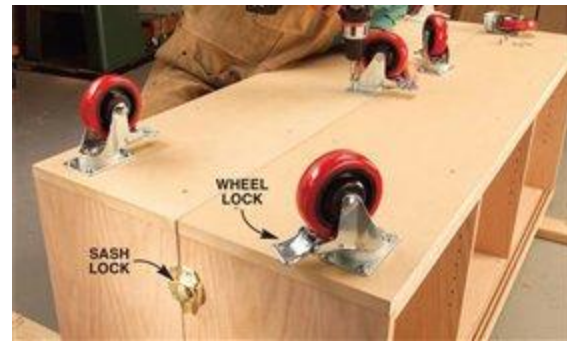
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Install the wheels. The center wheels provide support for the back of the cabinets and are offset from the middle of the cabinet so they don't hit each other as they swivel. Sash locks hold the cabinets together when the table is folded up.

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Measure for the removable top. You want the top to fit snugly, yet be just loose enough to be pressed into place using hand pressure.



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Slip the sliding doors into the slotted guides. The doors go into the deeper upper slot first and then drop down into the shallow bottom slot. If the doors don't slide freely, reduce their thickness by sanding the back of the top and bottom edges.

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