Small Footprint Huge Capacity

This diminutive folding arm mitre saw station occupies less than one third of a square metre. But, when it spreads its wings, it transforms from a Cessna into an Airbus. Lengths of 3 metres can be handled with ease.

By Geoff Birtles

My work shop does not have enough room. With an industrial panel saw shoe-horned in amongst all the other toys one just has to have, I figured I simply did not have the room for a dedicated chop saw station, and probably didn't need one.

I was wrong - mitre saws do some things much easier than a table saw, and for some projects they work well in tandem, saving tedious set ups. For many, a sliding mitre saw is the only option.

The key to the problem was to engineer a small footprint into a dead space. This proved to be right alongside the middle pillar at the front of my double garage (Pic #9). All of the bits jutting out the back of the saw sat alongside the pillar for maximum shop floor setback. On occasions demanded by long work pieces, one or both extension arms unfold across the garage doors (without obstructing shop views).

The pictures pretty much tell the story and most keen woodworkers will be able to build their own version, for their saw and space, simply by referring to these. The following text provides some of the dimensional and operational detail for a 10" chop saw, pictured.

TABLE

The table frame is 785mm wide x 435mm deep x 830mm high. It is constructed from 74mm square solid pine legs and 180mm x 38mm thick pine tenonned aprons. The top is 18mm MDF, edge banded with overhanging 12mm x 40mm hardwood. Overall size is 810mm x 460mm. It is simply pinned and glued to the top of each leg. This is a very solid unit. It is quick and inexpensive to build from hardware depot timber, requiring no thicknessing other than for the floating tenons.

TABLE TOP EXTENSION BOXES

The folding extension fences are hinged onto small box 'lids' sitting adjacent to the left and right of the saw (Pic #1. Each box, constructed from butt jointed, pinned and glued 18mm MDF is 100mmW x 110mmD x 70mmH. Boxes are secured with wood screws through the base, after positioning their backs flush and square to the aluminium saw fence. An 18mm MDF 'lid' is glued and screwed on to the top of each box, exactly level with the saw table.

These boxes and lids provide a small extension to the saw's aluminium table when the wings are not in use (most of the time).

After centering and securing my saw to the table I found that its left and right hand sides were not equidistant from the centre. So the left hand 'lid' is 160mmW and the right hand lid is 125mmW. This brings the outer side of each lid flush with the table's sides (Main Pic). Both 'lids' are 115mm deep inclusive of 12mm hardwood front edge banding.

LEFT HAND TABLE TOP BOX FENCE

Given that workpieces are mainly fed from left to right it seemed logical to fit a fence, complete with ScaleTrack and stop. I discovered the hard way that this prevented the saw from tilting 45° to the left (Pic #5) for compound mitres (it's always the hard way for me!). The problem was solved by hinging the LH box fence to the table top with a butt hinge and securing its upright position with a woodscrew. I can now remove this screw and flip the fence back for compound mitres, (Pics #3 & #4). The height of this fence with ScaleTrack should match continuously with the LH folding extension wing.

FOLDING FENCE EXTENSIONS

The extension base (part A, Pic #6) is made from 18mm MDF edge banded at the front with 12mm hardwood. Final dimensions are 800mm long by 115mm wide.

The fence, glued and screwed square to the back of the base (Part B, Pic #6) is two thicknesses of 16mm MDF, pinned and glued together, also 800mm long, but 70mm wide. 13mmH x 32mmW ScaleTrack is secured by screws on top of this to provide a nett above base fence height of 65mm. (With hindsight, I would use one thickness of 18mm MDF with 18mm T track).

EXTENSION SUPPORT LEGS

These are the only fiddly bits. Once again refer to Pic #6. Note, this is a RH fence and leg assembly. The legs are in two parts. Both from 18mm MDF, each 550mmL x 100mmW.

Upper leg (C), hinges to the extension base with a 90mm heavy duty butt hinge positioned just in front of a 85mm x 65mm x 30mm hardwood stop block (iii), about 110mm from the fence end.

Centered 6mm guide bolts are secured from inside the upper leg with threaded star washers (Pic #7). The bottom bolt (Pic 6/i), is capped with a Nylock nut and washer. The top bolt (ii) fixes the lower leg extension height with a locking 45mm 6mm finger knob. The guide bolts are positioned 40mm and 155mm respectively from the upper leg bottom.

The lower leg, part D (Also Pic #6) is slotted down the centre with a 6.5mm router bit to about 28mm from each end.

Butt hinges (90mm) secure each fence to the bottom of the table box lids (Pic #2). Use a spirit level to adjust the extension fence heights and mark the top position of each lower leg onto its upper leg with a black marker pen. (Pic #6 and LH leg of main pic).

STOP BLOCK

The sliding stop block (Pic #8) is shop made from aluminium square section with a bit of hardwood glued and screwed to the front. A 1/4" bolt and finger knob secures it to the T track. Many proprietary versions of this track and stop system (including flip stops) are available to those with deep pockets.

SPACE MISER

Pic #9 shows just how compact and space miserly this powerful work horse is with its connected shop vac underneath and wings down. Using and securing the extensions is simple. Pull one or both extensions outwards and upwards, the legs drop down and extend, visually position the lower leg top to the upper leg mark and lock with the finger knob. A front power board connected to the vac provides convenient finishing tool options for my router/finishing table and vac hoses, positioned just to the left. (Not in picture).

Trivia end note: Whilst the Airbus 380 is the world's largest commercial airliner (superseding the Boeing 747), the worlds biggest plane (rated by lift capability) is the Ukraine built Antonov AN-225.

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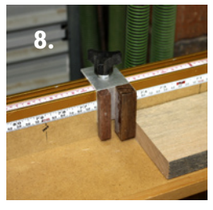
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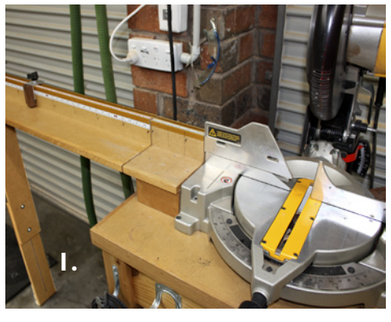
3. Hinged LHS table top fence, up.
4. Fence flipped back to allow saw to tilt left.
5. Front of table, saw tilted for compound mitres with fence flipped back.

6. RH fence & leg assembley.
7. Threaded star washers secure guide bolts.
8. Stop block slides along fence scale track.
9. Table with arms down and shop vac connected to saw.

1. Table top fence extension mounting box.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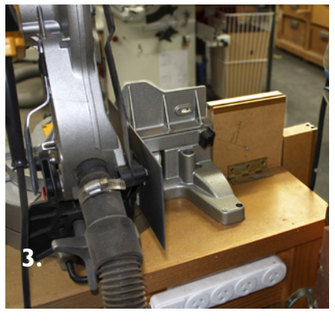
2. Extension fence hinges under table top box lid


2.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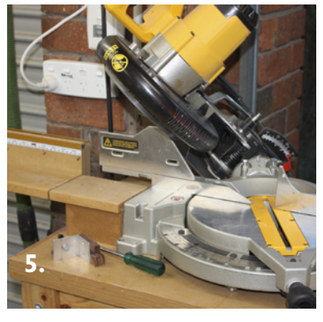
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