

triton Finger Jointer FJA 300



This product includes a special $\frac{1}{2}$ " straight cutter for use with $\frac{1}{2}$ " routers. $\frac{1}{4}$ " cuts do not require this special cutter, therefore a standard $\frac{1}{4}$ " straight cutter can be used.

Owners of $\frac{1}{4}$ " routers: A special $\frac{1}{2}$ " straight cutter with a $\frac{1}{4}$ " shank is available by returning the $\frac{1}{2}$ " cutter, supplied, to your nearest Triton office.

Assembly & Operating Instructions

Thank you for purchasing the Triton Finger Jointer - FJA300. This product suits the Triton Router Table - RTA 300 only, mounted to either a Triton Workcentre or a Triton Router Stand.

The Finger Jointer uses $\frac{1}{2}$ " or $\frac{1}{4}$ " straight cutters to make strong and decorative 90° joints between boards, easily and accurately. Finger joints are also known as "box" or "comb" joints.

Tools required: 10mm Spanner, Philips-head Screwdriver, G-Clamp or F-Clamp, Steel Rule, Square, Mallet.



FJA 300

Finger Jointer

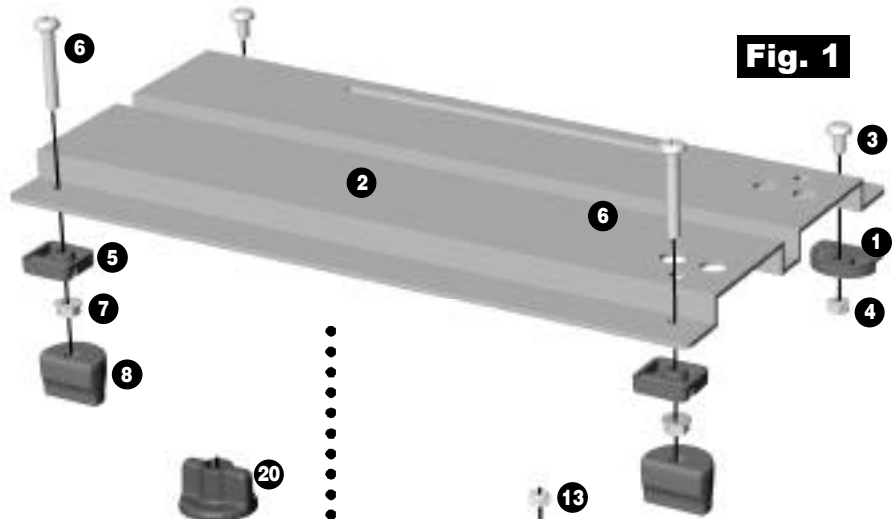


Fig. 1

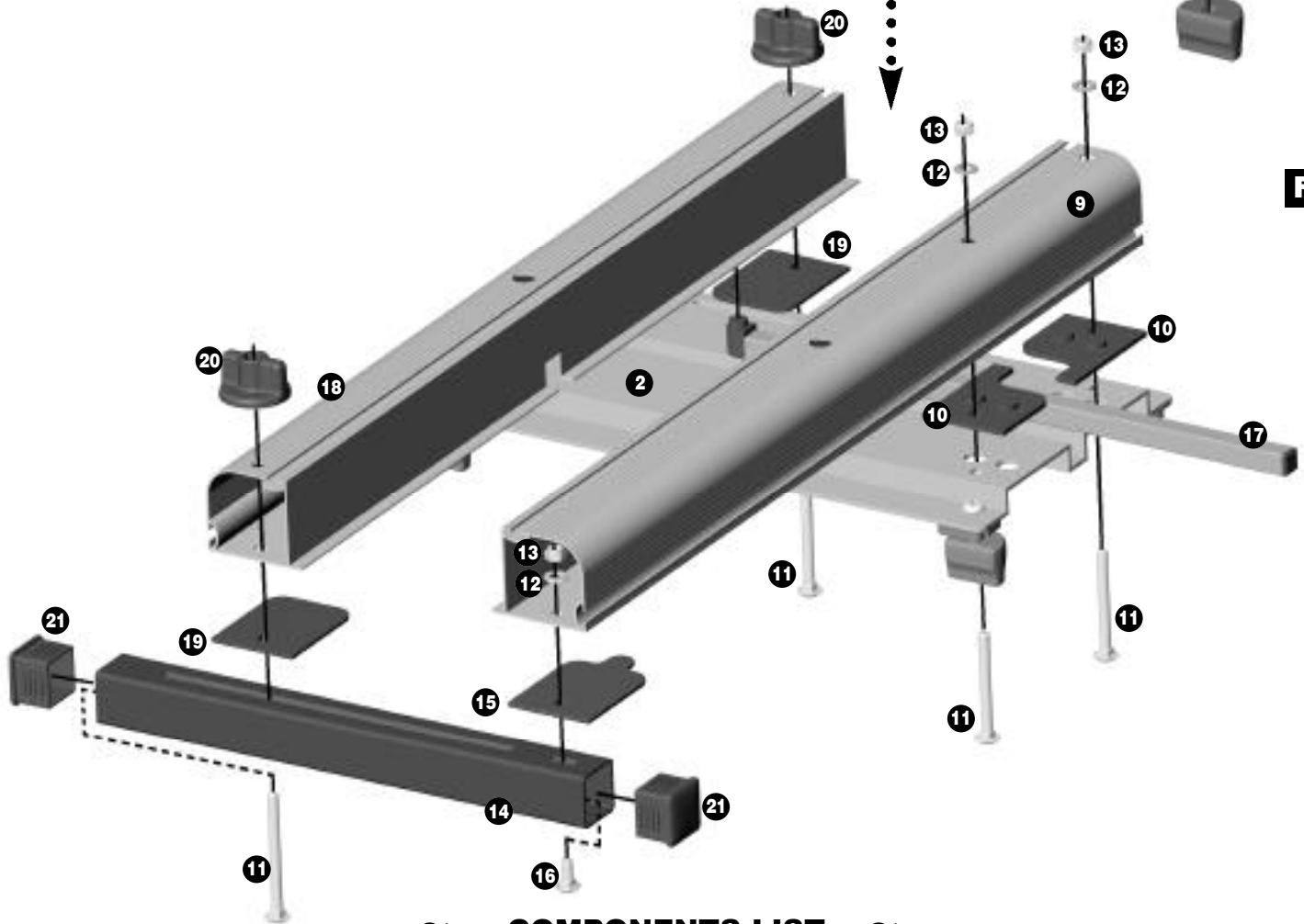
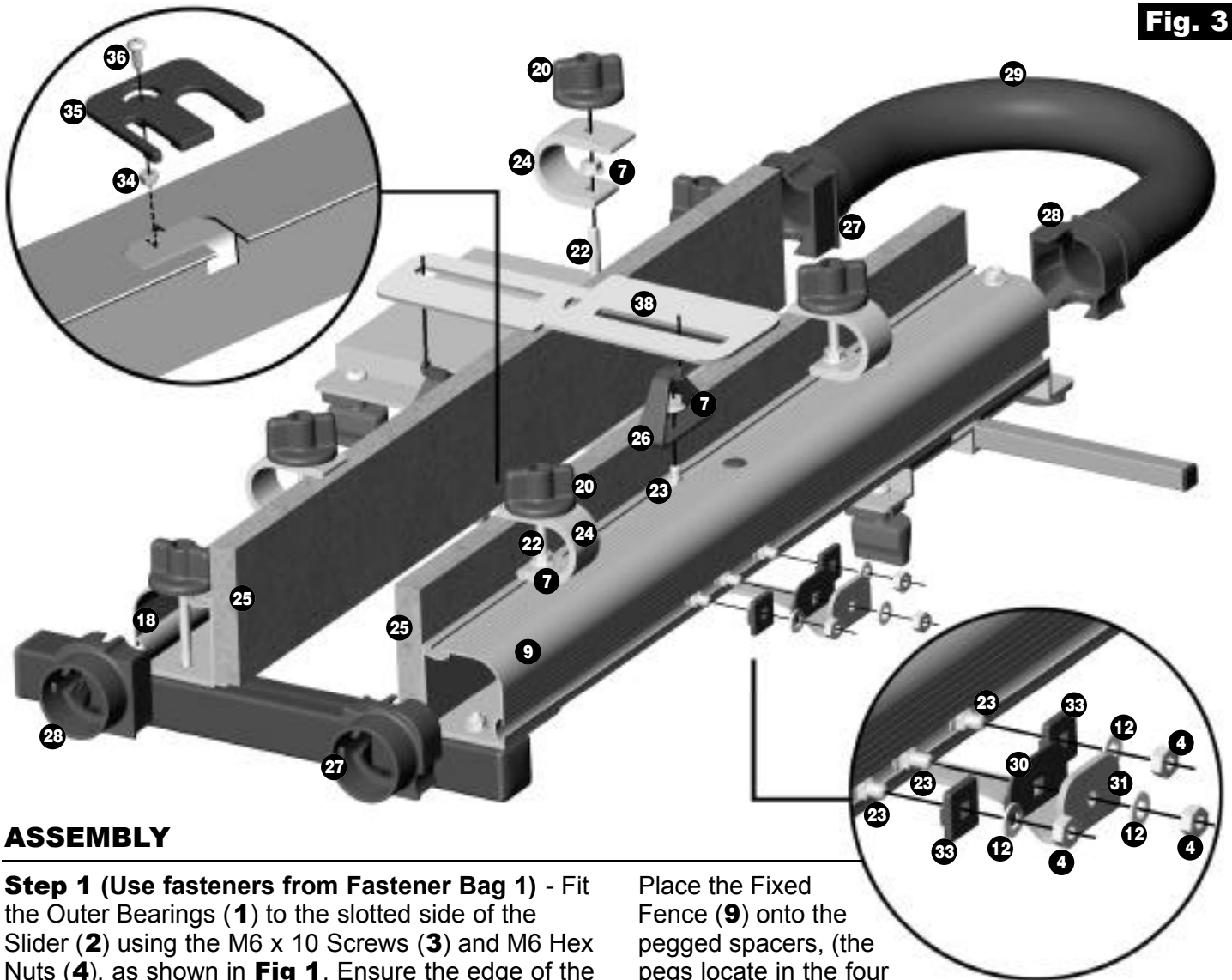


Fig. 2

Qty	COMPONENTS LIST		Qty	Qty
2	Slider			
9	Fixed Fence			
14	Outer Brace			
17	Travel Stop			
18	Adjustable Fence			
25	MDF Fence Face			
27	Right Handed Fence Cap			
28	Left Handed Fence Cap			
29	Hose (stored inside Fixed Fence)			
	Fastener Bag 1			
1	Outer Bearing			
2	M6 x 10 Screw			
2	M6 Hex Nut			
2	Inner Bearing			
2	M6 x 30 Screw			
2	M6 Flange Nut			
2	Hold-down Knob			
	Fastener Bag 2			
2	Pegged Spacer			
4	M6 x 65 Coach Bolt			
3	Washer			
3	M6 Nyloc Nut			
1	Brace Spacer			
1	M6 x 16 Coach Bolt			
2	Adjustable Fence Spacer			
2	Round Knob			
2	Tube Closure			
1	1/2" Straight Cutter with 1/2" shank			
	Fastener Bag 3			
3	M6 Hex Nut			
6	M6 Flange Nut			
3	Washers			
4	Round Knob			
4	M6 x 50 Coach Bolt			
5	M6 x 12 Coach Bolt			
4	Fence Clamp			
2	Supports			
1	Finger Spacer			
1	1/2" Finger			
1	1/4" Finger (not shown)			
2	Finger Stop			
2	M4 Nyloc Nut			
1+1	Cutter Surrounds (A & B)			
2	M4 x 10 Screw			
1	Initial Cut Stop			



ASSEMBLY

Step 1 (Use fasteners from Fastener Bag 1) - Fit the Outer Bearings (1) to the slotted side of the Slider (2) using the M6 x 10 Screws (3) and M6 Hex Nuts (4), as shown in **Fig 1**. Ensure the edge of the bearing is parallel with the slider edge then tighten firmly.

Fit the Inner Bearings (5) to the opposite side of the slider using the M6 x 30 Screws (6) and M6 Flange Nuts (7), as shown. Ensure the slot in the bearing is located closest to the slider edge.

Position the slider onto the tracks in the Router Table with the slot in the inner bearings locating on the aluminium inner track. Check for any sideways movement of the slider on the inner track. Loosen the inner bearings and twist them slightly to obtain a firm running fit on the inner track, then tighten securely. **Important:** Adjust carefully, as any "looseness" will compromise accuracy in use, and tuning when fully assembled will be difficult.

Screw the Hold-down Knobs (8) onto the inner bearing screws, they cut their own thread. Do not over-tighten. The slider should be held down yet free to slide. **In use:** During operation the cut away edges of the knobs must face away from the inner track. When fitting or removing the sliding insert turn the cut-away edges toward the inner track.

Step 2 (Use fasteners from Fastener Bag 2) - Locate the Pegged Spacers (10) into the four large holes in the slider with the "T" (shiny side) upwards, in the orientation shown in **Fig 2**.

Place the Fixed Fence (9) onto the pegged spacers, (the pegs locate in the four large holes in its' base). Fasten in place using the M6 x 65 Coach Bolts (11), Washers (12) and M6 Nyloc Nuts (13). Do not over-tighten.

Slide the Travel Stop (17) under the fixed fence, as shown in **Fig. 2**. The pivot pin on the end of the travel stop must point upwards.

Fit an Adjustable Fence Spacer (19) to the slider, with its' lugs running in the long slot, as shown. Position the Adjustable Fence (18) with the pivot pin on the travel stop locating through the hole in its' base. Tighten into position using a M6 x 65 Coach Bolt (11) and Round Knob (20).

Attach the Outer Brace (14) to the other end of the adjustable fence using the remaining Adjustable Fence Spacer (19) by feeding a M6 x 65 Coach Bolt (11) into the brace then fitting a Round Knob (20), as shown in **Fig. 2**. Note that the locating keys on the spacer engage in the long slot in the outer brace.

Fit the other end of the fixed fence to the brace using the Brace Spacer (15) (keys engaging in the short slot), by feeding a M6 x 16 Coach Bolt into the brace (16) then fitting a Washer (12) and M6 Nyloc Nut (13).

Tap the Tube Closures (21) into the ends of the outer brace.

Step 3 (Use fasteners from Fastener Bag 3) - Slide two M6 x 50 Coach Bolts (**22**) and one M6 x 12 Coach Bolt (**23**) into the channel in the top of each fence, as shown in **Fig 3**. **Note:** You will need to temporarily remove one of the round knobs from the adjustable fence. The order of the bolts is long - short - long.

Fit a Fence Clamp (**24**) and M6 Flange Nut (**7**) onto each long bolt, as shown in **Fig 3**.

Slide each clamp approximately 100mm from the fence ends, positioning their bases level with the front of the fences as shown. Tighten the flange nuts and loosely fit the Round Knobs (**20**).

Place the MDF Fence Faces (**25**) onto the bottom lip of each fence and slip under the clamps. Secure by tightening the round knobs.

Fit the Stop Supports (**26**) to the short bolts and tighten approximately in the middle of each fence with M6 Flange Nuts (**7**). The correct position will be determined later.

Screw a Right-handed Fence Cap (**27**) and a Left-handed Fence Cap (**28**) onto each end of the Link Hose (**29**). Note the hose has a left-hand thread - screw anti-clockwise.

Locate the fence caps, with hose fitted, into the ends of the fences closest to the slider, using the orientation shown in **Fig 3**. Tap them fully home gently with a mallet or similar. **Note:** It may be necessary to temporarily loosen the nyloc nut at the end of the fixed fence and the round knob at the end of the adjustable fence while fitting the caps.

Fit the remaining fence caps to the other fence ends.

Insert three M6 x 12 Coach Bolts (**23**) down the rear channel of the fixed fence, as shown in **Fig 3**.

Fit the plastic Finger Spacer (**30**) and $\frac{1}{2}$ " or $\frac{1}{4}$ " Finger (**31** or **32** depending on which size finger joints you wish to make) to the centre bolt using a Washer (**12**) and Hex Nut (**4**) as shown in the bottom inset in **Fig 3**. Position it approximately 25mm past the cutter opening in the fence, toward the outer brace.

Fit a Finger Stop (**33**), to each of the outer bolts using Washers (**12**) and Hex Nuts (**4**), as shown. The correct position will be determined later.

Step 4 (Use fasteners from Fastener Bag 3) - Push an M4 Nyloc Nut (**34**) into the hexagonal depression on each Cutter Surround "A" & "B" (**35**). Screw an M4 x 10 Screw (**36**) into each, as shown in the top inset view in **Fig 3**. Leave a 3mm gap under the head of the screw, and fit them to the fences as follows.

To set up for $\frac{1}{2}$ " finger joints fit Cutter Surround "A" to the fixed fence and "B" to the adjustable fence. For $\frac{1}{4}$ " cuts fit "B" to the fixed fence and "A" to the

adjustable fence. Turn the unit upside down and drop the cutter surround into the opening on the fence base. Slide it back until the screw locates fully into the slot as shown in the top inset view in **Fig 3**. Tighten the screw to lock each surround in place.

Dust Extraction

The Finger Jointer has been designed for use with a vacuum cleaner for chip extraction.

Screw the vacuum hose, supplied with your Router Table, into the dust port on the fixed fence (left-hand thread) and plug the wand of your vacuum cleaner into the hose adaptor. The end of the adjustable fence remains open to provide a through-flow of air, for effective extraction.

For a larger collection capacity, consider fitting a Triton Dust Collector (DCA300) to your vacuum.

If not connected for dust extraction it will be necessary to stop work at intervals and clear the shavings from inside the fences. Shavings will also need to be removed from beneath the workpiece, between cuts, using a bristle brush (eg. paint brush or similar).

SET-UP

1. Fit a $\frac{1}{2}$ " or $\frac{1}{4}$ " straight cutter into the collet of your router. (Collet size does not determine whether you make $\frac{1}{2}$ " or $\frac{1}{4}$ " finger joints. $\frac{1}{2}$ " and $\frac{1}{4}$ " straight cutters are available for both size collets.)

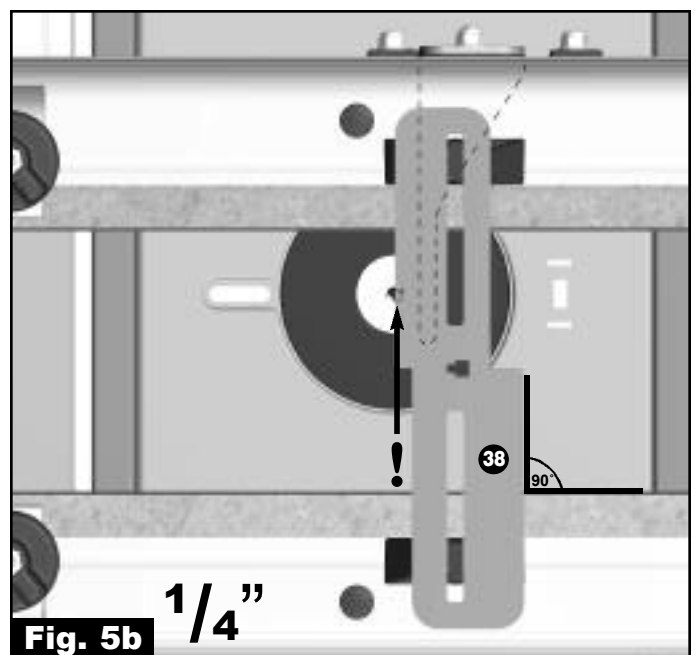
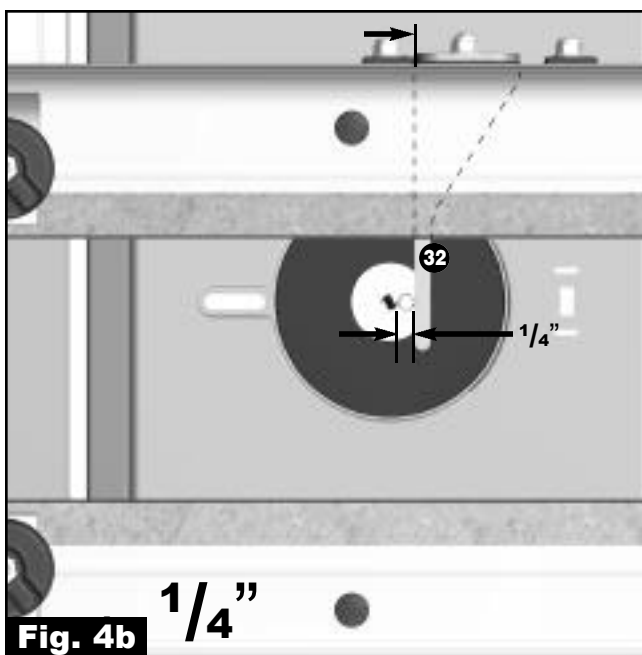
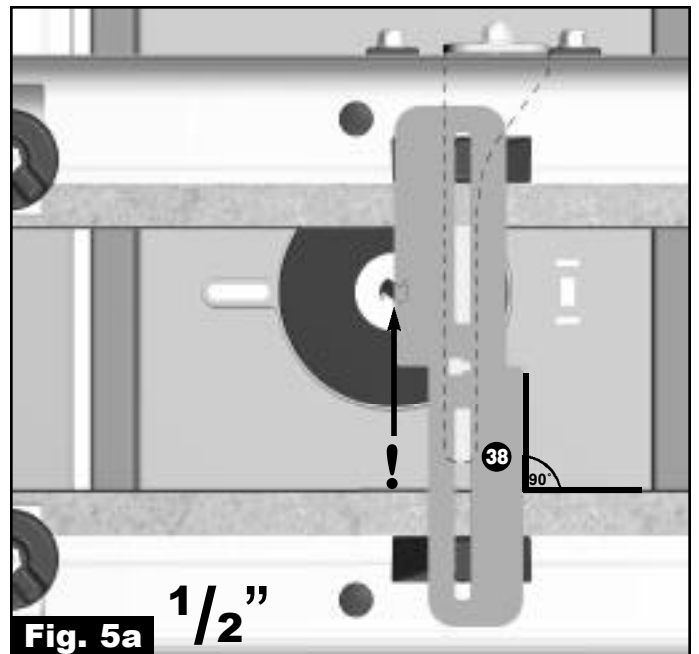
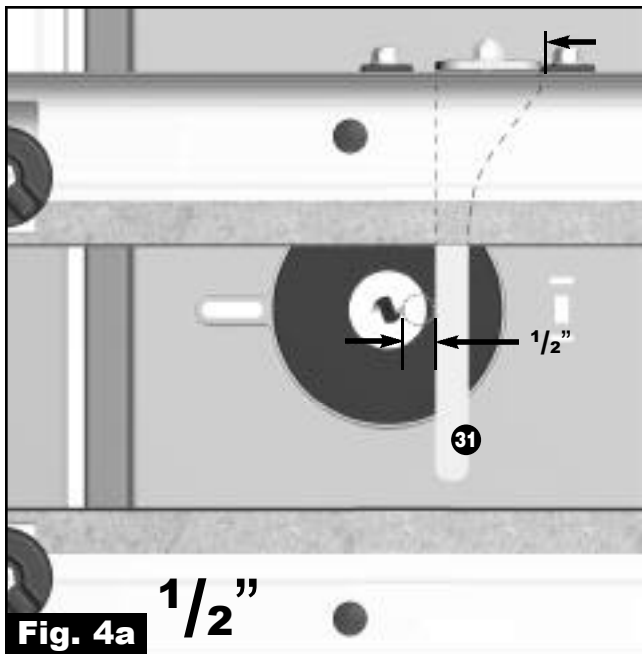
Note: While any $\frac{1}{2}$ " straight cutter can be used, some hardwoods produce long chips which can block the dust extraction. For these cases a gapped edge $\frac{1}{2}$ " Straight Cutter (**37**) is supplied. $\frac{1}{4}$ " cutters require a slower feed rate which will not block the dust extraction.

Set the cutter height until the tip is around 0.5mm above the thickness of your intended workpiece.

2. With the Finger Jointer fitted to the Router Table (as described in Step 1), remove the MDF fence faces temporarily.
3. Loosen the round knobs and set the adjustable fence around 100mm away from, and parallel to, the fixed fence. Re-tighten the clamps.
4. Pull the Finger Jointer to the front (switchbox end) of the Router Table - this is the start position. The cutter should locate just inside the fixed fence extrusion without touching the cutter surround. If the cutter touches the surround, check that the surrounds (A & B) have been fitted correctly - see Step 4.

Push the Finger Jointer to the rear of the Router Table. The cutter should locate just inside the adjustable fence extrusion, without touching the cutter surround.

5. Position the Finger Jointer until the cutter sits approximately mid-way between the fences and refit the MDF fence faces.



Start the router and slide the Finger Jointer forward and backward to cut through the MDF faces. **Note:** It may also trim the aluminium fences - this provides maximum support for the MDF and will not harm the cutter.

In use: the MDF faces will be re-cut after each new set-up. Always position them to give maximum support on either side of the cut.

6. Make sure the correct finger is fitted - $\frac{1}{4}$ " finger for $\frac{1}{4}$ " cutters and $\frac{1}{2}$ " finger for $\frac{1}{2}$ " cutters. Loosen the nuts securing the finger and finger stops. Adjust the finger to be exactly one cutter width ($\frac{1}{4}$ " or $\frac{1}{2}$ ") away from the cutter, toward the outer brace end (ie. the distance between the cutter blade and the edge of the finger is $\frac{1}{4}$ " or $\frac{1}{2}$ " - a cutter shank will assist in spacing). Tighten the nut. **Fig. 4a & b**

Adjust the appropriate finger stop ($\frac{1}{4}$ " or $\frac{1}{2}$ ") against the finger and tighten the nut. For $\frac{1}{2}$ " use the stop on the brace side and for $\frac{1}{4}$ " use the

stop on the slider side of the finger. **Fig. 5a & b.**

In use: the finger stop provides a reference point for finger adjustment and stores the finger position when changing finger size. Temporarily tighten the unused stop out of the way, until set up for use with the other finger.

7. The Initial Cut Stop (**38**) offsets the workpieces being jointed. It has a $\frac{1}{4}$ " step on one side and a $\frac{1}{2}$ " step on the other. It also determines the position of the first finger. As a starting point set up as shown in **Fig 5a & b** (as viewed from the front - switchbox end). Place the initial cut stop onto its supports with the keys locating in the long slots. Loosen the nuts and position the supports, by sight, to align the edge of the initial cut stop with the centre of the cutter (marked "!" in Fig. 5a & b). Use a square to ensure it is 90° to the fence. Re-adjust, as necessary, after making the practice joint.

SAFETY & GENERAL OPERATING ADVICE

- Never place your fingers near the cutter. Always use a brush or similar to clear shavings from around the cutter.
- Always wear eye protection whenever operating power tools. Use of a dust mask and ear muffs is also recommended.
- Do not wear loose clothing or jewellery when operating power tools. Tie back long hair.
- Ensure power is disconnected before replacing cutters or making any adjustments near the cutter.
- Always start and finish finger jointing with the cutter hidden inside the fixed fence.
- To prevent workpiece tear-out make your first cut by feeding the workpieces forward (away from you) only. All subsequent cuts should be made starting from the back with the first and final cuts ensure the Finger Jointer slide direction places the MDF fence face behind the cut being made.

Fig 6a & 6b



Fig. 6a

Fig. 6b

- The MDF fence faces are sacrificial - after several operations it may be necessary to loosen the knobs and slide the MDF faces to an uncut position. **Fig 7**. They can also be turned upside down to increase their life. When no longer functional replacements can be purchased through Triton (part no. FJA 038) or made from 16mm MDF.



Fig. 7

PRACTICE JOINT (2 Workpieces) Fig 8

1. Cut two practice pieces of the same width and thickness as the intended workpieces. Ensure they are cut squarely.

2. Release the adjustable fence and insert the practice pieces between the fences at one end, then lock the fence at that end and repeat at the opposite end. The pieces should fit neatly between the MDF faces, with just room to slide.
3. Slide the Finger Jointer to the starting position at the front (switch box) end of the Router Table.
4. Fit the initial cut stop as shown in **Fig 5a & b**. Slide it forward or backward until the step is approximately halfway between the fences.
5. Slide the practice pieces against the stop and use a G-clamp, or similar, to hold them in this offset position as shown in **Fig 8**.

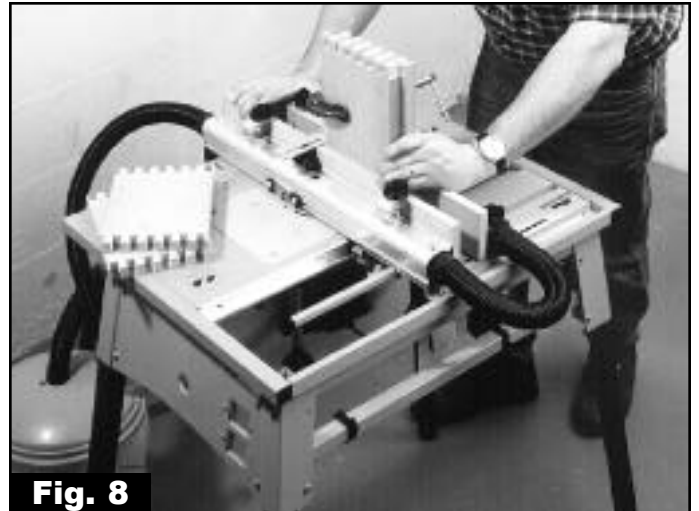


Fig. 8

6. Turn on the vacuum and start the router. Hold the practice pieces against the stop and down onto the table while pushing the Finger Jointer slowly forward until it stops, then slide it slowly back to the start position.
7. Lift the pieces out and blow any shavings from between the fences. **Note:** It is only from the first and last cut that some shavings will escape.
8. Remove the initial cut stop and replace the practice pieces with the first cut locating onto the finger.

Make the second cut and follow this procedure for all remaining cuts. For each cut, ensure the previous cut locates fully onto the finger and that there is no build-up of shavings beneath the work. **Note:** Feed the work slowly through the cutter for best quality of cuts and to avoid breakage of the more fragile 1/4" cutters.

ADJUSTING FOR AN OPTIMUM JOINT

1. Test the fit of the joint. Ideally the pieces should fit closely with a small clearance for glue. If too loose or too tight adjust the position of the finger as detailed below. This adjustment is critical as less than 0.5mm can be the difference between too tight and too loose.

Check there is no gap between the finger (**31** or **32**) and the stop (**33**). If necessary loosen the **stop** and re-tighten it against the finger.

1/2" JOINTS

IF THE JOINT IS TOO TIGHT - reposition the finger towards the cutter.

Loosen the finger, use a spacer (eg. a few pieces of paper) to move the finger away from the stop, then re-lock. Relocate the stop up against the finger, to store the position.

IF THE JOINT IS TOO LOOSE - reposition the finger away from the cutter.

Loosen the stop, use a spacer (eg. a few pieces of paper) to move the stop away from the finger, then re-lock. Relocate the finger up against the stop.

1/4" JOINTS

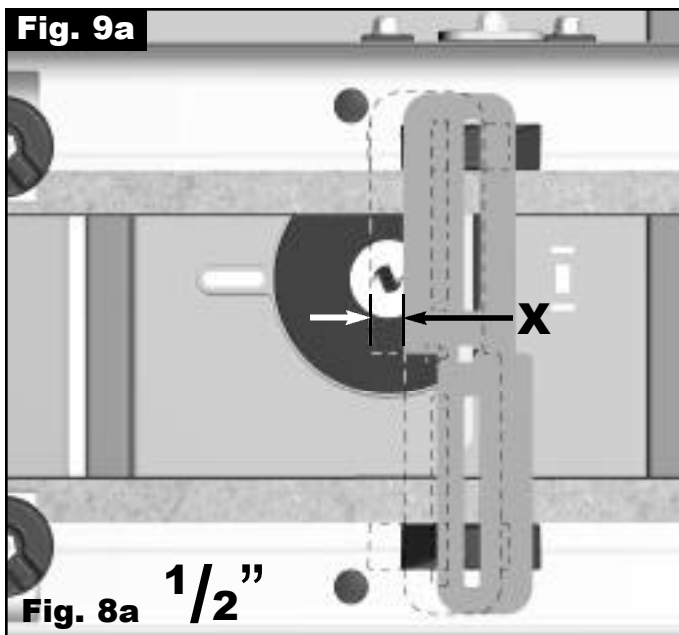
IF THE JOINT IS TOO TIGHT - reposition the finger toward the cutter.

Loosen the stop, use a spacer (eg. a few pieces of paper) to move the stop away from the finger, then re-lock. Relocate the finger up against the stop.

IF THE JOINT IS TOO LOOSE - reposition the finger away from the cutter.

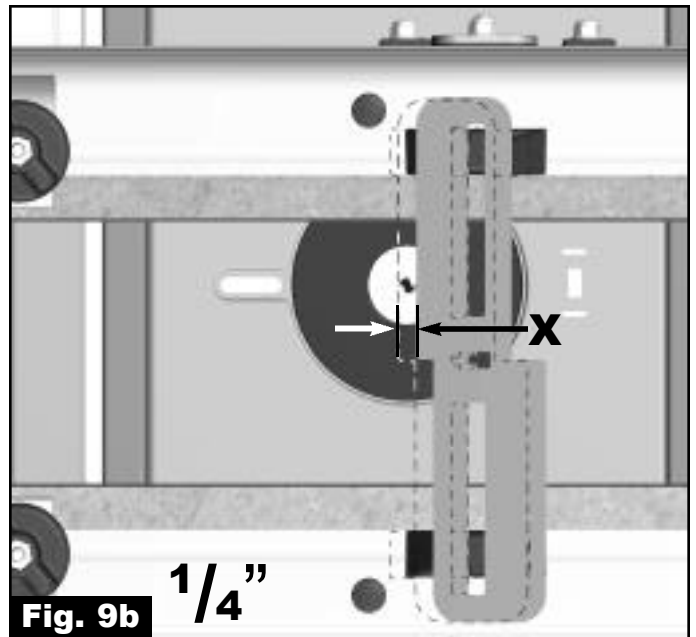
Loosen the finger, use a spacer (eg. a few pieces of paper) to move the finger away from the stop, then re-lock. Relocate the stop up against the finger, to store the position.

2. The set up described will result in a half width first finger. The width of the first and last fingers can be adjusted by re-positioning the initial cut stop and its' supports. Move the initial cut stop away from the slider to increase the width of the first finger, or towards the slider to reduce it. Keep the stop within the range marked "X" in **Fig. 9a & 9b**.



3. The fingers should protrude about 0.5mm past the face of the mating workpiece. This allows them to be sanded (or trimmed, using a flush trim cutter) to a perfectly matched joint.

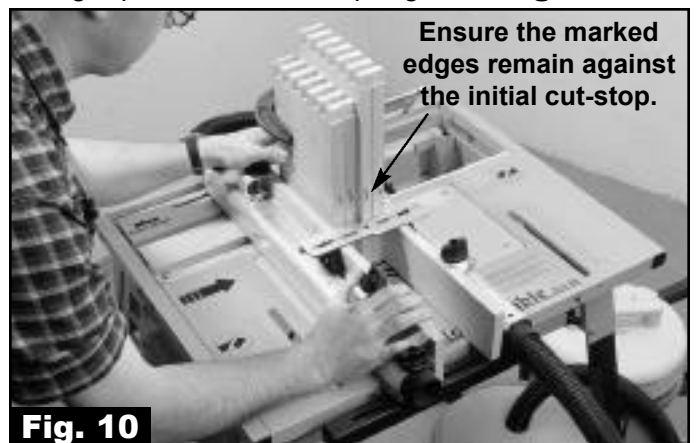
If the fingers are below the face of the mating workpiece, increase the cutter depth as required.



4. If the pieces do not align properly (ie. not flush at the top or bottom), check that:
 - the initial cut stop is square to the fence.
 - the pieces are securely clamped together and that they cannot move while cutting.
 - the pieces are of the same widths and were cut squarely.

JOINTING FOUR SIDES AT ONCE (Fig. 10)

1. Cut four pieces from identical width board (2 pairs of different lengths or all 4 the same). Ensure the ends are square and the sides are parallel.
2. Adjust the fence to fit all pieces at once. Rest the boards against the initial cut stop, offset in equal length pairs, and G-clamp together. **Fig. 10**.



3. Complete the cuts as outlined in "Practice Joint", and return the Finger Jointer to the start position.
4. Refit the initial cut stop in the reverse position that it was first used. Turn the workpieces over to match the offset direction of the initial cut stop, ensuring that the marked edges are against the initial cut stop. If cutting 2 pairs of different lengths loosen the G-clamp and slide the shorter pieces down onto the table. Position the workpieces against the initial cut stop and re-tighten the clamp.

5. Finish the remaining cuts as outlined in “Practice Joint”.
6. Before releasing the clamp, mark all four boards at the same end to keep the joints matched.
7. Interlock the mating fingers to check the joints. When satisfied with the result separate the pieces, apply a thin smear of glue on all joining faces, then assemble the four sides. Check for square before allowing to dry.
8. When dry sand or trim (using a flush trim router cutter) the protruding fingers. If trimming, it is good practice to position some scrap material behind the work to prevent the end grain from breaking away.

MAKING A BOX

Square and rectangular boxes are ideal for finger jointing. A suggested sequence for making a box is as follows:

1. Cut, finger joint, assemble, glue and trim all four sides as described in “Jointing Four Sides at Once” above.
2. Make a lid and base, cutting them slightly oversize. Rebate their edges so they fit inside the frame assembly. Glue them into position.
3. When dry, sand or trim (using a flush trim router cutter) the protruding edges of the lid and base.
4. If desired, use a decorative router cutter (eg. chamfer, rounding over or cove bit) to dress the outside edges of the box. Finish sand all over.
5. Finally, use a tablesaw to cut the lid from the box. Set the blade height 1mm deeper than the thickness of the wood and lock the fence at the desired lid height. Run the top of the box against the fence and carefully cut around the perimeter of the box. **Caution:** the tablesaw guard cannot be fitted for this operation, extreme care with your hand positions is essential.



Due to our company policy of continuous product improvement, specifications may change without prior notice.

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