

# MAG-DRO®

*The magnetic Caliper Base works best with a digital calipers because of being able to set the zero at any place and adjust or check from there.*

## MAGNETIC CALIPER BASE TIPS AND TRICKS

Table Saw Tune-up	
Fence Alignment	<p>Option 1 - Use spacers under each side of the Miter Gauge to raise the center bar and place The Magnetic Caliper Base (with the calipers) on the center bar bias to one side and check the front, set the zero on the digital calipers and check the back of the fence.</p> <p>Option 2 - Using a Combination Square - placing the Magnetic Caliper Base (with the calipers) on the end of the steel ruler, place the head of the Combination Square in the miter slot holding pressure to bias it toward the fence then check the front, set the zero on the digital calipers and check the back of the fence.</p>
Saw Blade Alignment	<p>Using a Combination Square - After unplugging the saw and raising the blade to full height; place the Magnetic Caliper Base (with the calipers) on the end of the steel ruler, place the head of the Combination Square in the miter slot holding pressure to bias it toward the saw blade then check the front of the blade setting the zero on the calipers (marking the part of the blade where the caliper probe hits), retract the depth probe, rotate the blade, slide the combination square in the miter slot and check the same spot on the blade in the back of center.</p>
Blade run-out	<p>After unplugging the saw and raising the blade to full height; place the Magnetic Caliper Base (with the calipers) on the steel table saw top next to the saw blade. Extend the depth probe and set zero on the calipers. Mark the place with tape just outside where the probe hits. Pull the depth probe away from the blade and rotate the blade in small increments; each time checking the distance by extending the depth probe to hit the saw blade. Determine the minimum and maximum caliper dimensions. Mark the minimum and maximum places radially onto the mandrel with painters tape. Change the blade and repeat the procedure to see if the minimum and maximum are the same, to determine if the blade runout is caused by the saw blade or mandrel.</p>
Miter Gauge cross play	<p>Place the Magnetic Caliper Base (with the calipers) on the steel table saw top next to the Miter Gauge fence, move the Miter Gauge slide back and forth in the miter slot while applying pressure to the depth probe against it to determine the cross slide play. Reduce the play if desired (if there is not an adjustment use a hammer to slightly peen the 4 corners of the slide piece) as much as possible still keeping the cross slide moving freely in the miter slot). Minimizing the miter gauge corss play is very beneficial for the tips on <u>Cutting a Dado without a Dado blade</u> and <u>Finger Joints</u>.</p>

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Table Saw Uses	
Table Saw Blade Height	<p>Option 1 - Attach to height gauge bring depth probe to the table and set the zero on the digital calipers, lift depth probe, place over a tooth at the middle of the blade and watch the digital readout as you raise the saw blade</p> <p>Option 2 - Make a cut a little bit lower than your final depth on a scrap piece. Measure the cut depth. Attach to height gauge bring depth probe to the table and place over a tooth at the middle of the blade and lower the depth probe to hit the tooth. Set zero on the digital calipers and raise the saw blade the amount needed.</p>
<p>Tongue and groove it is very important to use a board of uniform thickness (use your calipers to be sure) because it will double the error on the tongue or groove that you cut</p>	<p><b>A. Cutting a tongue to fit a groove</b> - With the blade at the correct height (see tip on the <u>Table Saw Blade Height</u>), adjust the fence to cut the outside edge of the board on both sides (cut the side that is away from the fence, standing up the board so that the edge of the board is on the table). Measure the groove with the calipers and set the zero at that dimension. Put the caliper jaws across the just cut tongue (it will be wider than needed to fit groove) and record the caliper display. Divide the display distance in half and move the fence that distance in the correct direction. Re-cut both sides of the board and check for fit.</p> <p><b>B. Cutting a groove to fit a tongue</b> - With the blade at the correct height (see tip on the <u>Table Saw Blade Height</u>), adjust the fence so that the blade cuts out a narrower groove than needed in the middle of the board, when it is cut on both sides. Measure the tongue with the calipers and set the zero at that dimension. Put the caliper jaws in the narrower groove and record the caliper display. Divide the display distance in half and move the fence that distance in the correct direction. Re-cut both sides of the board and check for fit.</p>
Cutting an exact width board	<p>Determine the width needed. Set the table saw fence a little wider than is needed, make a slight cut in the board and measure the cut width with the calipers. Set the Caliper Base (with calipers) on the table saw close to the fence (<b>towards the front if it's a cam lock fence</b>) and project the depth probe to the fence and set the zero on the digital calipers. Move the fence over the difference and make the cut.</p>

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Cutting a dado without a dado blade (or an extra wide dado using a dado blade)	(for this trick it's best to have a minimum play in the miter gauge in the miter slot (see tip on the <a href="#">Miter Gauge Cross Play</a> ) With the blade set to the correct height (see tip on the <a href="#">Table Saw Blade Height</a> ) make a sample cut in a scrap piece. Measure the width of the cut and set the digital calipers to zero at that distance. Place the caliper jaws over the board that you want to cut the dado width for and record the reading on the calipers. Place the board you would like to cut the dado in on the miter gauge fence so that it is in a position to cut one end of the intended dado. Place the caliper with Caliper Base at the end of the board, extend the depth probe to the end of the board that have the dado cut in it and set the zero. Leaving the Caliper Base at the same point, retract the probe, and make the first cut. Return the board to the original position and extend the depth probe to touch the end of the board. Watching the caliper readout move the board along the cross slide the recorded distance. Retract the depth probe from the end of the board and make the second cut. Make nibble cuts to connect the 2 cuts.
Finger Joints	Make sure there is almost no play in the cross slide (see tip on the <a href="#">Miter Gauge Cross Play</a> ). Uses - 1. Measure the width of the cut and cut an exact thickness piece for the tongue that gets glued into board attached to the miter fence (see tip on <a href="#">Cutting an Exact Width Board</a> ). 2. Set the height of the blade (see tip on the <a href="#">Table Saw Blade Height</a> ). 3. With the board secured to the miter gauge fence make the initial cut in the board. Bring the miter gauge back on the front side of the blade and put the Caliper Base (with calipers) lined up to the end of the board and extend to depth probe to hit the end of the board (make sure you have enough to move the depth probe 2 cut distances) Slide the board an exact distance and secure to the miter gauge fence.
<b>Other Uses</b>	
Router Bit Adjustment	Attach the caliper base (with calipers) to height gauge bring depth probe to the inverted router base and set the zero on the digital calipers. Lift the depth probe, place over the end of the router bit, then lower the depth probe to touch the router bit. Raise or lower the bit to the desired height.
Planer	Attach the caliper with Caliper Base to the face of the steel planer (if the planer surface is not steel, a steel plate can be attached securely to the planer) and lower the depth probe to touch the bed surface and set the zero. Watching the readout on the caliper raise the bed appropriately.
Part Inspection	Attach the caliper with Caliper Base vertically to height gauge. Place on a flat surface. Extend the depth probe to the flat surface or the reference surface on a part to compare other parts to and set the zero on the digital calipers. With the depth probe on a caliper display it's easy to check a number of pieces.
Magnetic Caliper Base Advantage	Pull it off the side of your tool box and measure. Set it down on the table saw or height gauge and adjust. It's handy and fast