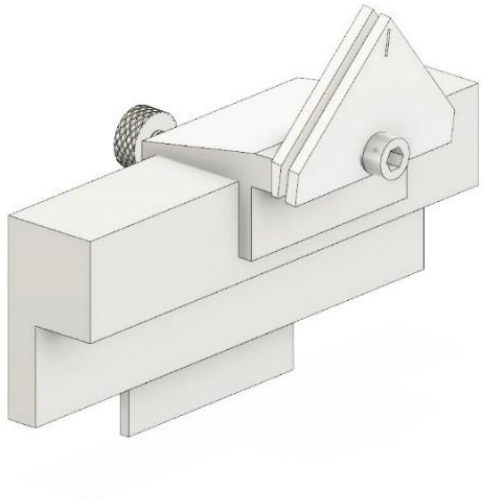
SQUAREJIG INSTRUCTION MANUAL

MODEL: SJ-7

2024



THE SQUAREJIG ADDS THE SQUARE GRINDING FEATURE TO THE OREGON 410-120 MODEL GRINDER AND TECOMEC JOLLY EVO GRINDER.

FOR FULL CHISEL 3/8 PITCH OR .404 CHAIN.

THE SQUAREJIG HOLDERS ARE OFFERED IN .050" AND .063" DRIVELINK SIZES. (USE .063" HOLDERS FOR .058" DRIVELINKS)

Safety

Use of proper personal protective equipment (PPE) while operating is required. Use safety glasses incase of wheel fragmentation. Also be aware of metal and or aluminum oxide dust. Use in a well-ventilated area and wear respiratory protection.

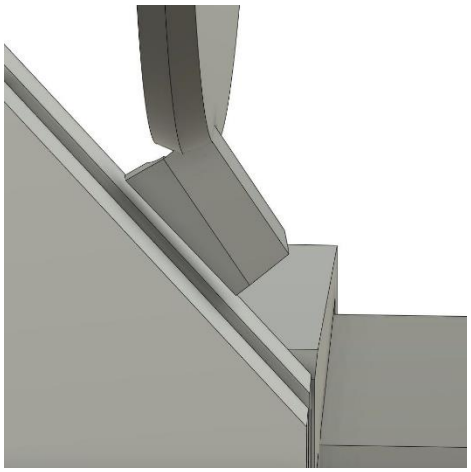
Before installing the Squarejig:

A good light source is key to square grinding chain. A drop light that can be moved to each side of the wheel or one drop light on each side is suggested.

Shaping the grinding wheel

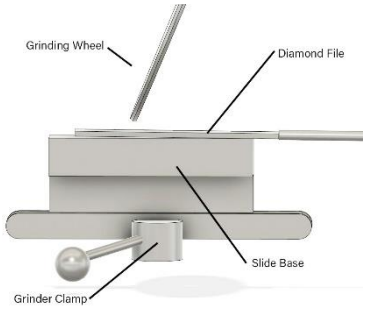
With a diamond file, shape the 1/8th inch wheel to a point. (See examples to the right) This angle adjusts the outside side-plate angle. Somewhere between these two angles is ideal depending on preference of side plate angle and Squarejig holder.

A quick tip: The sharper the point on the wheel, the more aggressive or forward the outside side plate angle. A less steep angle will produce a less aggressive side plate. Notice how the wheel shape affects the side plate angles in the pictures below.



Methods for dressing the wheel:

The Tilt Method



Tilting the wheel can be used for initial setup. This method can help provide an accurate reference but requires flipping the wheel to dress the other side of the wheel.

40 degree holder = set to 65 on grinder.
45 degree holder = set to 60 on grinder.
50 degree holder = set to 55 on grinder.

WARNING: Bring the wheel into the file very slowly. Only a small amount of material is required to be removed at a time. **Use a paper towel to allow the diamond file to slide on the slide base while dressing the wheel.**

Once one side of the wheel is dressed, remove the wheel from the arbor and flip the wheel over to dress the other side.

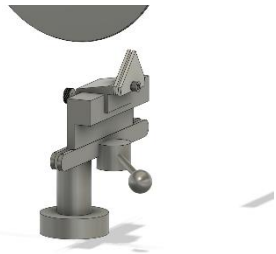
The Manual Method

This method requires a steady hand. Make the wheel to a point and then cut a tooth. If the tooth slopes back simply sharpen the point. If it is to forward or aggressive use a less steep angle.

(Tips & Tricks) Use a filing motion to ensure single diamonds won't make a groove in the surface of the wheel. Hold both ends of the file and very lightly touch the wheel.

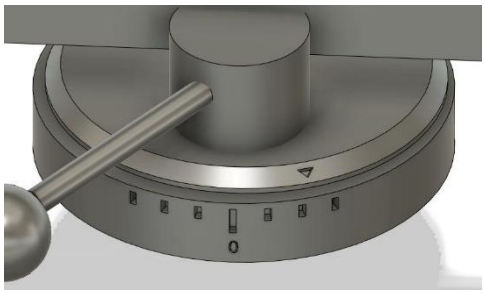
WARNING!: Do not cut into the tie straps of the chain.

Oregon 410-120 Grinder Tilting the jig toward the operator creates a sharper inside side plate angle and adjusts the line that runs from the working corner of the tooth to the inside corner. Adjusting the 10-degree tilt too far toward the operator will put the wheel into the tie strap. Too far away and the line won't line up in the inside of the tooth. A suggestion is to cut a small amount of tooth first and check the tie strap. Start with the 10-degree feature at 7 or 8 degrees from you and move the jig toward you until it is as sharp as desired without removing tie strap material. Remember, as the wheel dresses, the wheel diameter becomes smaller and will require the tilt to be adjusted. The Tecomec Jolly Evo grinder model with the front to back slide adjustments do the same thing as the 10-degree tilt on the Oregon 410-120 grinder.



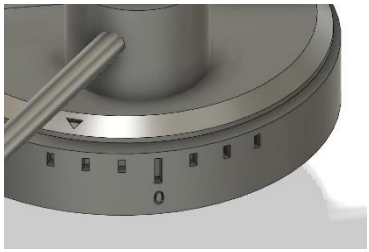
Top Plate Angle

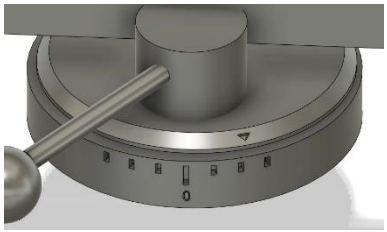
Outside top plates are easily adjusted from 0-35 degrees with the dial at the base of the grinder.



Note: Since the Squarejig repositions the tooth, the dial may not translate to the exact angles as the dial states.

Once one side of the chain is sharpened, adjust the dial to the opposite side of the zero or equidistant to the zero on the other side.





It helps to remember that chain and machine are opposite when adjusting settings. For example, left-hand cutters go on the right side of the jig and right-hand cutters go on the left-side of the jig.

Right-hand cutter

Left-hand cutter

Important: To achieve even length on cutters, center the two rivets on the chain between the witness mark. It may be easier to make the rivets level on the holder so that one is not higher or lower than the other. Make sure to hold this in place so that the chain does not move.

Grinding Wheel Choice (Very important for effective sharpening)

Fine grit wheels should be used for finishing or sharpening undamaged or wood dull cutters. Tecomec makes a level 1 or white wheel that is very fine grit. The Tecomec or level 2 pink wheels are general purpose wheels for sharpening wood dull chain and lightly deformed cutters. Oregon, Tecomec and Molemab make a pink wheel that fit this description. Level 3 and 4 or coarse grit wheels should be used for repairing heavily damaged cutters or converting round to square. Tecomec has a green wheel and a light pink wheel that fit this description.

Tips and Tricks Removing oil from the chain before sharpening can help with wheel load. Loaded wheels won't cut well and put more heat into the tooth. For lowering heat input try a fast tapping technique. This especially helps with fine grit or finishing wheels. Any discoloration of the metal may indicate high temperatures. This can harden the tooth and hand filing will be very difficult. Note: Chain cutter hardness can be different between manufacturers. For example: Oregon and Husqvarna chain are generally softer than Stihl. Softer chain will sharpen easier.

Maintaining the Wheel

Spark volume is a good indicator of wheel performance. If there are less sparks than usual it could be an indicator that the wheel is loading up with metal and needs dressing. Dressing the wheel will remove oil and metal built up on the wheel and will allow effective grinding again. (This process can burn up pink wheels quickly for heavily damaged chain so we do offer a CBN wheel that can handle the bulk of the work.) This can help save aluminum oxide wheel life. Softer wheels deform faster than harder wheels and need dressed to reform the corner of the wheel. Fine wheels tend to require more dressing because of load up. **Remember to never dress the side of the wheel.** All of the grinding should be done from the dressed edge of the wheel. The side of the wheel should be left to load up and be only a finishing or polishing surface for the inside top plate.

CBN Wheels

Cubic boron nitride wheels are available for the Squarejig. They are profiled in the same way as the aluminum oxide wheels but require a special dressing stone to expose fresh CBN grit. CBN wheels are ideal for fixing heavily damaged cutters or converting round ground chain to square. CBN wheels can create a nice finish but they tend to leave a burr.

Tooth length

Once all the teeth are sharpened on one side of the chain, use a tooth from the already sharpened side of the chain as a reference to measure the length of the other side of the chain cutters.

Putting left and right-hand cutters side plate to side plate is an effective way to check for tooth length.

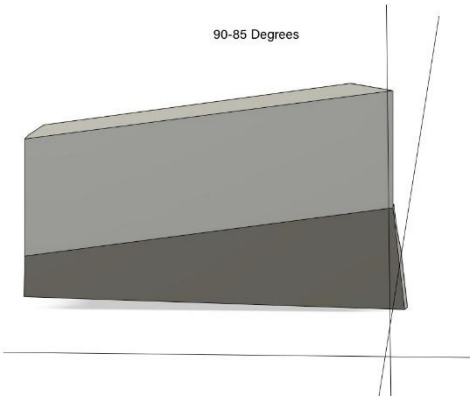
Cutters Side plate to Side Plate: 

An easy way to put teeth side plate to side plate is to find a cutter far enough away from the cutter on the chain

so the chain can fold up.

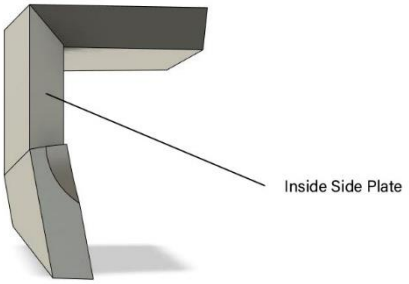
Quick Guide

Outside Side Plate Angle is adjusted by the point on the grinding wheel. A sharper point on the wheel creates a more aggressive side plate angle. Side plate angle is also adjusted by the tilt. Moving the jig away from the operator will make a more aggressive outside side plate.

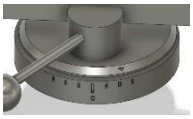


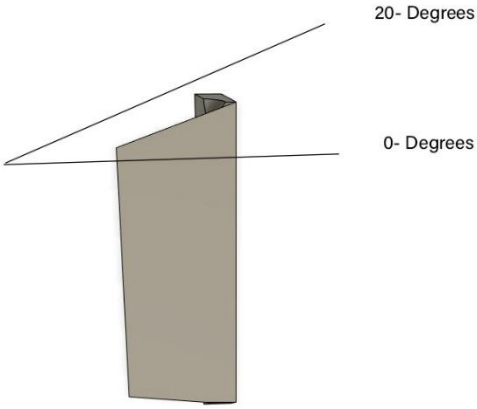
Inside Side Plate Angle The 10-degree tilt and top plate angle adjust how sharp the side plate is.

Moving the jig away from the wheel with the tilt creates a sharper side plate and a steeper outside top plate angle makes this angle sharper as well.



Outside Top Plate Angle is adjusted by the dial at the base of the machine. Angles from 0-35 are easily adjustable.



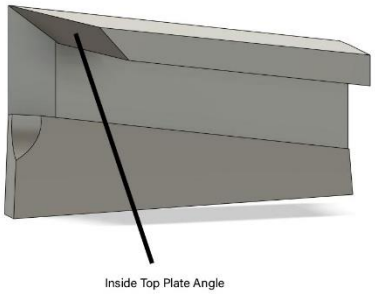


Inside Top Plate Angle

The holder determines top plate sharpness.

A 40 degree Holder will create a more thinned out top plate or

a sharper inside top plate and a 50 Degree will make a more stout or stronger top plate angle which can create more durable cutters.



SQUAREJIG PARTS DIAGRAM