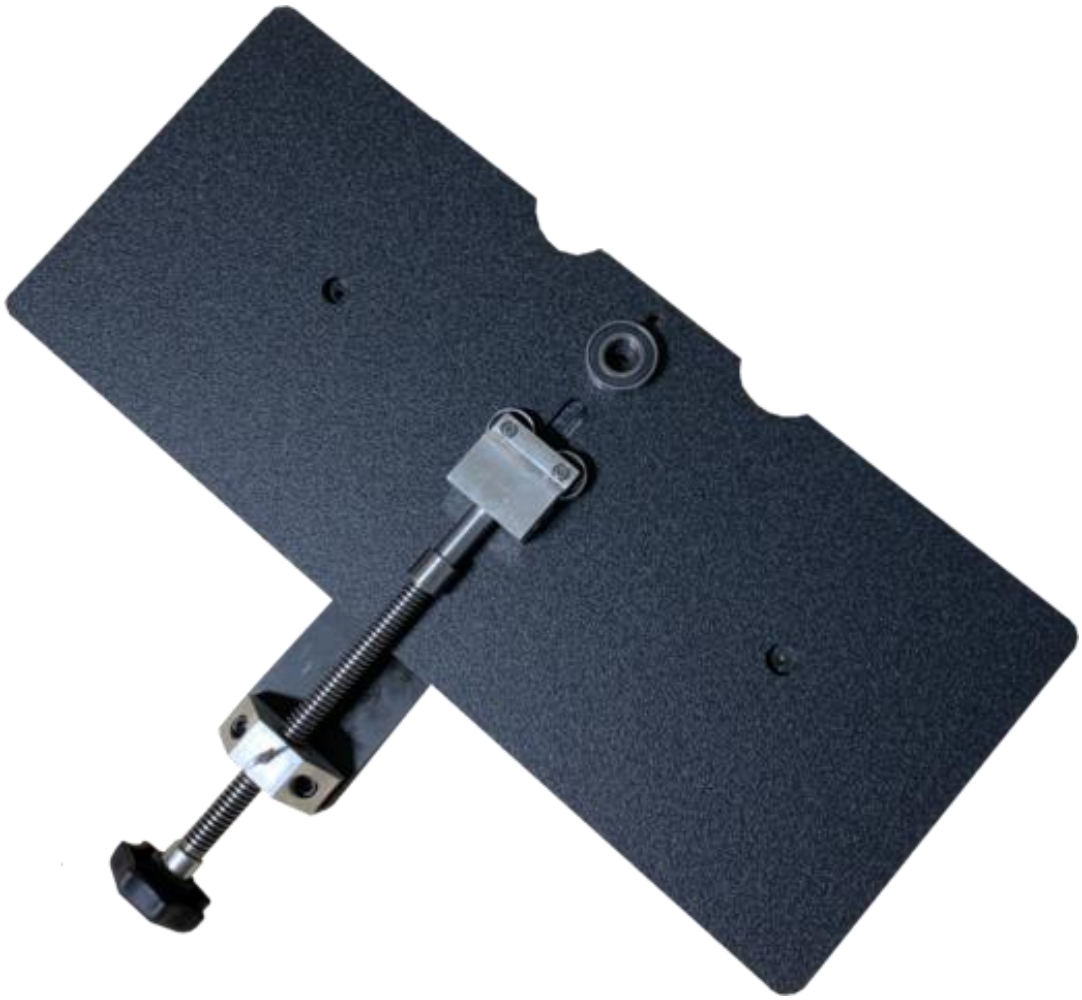
# Williams & Hussey Machine and Tool Co.

## EJ-92 Elliptical Jig

# OPERATOR'S MANUAL



Revised February 2022 cew

Our EJ92 ELLIPTICAL JIG provides an extension
***Of the capabilities of our W&H Molder Planer***

We cannot overstate the respect and knowledge required to operate power tools. All safety rules and operational instructions stated in our Molder/Planer "Operators Manual" must be observed and followed.

***Stock Preparation:*** The principle of our elliptical jig is based on the mounting of your finished stock to a template, which feeds against the bearing pressure applied to the inside and outside radius of your curved or elliptical design. Both your finished stock and template must be the *exact* width of your top profile, except when using a knife designed to cut only a portion of the width of your stock.

Make a template from 3/4" thick stock. We recommend medium density fiberboard (MDF). It is long wearing, easy to work with, and its hardness minimizes bearing-pressure impressions, and this results in a smooth flow of the stock. To properly engage the bearings, the template should have a 4" front lead before the stock engages the knife and a 4" lead on the end of the template to minimize defects in the stock exiting the machine. Minimum stock length is 9".

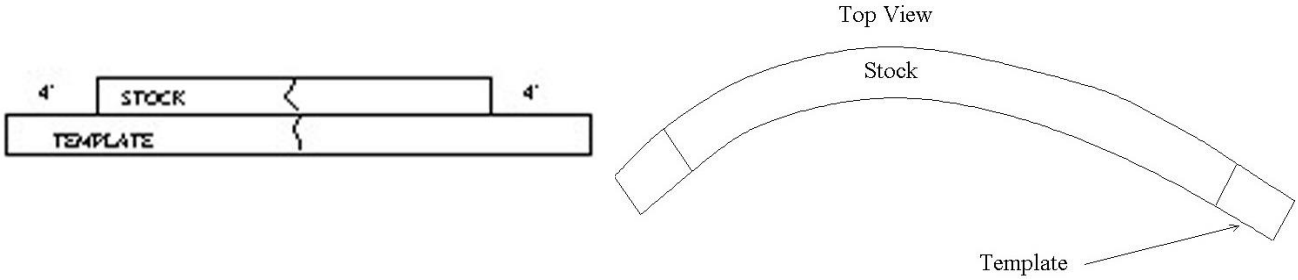
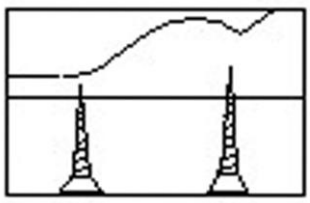



**Illustration 1**

Attach your stock to the template by pre-drilling and countersinking holes in the template. The location is dependent on the profile. Use appropriate length flat-head screws, which will seat below the countersink to allow smooth flow of the template on the base plate. Please exercise caution when using the template for different profiles. Relocation of stock mounting screws may be required. Remember *each* section of stock must be secured to the template.

**Illustration 2**



This jig works best with standard door and window sizes. The deeper the profile the more difficult it will be to get high quality results on smaller radii and conversely the larger the radius the easier it is to excellent results. Two mounting positions are provided for the fixed bearing EJ-3. The outer position allows for wider stock. Maximum stock width is 6 1/2".

Some standard molding knives are manufactured with the deepest part of the profile on the post side of the machine. The best strategy is to feed the stock with the inside radius on the open side of the machine. This is how the jig was designed to function. We manufacture our custom knives with this configuration to be compatible with the elliptical jig.

You now have your stock and template properly prepared and you are ready to proceed.

## *Set Up for machines without guide system mounting holes:*

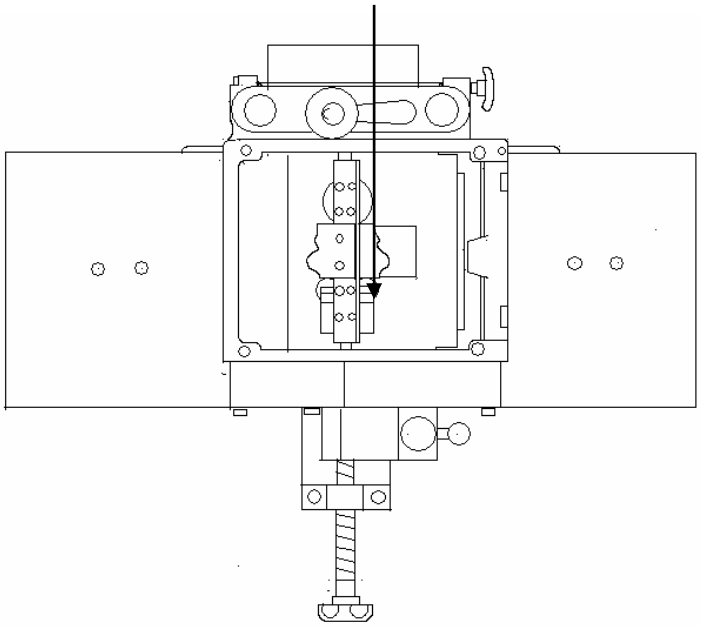
***Disconnect power to the machine.***

***This method will require the mounting kit GS-02.***

Remove the chip deflector or chip extractor depending on which model molder you have. Sub-plates normally restrict the placement of the jig on the machine. You should take your sub-plate off the machine before installing the jig. Wipe off the machine bed and bottom of jig. Place jig on the bed of the machine.

Take a 5" length of straight stock the same width you will be molding and lightly tighten between the bearings with the acme screw. Install molding knives. (See Illustration 3).

**Illustration 3**
5" Long Stock
(Stock width size to suit knife)



Position the jig so the fixed bearing aligns with the center of the machine arbor and stock aligns with knife profile. (See Illustrations 4 & 5). **NOTE** The fixed bearing has two positions. The outer position is used for wider moldings.

**Illustration 4**

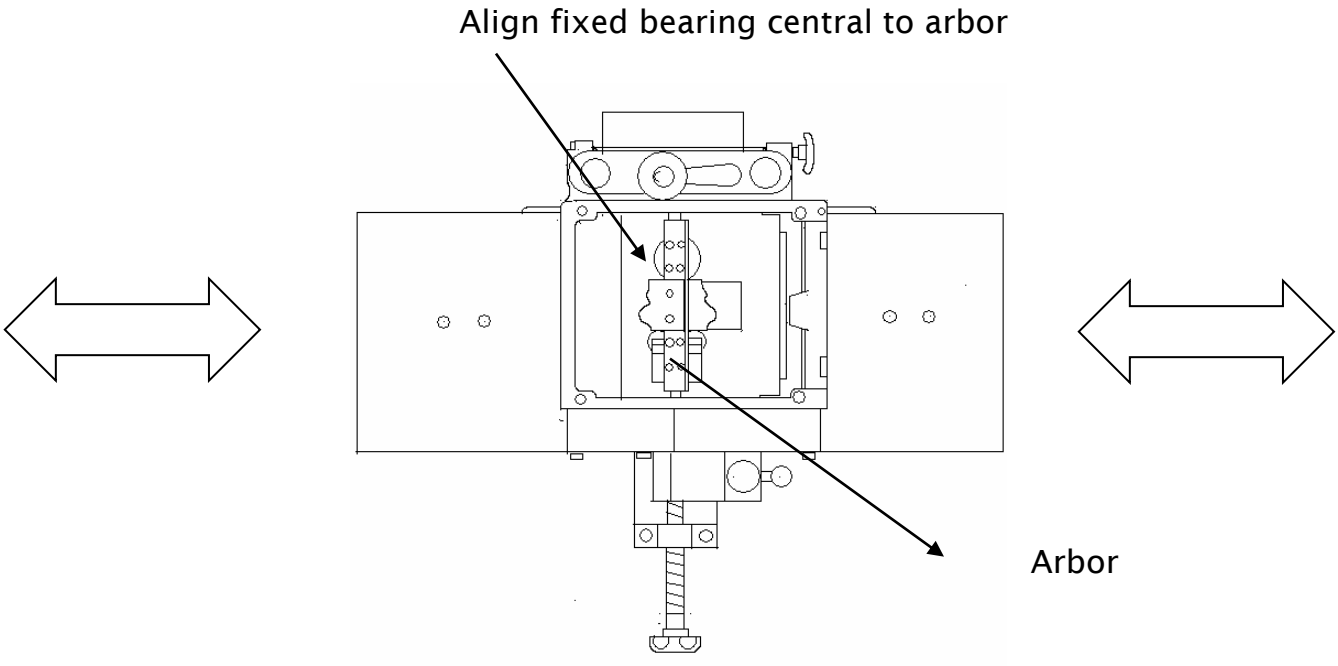
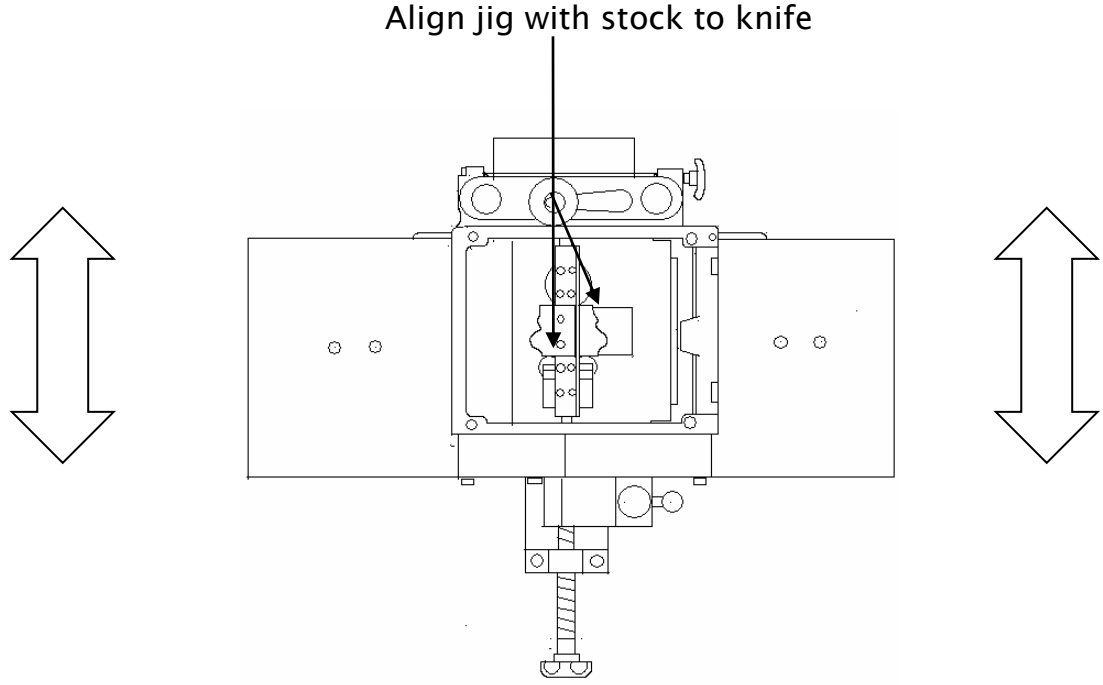



**Illustration 5**



Now that your jig is aligned you will need to secure it to the machine bed or extended beds if you have them. The extended bed is part of our older guide system. If you have the newer GS-2 guide system, replace it with the elliptical jig.

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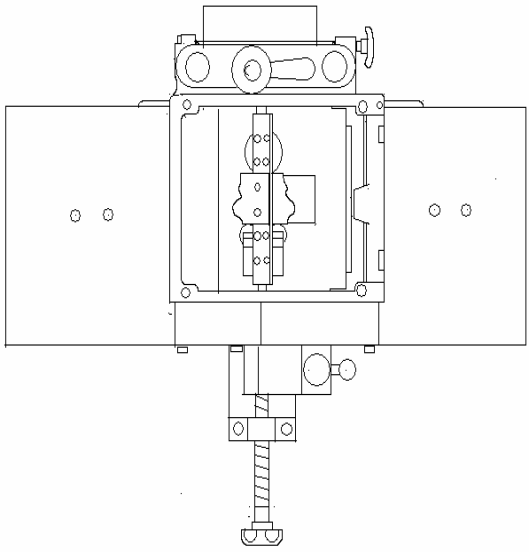


***<u>CAUTION: If jig is not properly clamped to the machine base, movement could occur under operation</u>***

Remove 5" stock used in set up. Insert your 4" template lead, with your stock affixed to it, between the three bearings exerting down pressure with hand to keep tight against jig base and against fixed bearing. Turn crank handle until floating bearings make contact. After contact is made, turn acme screw to apply proper pressure for operation. Lightly tighten screw lock thumbscrew (EJ-11). Always loosen thumbscrew before readjusting the main jig screw (EJ-20).

Set the head on the scale setting that matches the proper height. Compensate for thickness of stock, template, and jig.

| | | |
|---|---|---|
| EXAMPLE: | Stock | 1/2" |
| | Template | 3/4" |
| | Jig Base | 1/2" |
| | Proper Height | 1-3/4" |

With the head set to proper height, lock the head locking bolt firmly. This will give you proper roller tension to complete the desired profile in one pass. The machine was designed to run in this setting.

***WARNING!*** Failure to properly set head height will create a safety hazard in that possibly not enough roller pressure will be applied, or that no roller pressure is applied at all. The incorrect setting may cause knife breakage or kick back to occur.

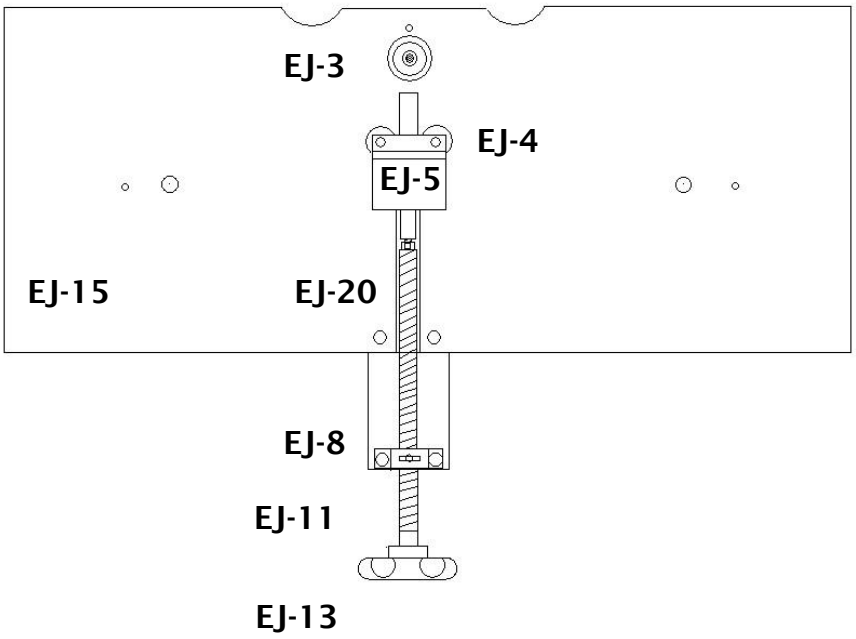
Do not lower the head down to stock with machine under power. You should not attempt to do continuous closed loop molding, which would require plunge molding with an unsecure hold on the stock.

Spin arbor by hand to check for free rotation of knives with no interference from the bearing block or bearings. Attach your chip deflector or chip extractor.

***Operation:*** When molding a longer piece of millwork, you will need to support it as it enters AND exits the machine. This will ensure the stock will not tilt up into the knife and cause a snipe, chip out, or a kick back.

Most woodworkers use the elliptical jig only for ellipses. Round Top moldings (also known as constant radius stock) can be done more efficiently without the EJ92 Jig.

For straight molding, remove the elliptical jig and follow machine operators' manual.




| Qty | Part | Description & Hardware |
|---|---|---|
| 1 | EJ-15 | Base Plate |
| 1* | EJ-3 | Fixed Bearing uses (1) EJ-32 5/16-18 x 1/2 Low Head Socket Cap * |
| 2 | EJ-4 | Floating Bearing |
| 1 | EJ-5 | Bearing Block uses (1) EJ-45 ¼-20 x 1/2" Set Screw |
| 1 | EJ-7 | Acme Nut uses (2) EJ-33 5/16-18 x 3/4 Socket Head Cap |
| 1 | EJ-8 | Extension Plate uses (2) EJ-81 1/4-20 x 3/4 Flat Head Socket Cap |
| 1 | EJ-20 | Acme Screw |
| 1 | EJ-11 | Thumb Screw |
| 1 | EJ-12 | Fixed bearing stud |
| 1 | EJ-13 | Acme Screw Knob uses (1) EJ-35 10-32 x 3/16" Socket Set Screw |
| 2 | EJ-44 | Dowel Pin, 3/8"x 5/8" |
| 2 | EJ-81 | Mounting Bolts ¼-20x3/4 |
| 2 | EJ-39 | Washer (For mounting bolts) |
| 1 | EJ-42 | Allen Wrench, 5/32" |

* Always use thread lock on this screw when changing its position