owner's manual

assembly
operating
repair parts

CAUTION:
Read SAFETY RULES and INSTRUCTIONS carefully

Specifications

Weight .................................................. 55 pounds
Jaw Size (length x width)
Main .................................................. 13 3/4" x 5"
Small .................................................. 2" x 2 1/8"
Auxiliary .............................................. .5 3/4" x 5"
Jaw Travel ............................................. 14"
Jaw Depth (face to square beam)
Main .................................................. 2 1/8"
Small .................................................. 3 1/2"
Extension Dog Height (max) ............... 2 1/4"
Tilt Range .......................................... 0°-90°
Rotation Range ................................... 0°-360°
Jaw Pivot Range .................................. .5° Both Directions-10° Total
Material
Jaws and Vise Hub ......................... Cast Iron
Lead Screw ........................................ Steel

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GENERAL SAFETY RULES FOR TOOLS

1. KNOW YOUR TOOL
   For your own safety, read the owner's manual carefully. Learn the application and limitations as well as the specific hazards peculiar to this tool.

2. REMOVE ADJUSTING KEYS AND WRENCHES
   Form habit of checking to see that keys and adjusting wrenches are removed from tool before use.

3. KEEP WORK AREA CLEAN
   Cluttered areas and benches invite accidents.

4. KEEP CHILDREN AWAY
   All visitors should be kept a safe distance from work area.

5. MAKE WORKSHOP KID-PROOF
   With padlocks, master switches, or by removing starter keys.

6. USE RIGHT TOOL
   Don't force tool or attachment to do a job for which it was not designed.

7. WEAR PROPER APPAREL
   No loose clothing, gloves, neckties, rings, bracelets, or jewelry to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.

8. ALWAYS WEAR SAFETY GLASSES
   Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact-resistant lenses. They are NOT safety glasses.

9. SECURE WORK
   Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

10. DON'T OVERREACH
    Keep your proper footing and balance at all times.

11. MAINTAIN TOOLS IN TOP CONDITION
    Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

12. DISCONNECT TOOLS FROM POWER SOURCE
    Before servicing and when changing accessories such as blades, bits, cutters, or when mounting and re-mounting motor.

13. REDUCE RISK OF UNINTENTIONAL STARTING
    Make sure switch is in "OFF" position before plugging in cord.

14. USE RECOMMENDED ACCESSORIES
    Consult the owner's manual for recommended accessories. Use of improper accessories may be hazardous.

15. NEVER STAND ON TOOL
    Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.

16. CHECK DAMAGED PARTS
    Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function—check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

![WEAR YOUR SAFETY GLASSES Image]

The operation of any power tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety goggles complying with ANSI Z87.1 before commencing power tool operation.

TOOLS REQUIRED

1. Router/or Hand Chisels
2. Hand Chisels
3. 5/16"-Diameter Drill Bit
4. 1/8"-Diameter Drill Bit
5. Screwdriver
6. (2) 8-Inch Adjustable Wrenches
7. Electric Drill

UNPACKING AND CHECKING CONTENTS

Model C334 Pattern Maker's Vise is shipped complete in one carton. Carefully unpack and separate parts from packing material. Check loose parts against Table of Loose Parts on page 3 and Repair Parts on page 6. If any parts are missing or damaged, do not mount or operate the vise until replacement parts are obtained and properly installed. Some parts such as the vise jaws are coated with rust preventative that can be removed with a soft cloth soaked in kerosene. Do not use acetone, gasoline, or lacquer thinner; these are dangerous.

Apply a coating of paste wax to the face of the jaws and other exposed machined surfaces.
TABLE OF LOOSE PARTS

<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Wood Handle</td>
<td>1</td>
</tr>
<tr>
<td>7A</td>
<td>Handle Knob</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>Tilt Bracket Assembly</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>Tilt Bar</td>
<td>1</td>
</tr>
<tr>
<td>7B</td>
<td>Knob Screw</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Cotter Pin</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>Auxiliary Jaw</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>1/4-20 x 3&quot; Flat Head Machine Screw</td>
<td>2</td>
</tr>
<tr>
<td>28</td>
<td>1/4-20 Hex Nut</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>1/4 Flat Washer</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>#10 x 1&quot; Wood Screw</td>
<td>3</td>
</tr>
<tr>
<td>26</td>
<td>Jaw Retaining Screw</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>#10 x 3/4&quot; Pan Head Screw</td>
<td>4</td>
</tr>
</tbody>
</table>

MOUNTING AND ASSEMBLY

**CAUTION: DO NOT ATTEMPT TO INSTALL ON WORK SURFACE LESS THAN 1 1/2" THICK.**

1. Remove the Front Jaw, Beam, and Lead Screw Assembly by opening the Vise until the screw disengages. Hold the Front Jaw and Beam firmly and pull the assembly away from the Vise Hub and put aside. This will reduce the weight of the vise for easier installation.

2. Lay out the Hinge Plate Recess using template provided as shown. Drill (2) 5/16"-diameter holes and (3) 1/8"-diameter holes as shown on template.

3. The underside of the workbench will need to be cut to provide clearance for the Vise Hub and Square Beam. This can be accomplished by using a Router and/or Hand Chisel.

4. Rout or chisel out the recessed area following the layout lines. The recess allows the Hinge Plate to be mounted flush or slightly below the top and front surfaces of the workbench.

**CAUTION: FAILURE TO RIGIDLY MOUNT THE HINGE PLATE TO THE WORK SURFACE USING ALL FASTENERS PROVIDED COULD RESULT IN DAMAGE TO THE VISE OR PERSONAL INJURY.**

5. Fasten the Hinge Plate in the recess using the following:
   - For the top outside holes, use (2) 1/4-20UNC x 3" Flat Head Machine Screws (REF 27) with Nuts (REF 28) and Flat Washers (REF 29).
   - For the top center hole, use (1) #10 x 1" Wood Screw (REF 30).
   - For the front holes, use (2) #10 x 1" Wood Screws (REF 30).

6. Remove Knob (REF 7A) from one end of Wood Handle (REF 7). Insert Wood Handle through T-casting. Reattach knob to end of handle. Reassemble the Front Jaw, Beam, and Lead Screw assembly to the mounted Rear Jaw.

7. Install the Tilt Bar (REF 22) by sliding it onto the Stud at the lower left of the Vise Hub, then secure with the Cotter Pin (REF 18) supplied.
8. a) Slide the Tilt Bracket Assembly (REF 19) onto the Tilt Bar. The bar goes through the rectangular opening in the assembly.
b) Draw a line on the bottom of the bench top 3 3/4" from the edge.
c) Position the Bracket under the workbench top so that the Tilt Bar is equal distance from the beam, and the front edge of the Tilt Bracket is on the line.
d) Locate the centers of the four mounting holes located in the Bracket, and drill 1/8"-diameter holes on the centers.
e) Attach Bracket using (4) #10 x 3/4" Pan Head Wood Screws (REF 31).

9. There are two Cam Locking Levers on the Pattern Maker's Vise. One locks the rotation of the vise and is located on the lower left of the Vise Hub. The other locks the Tilt Angle Bar and is located on the left side of the Tilt Bracket. The adjustment procedure for both Locking Levers is the same, as follows:
   a) Loosen the Lock Nuts on the threaded stud end.
   b) Position the lever in the intended unclamped position. Pay close attention to the Locking Cams; there should be enough travel left for the cams to operate effectively.
   c) Tighten the first Lock Nut, finger tight only. Lock the first nut in position by tightening the second nut against it using two Wrenches. Be careful not to tighten the first nut any further in the process.
   d) Test the operation of the levers. Make sure that the cams unlock completely to allow free movement and that they clamp securely. The levers should be oriented to allow easy access and not create pinch points that may result in personal injury.

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**ADJUSTMENTS**

**WARNING:** This vise has been adjusted at the factory to assure proper operation. Shipping and handling, however, may alter these settings.

**Front Jaw Pivot**
Adjustment of jaw alignment is provided by two Pivot Screws located in the Front Jaw, one at the top and one at the bottom.

1. Loosen top and bottom Pivot Screws slightly.
2. Close Vise lightly, and align the Front Jaw to the Rear Jaw.
3. Tighten both top and bottom Pivot Screws.

**Pivot Cam**
The force required to move the Jaw Pivot Cam is adjustable. It can be set to match clamping conditions or to operator's specifications.

1. Loosen Lock Collar Set Screw.
2. Rotate Lock Collar clockwise or counterclockwise until tension on Pivot Cam is acceptable.
3. Tighten Set Screw.
OPERATION

Vise Tilt

The Pattern Maker's Vise can be tilted from the normal position (perpendicular to the work surface) through 90° until the jaws are parallel to the bench top. The Vise can be locked in any position along the 90° travel.

1. Hold Vise firmly, and unlock Tilt Bar by disengaging Locking Cam Lever.
2. When Tilt Bar is unlocked swing Vise to desired position.
3. Engage Locking Cam Lever firmly until Tilt Bar is securely locked.

Vise Rotation

The Vise rotates 360° around the Vise Hub and can be locked at any angle of circular rotation.

1. Hold Vise, and disengage Rotation Locking Cam Lever.
2. Rotate Vise into position.
3. Firmly engage Locking Cam Lever until Vise is securely locked.

Front Jaw Pivot

To clamp tapered workpieces, the Front Jaw pivots 5° in either direction. Or it can be positioned parallel to the Rear Vise Jaw for normal clamping operation.

1. Open jaws and position stock in Vise.
2. Close jaws until they are close to, but not touching, the workpiece.
3. Pivot Front Jaw parallel to taper of workpiece by moving Cam Arm up or down.
4. Tighten jaws on workpiece.

Integral Clamping Dogs

Each jaw is equipped with two adjustable Clamping Dogs for clamping irregular-shaped pieces. The dogs are equipped with Side Springs so they hold their position above the jaw.

1. Push up on Round Dog Extension that protrudes under jaws.
2. Position workpiece on top face of jaws.
3. Adjust height of dogs so that the top of dog is slightly below top of workpiece.
4. Tighten jaws.

Auxiliary Swivel Jaw

An Auxiliary Internal Jaw is provided for clamping tapered pieces greater than 5°. This jaw can be assembled and disassembled quickly for special-purpose clamping.

1. Open Vise far enough to fit Swivel Jaw between main jaws.
2. Insert tongue of Swivel Jaw through rectangular hole in Rear Main Jaw. Tapped hole in tongue should point away from main beam of Vise.
3. Locate the ridge of the Swivel Jaw into the machined slot in the Rear Main Jaw. Thread the Keeper Screw into the Swivel Jaw Tongue.
4. Be certain that the ridge remains in the slot during the clamping operation.
MOUNTING TEMPLATE
PATTERN MAKER'S VISE

CUT ALONG THIS LINE

5/16" DRILL THRU

1/8" DRILL, 1" DEEP,
PILOT FOR
#10 WOOD SCREW

FOLD
(EDGE OF BENCH)

1/8" DRILL, 1" DEEP,
PILOT FOR
#10 WOOD SCREW

CUT THIS OUTLINE
FIRST AND TRACE

CUT ALONG THIS LINE

CUT ALONG THIS LINE

CUT ALONG THIS LINE

CUT ALONG THIS LINE

CUT THIS OUTLINE AFTER TRACING
FIRST OUTLINE.
REAPPLY TEMPLATE AND TRACE.