

## **KURT MANUFACTURING - LIFETIME IRONCLAD™ WARRANTY**

All Kurt Manufacturing Company industrial workholding products and parts with the exceptions noted below, are warranted against defects in material and workmanship for the life of the product or part. (The life of the product is defined as that point in time when such item no longer functions due to normal wear and tear.) Failure to properly maintain and/or properly operate the product or part that has been worn out, abused heated ground or otherwise altered, used for a purpose other than that for which it was intended, or used in a manner inconsistent with any instructions regarding its use. The sole obligation of Kurt Manufacturing Company, Inc. (Kurt) and the purchaser's SOLE AND EXCLUSIVE REMEDY hereunder, shall be limited to the replacement or repair of any Kurt product or part (by an authorized Kurt technician) which are returned to Kurt Manufacturing Company's place of business, transportation, shipping and postal charges prepaid, and there determined by Kurt Manufacturing Company to be covered by the warranty contained herein.

**THE LIMITED WARRANTY DESCRIBED HEREIN IS MADE EXPRESSLY IN LIEU OF ANY OTHER EXPRESSED OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. KURT MANUFACTURING COMPANY IS NOT RESPONSIBLE FOR THE IMPROPER USE OF ITS PRODUCTS. KURT SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF USE, REVENUE OR PROFIT.**

**KURT ASSUMES NO LIABILITY FOR, AND MAKES NO WARRANTY REGARDING ANY PURCHASE ITEMS WHERE THE MANUFACTURER OF SUCH ITEM EXTENDS A SEPARATE WARRANTY.**



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## **KURT 3600A-Series Vise “Air” Base Assembly**

**3600A - Forward 3610A - Reverse**

**3620A - Forward, Short**

**3630A - Reverse, Short**



**Operating Instructions Manual**





## Troubleshooting tips

The Kurt 3600-Series vise will operate mostly trouble free for many years. If properly maintained, this product is indestructible. In some cases it will be necessary to troubleshoot. Use the information below to help in the process.

**Problem:** My vise turns hard.

**Tip:** As a new vise the brush seal could be stiff. Allow for break in of vise.

**Tip:** As a used vise, it could be filed with chips and threads could be jammed. Properly clean and grease vise.

**Problem:** The collar comes off.

**Tip:** Retighten the four SHCS that hold it on. Proper adjustments need to be made. See the 3-6 month maintenance schedule.

**Problem:** The handle support is loose or comes off.

**Tip:** You may need a new retaining ring. This support will float, this is normal. Install a new snap ring if needed.

**Problem:** My vise will not turn in either direction.

**Tip:** The vise is jammed with debris. Disassemble and clean as needed.

**Problem:** My vise won't hold tolerance.

**Tip:** You may be experiencing jaw lift from clamping too high or on one side of the jaw. Lower the part in the vise jaw and clamp more material.

**Problem:** My vise won't clamp pneumatically.

**Tip:** Check pressure setting and valve position.

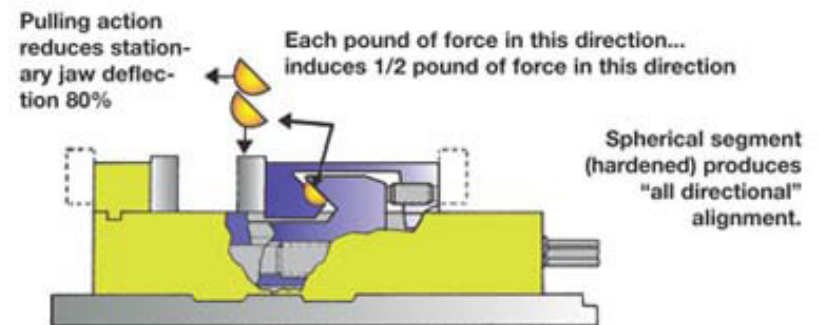
## Introduction

**Thank you for purchasing a Kurt vise. You have just purchased one of the best machine vises in the industry. The Versatile Lock 3600-Series AngLock vise has a time proven design. The outstanding accuracy of this product is second to none. Backed by a lifetime warranty, this product will last forever when used and maintained properly.**

The original Kurt Anglock vises are designed for precision clamping. The "Pull-type" action of the 3600 Versatile Lock design reduces jaw stationary deflection by at least 80%. This vise has a one-piece body and stationary jaw design which reduce weight and increases strength while providing .0005 clamping repeatability. It offers ultra-high precision through many important features. Features include: Ground sides that allow side mounting, upright and back to back mounting, using the body through holes allows side by side mounting.

With twelve different models ranging from standard lengths to short lengths, forward to reverse and hydraulic to air this series of vises are truly versatile. The short reverse configuration has the added benefit of easier programming by reducing the "reach-over" distance in the "Y" axis. This makes it safer and easier for the operator.

The patented Anglock design allows the movable jaw to advance in such a way that each pound of force forward induces a 1/2 pound force downward which minimizes the jaw lift and increases accuracy. This combined with the needle bearings increases jaw clamping pressure. Other features include: 80,000 psi ductile iron body, hardened vise bed & jaw plates, semi-hard steel screw.

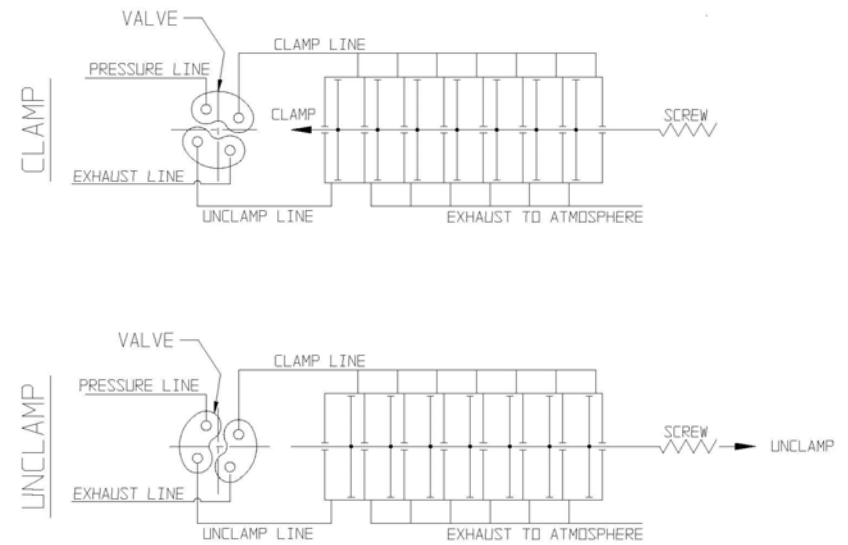


## Set-up Instructions

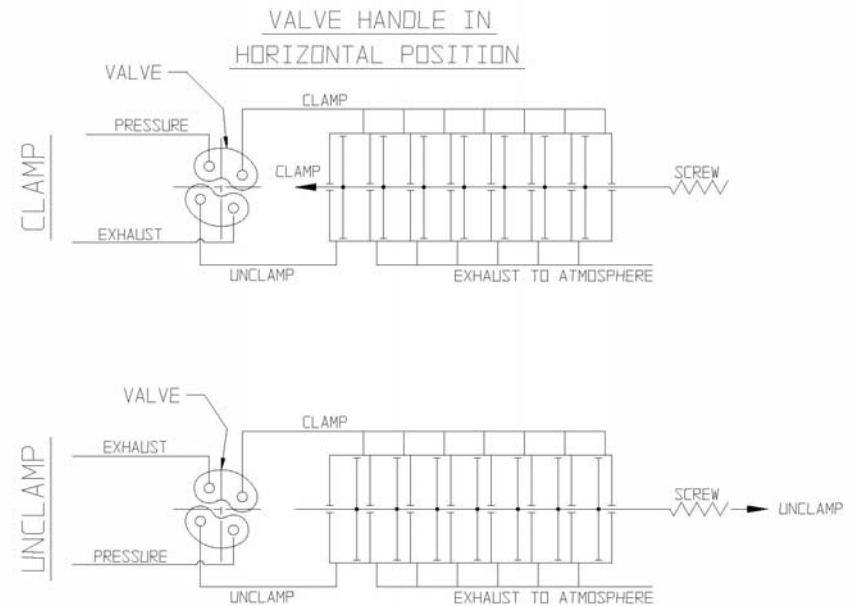
Now that you have your new Kurt 3600-Series vise, it's time to set-up and begin using it. You will see that your new vise comes with a Kurt swivel handle, two chip guards (short & long) and an instruction manual along with the O-ring installation guide supplied in the shipping carton. The chip guard rests between the ways of the vise and can be trimmed to size to help keep the chips out of the screw. The handle is specifically designed to provide maximum torque to your vise. Your vise should be mounted to a clean flat surface. The surface and the vise must be free of any chips, dirt or debris of any kind. The mounting surface can be honed if necessary. Clean the bottom of the vise with solvent or other cleaner if needed. Air activated vises require shop air power. Air filter/lubricator required.

To minimize vise bed deflection, clamp your Kurt vise to your machine table, pallet, or sub-plate using the built-in clamping slots provided. To access the through holes, simply pick the edge of the protective cap up and expose the C' bored hole. Replace the cap after you have mounted the vise to keep debris out of the holes. If you are mounting the vise on it's side or back to back, other clamping methods may be required.

<b>Manual Vise Clamping Force Lbs.</b>	
Air PSI	Air Series
10	320
20	840
30	1280
40	1780
50	2200
60	2720
70	3240
80	3800
90	4380
100	5000

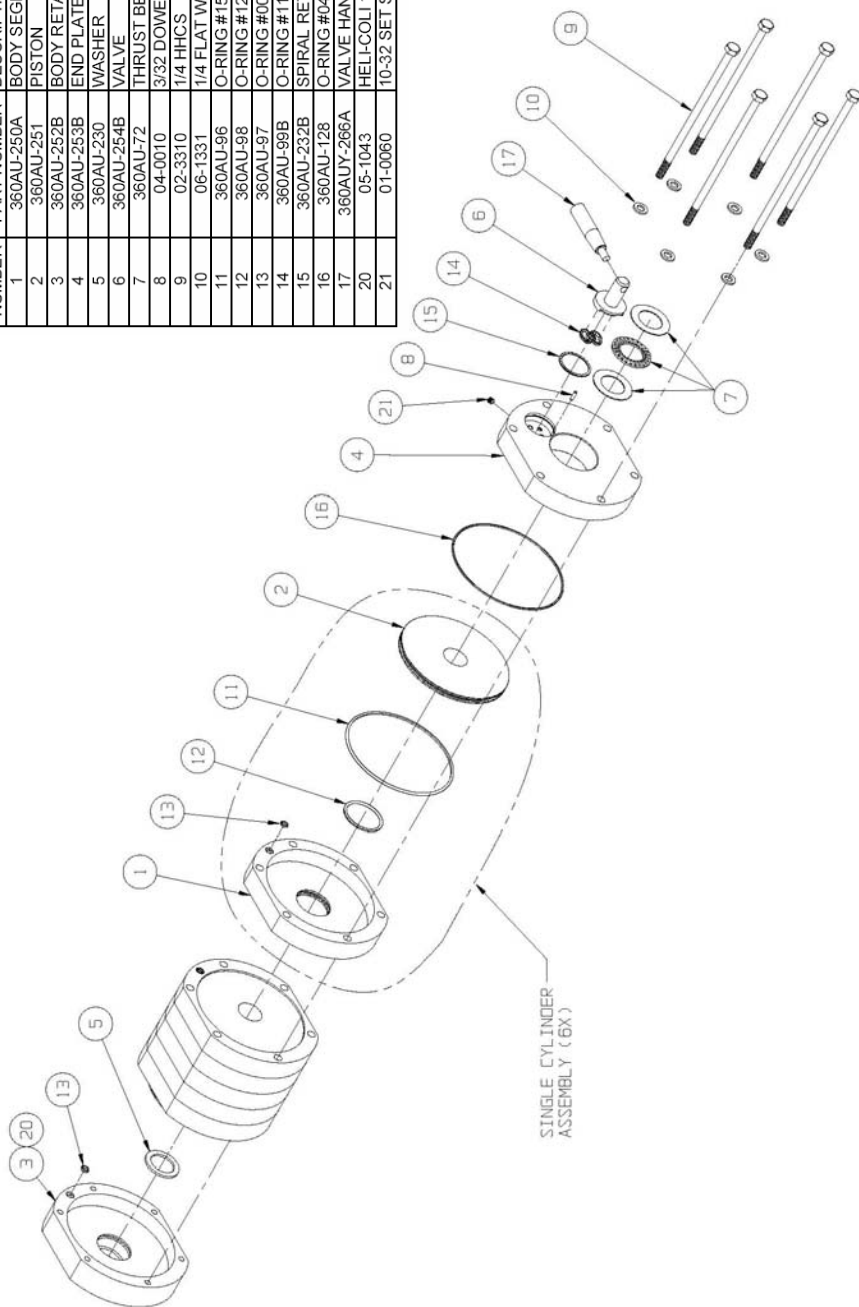


FOR UNIT VALVE



FOR REMOTE VALVE

36BAUB BASIC AIR UNIT			
ITEM NUMBER	PART NUMBER	DESCRIPTION	EA
1	360AU-250A	BODY SEGMENT	6
2	360AU-251	PISTON	7
3	360AU-252B	BODY RETAINER	1
4	360AU-253B	END PLATE	1
5	360AU-230	WASHER	1
6	360AU-254B	VALVE	1
7	360AU-72	THRUST BEARING ASSY	1
8	04-0010	3/32 DOWEL PIN	1
9	02-3310	1/4 FHCS	6
10	06-1331	1/4 FLAT WASHER	6
11	360AU-96	O-RING #154	7
12	360AU-98	O-RING #124	7
13	360AU-97	O-RING #007	7
14	360AU-99B	O-RING #110	2
15	360AU-232B	SPIRAL RETAINING RING	1
16	360AU-128	O-RING #045	1
17	360AU-266A	VALVE HANDLE	1
20	05-1043	HELL-COLI 1/4	6
21	01-0060	10-32 SET SCREW	1



Additional clamping can be used, but may not be necessary. Please be sure to exercise good judgment when securing your vise to the mounting surface. Be sure your vise is secured and will not move when applying the machine pressure.

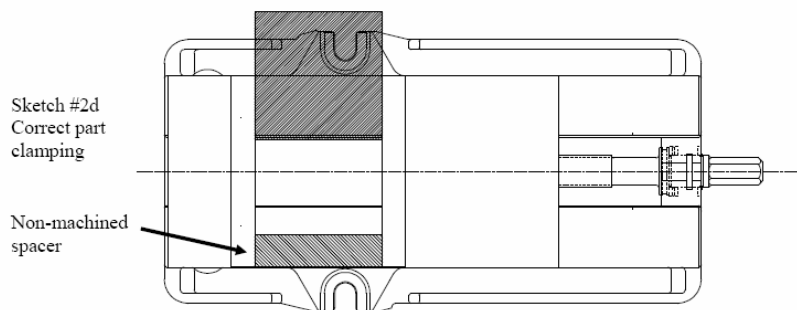
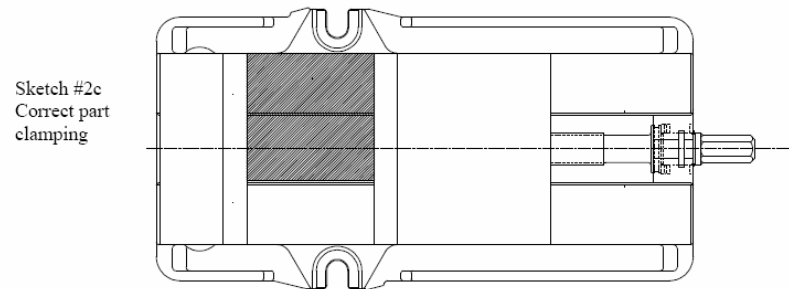
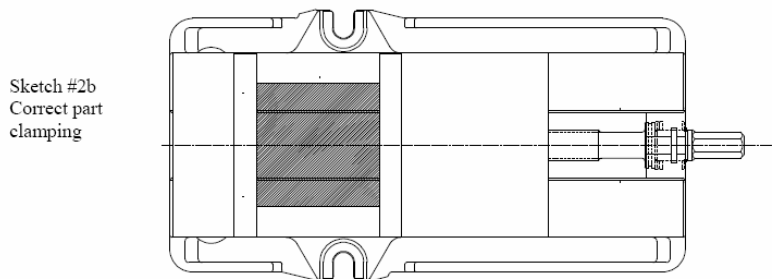
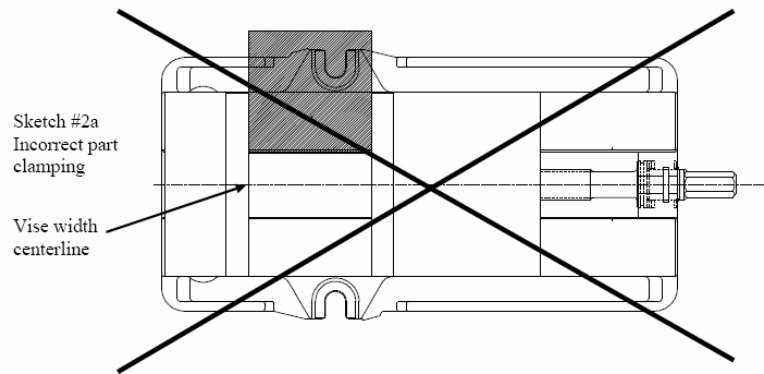
## Operating Instructions

For proper vise operation insert the handle on to the hex end of the vise. Rotate clockwise to clamp and counterclockwise to unclamp your vise. This handle combined with the correct amount of torque will provide you with all the clamping force you will need to machine your parts. Air pressure is only used for clamping purposes 1/4" stroke maximum. All other operations remain the same. A high quality calibrated torque wrench can be used if needed. **DO NOT** use any other type of pressure to open or close your vise.

**The uses of handle extensions, air impact wrenches, breaker bars or hammer strikes are not recommended and will void the warranty if used.** This will also cause damage to the thrust bearing and screw threads. If you need more clamping force you may need to upgrade the vise to a larger one.

To properly clamp a part in your Kurt vise you should place the part in the center of the jaws resting on the ways of the vise. Clamping only on one side or above the movable and stationary jaws can result in jaw lift or loss of accuracy. (See Fig. on next page)

If one-sided clamping is necessary you **MUST** use a dummy part on the other side. When using parallels or step jaws you must select a size that keeps the bottom of the clamped part at or below the top of the movable and stationary jaws. Always use jaw plates for clamping. If jaw plates are not used damage to the mounting surface of the movable and stationary jaw will occur. This will result in reduced clamping accuracy and repeatability.



15. Then turn the collar back **TWO** (2) more screw holes. This will allow proper distance for the collar to lock on the threads and keep the bearings firmly in place. (*Items 15-16—See Fig. 2*)

16. Install the four SHCS and make tight.

17. Install the screw support in the body on the screw (Hex end).

18. Your vise is now ready to use.

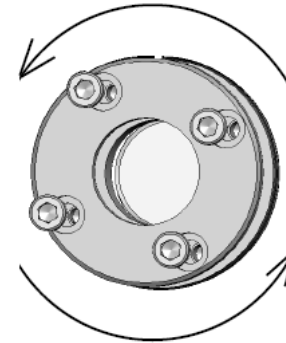
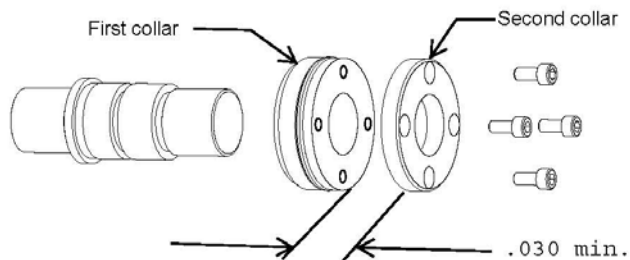


Figure 2

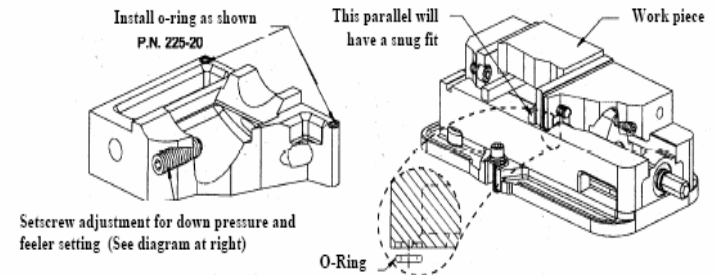
### 3 to 6 months

1. Open vise to maximum opening.
2. Loosen and remove the movable jaw.
3. Remove spiral-retaining ring from handle end of the vise screw.
4. Remove the screw support from the vise body.
5. Remove the two-piece locking collar by removing the four SHCS.
6. With one screw still half way out spin off the first collar.
7. Using a pin or screw reach into the second collar and spin it off exposing the bearings.
8. Remove the thrust bearing assembly consisting of (2) thrust washers and (1) thrust bearing from the counter bore in the end of the body.
9. Clean and inspect the counter bore, thrust washers and thrust bearing.
10. Apply water resistant grease to the thrust washer (i.e. Kurt lube p/n KLA or marine grade grease)
11. Install thrust bearing assembly on the screw in the reverse manner.
12. Install the first collar by spinning on the screw until it stops. (Items 12-14—See Fig. 1)
13. Install the second collar behind the first and spin on until it stops. At this point the screw holes may or may not be lined up.
14. Turn the second collar counterclockwise until a hole lines up.



The O-ring installation and the chip guard installation guides are provided for your review. While both items are an option, we encourage you to read and use at your discretion. Please see these guides for proper installation.

### PROPER O-RING INSTALLATION AND USEAGE

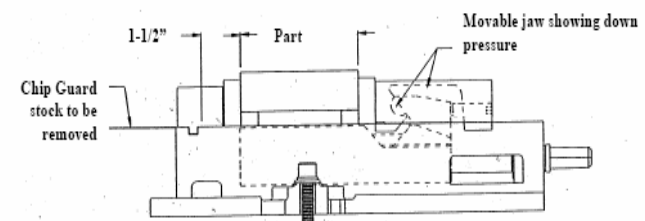


Most Jobs require a tight contact between the workpiece and the parallels (see above). This option offered by Kurt Manufacturing Company is ideal for that. The O-Ring installation will provide for the movement needed when working with parallels.

*Note: We do not recommend using this option with step jaws.*

**Installation:** Install the O-Ring in the movable jaw as shown above in two places. Tighten the adjustment set screw for a .002" space under the front face of the movable jaw, then the jaw will tighten down during clamping and provide down movement, pulling the part onto the supporting parallel. Patent Pending

### PROPER CHIP GUARD INSTALLATION AND USEAGE



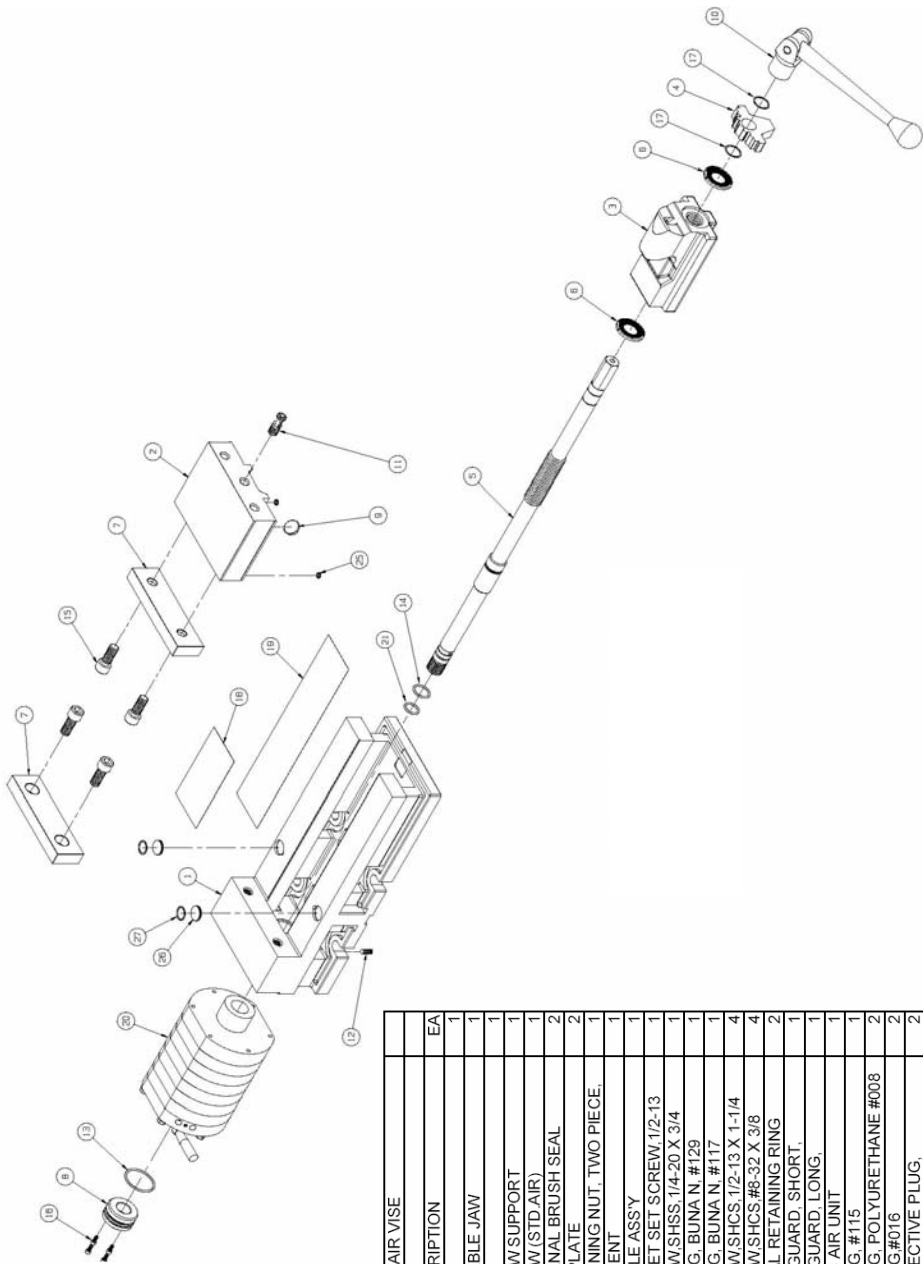
### CAUTION

Chip Guard stock shown above is provided to keep chips from the nut and screw assembly and must be cut and deburred to meet your application and safety needs.

This Chip Guard stock should be cutoff to fill the opening between jaw plates.

Example: Part plus 1/2 inches = Length of Chip Guard stock.

*Notes: Remove Chip Guard stock to lift vise. Corners of Chip Guard stock if left extended as shown above could cause injury.*



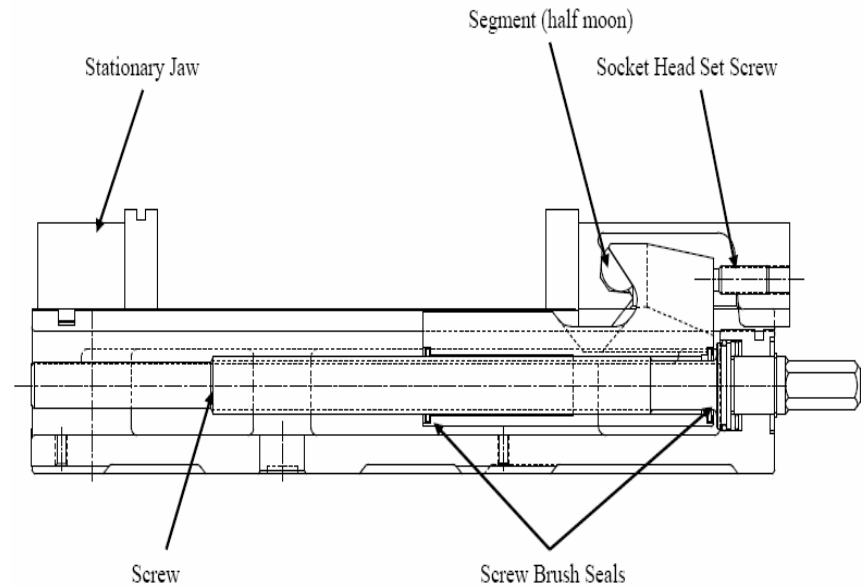
ITEM NUMBER	PART NUMBER	DESCRIPTION	EA
		3600A AIR VISE	
1	3600V-1	BODY	1
2	3600V-2	MOVABLE JAW	1
3	3600V-3	NUT	1
4	3600V-224B	SCREW SUPPORT	1
5	360AU-5	SCREW (STD AIR)	2
6	3600V-211	INTERNAL BRUSH SEAL	2
7	D60-7	JAW PLATE	2
8	3600V-8-P	RETAINING NUT, TWO PIECE.	1
9	D60-9	SEGMENT	1
10	D60L10-SA	HANDLE ASSY	1
11	3600V-11A	SOCKET SET SCREW, 1/2-13	1
12	01-3278	SCREW/SHCS, 1/4-20 X 3/4	1
13	3600V-128	O-RING, BUNA N #129	1
14	3600V-99	O-RING, BUNA N #117	1
15	00-1419	SCREW/SHCS, 1/2-13 X 1-1/4	4
16	00-1191	SCREW/SHCS #8-32 X 3/8	4
17	3600V-147	SPIRAL RETAINING RING	2
18	3600V-248	CHIP GUARD, SHORT.	1
19	3600V-249	CHIP GUARD, LONG.	1
20	36BAUB	BASIC AIR UNIT	1
21	3600AA-68	O-RING, #115	1
25	225-20	O-RING, POLYURETHANE #008	2
26	DLU4-96	O-RING #016	2
27	3600V-191	PROTECTIVE PLUG.	2

6. To re-assemble the movable jaw, apply a “glob” of grease to the under side of the movable jaw in the pocket. Place the spherical segment in the mating pocket and push into the grease. The grease will hold the segment in place when the jaw is turned over to replace.

7. Tip the jaw so the front of the jaw (the side with the jaw plate) is on the vise bed. Lower the jaw on to the bed so that the segment contact the hook part of the nut and rest the jaw on to the vise bed.

8. Tighten the setscrew to firmly contact the nut. Back off the setscrew ¼ turn (approx.) note: DO NOT leave the setscrew tightened firmly to the nut as this may cause improper operation. The movable jaw is designed to move slightly (pivot side to side) so maximum jaw plate contact is maintained when clamping out-of-parallel, sawed, or cast parts.

9. Your vise is now ready for use. Open and close your vise to check for proper operation. Center the part to be clamped in the vise and close. Your parts should be centered from side to side to insure proper clamping. (See Fig. below)





## Maintenance Schedule

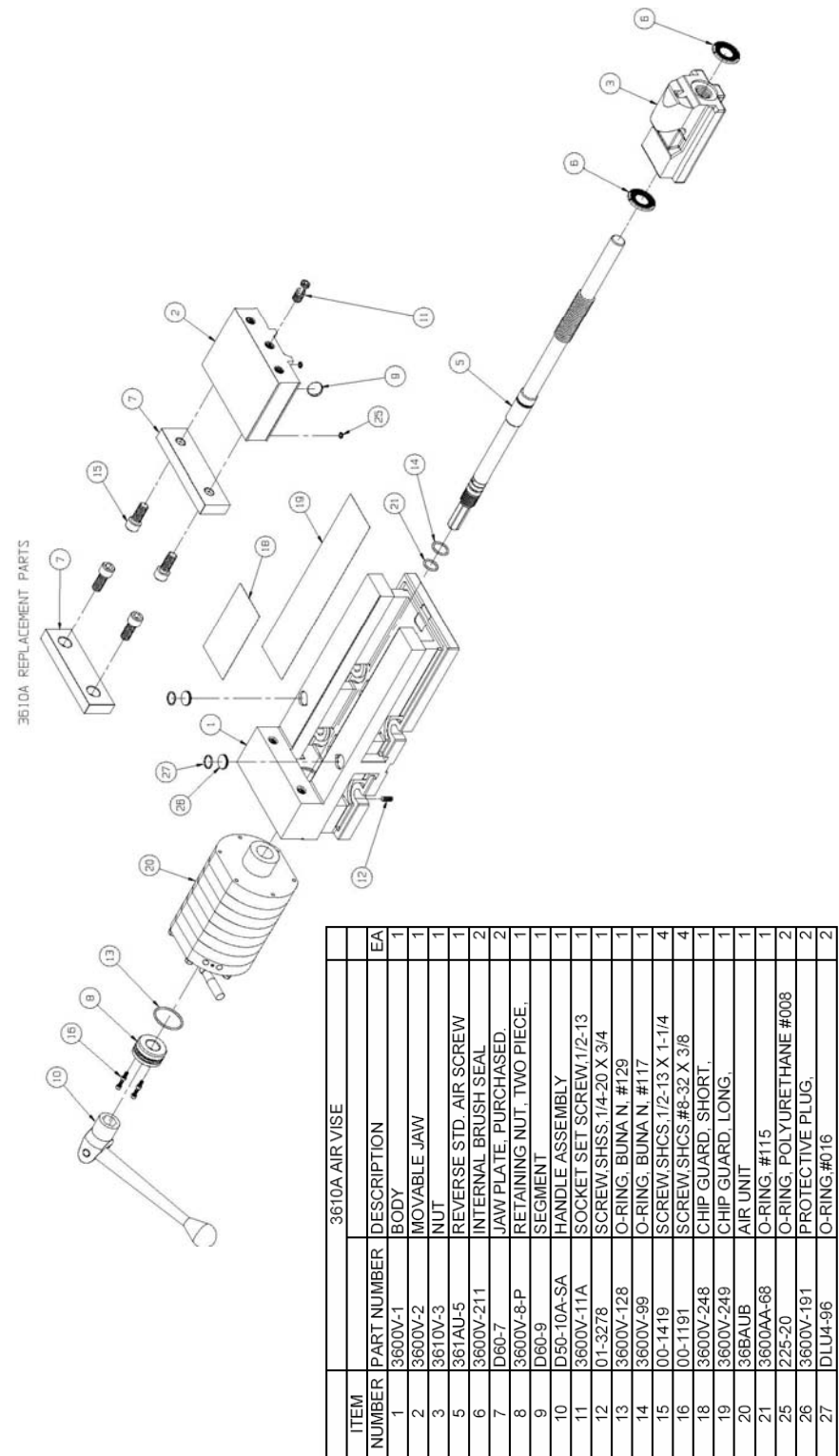
It is very important to perform regularly maintenance on your Kurt vise to assure proper operation. Improper maintenance will result in poor vise performance and may void your warranty.

### Daily/ Weekly

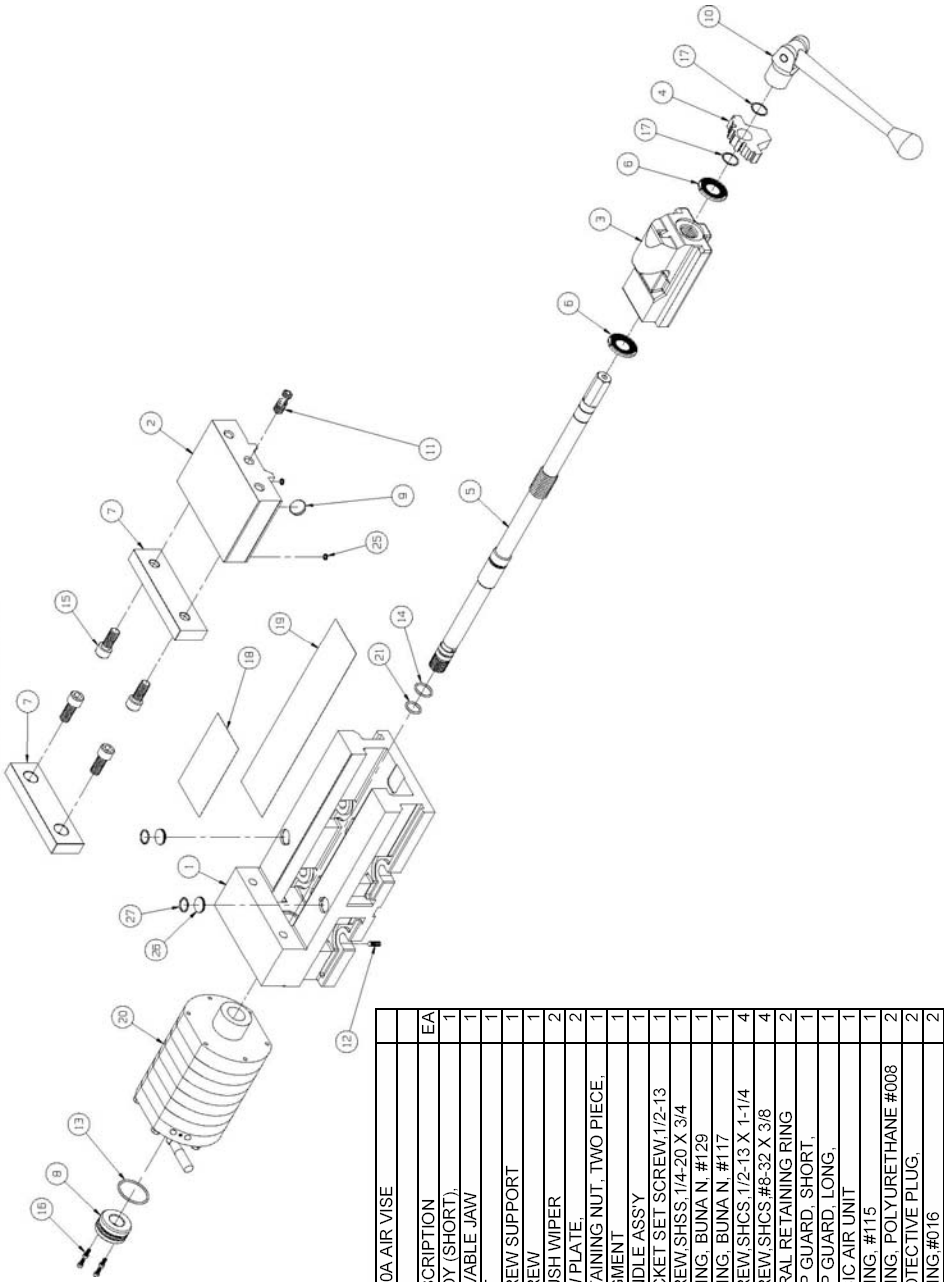
1. Remove chips from surface of vise.
2. Visually inspect for chips, seals for damage and cleanliness.
3. Visually inspect for chip entrapments and remove when necessary.
4. Air-dry and apply rust inhibiting oil to the machined surface of the vise.

### Monthly

1. Open the vise to the maximum opening.
2. In the back of the movable jaw (handle end, center hole) loosen the socket head set screw (approx. 6 turns) With the hex key (Allen wrench) in the set-screw socket lift up and forward to pivot the Jaw off of the vise bed.
3. Slide the Jaw slightly toward the stationary jaw and lift up to remove the jaw from the “hook” of the nut. Note: A spherical segment (shaped as ½ of a steel ball) is inside the cavity of the movable jaw and may fall out as the jaw is removed. Take care not to lose or misplace the spherical segment.
4. Turn the movable jaw over and clean the inside cavity. Also clean the spherical segment.
5. Remove chips, clean and apply a light coat of machine oil to the machined surface of the following items:
  - a. Nut and Screw assembly (clean exposed threads on the screw).
  - b. Bed of vise (top of “rails”)
  - c. Inside of the vise between the center ways.

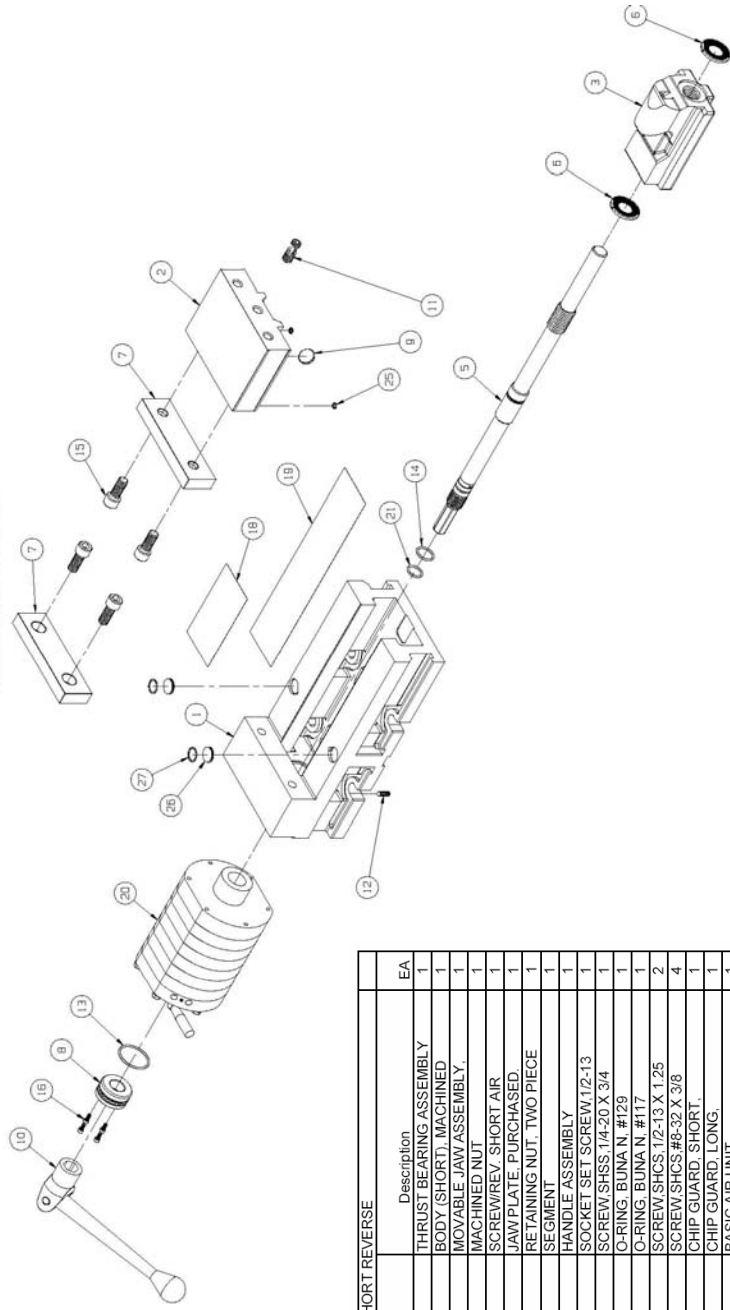


3620A REPLACEMENT PARTS



ITEM NUMBER	PART NUMBER	DESCRIPTION	EA
1	3620V-1	BODY (SHORT)	1
2	3600V-2	MOVABLE JAW	1
3	3600V-3	NUT	1
4	3600V-224B	SCREW SUPPORT	1
5	362AU-5	SCREW	1
6	3600V-211	BRUSH WIPER	2
7	D60-7	JAW PLATE	2
8	3600V-8-P	RETAINING NUT, TWO PIECE	1
9	D60-9	SEGMENT	1
10	D60-10-SA	HANDLE ASSY	1
11	3600V-11A	SOCKET SET SCREW, 1/2-13	1
12	01-3278	SCREW, SHCS 1/4-20 X 3/4	1
13	3600V-128	O-RING, BUNA N, #129	1
14	3600V-99	O-RING, BUNA N, #117	1
15	00-1419	SCREW, SHCS 1/2-13 X 1-1/4	4
16	00-1191	SCREW, SHCS #8-32 X 3/8	4
17	3600V-147	SPIRAL RETAINING RING	2
18	3600V-248	CHIP GUARD, SHORT	1
19	3600V-249	CHIP GUARD, LONG	1
20	36BAUB	BASIC AIR UNIT	1
21	3600AA-68	O-RING, #115	1
25	225-20	O-RING, POLYURETHANE #008	2
26	3600V-191	PROTECTIVE PLUG	2
27	DLU4-96	O-RING, #016	2

3630A REPLACEMENT PARTS



ITEM NUMBER	PART NUMBER	Description	EA
0	360AU-72	THRUST BEARING ASSEMBLY	1
1	3620V-1	BODY (SHORT), MACHINED	1
2	3600V-2-SA	MOVABLE JAW ASSEMBLY	1
3	3610V-3	MACHINED NUT	1
5	363AU-5	SCREW/REV. SHORT AIR	1
7	D60-7	JAW PLATE, PURCHASED	1
8	3600V-8-P	RETAINING NUT, TWO PIECE	1
9	D60-9	SEGMENT	1
10	D60-10A-SA	HANDLE ASSEMBLY	1
11	3600V-11A	SOCKET SET SCREW, 1/2-13	1
12	01-3278	SCREW, SHCS 1/4-20 X 3/4	1
13	3600V-128	O-RING, BUNA N, #129	1
14	3600V-99	O-RING, BUNA N, #117	1
15	00-1419	SCREW, SHCS 1/2-13 X 1.25	2
16	00-1191	SCREW, SHCS #8-32 X 3/8	4
18	3600V-248	CHIP GUARD, SHORT	1
19	3600V-249	CHIP GUARD, LONG	1
20	36BAUB	BASIC AIR UNIT	1
21	3600AA-68	O-RING, #115	1
25	225-20	O-RING, POLYURETHANE #008	2
26	3600V-191	PROTECTIVE PLUG	2
27	DLU4-96	O-RING, #016	2

360AU-72 bearing assembly not shown on drawing