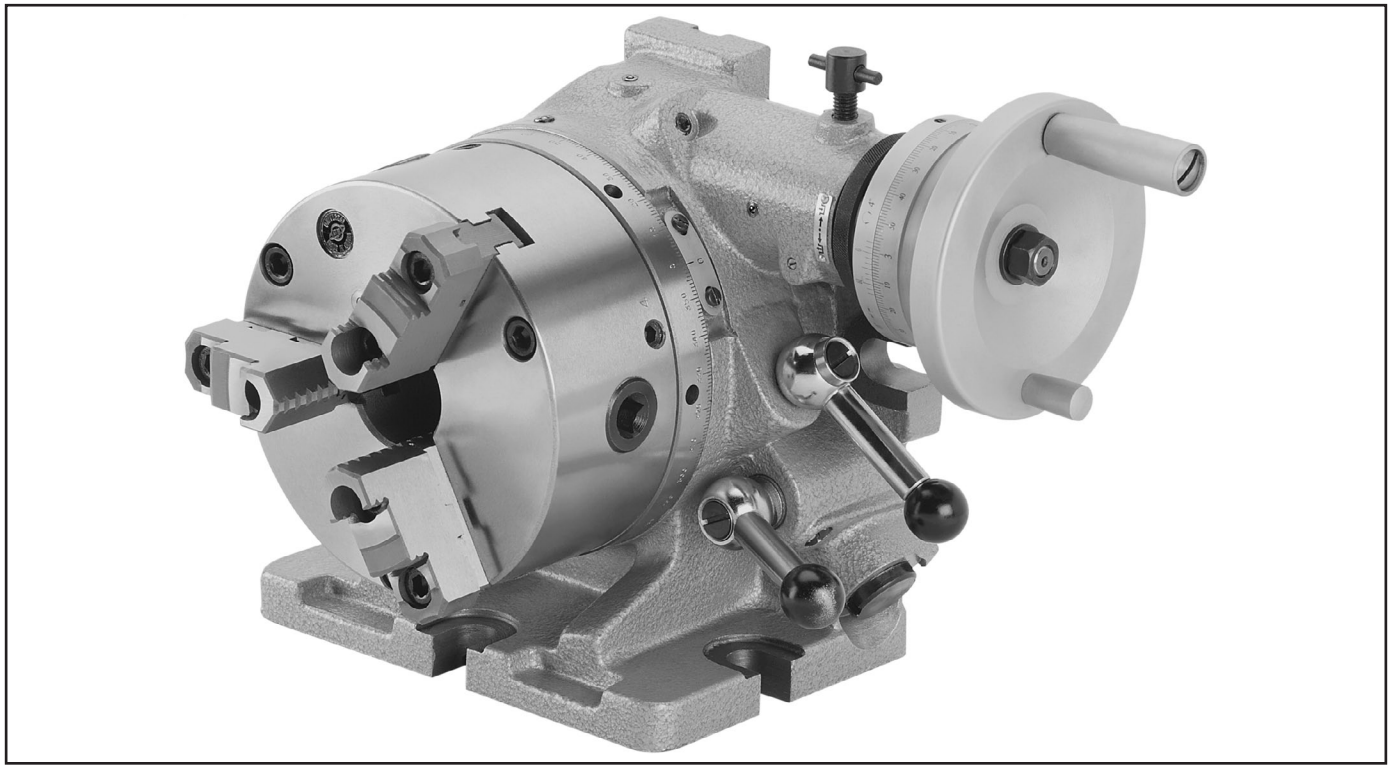
Grizzly Industrial, Inc.®

MODEL H7506
HORIZONTAL/VERTICAL ROTARY INDEXING TABLE w/CHUCK
OWNER'S MANUAL



(FOR MODELS MANUFACTURED SINCE 1/09) #DDTS11548 PRINTED IN CHINA

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.

The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

⚠ WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Table of Contents

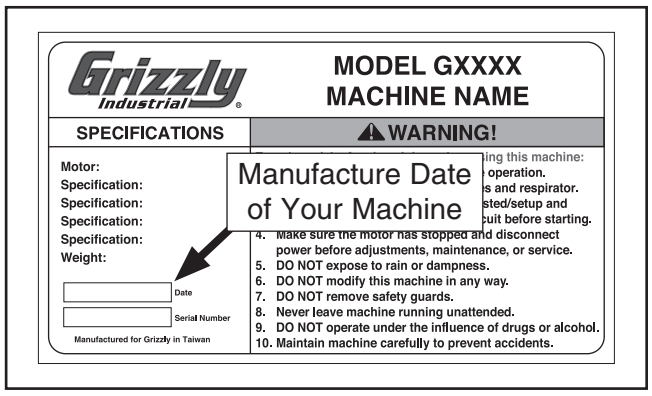
INTRODUCTION

Manual Accuracy

We are proud to offer this manual with your new rotary table! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the rotary table we used when writing this manual. However, sometimes errors do happen and we apologize for them.

Also, owing to our policy of continuous improvement, **your rotary table may not exactly match the manual**. If you find this to be the case, and the difference between the manual and rotary table leaves you in doubt, check our website for the latest manual update or call technical support for help.

Before calling, find the manufacture date of your rotary table by looking at the date stamped into the machine ID label (see below). This will help us determine if the manual version you received matches the manufacture date of your rotary table.



For your convenience, we post all available manuals and manual updates for free on our website at **www.grizzly.com**. Any updates to your model of rotary table will be reflected in these documents as soon as they are complete.

Contact Info

We stand behind our machines. If you have any service questions, parts requests or general questions about the rotary table, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
Fax: (800) 438-5901
E-Mail: techsupport@grizzly.com

If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.
c/o Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

Rotary Table Description

Rotary indexing tables offer the ability to rotate the workpiece for machining operations. Circular slots and round features composed of any portion of a whole circle can be produced with a rotary table. These capabilities would be difficult, if not impossible to do any other way.

Additionally, this rotary indexing table is used to create circular hole patterns, produce exactly spaced radial features, and to machine facets on the workpiece. Using the spacer plates supplied with this unit will allow quick rotary placements important in this type of production work.

Identification

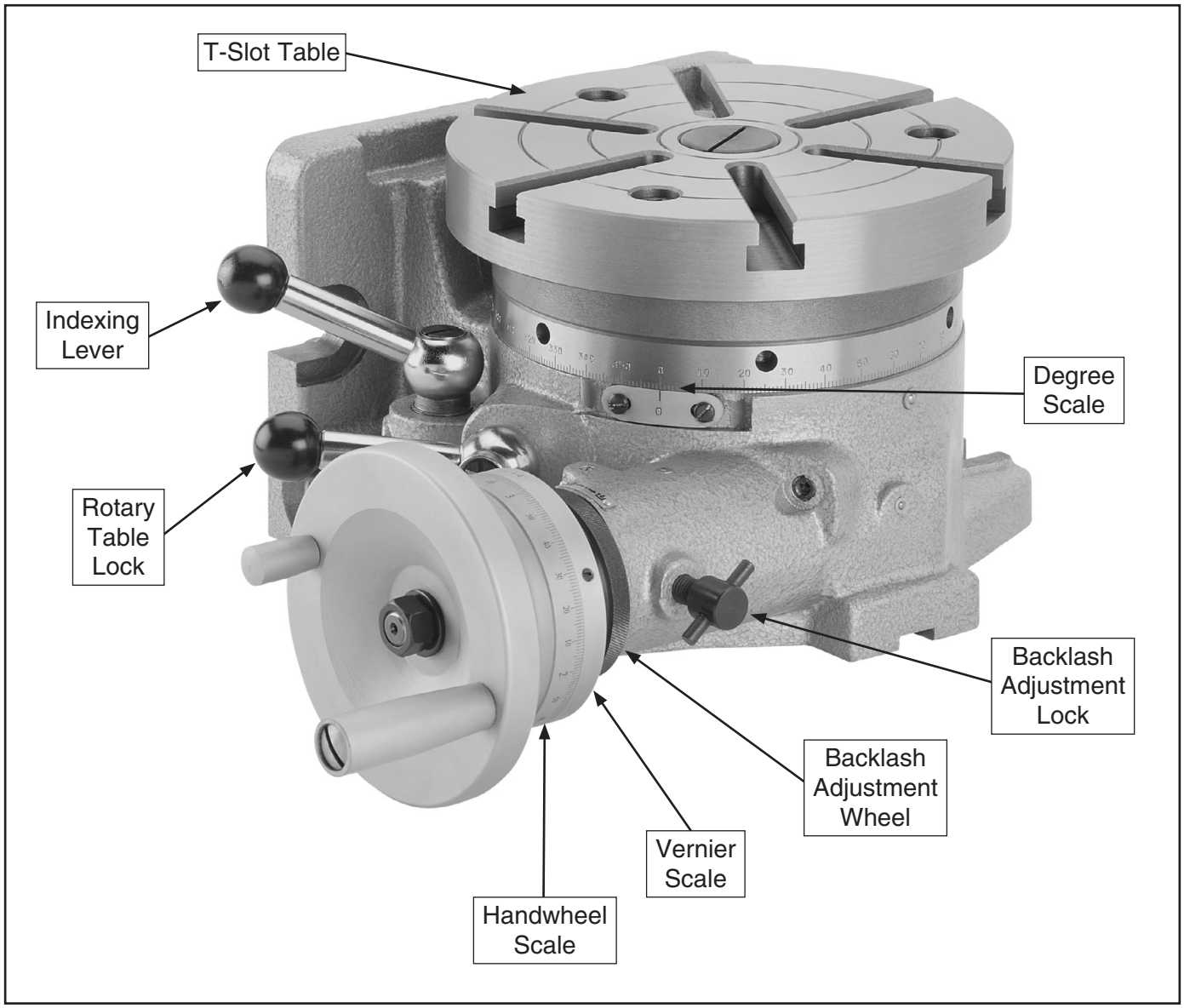


Figure 1. Model H7506 identification.

NOTICE

If you have never used this type of rotary table or equipment before, WE STRONGLY RECOMMEND that you read books, review industry trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

SECTION 1: SAFETY

⚠WARNING

For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

⚠DANGER **Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠WARNING **Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠CAUTION **Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.**

NOTICE **This symbol is used to alert the user to useful information about proper operation of the machine.**

⚠WARNING
Safety Instructions for Machinery

1. **READ ENTIRE MANUAL BEFORE STARTING.** Operating machine before reading the manual greatly increases the risk of injury.
2. **ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
3. **ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Most types of dust (wood, metal, etc.) can cause severe respiratory illnesses.
4. **ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
5. **WEAR PROPER APPAREL.** DO NOT wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
6. **NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.

⚠WARNING
Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.

8. **KEEP CHILDREN/VISITORS AWAY.** Keep all children and visitors away from machinery. When machine is not in use, disconnect it from power, lock it out, or disable the switch to make it difficult for unauthorized people to start the machine.

9. **UNATTENDED OPERATION.** Leaving machine unattended while its running greatly increases the risk of an accident or property damage. Turn machine ***OFF*** and allow all moving parts to come to a complete stop before walking away.

10. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.

11. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.

12. **USE A GROUNDED POWER SUPPLY RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Operating machine on an incorrect size of circuit increases risk of fire.

13. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY**. Make sure switch is in OFF position before reconnecting.

14. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

15. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**

16. **REMOVE CHUCK KEYS OR ADJUSTING TOOLS.** Make a habit of never leaving chuck keys or other adjustment tools in/on the machine—especially near spindles!

17. **DAMAGED MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, other conditions that may impair machine operation. Always repair or replace damaged parts before operation.

18. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.

19. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.

20. **DO NOT OVERREACH.** Maintain stability and balance at all times when operating machine.

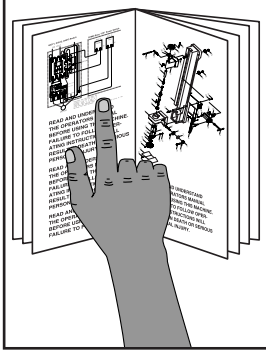
21. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."

22. **STABLE MACHINE.** Machines that move during operations greatly increase the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.

23. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.

24. **EXPERIENCING DIFFICULTIES.** If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Contact our Technical Support Department at (570) 546-9663.

SECTION 2: SETUP



⚠WARNING

Read through this entire manual to become familiar with the controls and operations before using this rotary table. Follow all of the safety instructions in the owner's manual for your mill.

⚠WARNING

Wear safety glasses during the entire setup process!

⚠WARNING

This rotary table is very heavy. Get lifting help and use proper lifting methods to avoid possible serious personal injury.

Needed for Setup

The following are needed to complete the setup process, but are not included with your rotary table.

Description	Qty
• Safety Glasses	1
• Cleaner/Degreaser (**Page 7**)	As Needed
• Disposable Shop Rags	As Needed
• Additional People	1
• Clamping Hardware	As Needed

Unpacking

Your rotary table was carefully packaged for safe transportation. Remove the packaging materials from around your rotary table and inspect it. If you discover the rotary table is damaged, *please immediately call Customer Service at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.

⚠WARNING

SUFFOCATION HAZARD!

Immediately discard all plastic bags and packing materials to eliminate choking/suffocation hazards for children and animals.

Inventory

The following is a description of the main components shipped with your rotary table. Lay the components out to inventory them.

Note: *If you can't find an item on this list, check the mounting location on the rotary table or examine the packaging materials carefully. Occasionally we pre-install certain components for shipping purposes.*

Inventory: (Figure 2)	**Qty**
A. Model H7506 Rotary Table	1
B. T-Slot Table	1
C. Chuck Key	1
D. Hardware & Tools:	
—Cap Screws M10-1.5 x 100 (Chuck)	3
—Hex Wrenches 4, 5, 6, 8mm	1 Each
—Cap Screws M10-1.5 x 60 (Table)	3
Not Shown:	
—Cap Screws M6-1 x 12 (Keys)	2
—Alignment Keys 16mm	2
E. Spacer Plates 2, 3, 4, 6, 8, 12, 24	1 Each
F. 3-Jaw Chuck 6½"	1

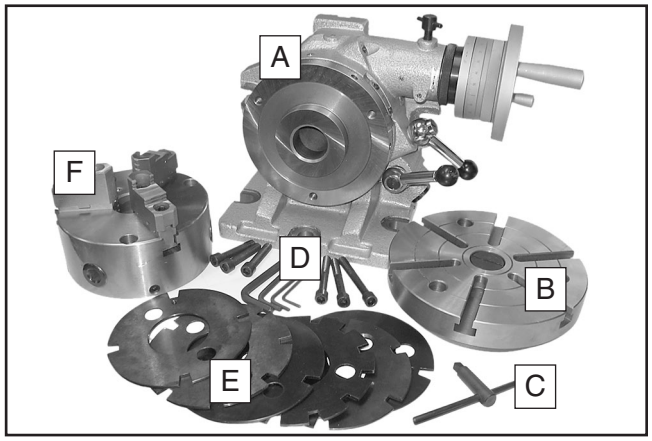


Figure 2. Model H7506 inventory.

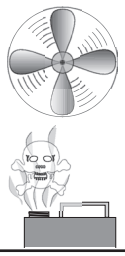
If any nonproprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

Clean Up

The unpainted surfaces are coated with a waxy oil to prevent corrosion during shipment. Remove this protective coating with a solvent cleaner or degreaser, such as shown in **Figure 3**. For thorough cleaning, some parts must be removed. **For optimum performance, clean all moving parts or sliding contact surfaces.** Avoid chlorine-based solvents, such as acetone or brake parts cleaner that may damage painted surfaces. Always follow the manufacturer's instructions when using any type of cleaning product.

⚠WARNING

Gasoline and petroleum products have low flash points and can explode or cause fire if used to clean machinery. DO NOT use these products to clean the machinery.



⚠CAUTION

Many cleaning solvents are toxic if inhaled. Minimize your risk by only using these products in a well ventilated area.

G2544—Solvent Cleaner & Degreaser
H9692—Orange Power Degreaser
Great products for removing shipping grease.

Figure 3. Cleaner/degreasers available from Grizzly.

Mounting On Mill Table

Before mounting the rotary table on the mill table, make sure the mill table and spindle are aligned correctly as instructed in the owner's manual for the mill. Also, ensure that the mill table surface and the mounting surfaces of the rotary table are clean and free of burrs and scratches by "stoning" them (refer to the **Surface Care** section on **Page 25** for detailed instructions).

To mount the rotary table on the mill table:

1. DISCONNECT MILL FROM POWER!

2. Measure the width of the mill table T-slots.

—If the mill table T-slots are less than 16mm wide, remove the alignment keys from the rotary table and use a precision square to align the bottom edge of the rotary table with the front edge of the mill table in **Step 3**.

—If the mill table T-slots are 16mm or wider, install the alignment keys in the slots of the rotary table mounting surface.

For horizontal mounting, install the keys in the left and right slots of the horizontal mounting surface of the rotary table so that the rotary handwheel hangs over the front of the mill table when mounted.

For vertical mounting, where you install the keys will depend on your operation. It is best to install them in the bottom and top slots so that the rotary handwheel faces the front when mounted. However, it may be useful to install the keys in the left and right slots for certain setups that require large parts to hang over the edge of the mill table. Careful consideration should be given to either position to ensure ease of use and safe operation.

3. Carefully place the rotary table on the mill table, then properly align it.

—If you are using the alignment keys, position the rotary table so that the keys are in the center slot of the mill table.

Note: *If the mill table T-slots are wider than the alignment keys, push the rotary table back so that both keys are firmly up against the back of the mill table T-slot.*

—If you are unable to use the alignment keys, use a precision square to align the rotary table with the front edge of the mill table, as shown in **Figure 4** (refer to the **Aligning with Mill X-Axis** section on **Page 11** for additional instructions).

Figure 4. Using a precision square to align the rotary table with the mill table.

4. Secure the rotary table in place using the proper clamping hardware. It is important to secure the rotary table to the mill table in a very strong and solid setup—this will help with accuracy, efficiency and general safety.

Installing T-Slot Table

To install the T-slot table:

1. Use shop rags and mineral spirits to thoroughly clean the mating surfaces of the rotary table and the T-slot table, including the boss and socket.

2. While aligning the mounting holes, place the socket of the table onto the boss of the rotary table.

3. Secure the table with the (3) M10-1.5 x 60 cap screws, as shown in **Figure 5**.

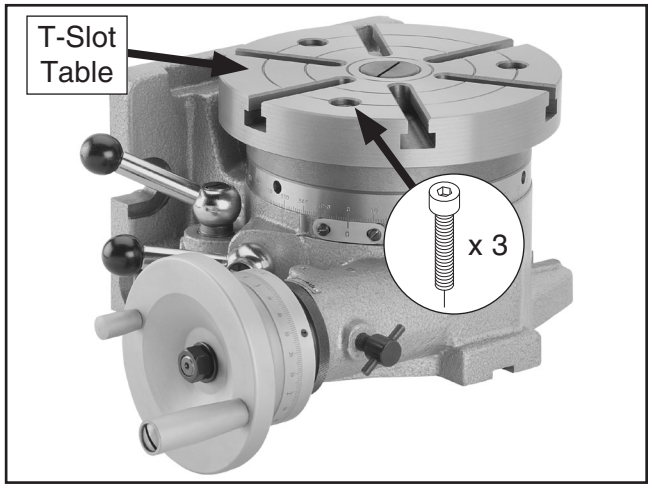


Figure 5. T-slot table installed.

Centering T-Slot Table with Rotary Table

To center the T-slot table with the rotary table:

1. Position a dial indicator mounted to a magnetic base next to the rotary table with the needle perpendicular and touching the outside edge of the T-slot table.

2. Loosen the three cap screws that secure the T-slot table to the rotary head. Make sure there is a little tension on the cap screws so the T-slot table cannot shift on its own.

3. Unlock the indexing lever and turn the handwheel clockwise. Take note of the total indicated runout and stop at the low side of the runout.

4. Use a dead blow hammer to lightly tap on the opposite edge of the T-slot table from the indicator until ½ the indicated runout is corrected.

5. Repeat **Steps 3–4** until the runout is adjusted to your satisfaction.

6. Tighten the three cap screws, then check the runout again. If necessary, repeat **Steps 2–4**.

Installing Chuck

To install the chuck onto the rotary table:

1. Use shop rags and mineral spirits to thoroughly clean the mating surfaces of the rotary table and the chuck, including the boss and socket.

2. While aligning the mounting holes, place the socket of the chuck onto the boss of the rotary table.

3. Secure the chuck with the (3) M10-1.5 x 100 cap screws, as shown in **Figure 6**.

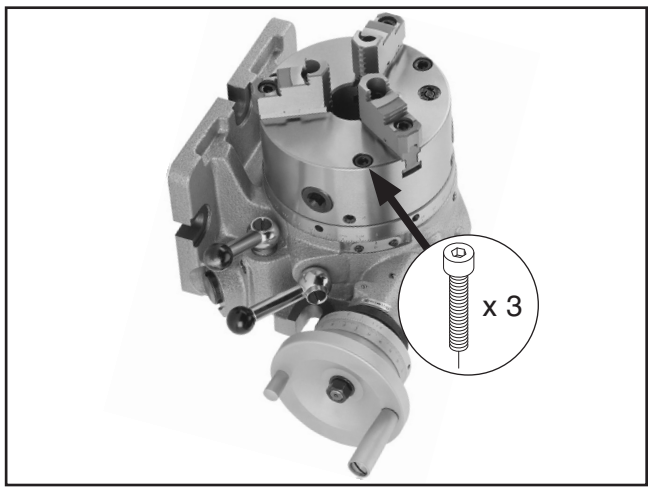


Figure 6. 3-jaw chuck installed.

Centering Chuck with Rotary Table

For accurate results, the chuck must be positioned so that it is concentric with the center axis of the rotary table.

To center the chuck with the rotary table:

1. Use shop rags and mineral spirits to clean the mounting face of each jaw.

2. Secure a precision mandrel or similar part into the chuck.

3. Loosen the four aligning set screws along the outside edge of the chuck until they are flush with the surface of the chuck body (see **Figure 7**).

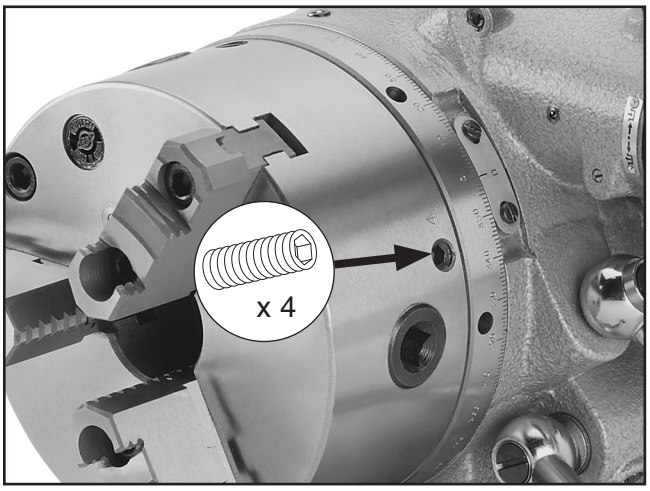


Figure 7. Chuck alignment set screw.

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4. Mount a dial indicator next to the chuck so that the plunger is perpendicular to the mandrel and just touching it, as shown in **Figure 8**.

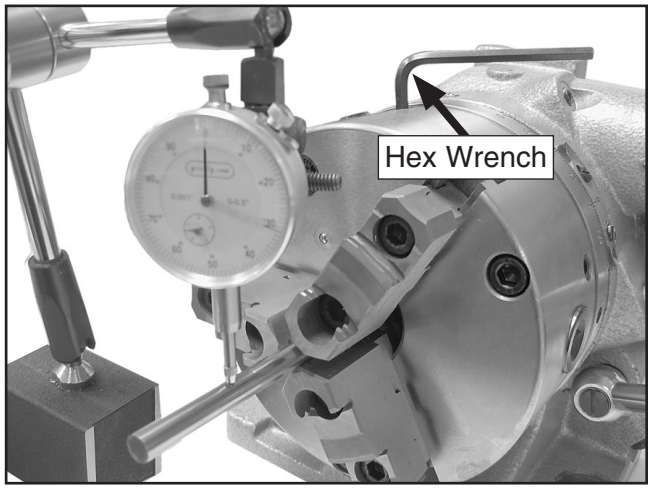


Figure 8. Using a dial indicator to center the chuck.

5. While watching the needle of the dial indicator, turn the rotary handwheel and stop at the lowest point of runout on the mandrel.

6. Insert a hex wrench into the aligning set screw that is nearest to the top of the chuck, then use the handwheel to rotate the chuck until the hex wrench is at the very top of the rotation.

7. Tighten this aligning set screw until ½ of the total runout is eliminated.

8. Repeat **Steps 5–7** until the runout error is corrected to your satisfaction, then re-tighten the cap screws to secure the chuck.

9. Check the runout again. If necessary, repeat this procedure.

Aligning with Mill X-Axis

If you are using the rotary table alignment keys, these keys will ensure the face of the rotary table is aligned with the X-axis of the mill.

If you are unable to use the alignment keys, you can align the rotary table to the X-axis as instructed below.

To align the rotary table with the X-axis without the alignment keys:

1. Remove the alignment keys from the rotary table and place it on the mill table.

2. Position a precision square across the front edge of the mill's table, adjust the rotary table flat against the square, as shown in **Figure 9**, then clamp the rotary table in place.

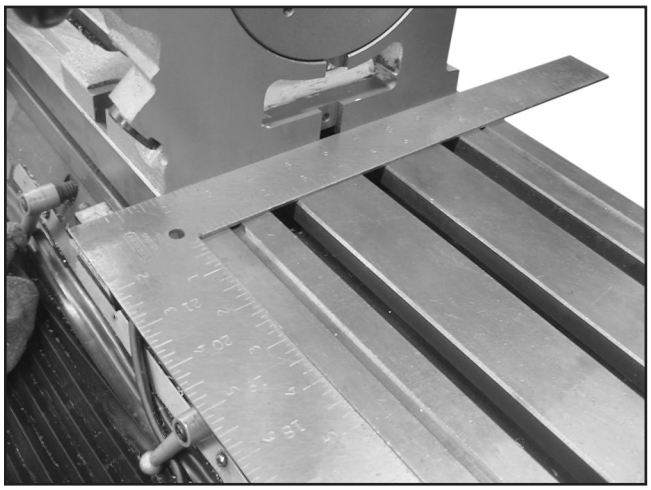


Figure 9. Using a precision square to align with X-axis.

3. Use a test indicator mounted in the mill spindle and indicate to one side of the face or back.

4. Move the mill table in-and-out to indicate across the full width of the rotary table.

5. If necessary, loosen the clamps, tap the rotary table into position so that the indicator reads zero deviation across the full width of the rotary table, then re-clamp it.

Centering with Mill Spindle

There are many ways to center the mounted workpiece with the mill spindle. Review the suggestions below, then use your best judgement based on your experience and skills to select the correct method for your operation.

Workpiece Mounted Horizontally On T-Slot Table

1. Position a test indicator mounted on a magnetic base next to the rotary table, as shown in **Figure 10**.

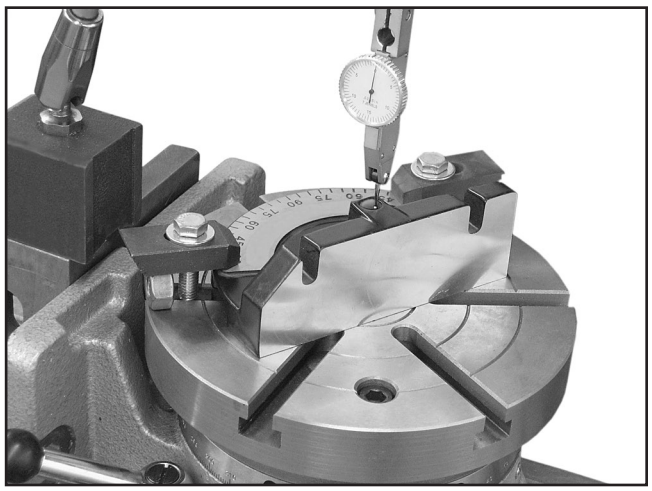


Figure 10. Aligning the workpiece using a test indicator.

2. Indicate the inside or outside of the workpiece key feature, then rotate the handwheel of the rotary table while watching the indicator dial.

   Note: *Turn the rotary table in just one direction to eliminate the affect of backlash and for accurate indicator results.*

3. Adjust the workpiece on the rotary table until there is zero runout when you fully rotate the table and workpiece, then securely clamp the workpiece to the T-slot table.

4. Mount the test indicator in the mill spindle using a collet or chuck.

5. Indicate the workpiece key feature, then rotate the mill spindle by hand in just one direction while watching the indicator dial.

   Tip: *Use a mirror to aid in reading the test indicator as it rotates away from you.*

6. Adjust the mill table until the indicator dial reads zero runout throughout the spindle's rotation.

   Note: *When the workpiece key feature is large enough, it may be easier to use an edge finder instead of a test indicator.*

Chuck Mounted Horizontally

1. Mount a precision mandrel or quality drill rod into the chuck, as shown in **Figure 11**.

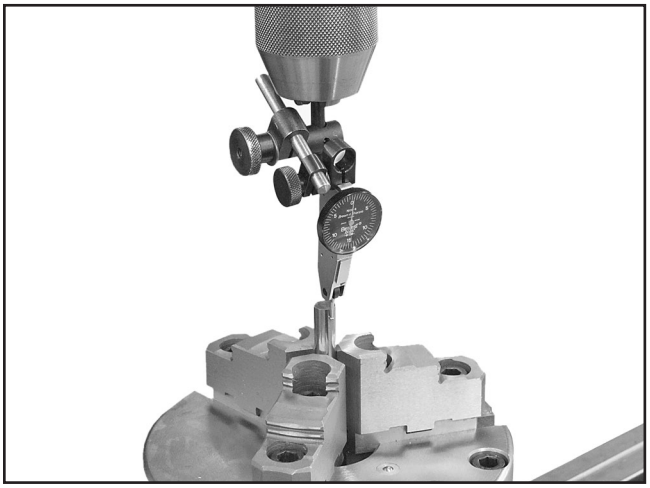


Figure 11. Horizontally aligning the chuck.

2. Mount a test indicator in the mill spindle, then indicate the outside of the mandrel, as shown in **Figure 11**.

3. Rotate the mill spindle by hand in just one direction while watching the indicator dial.

4. Adjust the position of the mill table until the dial reads zero deviation.

Workpiece Mounted Vertically

1. Mount an edge finder into the mill spindle.

2. Accurately measure the diameter of the workpiece, then mount it into the chuck, as shown in **Figure 12**.

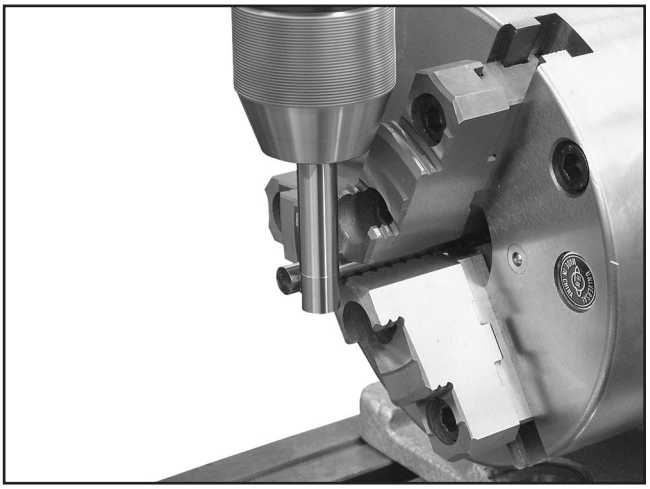


Figure 12. Using an edge finder to align the workpiece.

3. Find one side of the workpiece with the edge finder, then note the Y-axis position of the mill table.

4. Remove the edge finder from the mill spindle, then move the mill table ½ the diameter of the workpiece plus ½ the diameter of the edge finder.

   Note: *Make sure you account for any backlash when moving the mill table.*

The center of the mill spindle should now be positioned over the center line of the workpiece mounted in the rotary table.

Installing Spacer Plate

To install a spacer plate:

1. Unlock and rotate the backlash adjustment wheel clockwise until the worm gear and wheel disengage.

2. Unlock the indexing lever, turn the face of the rotary table until the zero mark on the degree scale and the index marker are aligned, as shown in **Figure 13**, then re-lock the indexing lever.

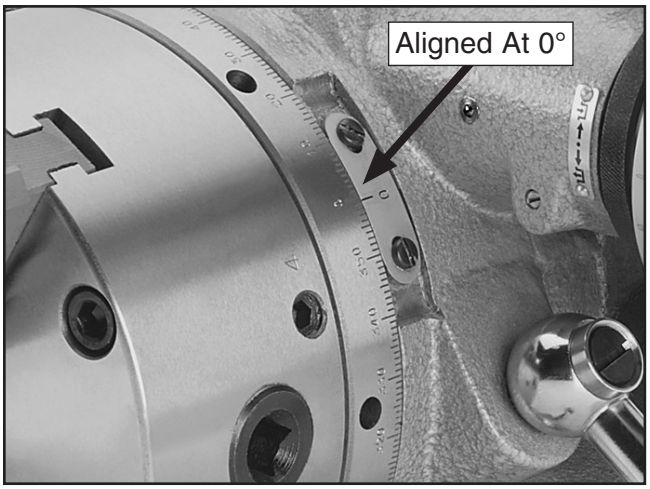


Figure 13. Degree scale at 0°.

3. Remove the three cap screws and the back cover from the rotary table.

   Tip: *If necessary, you can thread the M6-1 x 12 cap screws used with the alignment keys into the two threaded holes in the back cover to aid in removing it.*

4. Place the desired spacer plate on the hub with the pin of the plate facing in and aligned with the #1 hole of the 12 alignment holes (see **Figures 14–15**).

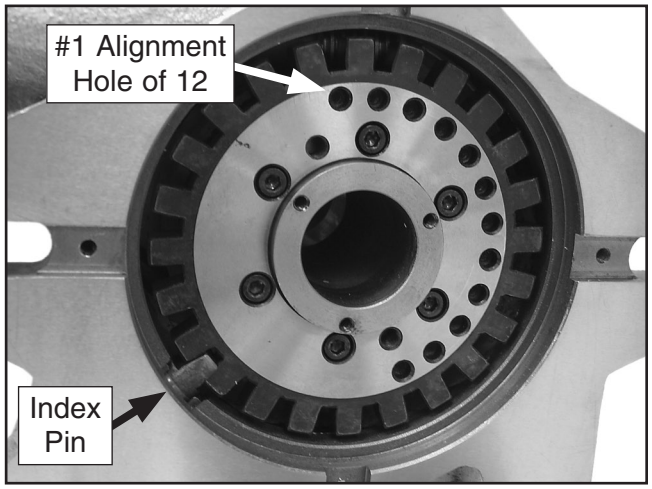


Figure 14. Spacer plate installation location.

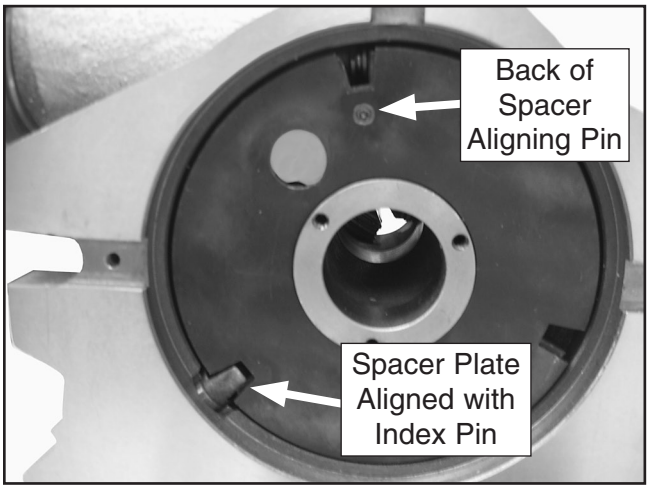
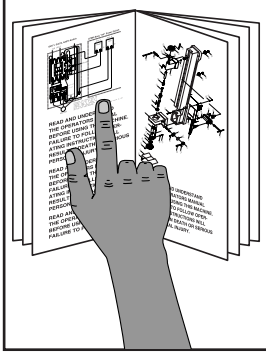


Figure 15. Spacer plate installed.

5. Rotate the spacer plate clockwise until the next indexing slot of the plate aligns with the index pin, which will allow the aligning pin of the plate to slip into one of the 12 alignment holes and the plate to lay flat against the rotary table.

6. Re-install the back cover.

SECTION 3: OPERATIONS

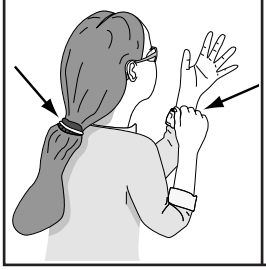


⚠WARNING

Read through this entire manual to become familiar with the controls and operations before using this rotary table. Follow all of the safety instructions in the owner's manual for your mill.

⚠WARNING

Always wear safety glasses when operating this equipment.



⚠WARNING

Loose hair, clothing, or jewelry could get caught in machinery and cause serious personal injury. Keep these items away from moving parts at all times to reduce this risk.

NOTICE

If you have never used this type of equipment before, WE STRONGLY RECOMMEND that you read books, review industry trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

Basic Controls

Refer to **Figure 16** and the descriptions below to become familiar with the basic controls of your rotary table.

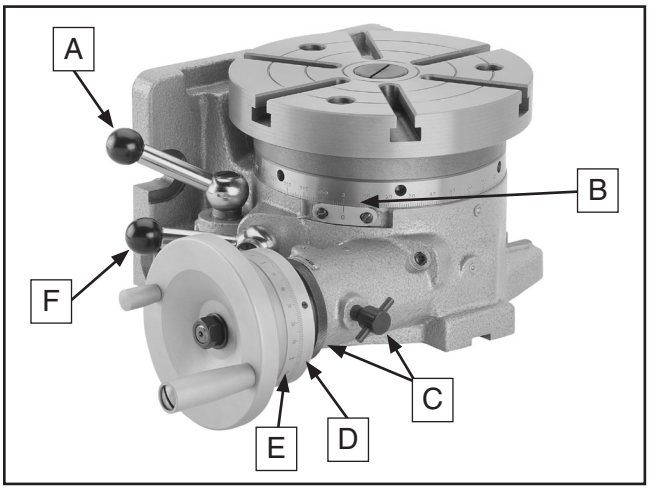


Figure 16. Basic controls.

A. Indexing Lever: Engages or disengages the spacer plate for quick indexing of 2, 3, 4, 6, 12, or 24 spaces.

B. Degree Scale: Displays a quick reference for table positioning. It is in incremented in whole degrees.

C. Backlash Adjustment Wheel & Lock: When the worm gear and wheel are disengaged, allows the operator to turn the table by hand without using the handwheel. This wheel also allows adjustment of the backlash between the worm gear and worm wheel. Loosen the lock, then rotate the wheel to adjust the backlash. To disengage the gear and wheel, rotate the wheel clockwise until they disengage.

D. Vernier Scale: Has graduations that derive 10" (10 arc seconds).

E. Handwheel Scale: Has a resolution of 1' (1 arc minute) and displays whole degree marks. A full rotation of the handwheel turns the rotary table 4°.

F. Rotary Table Lock: Locks the table/chuck in place. This reduces the stress on the worm and worm gear interface, and helps ensure the table does not change position during heavy machining operations. When cutting circular slots, a slight drag can be applied with the table lock to increase preload and prevent chatter caused by any backlash in the worm gear.

Table Movement

The rotary table rotates by turning the handwheel, which is attached to a precision worm gear engaged with a worm wheel. The ratio between these gears is 1:90, which means one complete turn of the handwheel rotates the table 4°.

Besides rotating the table in precision increments, the worm gear and wheel can be disengaged and the table can be rotated by hand. This is the quickest way to use the spacing plates provided with the rotary table when speed of operation is important.

Table Lock Lever

To help maximize rigidity during operation, the rotary table has a table lock lever. Tightening the lever locks the table in place.

Slightly tighten the lock lever to create an extra drag that minimizes finish problems associated with gear backlash. The brake mechanism is conical in shape, and the brake shoes pull the rotary portion of the head into the base, eliminating play by putting pressure between these two surfaces.

Indexing lever

The indexing lever is attached to a gear that meshes with a rack on the end of the spring-loaded index pin (see **Figure 17**).

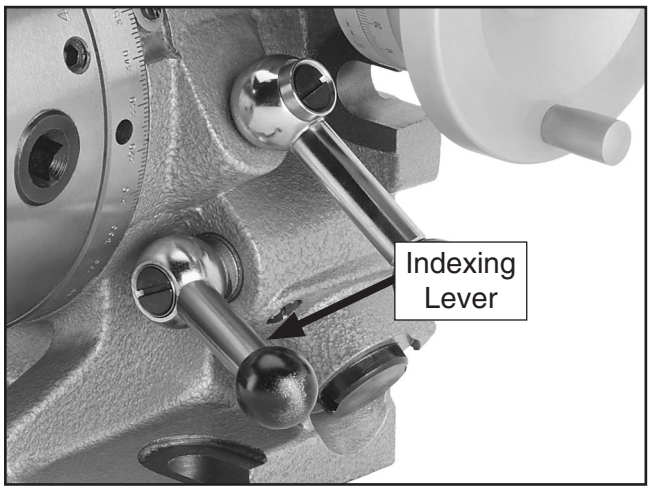


Figure 17. Indexing lever.

The index pin engages a wheel inside the head that has 24 detents. When no spacer plate is used, the index pin will stop the rotary head 24 times during one revolution in 15° increments.

To engage the index pin with a detent, pull the indexing lever toward the head, then rotate the head as you release the lever. Continue to rotate the head until the index pin finds the next detent.

To keep the index pin from engaging the detents, pull the indexing lever toward the head and push it in towards the back of the rotary table. This will disengage the index pin and lock the lever in place, allowing the head to be freely rotated.

Degree Scale

The degree scale is marked on the edge of the rotary head with increments of 1° (see **Figure 18**). The zero point can be synchronized with the indexing lever to start the table indexing at 0°.

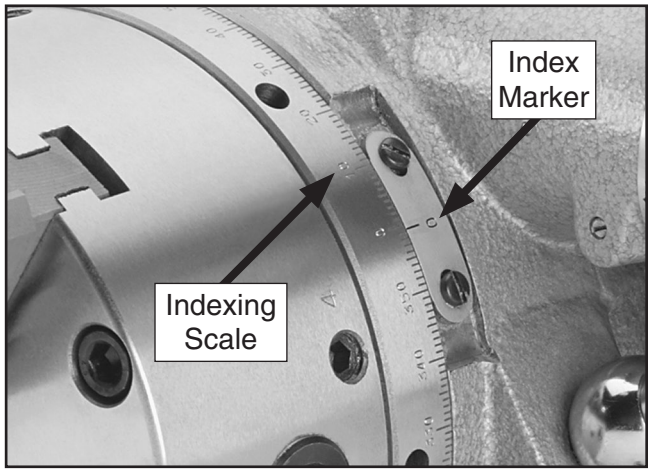


Figure 18. Degree scale.

To use the degree scale:

1. Disengage the indexing lever.

2. Rotate the handwheel until the zero mark on the degree scale aligns with the index marker, then engage the indexing lever.

3. Rock the handwheel back-and-forth to make sure the index pin is fully seated.

4. Closely examine the alignment of the scale zero mark and the index marker. If the marks do not exactly align, loosen the two screws on the index marker and adjust the marker until they do, then re-tighten the screws.

Handwheel Scale

The handwheel scale can be repositioned without rotating the handwheel. This helps when aligning all of the zeros at the beginning of the job.

The scale is marked on a collar behind the handwheel with a friction fit, as shown in **Figure 19**. To adjust the collar, hold the handwheel to keep it from turning, then rotate the collar to the desired alignment.

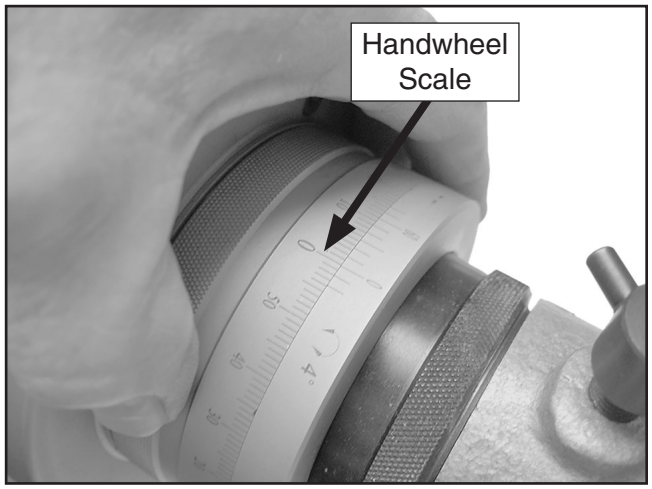


Figure 19. Adjusting the handwheel scale.

Adjusting Vernier Scale

The vernier scale is engraved on a collar behind the handwheel scale (see **Figure 20**).

The vernier scale can be adjusted for easy viewing in both the horizontal or vertical position. Loosen the slotted set screw on the rim of the collar, rotate the collar as needed, then re-tighten the set screw.

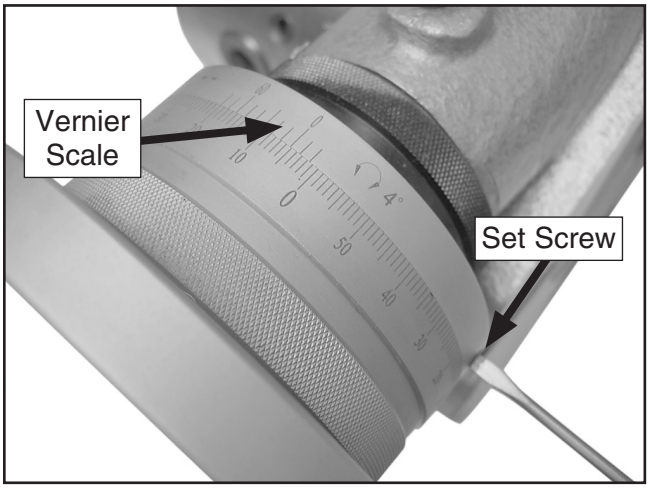


Figure 20. Adjusting the vernier scale.

Using Vernier Scale

Use the vernier scale to rotate the table by 10" (10 arc seconds) at a time.

In the example below, you will be setting the rotary table to 16° (degrees), 42' (arc minutes), 20" (arc seconds). This exercise assumes the table degree scale is at zero, and both the handwheel and vernier scales are aligned at zero.

To set the table at 16° 42' 20":

1. With the degree scale at 0°, rotate the handwheel clockwise four full turns, which will rotate the table 16°.

—If you go past zero on the fourth turn, return the table to 0°, then start again.

Note: *When changing directions with the handwheel, take into account any backlash.*

2. Slowly continue to turn the handwheel clockwise until the zero mark on the vernier scale aligns with the 42' mark on the handwheel scale (see the illustration in **Figure 21**).

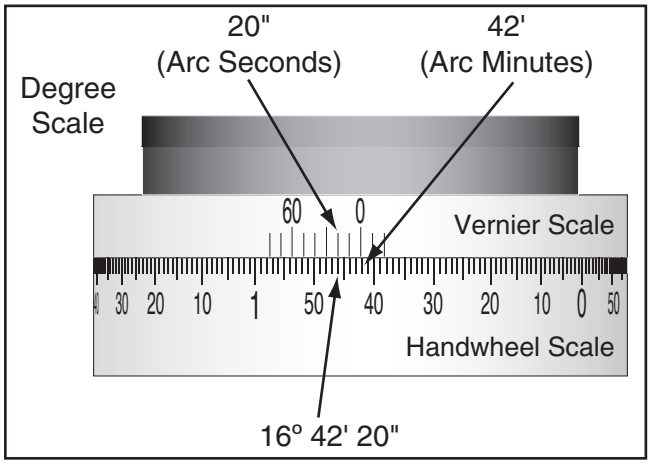


Figure 21. Table set at 16° 42' 20".

3. Identify the mark on the vernier scale that is two marks or 20" to the left of the zero mark.

Note: *When the handwheel is turned clockwise, the marks to the left of the zero mark on the vernier scale are used, and when the handwheel is turned counterclockwise, the marks on the right are used.*

4. Identify the mark on the handwheel scale that is immediately to the left of the vernier scale mark identified in **Step 3**, then slowly rotate the handwheel clockwise to align these two marks. The table is now set 16° 42' 20", as illustrated in **Figure 21**.

Spacing Examples

Example A

The first example shows a method for producing six evenly-spaced holes on a circular workpiece (see **Figure 22**).

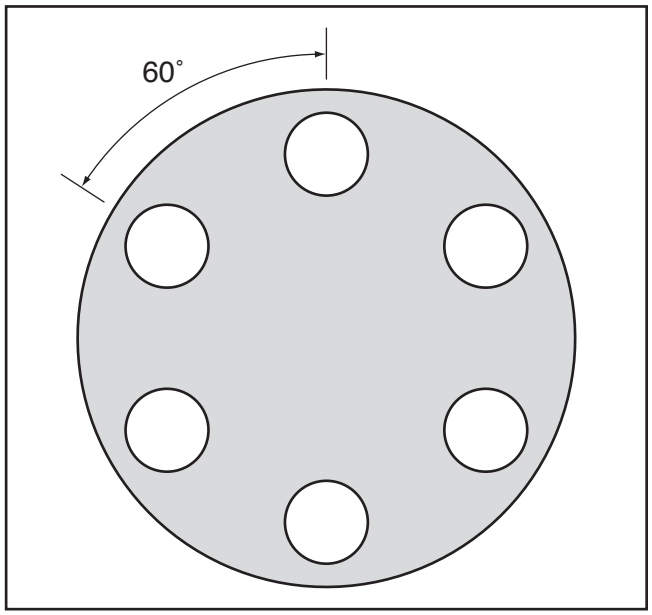


Figure 22. Six evenly-spaced holes in a circular workpiece 60° apart.

This example assumes that the following statements are true:

- The six-slot spacer plate is installed into the rotary table.
- The rotary table is securely mounted on the mill table in the horizontal position.
- The workpiece is centered on the rotary table and elevated for proper machining clearance.
- The workpiece is securely clamped to the T-slot table or in the chuck.
- The mill spindle is correctly aligned over the first hole.
- The backlash wheel of the rotary table is rotated to disengage the worm gear and wheel.

To mill six evenly-spaced holes 60° apart in a circular workpiece:

1. Make sure the mill spindle is ***OFF*** and has come to a complete stop.
2. Disengage the indexing lever, then rotate the head until the zero mark on the degree scale is aligned with the index mark.
3. Engage the indexing lever and make sure that the index pin is properly seated, then lock the table in place.
4. Turn the spindle ***ON***, drill the first hole, then turn the spindle ***OFF*** and wait until it has come to a complete stop.
5. Disengage the indexing lever, unlock the table, then rotate the rotary table clockwise until the index pin engages the next detent in the spacer plate.

   Note: *The degree scale should now read 60°. If the head has rotated too far, rotate it back counterclockwise past the 60° mark, and try again.*
6. Lock the table down, turn the spindle ***ON***, drill the next hole, then turn the spindle ***OFF***.
7. Repeat **Steps 5–6** for the remaining four holes.

   Note: *Be sure to turn the spindle **OFF** and wait until it has come to a complete stop before making adjustments.*

Example B

In the second example, a method for producing two circular slots in a circular workpiece is explained (see **Figure 23**).

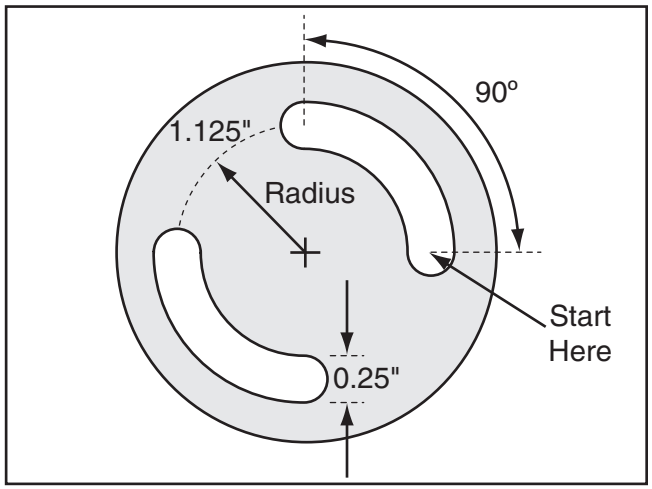


Figure 23. Two 90° circular slots.

Tip: *Print out a table that shows, in order, all of the positions that you need to stop the workpiece to perform a milling operation, especially if there are several positions or they are unusual or staggered. This will give you a visual method to confirm the positioning of the workpiece by viewing the degree scale. To avoid mistakes, do this before mounting the workpiece.*

This example assumes that the following statements are true:

- The rotary table is securely mounted on the mill table in the horizontal position.
- The workpiece is centered on the rotary table and elevated for proper machining clearance.
- The workpiece is securely clamped to the rotary table.
- The mill spindle is centered over the workpiece.
- The backlash adjustment wheel is turned so that the worm gear and wheel are fully engaged.
- The index lever is secured in the up position so that the head can freely rotate.

To make two circular slots:

1. Use the handwheel to rotate the rotary table to the 0° mark on the degree scale, then lock the table down.

   Note: *Make sure the handwheel and vernier scales also read 0°.*

2. Postion the mill table so that the spindle is centered over the X-axis of the workpiece and 1.125" from the right edge of the workpiece.

3. With a ¼" end mill installed in the mill spindle, make a 0.083" deep hole (approximately ⅓ of the cutter's diameter).

4. With the end mill continuing to cut, turn the rotary table handwheel *clockwise* until the degree scale reads 90°.

5. Raise the end mill from the workpiece, turn the rotary table handwheel *counterclockwise* until the degree scale reads 0° again.

6. To eliminate the effect of backlash, rotate the handwheel one additional full turn counterclockwise, then one full turn clockwise back to the degree scale 0° mark.

7. Repeat **Steps 3–6** until the final depth of cut is reached.

8. Raise the end mill from the workpiece, then return the rotary table back to the degree scale 0° mark.

9. Move the mill table 2.25" to the right along its X-axis to align the cutter with the end of the second circular slot.

10. Repeat **Steps 3–7** to complete the second circular slot.

SECTION 4: ACCESSORIES

G9640— 90° Wide Base Square 3" x 5"
G9641— 90° Wide Base Square 4" x 6"
G9642— 90° Wide Base Square 5" x 8"
Grade 0, heavy-duty stainless steel 90° precision squares feature wide bases for stability. Perfect for all setup and inspection work.

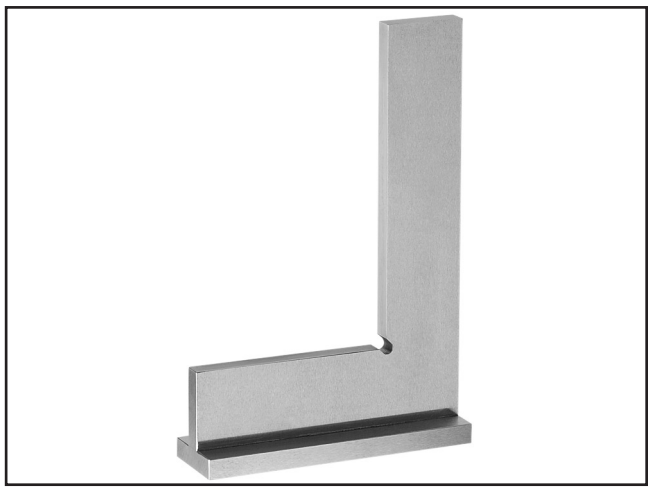


Figure 24. 90° Precision Wide-Base Squares.

G9610—Test Indicator
0.03" Range/0.001" Resolution
G9611—Test Indicator
0.008" Range/0.0001" Resolution
G9612—Test Indicator
0.030" Range/0.0005" Resolution

These test indicators have an easy to read dial and a pivoting stylus that moves at right angles to the dial face.

Figure 25. Test Indicator.

G1075—52-PC. Clamping Kit ½" T-Nut
G1076—52-PC. Clamping Kit ⅝" T-Nut
This clamping kit includes 24 studs, 6 step block pairs, 6 T-nuts, 6 flange nuts, 4 coupling nuts, and 6 end hold-downs. The rack is slotted so it can be mounted close to the machine for easy access.

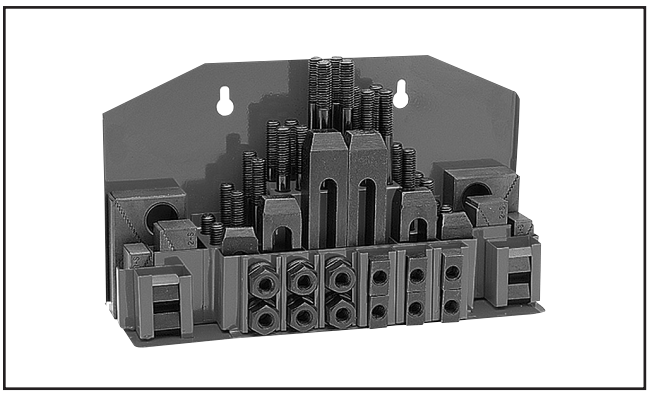


Figure 26. 52-PC. Clamping Kit.

G9629—Universal Indicator Holder
Mount your test indicator right on your mill for guaranteed accurate readings. C-frame holder mounts with a single screw directly on the quill and does not interfere with the cutting tool. Clamping diameter is 1⅞". The length from the clamping bracket to the indicator is 4½". Suitable for all popular indicators with a ⅝" shank.

Figure 27. G9629 Universal Indicator Holder.

H2939—4 Piece Edge Finder Set
Four different styles to cover any setup problem! Set includes one each: a ⅜" diameter with a point, a combination ⅜" diameter with a point and a 0.200" shoulder, a ½" diameter with a 0.200" shoulder, and a combination ½" diameter with a 0.200" shoulder and a 0.500" shoulder.

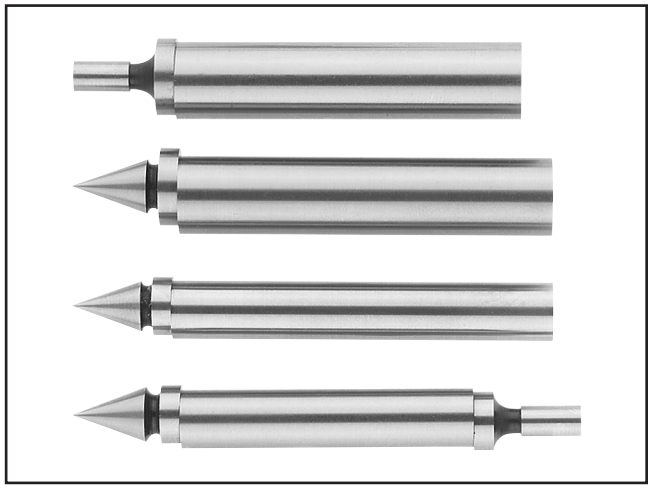


Figure 28. H2939 4-Pc. Edge Finder Set.

G9296—Adjustable Tailstock
For 8" and 10" Rotary Tables
G9297—Adjustable Tailstock
For 12" Rotary Tables
When used with your rotary table and mill, these adjustable tailstocks provide the support you need for those longer workpieces. Clamps to your mill table with standard clamping hardware and allows precise and accurate adjustments.

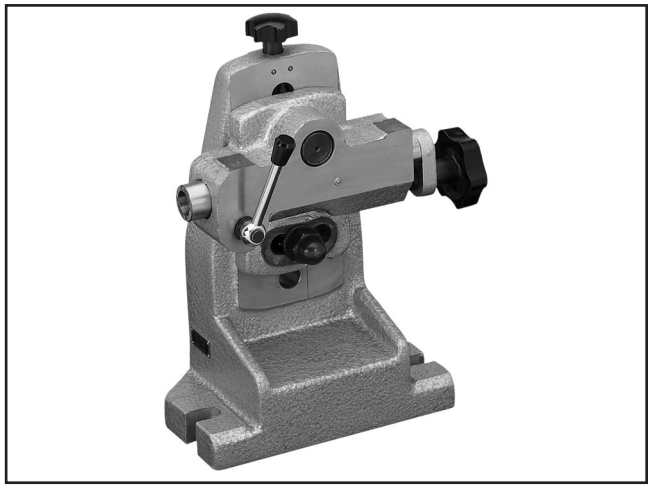


Figure 29. Adjustable Tailstock.

H8370—Power Feed for Mills
If you want to get the most out of your mill, you really need a power feed. This power feed comes with everything required to start milling with exact control. Comes supplied with a mounting bracket, gear, auto-stop limit switch with moveable stop pins, gear guard, and motor. Specs: 0–140 RPM, 200 RPM rapid switch, 440 in/lb. maximum torque, 110V 60Hz motor, 4:1 bevel drive gear.

Figure 30. H8370 Power Feed.

T20257—Brown & Sharpe® 6" Digital Caliper
Swiss-made quality and design! The Tesa Shop-Cal provides easy-to-read, accurate measurements of day-to-day operations. Stainless steel for durable, reliable, and accurate measurements. Other features include: Absolute measuring system, 0"–6"/0"–150mm range, 0.0005"/0.01mm resolution, specifications consistent with DIN 862, large ¼" LCD for easy reading, auto shut-off, and instant inch/metric conversion.

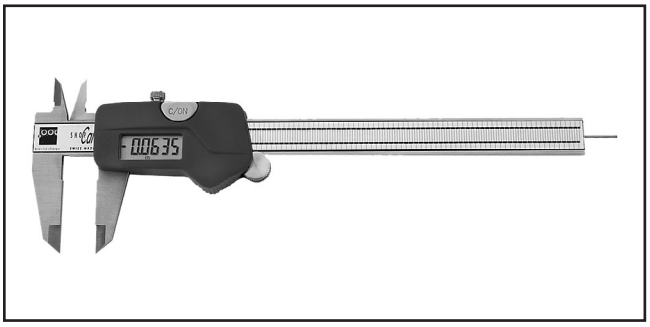


Figure 31. T20257 Brown & Sharpe® 6" digital caliper.

SECTION 5: MAINTENANCE

Schedule

For optimum performance from your rotary table, follow this maintenance schedule and refer to any specific instructions given in this section.

Daily:
- Clean and lubricate the rotary table.
- Dress the machined surfaces (**Page 25**).
- Check/resolve any unsafe condition.

Monthly:
- Disassemble and clean the rotary table.

Cleaning

It is essential that the rotary table be cleaned after every use, and the surfaces oiled with a light machine oil to prevent corrosion.

DO NOT use compressed air to clean your rotary table. Chips or debris may become lodged between the moving parts, reducing the life and accuracy of the device. Instead, use a stiff-bristled brush to remove the chips and swarf, then wipe down the surfaces with a clean shop rag.

Every 80 hours of use, completely disassemble the rotary table, then thoroughly clean each part and re-lubricate.

Lubrication

Wipe the three ball oilers clean that are shown in **Figure 32**, then depress the ball with the tip of an oil bottle filled with 20W non-detergent oil and squirt once. Clean away any excess oil from the area.

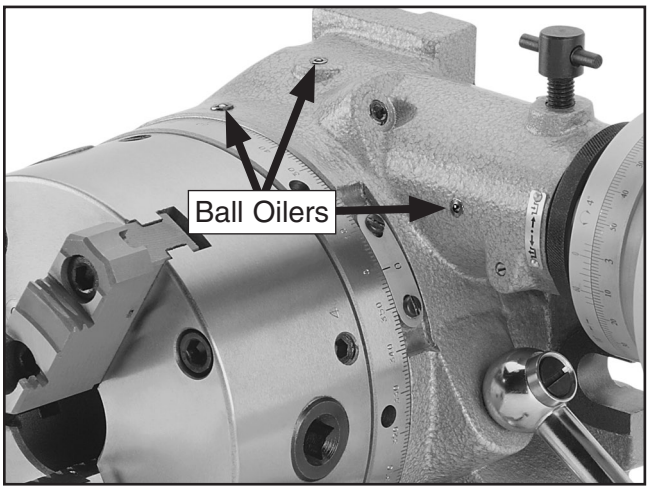


Figure 32. Location of ball oilers.

Surface Care

Nicks, dings, and scratches on the surface of the rotary table and base can have an adverse effect on accuracy and may damage the workpiece or mill table.

Prior to use, dress or "stone" these surfaces with a fine sharpening stone. A few strokes of the stone on the mill table surface and the machined base and back of the rotary table will help to ensure longevity and accuracy.

Make sure to thoroughly wipe these surfaces clean to remove any dust generated from the process, then apply a thin coat of light machine oil to prevent corrosion.

Preloading

To prevent the effects of chatter, you can control preload with the table lock lever (see **Figure 33**). Apply slight drag with the lever to put the head against the body to minimize any play that may cause finish problems.

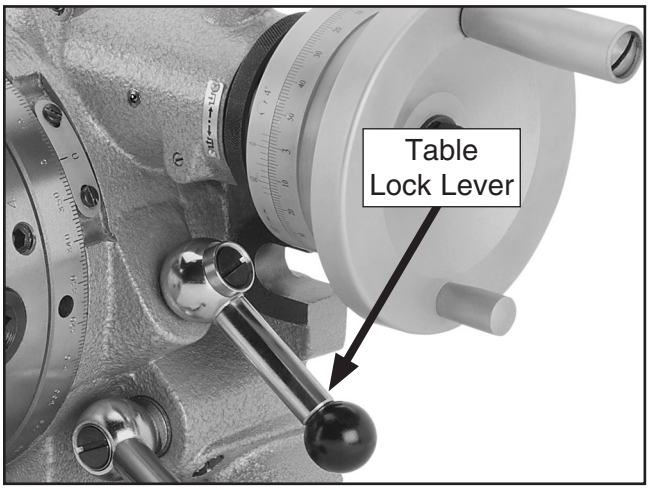
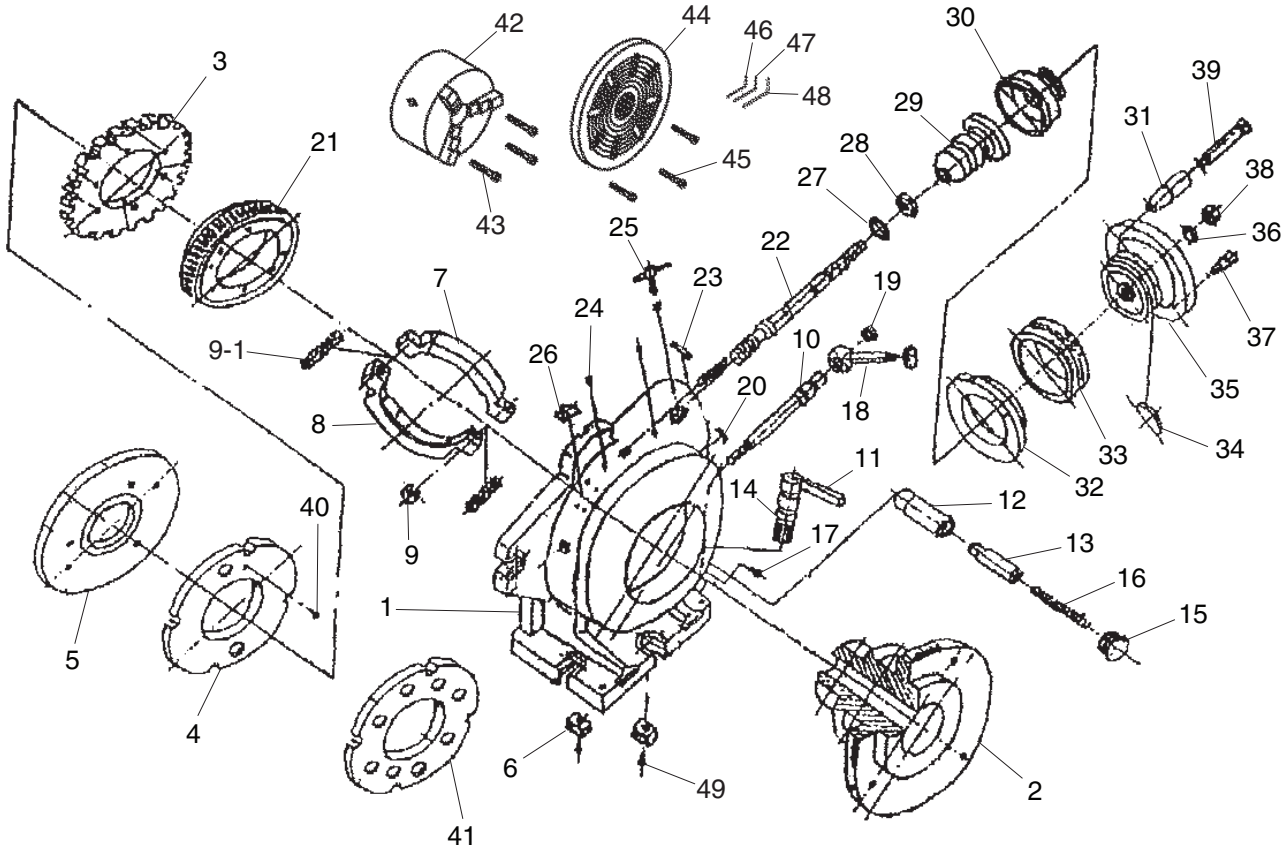


Figure 33. Table lock lever.

SECTION 6: PARTS



REF	PART #	DESCRIPTION
1	PH7506001	BODY
2	PH7506002	SPINDLE
3	PH7506003	INDEX PLATE
4	PH7506004	SPACER PLATE 2-HOLE
5	PH7506005	BUMPER PLATE
6	PH7506006	ALIGNMENT KEY
7	PH7506007	CLAMP RING
8	PH7506008	CLAMP RING
9	PH7506009	SPECIAL SCREW
9-1	PH7506009-1	COMPRESSION SPRING
10	PH7506010	SCREW ARBOR
11	PH7506011	INDEX HANDLE
12	PH7506012	SLEEVE
13	PH7506013	INDEX PIN
14	PH7506014	GEAR SHAFT
15	PH7506015	COVER
16	PH7506016	COMPRESSION SPRING
17	PH7506017	SPECIAL SCREW
18	PH7506018	CLAMP HANDLE
19	PH7506019	PLUG
20	PH7506020	VERNIER MARKER
21	PH7506021	WORM GEAR
22	PH7506022	WORM
23	PH7506023	INDEX MARKER
24	PH7506024	TAPERED PIN

REF	PART #	DESCRIPTION
25	PH7506025	HANDLE
26	PH7506026	NAME PLATE
27	PH7506027	SPECIAL WASHER
28	PH7506028	SPECIAL SPANNER NUT
29	PH7506029	ECCENTRIC SLEEVE
30	PH7506030	SHAFT SLEEVE
31	PH7506031	ROTATING SLEEVE
32	PH7506032	VERNIER SCALE
33	PH7506033	HANDWHEEL SCALE
34	PH7506034	SPRING PLATE
35	PH7506035	HANDWHEEL
36	PH7506036	PLUG
37	PH7506037	SMALL HANDLE
38	PH7506038	SPECIAL HEX NUT
39	PH7506039	SPECIAL SCREW
40	PH7506040	LOCKING PIN
41	PH7506041	SPACER PLATE 8-HOLE
42	PH7506042	3-JAW CHUCK
43	PSB154M	CAP SCREW M10-1.5 X 100
44	PH7506044	T--SLOT TABLE
45	PCAP71M	CAP SCREW M10-1.5 X 60
46	PAW04M	HEX WRENCH 4MM
47	PAW05M	HEX WRENCH 5MM
48	PAW06M	HEX WRENCH 6MM
49	PCAP26M	CAP SCREW M6-1 X 12

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Phone # _____ Email _____ Invoice # _____

Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. ***Of course, all information is strictly confidential.***

1. How did you learn about us?

____ Advertisement ____ Friend ____ Catalog
____ Card Deck ____ Website ____ Other:

2. Which of the following magazines do you subscribe to?

____ Cabinet Maker
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
____ Modeltec
____ Old House Journal
____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Practical Homeowner
____ Precision Shooter
____ Projects in Metal
____ RC Modeler
____ Rifle
____ Shop Notes
____ Shotgun News
____ Today's Homeowner
____ Wood
____ Wooden Boat
____ Woodshop News
____ Woodsmith
____ Woodwork
____ Woodworker West
____ Woodworker's Journal
____ Other:

3. What is your annual household income?

____ $20,000-$29,000 ____ $30,000-$39,000 ____ $40,000-$49,000
____ $50,000-$59,000 ____ $60,000-$69,000 ____ $70,000+

4. What is your age group?

____ 20-29 ____ 30-39 ____ 40-49
____ 50-59 ____ 60-69 ____ 70+

5. How long have you been a woodworker/metalworker?

____ 0-2 Years ____ 2-8 Years ____ 8-20 Years ____ 20+ Years

6. How many of your machines or tools are Grizzly?

____ 0-2 ____ 3-5 ____ 6-9 ____ 10+

7. Do you think your machine represents a good value? _____ Yes _____ No

8. Would you recommend Grizzly Industrial to a friend? _____ Yes _____ No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: *We never use names more than 3 times.* _____ Yes _____ No

10. Comments: _____

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_____

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Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number,'' which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.