MODEL T34439
4TH-AXIS ROTARY KIT FOR G0403
INSTRUCTIONS

For questions or help with this product contact Tech Support at (570) 546-9663 or techsupport@grizzly.com

Introduction

The Model T34439 4th-Axis Rotary Kit is designed for use on the G0403 Benchtop CNC Router. The rotary kit provides the ability to process complex curved surfaces and cylindrical forms, and is compatible with the DSP-J2 control system included in the Model G0403.

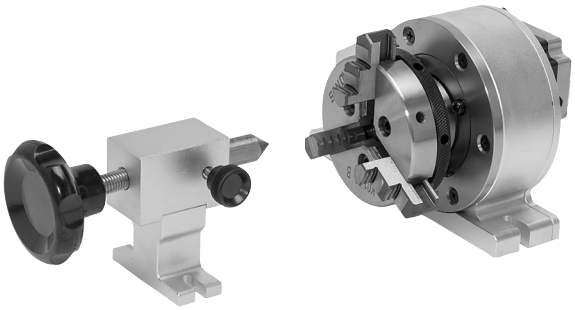
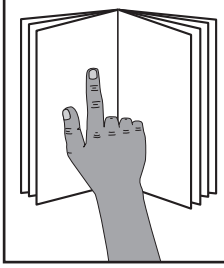


Figure 1. T34439 4th-Axis Rotary Kit.



⚠WARNING

To reduce your risk of serious injury, read this entire manual and all other safety and operation information in the G0403 owner's manual BEFORE using this kit.

Specifications

Rotary Axis Motor:

Model	57BHH76-500A-24BS
Frame Size	NEMA 23
Amps	5A
Rated Speed	1500 RPM
Type	Stepper
Power Transfer	Direct
Step Resolution	5000

Operation Information:

Chuck Size	80mm
Chuck Type	Self-Centering
No. of Chuck Jaws	3
Chuck Jaw Type	Inside/Outside
Swing Over Bed	4-1/2 in.
Max Workpiece Diameter	4-1/2 in.
Max Distance Chuck to Center	30 in.

Tailstock Information:

Tailstock Quill Travel	5/8 in.
Type of Included Tailstock Center	Dead

Construction Information:

Chuck	Steel
Tailstock	Aluminum
Tailstock Center	Steel

(FOR MODELS MFD. SINCE 03/25) #KS23762 PRINTED IN CHINA V1.12.25

******Keep for Future Reference******

Main Inventory

Description	Qty
A. Rotary Table w/Cord	1
B. Tailstock w/Dead Center	1
C. Chuck Keys	2

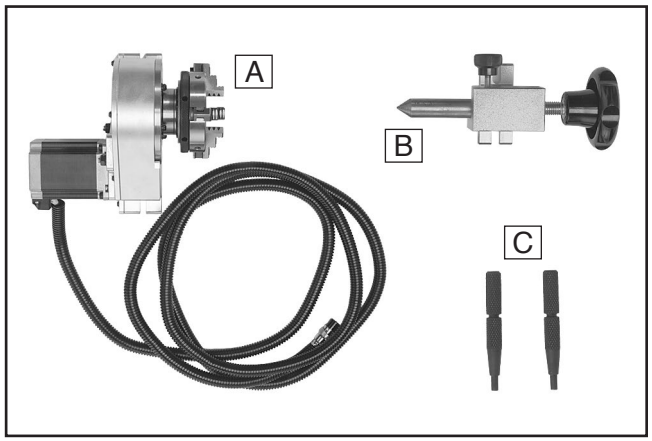


Figure 2. Main inventory.

Hardware Inventory

Description	Qty
D. Cap Screws M6-1 x 14 (PT34439030)	2
E. Cap Screws M6-1 x 16 (PT34439016)	2
F. Flat Washers 6mm (PT34439017)	4
G. T-Slot Nuts M6-1 (PT34439018)	4

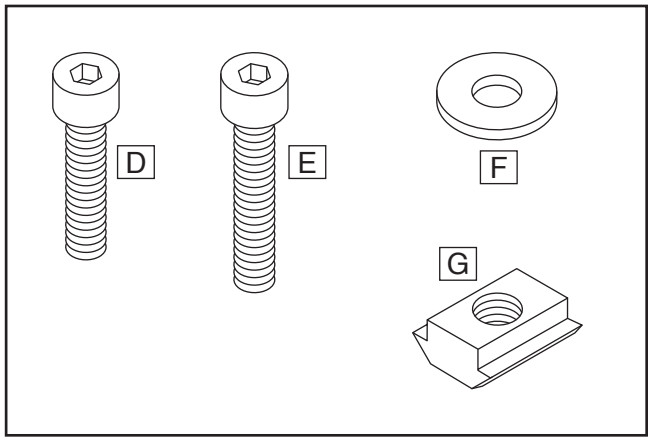
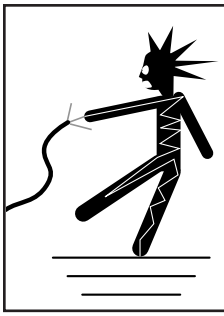


Figure 3. Hardware inventory.

Power Supply

Before installing the rotary kit, review the **Machine Data Sheet** and **Power Supply** sections of the G0403 owner's manual for full **110V Circuit Requirements**.



⚠WARNING

Electrocution, fire, shock, or equipment damage may occur if machine is not properly grounded and connected to power supply.

⚠WARNING

Serious injury could occur if you connect machine to power before completing setup process. DO NOT connect to power until instructed later in this manual.

⚠WARNING

Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

Full-Load Current Rating

The full-load current rating is the amperage a machine draws at 100% of the rated output power. On machines with multiple motors, this is the amperage drawn by the largest motor or sum of all motors and electrical devices that might operate at one time during normal operations.

Full-Load Current Rating at 110V ..... 5 Amps

Full-Load Current Rating at 110V (Installed on Model G0403) ..... 6.8 Amps

IMPORTANT: Accessories connected to the Model G0403 will increase full-load current rating of machine! Verify all electrical components connected to machine do not exceed **110V Circuit Requirements**.

Needed For Setup

The following items are needed, but not included, for the setup/assembly of this kit.

Description	Qty
• Safety Glasses (for each person)	1 Pr.
• Hex Wrench 5mm	1
• G0403 Benchtop CNC Router	1
• Precision Scale 6"	1

⚠WARNING

Wear safety glasses during the entire setup process!

Installation

The kit must be fully installed before it can be operated. Before beginning the installation process, refer to **Needed for Setup** and gather all listed items.

To install kit:

1. DISCONNECT MODEL G0403 CONTROL BOX FROM POWER!

2. Assemble (4) T-slot clamps using diagram shown in **Figure 4**.

Note: *T-slot clamps should be fully extended with only 1–2 threads holding t-slot nut.*

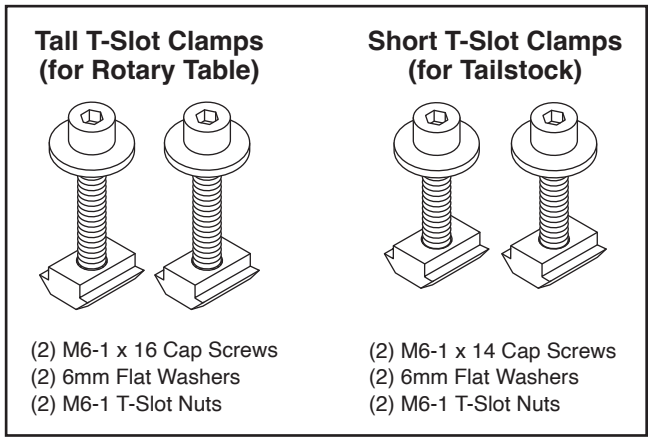


Figure 4. Example of assembled T-slot clamps.

3. Place rotary table and tailstock along Y-axis of Model G0403 table at desired location (see **Figure 5**).

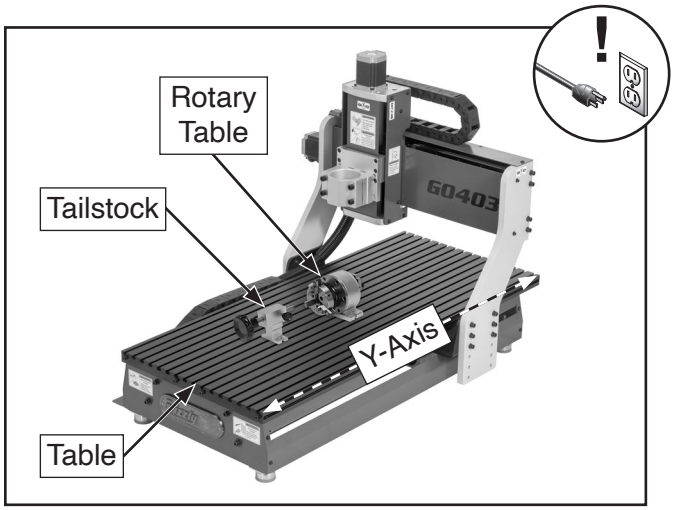


Figure 5. Example of rotary table and tailstock placed along Y-axis.

4. Slide (2) tall T-slot clamp nuts through T-slots in table to secure rotary table (see **Figure 6**).

Note: *Rotary table spans seven T-slots, tailstock spans three T-slots.*

5. Slide (2) short T-slot clamp nuts through T-slots in table to secure tailstock, as shown in **Figure 6**.

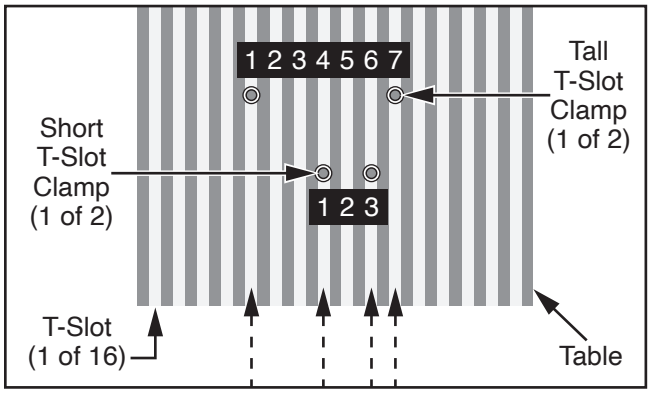


Figure 6. Example of T-slot positioning.

6. Move rotary table and tailstock mounts under cap screws and flat washers, then tighten cap screws to secure position (see **Figure 7**).

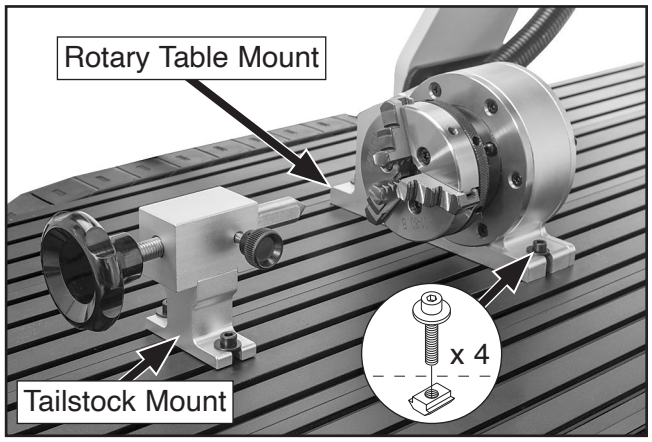


Figure 7. Rotary table and tailstock secured.

7. Measure distance from both corners on one side of rotary table mount to nearest available T-slot (see **Figure 8**).

   — If distance measured is the same from both corners to nearest available T-slot, rotary table is square with machine table. Proceed to **Step 9**.

   — If distance measured is *not* the same from both corners to nearest available T-slot, proceed to **Step 8**.

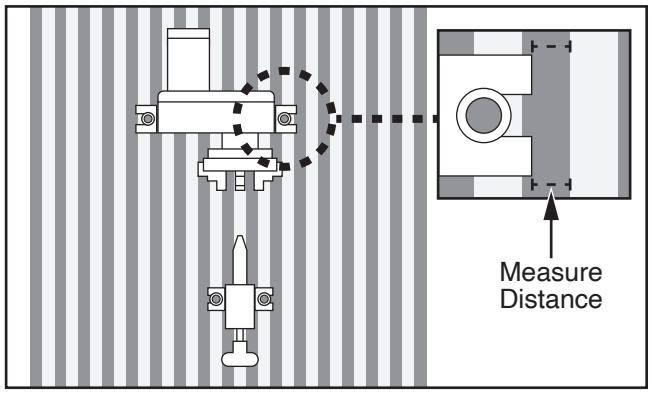


Figure 8. Location for measuring mount alignment.

8. Loosen (2) rotary table T-slot clamps ¼ turn and pivot mount until distance from both corners to nearest available T-slot are the same, then tighten T-slot clamps to secure.

9. Repeat **Step 7** for tailstock mount.

10. Connect "A" plug from rotary table to matching receptacle on rear of Model G0403 control box, as shown in **Figure 9**.

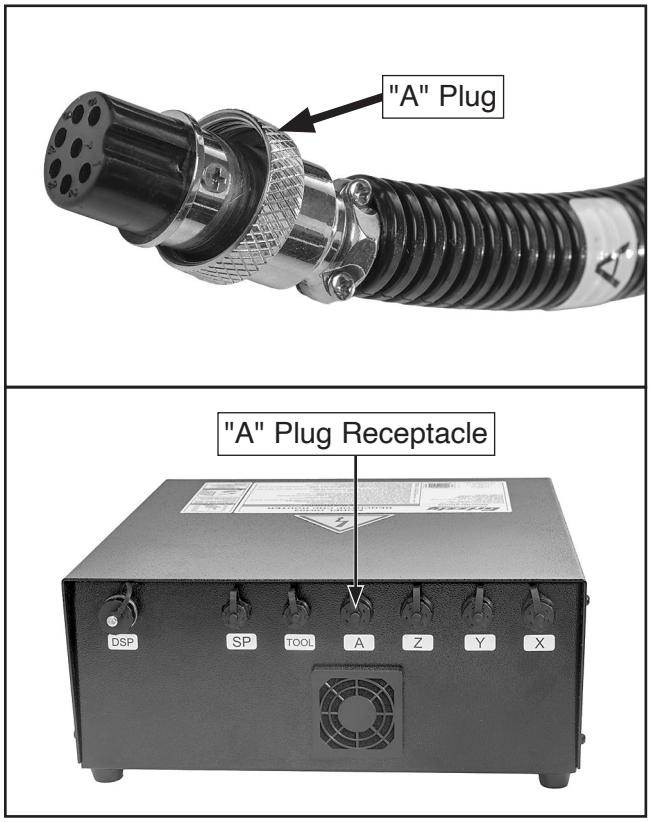


Figure 9. Location of kit electrical connection on Model G0403 control box.

NOTICE

Secure loose cord from rotary table as needed to prevent binding or interference with gantry movement.

Test Run

Once installation is complete, test run the kit to ensure it is properly connected to power and safety components are functioning correctly.

If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and contact Grizzly Tech Support BEFORE operating the machine again.

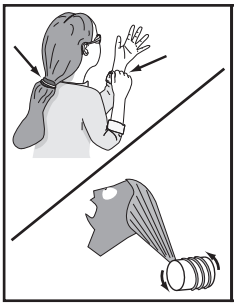
The test run consists of verifying the following: 1) the rotary table motor powers up and runs correctly, and 2) the Model G0403 DSP controller displays coordinate values for "A" (4th-axis).

⚠WARNING

Serious injury or death can result from using this machine BEFORE understanding its controls and related safety information. DO NOT operate, or allow others to operate, machine until the information is understood.

⚠WARNING

DO NOT start machine until all preceding setup instructions have been performed. Operating an improperly set up machine may result in malfunction or unexpected results that can lead to serious injury, death, or machine/property damage.



⚠WARNING

Keep hair, clothing, and jewelry away from moving parts at all times. Entanglement can result in death, amputation, or severe crushing injuries!

To test run kit:

1. Clear all setup tools away from machine.
2. Connect Model G0403 control box to power.
3. Twist EMERGENCY STOP button on Model G0403 control box clockwise until it springs out (see **Figure 10**). This resets button so machine can start.
4. Twist Emergency Stop button on Model G0403 DSP controller clockwise until it springs out (see **Figure 10**). This resets button so DSP controller will accept commands.

Figure 10. Resetting EMERGENCY STOP button.

5. Move ON/OFF switch on DSP controller to ON position.

   — After approximately 10 seconds, DSP controller will finish boot sequence and show Coord screen (see **Figure 11**).

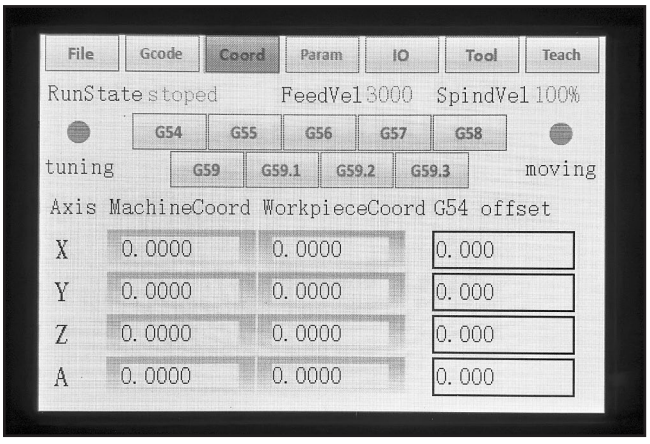


Figure 11. Example of DSP controller Coord screen.

6. Rotate axis selection dial (see **Figure 12**) on DSP controller to "4", then rotate jog mode dial to "0.1".

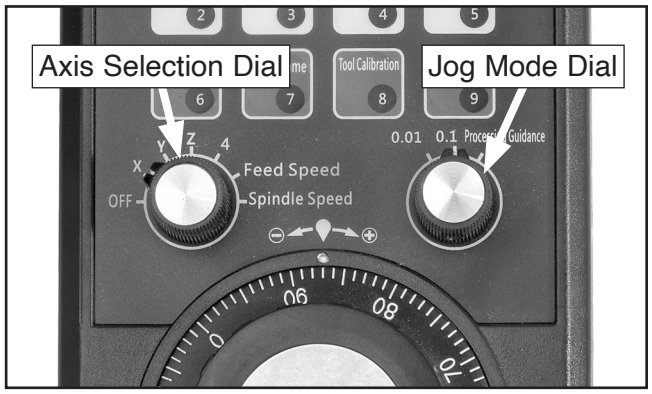


Figure 12. Location of DSP controller axis selection dial and jog mode dial.

7. Press and hold one of the enable buttons on either side of DSP controller and rotate MPG wheel clockwise and counterclockwise several full rotations. WorkpieceCoord cell for "A" (4th-axis) will display coordinates as rotary table turns (see **Figure 13**).

   — Verify rotary table motor starts and runs smoothly without any unusual problems or noises through its rotation.

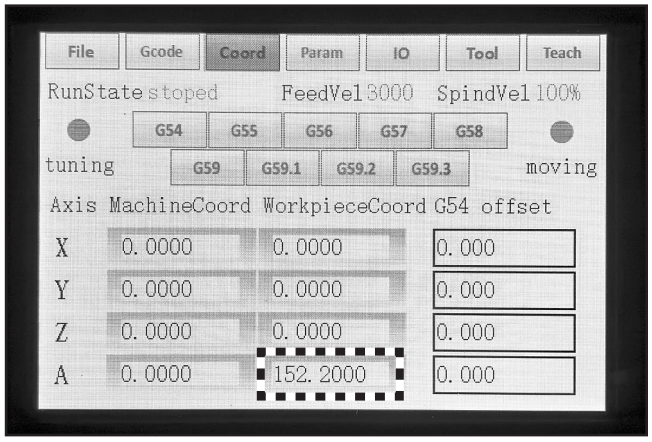


Figure 13. Example of "A" WorkpieceCoord cell displaying coordinates.

Congratulations! Test Run is complete.

3-Jaw Chuck

The Model T34439 uses a 3-jaw scroll chuck and a tailstock with dead center to support workpieces up to 4½" in diameter.

See **Figure 14** for examples of typical workpiece holding techniques based on workpiece type.

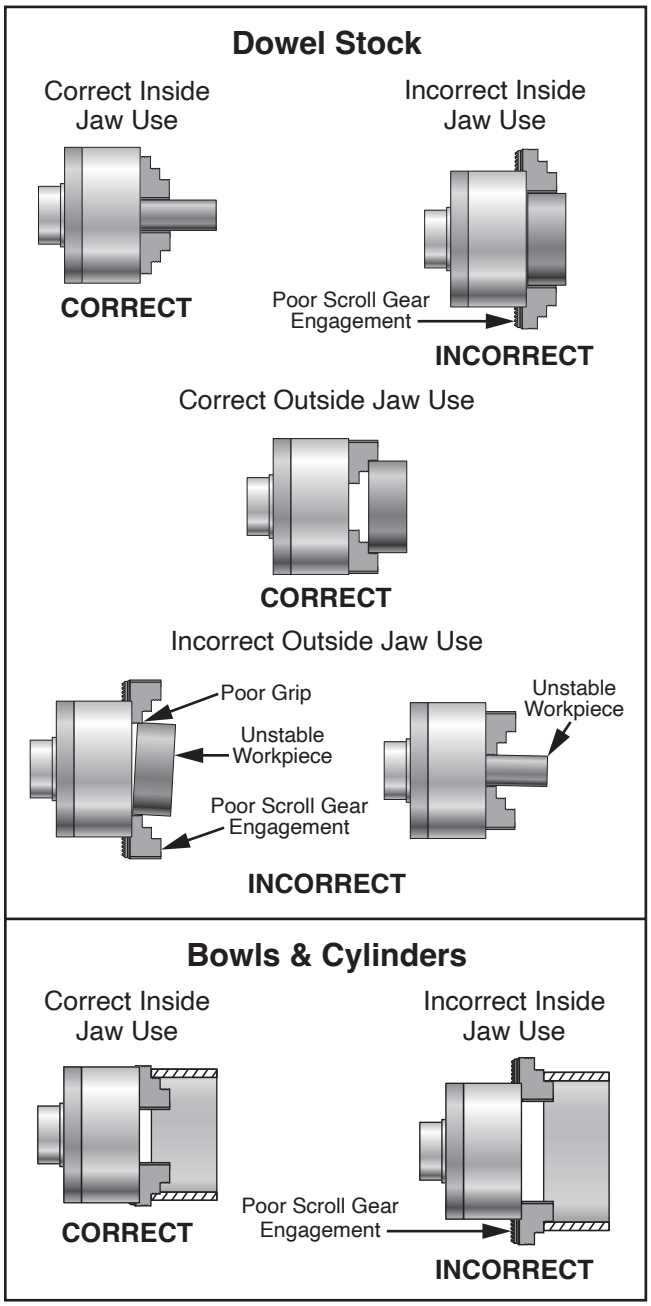


Figure 14. Recommended workpiece holding.

Reversing Chuck Jaws

The 3-jaw scroll chuck included with the rotary kit features a reversible inside/outside hardened steel jaw set (see **Figure 15**), which move in unison to center a concentric workpiece.

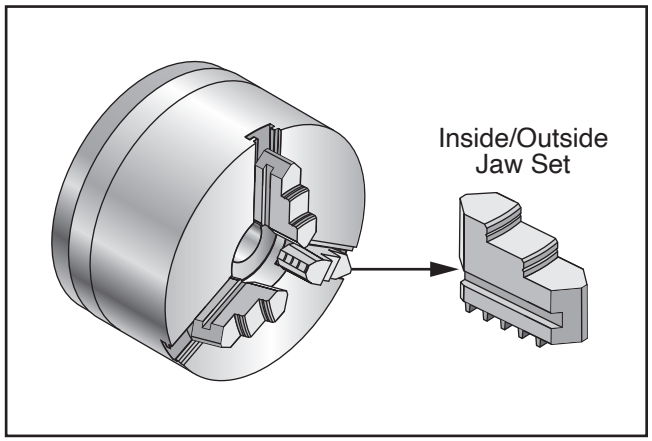


Figure 15. Example of chuck with inside/outside jaw set.

When installing the jaws, it is important to make sure they are installed correctly. Incorrect installation will result in jaws that do not converge evenly and are unable to securely clamp a workpiece.

Jaws are numbered 1–3 (see **Figure 16**). The number is typically stamped on the side or bottom. Jaws are designed to be installed clockwise in numerical order in the jaw guides, so they will hold a concentric workpiece evenly.

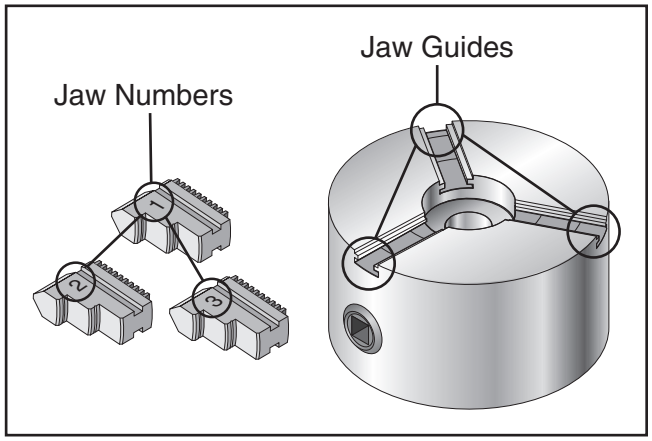


Figure 16. Jaw installation components.

Items Needed	Qty
Chuck Keys	2
Mineral Spirits	As Needed
Disposable Rags	As Needed

To reverse chuck jaws:

1. DISCONNECT ROTARY TABLE AND MODEL G0403 CONTROL BOX FROM POWER!

2. Insert (1) chuck key into scroll gear recess on flange, and (1) chuck key into chuck recess (see **Figure 17**).

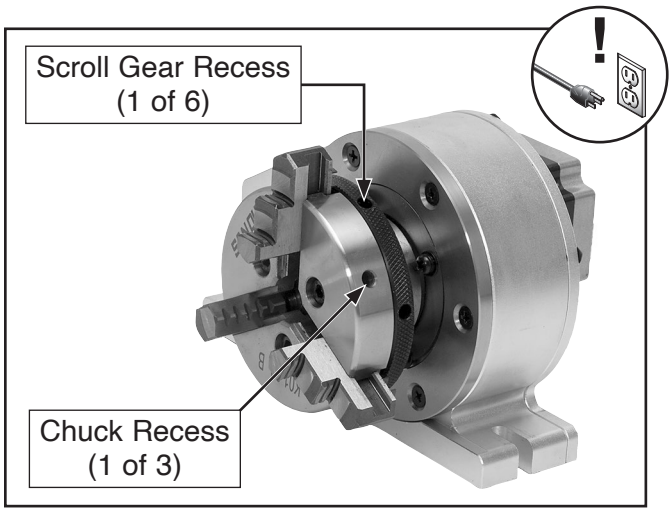


Figure 17. Location of rotary table recesses.

3. Hold chuck recess key in place and rotate scroll gear chuck key to open 3-jaw chuck and remove jaws (see **Figure 18**).

   — Turn chuck key *clockwise* to close jaws.

   — Turn chuck key *counterclockwise* to open jaws.

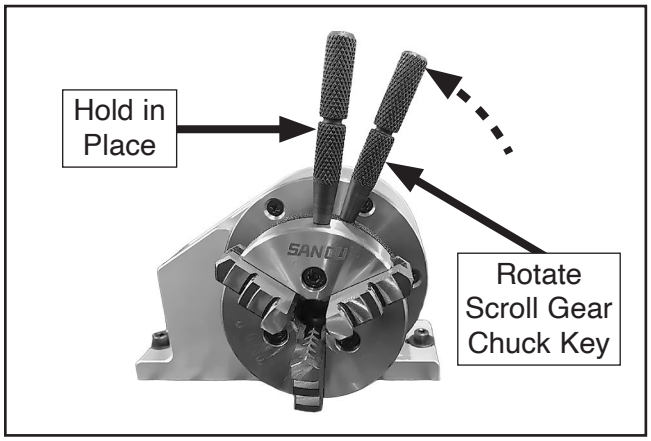


Figure 18. Rotating scroll gear to open jaws.

4. Use mineral spirits to clean debris and grime from jaws and chuck jaw guides.

5. Rotate scroll gear chuck key clockwise until you see tip of outer scroll-gear lead thread begin to enter jaw guide (see **Figure 19**).

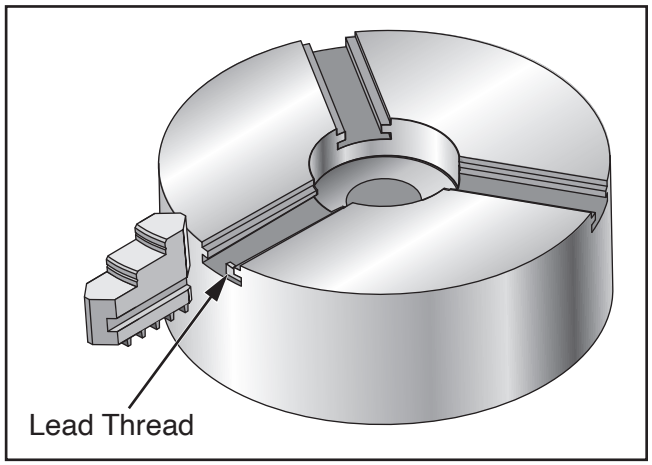


Figure 19. Lead thread on scroll gear.

8. Insert jaw into jaw guide and hold jaw against scroll-gear.

9. Rotate scroll gear chuck key clockwise a ¼ turn to engage tip of scroll-gear lead thread into jaw. Pull jaw; it should be locked firmly in jaw guide.

10. Install remaining jaws in same manner. Jaws should converge evenly at center of chuck (see **Figure 20**).

    — If jaws do not converge evenly, remove them. Repeat **Steps 5–10** and make sure each one engages with scroll-gear lead thread during its first rotation.

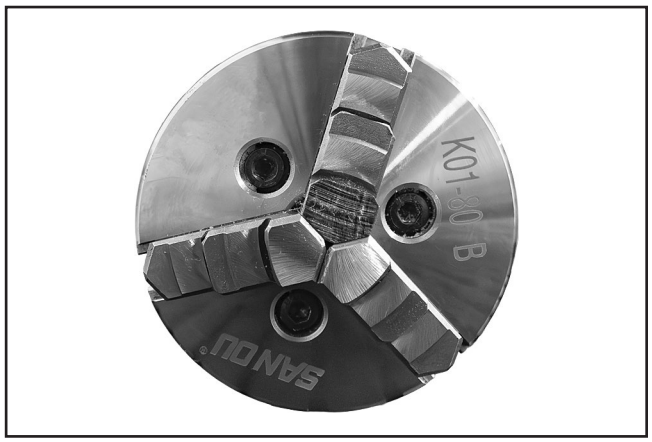


Figure 20. Jaws converged evenly in center of chuck.

Mounting Workpiece

The Model T34439 rotary table and tailstock can be repositioned and locked in place along the length of the Model G0403 table to support various workpiece lengths.

NOTICE

Tram the spindle prior to mounting a workpiece on the Model T34439 to help prevent alignment errors while processing (see Tramming Spindle section in the G0403 owner's manual.

Items Needed	Qty
Chuck Keys	2
Workpiece	1

To mount workpiece:

1. DISCONNECT ROTARY TABLE AND MODEL G0403 CONTROL BOX FROM POWER!

2. Open jaws (see **Steps 2–3** on **Page 7**) and mount workpiece into chuck.

   Note: *See **Figure 14** on **Page 6** for correct and incorrect mounting methods*.

3. Verify workpiece is centered, then fully tighten jaws to ensure workpiece is held securely and will not come loose during operation.

   Note: *Be careful when securing soft wood or fragile materials. Overtightening chuck jaws could deform or damage workpiece.*

4. Loosen tailstock lock knob and verify lock knob is aligned with flat side of dead center to ensure center will not freely rotate under load (see **Figure 21**).

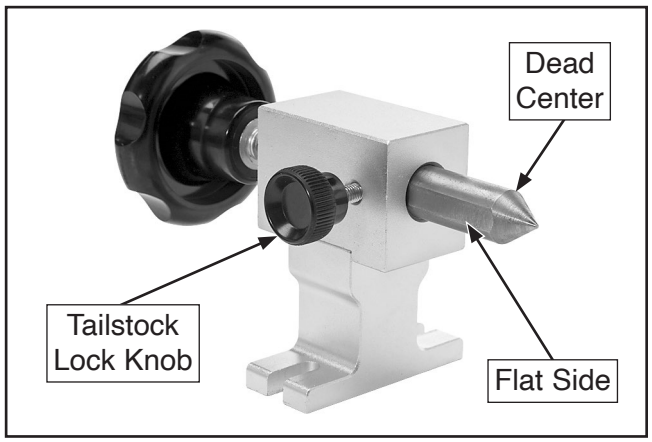


Figure 21. Location of tailstock components.

5. Position tailstock against unsupported end of workpiece and rotate tailstock handwheel to move dead center into center of workpiece, then tighten tailstock lock knob to secure (see **Figure 22**).

   — Turn handwheel clockwise to move dead center *towards* workpiece.

   — Turn handwheel counterclockwise to move dead center *away from* workpiece.

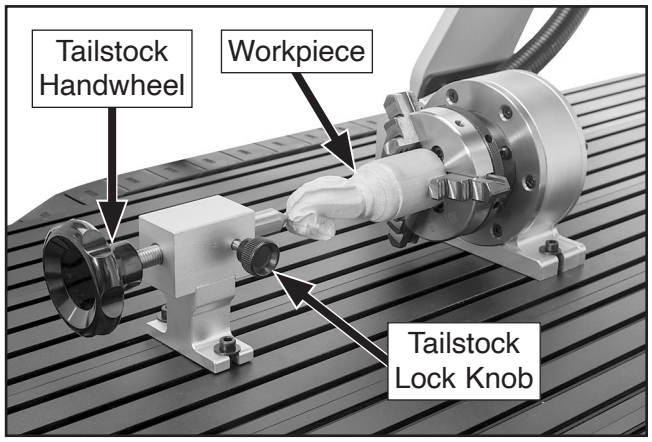


Figure 22. Example of workpiece secured in chuck jaws.

NOTICE

Always test workpiece clearance after mounting to prevent damage to rotary table and Model G0403 components.

6. Turn Model G0403 control box and DSP controller ***ON***.

7. Rotate axis selection dial (see **Figure 23**) on DSP controller to "4", then rotate jog mode dial to "0.01".

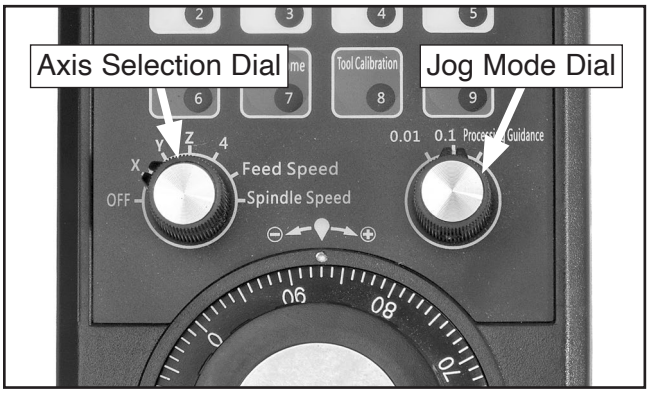


Figure 23. Location of DSP controller axis selection dial and jog mode dial.

8. Press and hold one of the enable buttons on either side of DSP controller, then rotate MPG wheel to verify workpiece clearance and holding before beginning operations.

Setting Work Origin

Work origin is the workpiece-specific zero point, the starting point for the toolpath. All axes being used in the parts program need to be zeroed at the work origin before running code.

The Z-axis should be set in relation to the workpiece surface, corresponding to what is established in the G-code. If this is not done properly, the tooling may crash into the material or the table, causing damage to the workpiece or the machine.

⚠CAUTION

Cutting bits are sharp! To reduce the risk of injury, wear leather gloves when handling, installing, and removing tooling from spindle.

NOTICE

Set work origin before each unique operation. The work origin of all axes must match the origin of the toolpath established in the G-code. Failure to set the work origin may cause the tooling to crash and damage the workpiece, machine, or tooling.

NOTICE

The tool setter included with the Model G0403 cannot be supported safely on thin or round workpieces, and should not be used for setting origin of the rotary axis.

Items Needed	**Qty**
USB Flash Drive 32 GB (FAT16)	1
Work Gloves	1 Pair
Spindle Tooling	As Needed

To set work origin:

1. Put on work gloves and install tooling in spindle motor, then transfer parts program to USB flash drive for processing.

2. Turn control box and DSP controller ***ON*** and allow controller to finish boot sequence.

   — After approximately 10 seconds, DSP controller will finish boot sequence and show coordinate screen.

3. Manually move spindle tooling to X- and Y-axes toolpath origin established in G-code.

4. Manually move spindle tooling along Z-axis down to ⅛" above workpiece center, or as determined by G-code.

5. Place piece of paper between tooling tip and surface. Slowly lower cutting tool while sliding paper until paper cannot move.

   Note: *Set jog mode dial on DSP controller to "0.01" for slower, more precise movements.*

6. Rotate axis selection dial on DSP controller to desired axis, then press "CurrentAxis=0" button to set origin.

7. Repeat **Step 6** for each remaining axis.

   — Coordinate screen will show "0.0000" for each axis in the "WorkpieceCoord" column (see **Figure 24**).

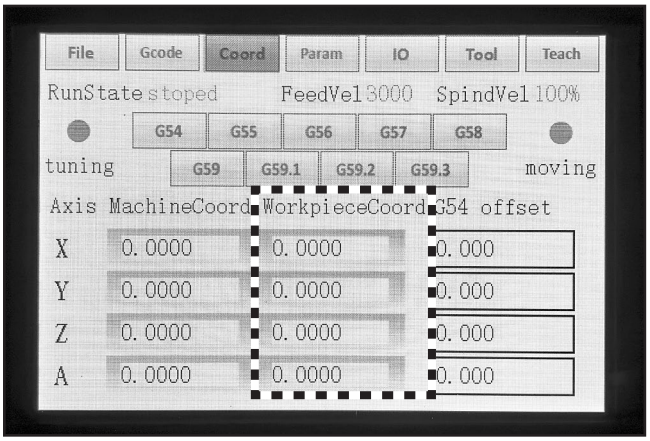


Figure 24. Example of origin set in WorkpieceCoord column.

Replacing Timing Belt

If the timing belt begins to slip or has frayed after long-term use, the belt should be replaced.

Items Needed	Qty
Hex Wrenches 2.5, 5mm	1 Ea.
Wrench 10mm	1
Timing Belt (PT34439011)	1
Vacuum	1
Clean Shop Rags	As Needed

To replace timing belt:

1. DISCONNECT ROTARY TABLE AND MODEL G0403 CONTROL BOX FROM POWER!

2. Remove rotary table from Model G0403 table, if installed.

3. Loosen (2) hex nuts on rear of rotary table (see **Figure 25**) a half turn to release belt tension.

4. Remove (5) Phillips head screws and flat washers securing belt cover (see **Figure 25**), then remove cover with stepper motor still attached.

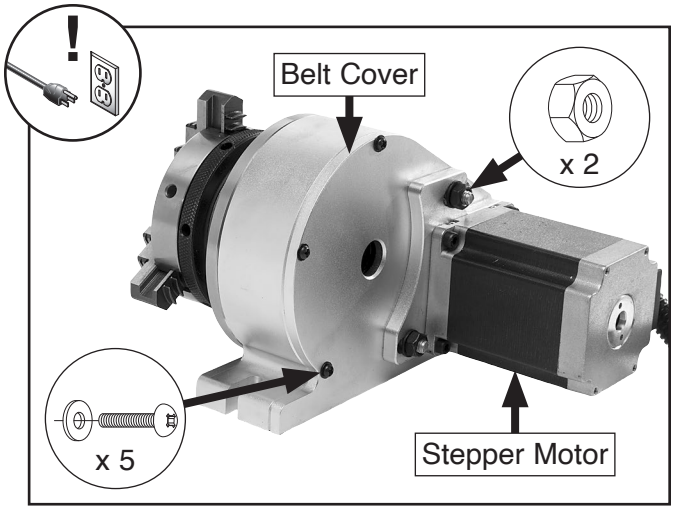


Figure 25. Location of belt cover fasteners.

5. Remove old timing belt and clean dust and chips from inside rotary table.

   Note: *Make sure pulley teeth are free of debris for proper belt meshing in a later step.*

6. Install new timing belt and mesh belt teeth with teeth on left side of spindle pulley (see **Figure 26**).

   Note: *New timing belt teeth should mesh snugly in spindle pulley teeth, and belt should form a gap on right side for motor pulley.*

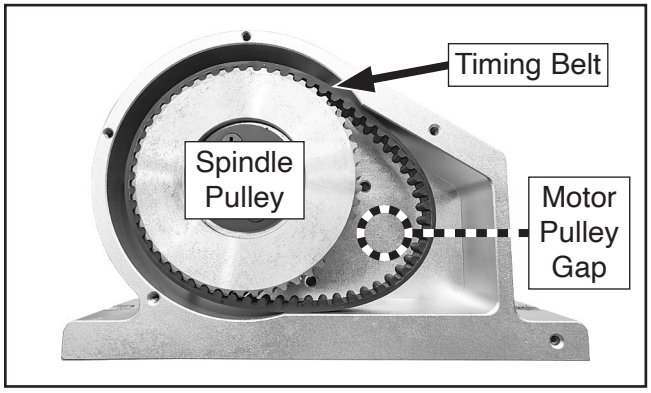


Figure 26. Example of proper belt meshing.

7. Install belt cover and verify motor pulley is located inside belt gap formed in **Step 6** (see **Figure 27**), then secure cover with (5) fasteners removed in **Step 4**.

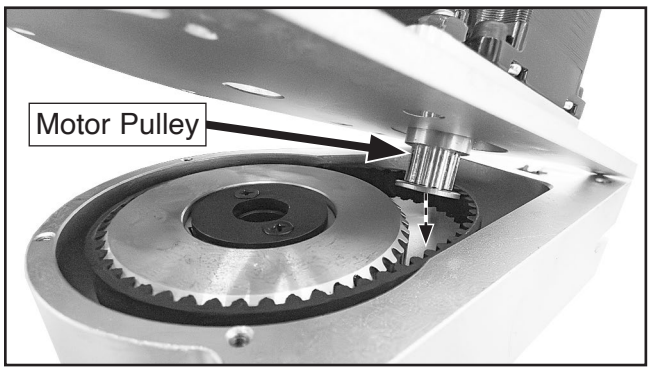


Figure 27. Motor pulley located inside belt gap.

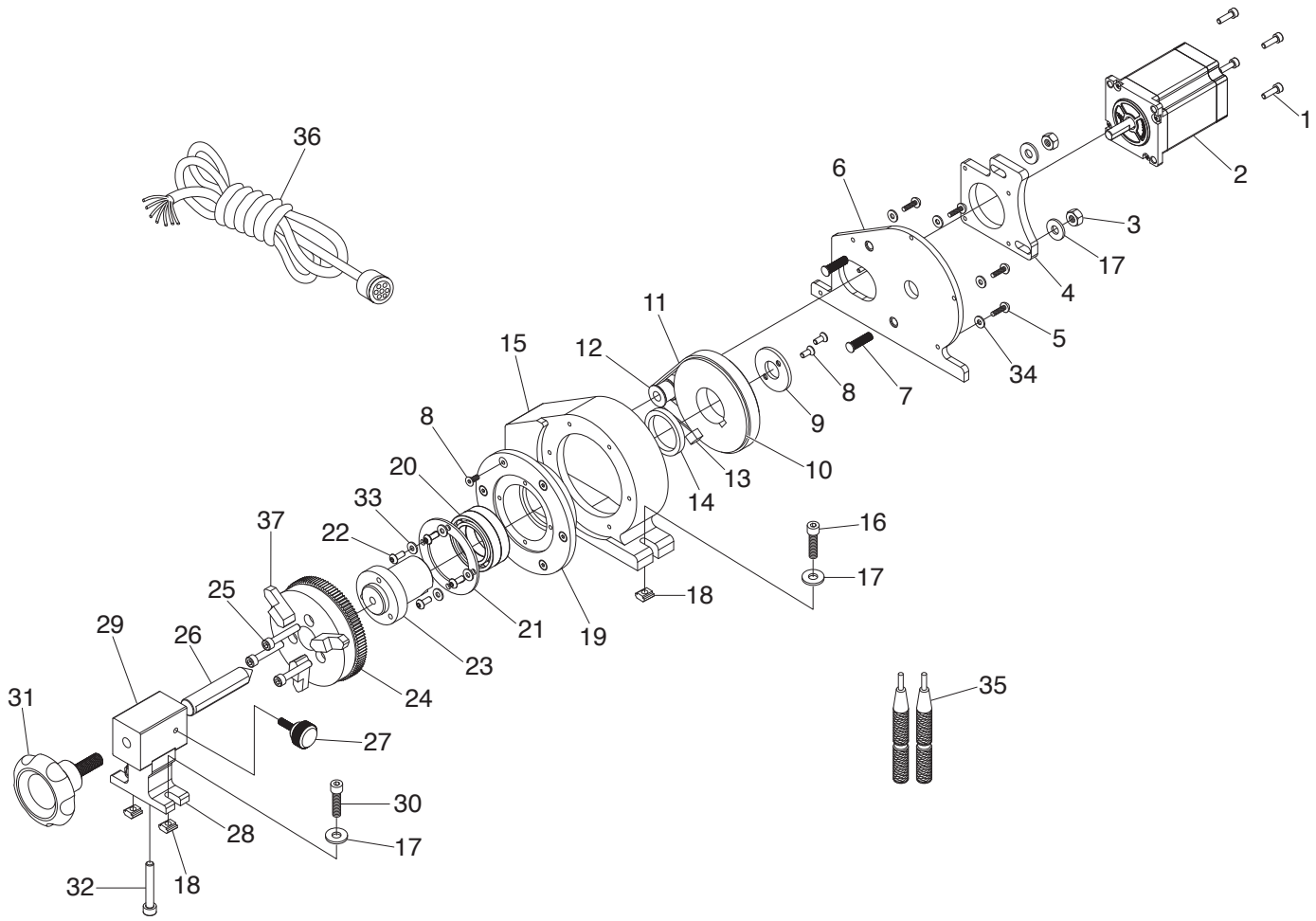
8. Push stepper motor away from spindle pulley to tension belt, then tighten (2) hex nuts loosened in **Step 3** to secure position.

9. Rotate chuck by hand one full rotation in both directions to verify timing belt teeth have properly meshed with pulleys.

   — Verify chuck rotates smoothly without any unusual problems or noises.

10. Install rotary table on Model G0403 and perform **Test Run** on **Page 5**.

T34439 Parts Breakdown & List



REF	PART #	DESCRIPTION
1	PT34439001	CAP SCREW M4-.7 X 14
2	PT34439002	STEPPER MOTOR 57BHH76-500A-24B(S)
3	PT34439003	HEX NUT M6-1
4	PT34439004	MOTOR MOUNT
5	PT34439005	PHLP HD SCR M3-.5 X 10
6	PT34439006	BELT COVER
7	PT34439007	RIVETING SCREW M6-1 X 20 SS
8	PT34439008	FLAT HD CAP SCR M4-.7 X 10
9	PT34439009	PULLEY COVER
10	PT34439010	SPINDLE PULLEY
11	PT34439011	TIMING BELT 10 X 290 X 58MM
12	PT34439012	MOTOR PULLEY
13	PT34439013	KEY 8 X 7 X 10
14	PT34439014	SPACER 30 X 38 X 5MM
15	PT34439015	REDUCER HOUSING
16	PT34439016	CAP SCREW M6-1 X 16
17	PT34439017	FLAT WASHER 6MM
18	PT34439018	T-SLOT NUT 6, M6-1
19	PT34439019	BEARING SUPPORT PLATE

REF	PART #	DESCRIPTION
20	PT34439020	ANGULAR CONTACT BEARING 71906 C/DF
21	PT34439021	BEARING COVER
22	PT34439022	BUTTON HD CAP SCR M4-.7 X 10
23	PT34439023	SPINDLE
24	PT34439024	CHUCK 3-JAW K01-80B SANOU 80MM
25	PT34439025	CAP SCREW M5-.8 X 30
26	PT34439026	DEAD CENTER
27	PT34439027	KNOB BOLT M5-.8 X 16
28	PT34439028	TAILSTOCK BASE
29	PT34439029	TAILSTOCK GUIDE BLOCK
30	PT34439030	CAP SCREW M6-1 X 14
31	PT34439031	KNOB BOLT M10-1.5 X 30
32	PT34439032	CAP SCREW M6-1 X 40
33	PT34439033	FLAT WASHER 4MM
34	PT34439034	FLAT WASHER 3MM
35	PT34439035	CHUCK KEY
36	PT34439036	ROTARY CORD 24G 7W 83"
37	PT34439037	INSIDE JAW SET K01-80B-01 (3-PC)

Please Note: *We do our best to stock replacement parts whenever possible, but we cannot guarantee that all parts shown here are available for purchase. Call* ***(800) 523-4777*** *or visit our online parts store at* ***www.grizzly.com*** *to check for availability.*