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## SAFETY PRECAUTIONS

### IN GENERAL

When using rotating head cutting equipment, basic safety precautions should always be followed to reduce the risk of personal injury.

Operate this tool only in accordance with specific operating instructions.

#### **WARNING:**

Do not override the deadman switch on the power unit. Locking down, obstructing, or in any way defeating the deadman switch on the power drive unit may result in serious injury.

### DRESS CONSIDERATIONS

Use standard safety equipment. Hard hats, safety shoes, safety harnesses, protective clothes, and other safety devices should always be used when appropriate.

Use safety glasses. Do not operate cutting tools without eye protection.

Dress properly. Do not wear loose clothing or jewelry. They can be caught in rotating and moving parts. Avoid slippery floors or wear nonskid footwear. If you have long hair, wear protective hair covering to contain it.

### WORK AREA

Keep the work area clean. Cluttered work areas and benches invite injuries.

Consider the work area environment. Keep the area well lit. Keep electrical cords, cables, rags, rigging straps, and etc. clear of rotating equipment. Do not use power-cutting tools in the presence of flammable liquids and gasses.

Keep visitors away. Do not let visitors or untrained personnel at or near operating tools. Enforce eye protection requirements for all observers.

Do not over reach. Keep proper footing at all times.

Stay alert. Watch what you are doing. Use common sense. Do not operate tools when you are tired.

### **TOOL CARE**

Maintain tools with care. Keep tools in good operating condition. Sharp tool bits perform better and safer than dull tool bits. Well maintained tools function properly when needed.

Check for damaged parts. If a tool has malfunctioned, been dropped or hit, it must be checked for damage. Run no-load tests and feed function checks. Do a complete visual inspection.

Electric motors. Use only with proper AC voltage power sources and observe all normal electric shock hazard procedures.

Do not abuse power and control cords. Pulling or running over cords and cables can result in electrical shock hazards and malfunctions. Keep control and power cords out of all cutting fluids and water.

Hydraulic drives. Observe proper procedures for electrically driven power sources. Avoid damage to hydraulic lines. Keep quick-disconnects clean. Grit contamination causes malfunctions.

Air tools. Check the exhaust muffler. Broken or damaged mufflers can restrict air flow or cause excessive noise. Use air motors only with a filtered, lubricated and regulated air supply. Dirty air, low-pressure air or over pressure air will cause malfunctions, including delayed starting.

### **AREA EQUIPMENT**

Secure work. Whenever possible use clamps, vises, chains and straps to secure pipe.

Make sure the tool is secured; it is safer to have both hands free to operate the tool.

### **TOOL USE**

Use the right tool and tool bit for the job. Do not use a tool, which is incorrect for the job you are doing.

Keep the tool bits fully engaged in the tool bit holders. Loose bits are a safety hazard.

Disconnect power supply during setup and maintenance. Use all 'Stop' or Shut off' features available when changing or adjusting tool bits, maintaining the tool, or when the tool is not in use.

Remove adjusting keys and wrenches before applying power to the equipment. Develop a habit of checking the tool before turning it on to make sure that all keys and wrenches have been removed.

Do not force tools. Tools and tool bits function better and safer when used at the feed and speed rate for which they were designed.

Do not reach into rotating equipment. Do not reach into the rotating head stock to clear chips, to make adjustments, or to check surface finish. A machine designed to cut steel will not stop for a hand or an arm.

Handle chips with care. Chips have very sharp edges and are hot. Do not try to pull chips apart with your hands; they are very tough.

Avoid unintentional starts. Do not carry or handle tools with your hand on the operating switches or levers. Do not lay the tool down in a manner that will start the drive. Do not allow the tool to flip around or move when adjusting or changing tool bits.

Store idle tools properly. Disconnect tools from the power source and store in a safe place. Remove tool bits for safe handling of the tool.

## **GENERAL DESCRIPTION**

The OD Tracking Module is a mechanical accessory for the models 616SB through 642SB and 614RBL through 636RBL Clamshells.

The spring loaded Tool Holder forces the Tracking Wheel against the outside diameter of the pipe, which allows machining of beveled preps consistent with the outside diameter of the pipe.

The OD Tracking Module is mounted directly on to the clamshell in lieu of one of the clamshells Heavy Duty Tool Modules.

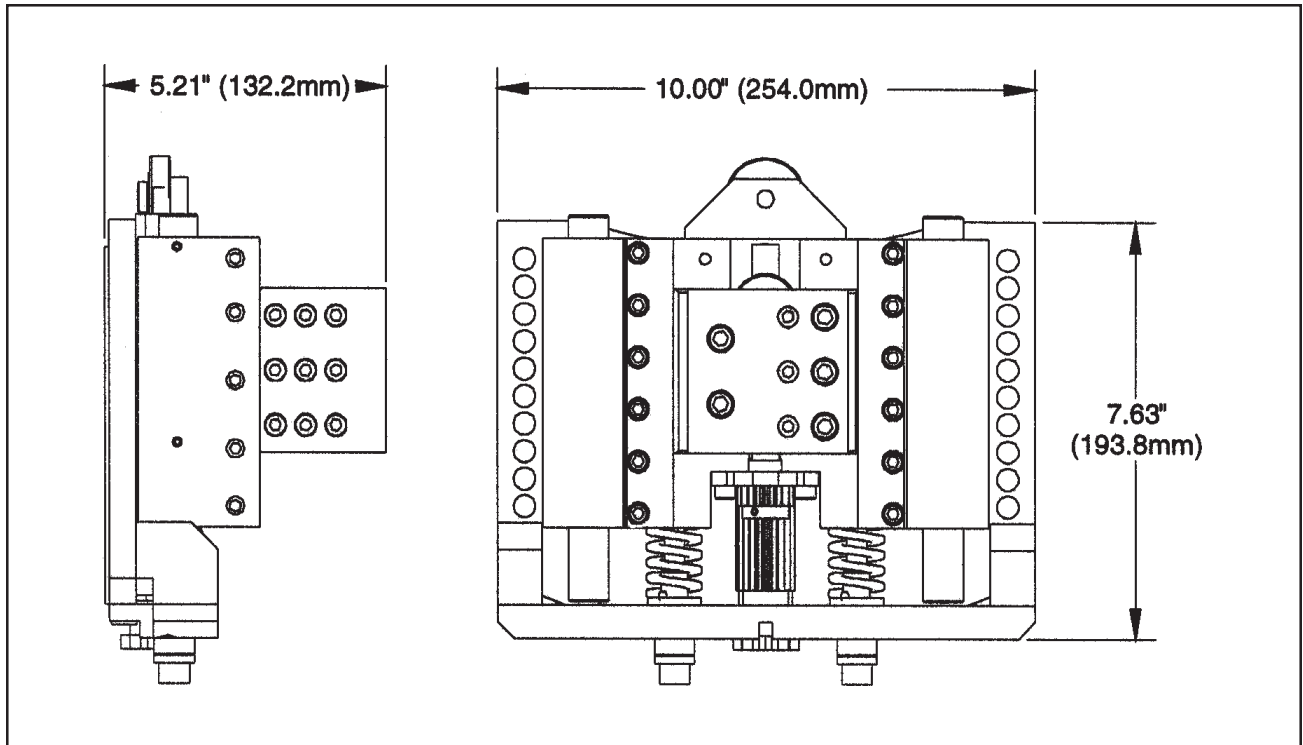
An Adapter Plate is supplied to provide ease of radial adjustment.

The OD Tracking Module utilizes standard tool bits, which are available in various configurations from TRI TOOL Inc.

## SPECIFICATIONS

### OD TRACKING MODULE

Weight: 31 lbs. (14 Kg).



### CUTTING CAPACITIES

Range: See 600SB or RBL Manual for Specific Clamshell.

Roundness: Pipe up to 1.5" (38.1 mm) out of round

Feed Rate: 0 - .004" (0 - .10 mm) per revolution.

### MATERIAL

Most stainless steels, carbon steels, inconels, etc., provided the Rockwell hardness is less than Rc 35.

### MOUNTING

The OD Tracking Module can be mounted on the 614RBL through 636RBL and the 616SB through 642SB.

## **MAINTENANCE**

### **IN GENERAL**

All components should be cleaned and coated with a light film of oil prior to use.

Use a clean, non-detergent oil, preferably SAE 10 (90 SSU) or lighter.

If the OD Tracking Module is operated in such a manner that the tool holder collect debris while cutting, the tool holder and the feed shaft should be cleaned after each cutting operation.

Tool life may be severely shortened, unless chips and/or other debris that have been deposited on the slide ways during the machining operation are removed.

### **RECOMMENDED MAINTENANCE SCHEDULE**

Daily maintenance when the unit is in operation includes wiping the unit down and spraying with rust preventative under severe humidity conditions. Visually inspect for loose screws, missing screws, damage, etc.

After every 20 hours of actual operation, lubricate the male and female tool holder slides.

After every 40 hours of actual operation, thoroughly clean and lubricate main gear, drive gear, male and female tool slides, and tripper bracket assembly.

If the OD Tracking Module is to be stored or if it will remain out of service for a significant period of time (30 days or more), it should be thoroughly cleaned, lubricated and sprayed with a rust preventative prior to storage.

### **TOOL HOLDER MAINTENANCE**

Clean the slide rails, the tool holder, and the feed components.

Inspect these parts for damage and replace as required.

Lubricate and reassemble.

Adjust the adjustable slide rail to provide a firm, but not excessive pressure on the tool holder.



The slide rails must be overtightened to squeeze the oil into a thin film against the male and female surfaces of the slide rails.

Reset for proper operation.

### TRIPPER BRACKET ASSEMBLY LUBRICATION AND ADJUSTMENT

Back off the half-dog set screw until it disengages from the tripper shaft.

Remove the tripper shaft assembly from the bracket and clean off all of the old lubrication.

Apply fresh lubrication to the tripper shaft assembly and reinstall it in the bracket.

Screw in the half-dog set screw until it locates itself in the slot on the tripper shaft.

Try turning the tripper shaft assembly to ensure that the set screw is in the slot of the tripper shaft assembly and is preventing it from rotating.

### LUBRICANT RECOMMENDATIONS

The drive gears require a heavy-duty grease such as “Chevron Ultra Duty Grease, EP, NLGI2”.

The slide rails and tool holder require a light oil such as SAE 10 light machine oil.

The tripper bracket assembly also requires an SAE 10 light machine oil for normal conditions and under dusty conditions a silicone, graphite or molybdenum disulfide ‘dry’ lubricant.

A light film of all-purpose grease may be used, but it must be checked for grit contamination frequently.

## OPERATION

### IN GENERAL

Read the operation instructions for the OD Tracking Module and the Clamshell carefully before attempting to operate this equipment.

Configure the Clamshell for the specific task required.

**NOTE:** Do not install the tool bits until the Clamshell is installed on the pipe.

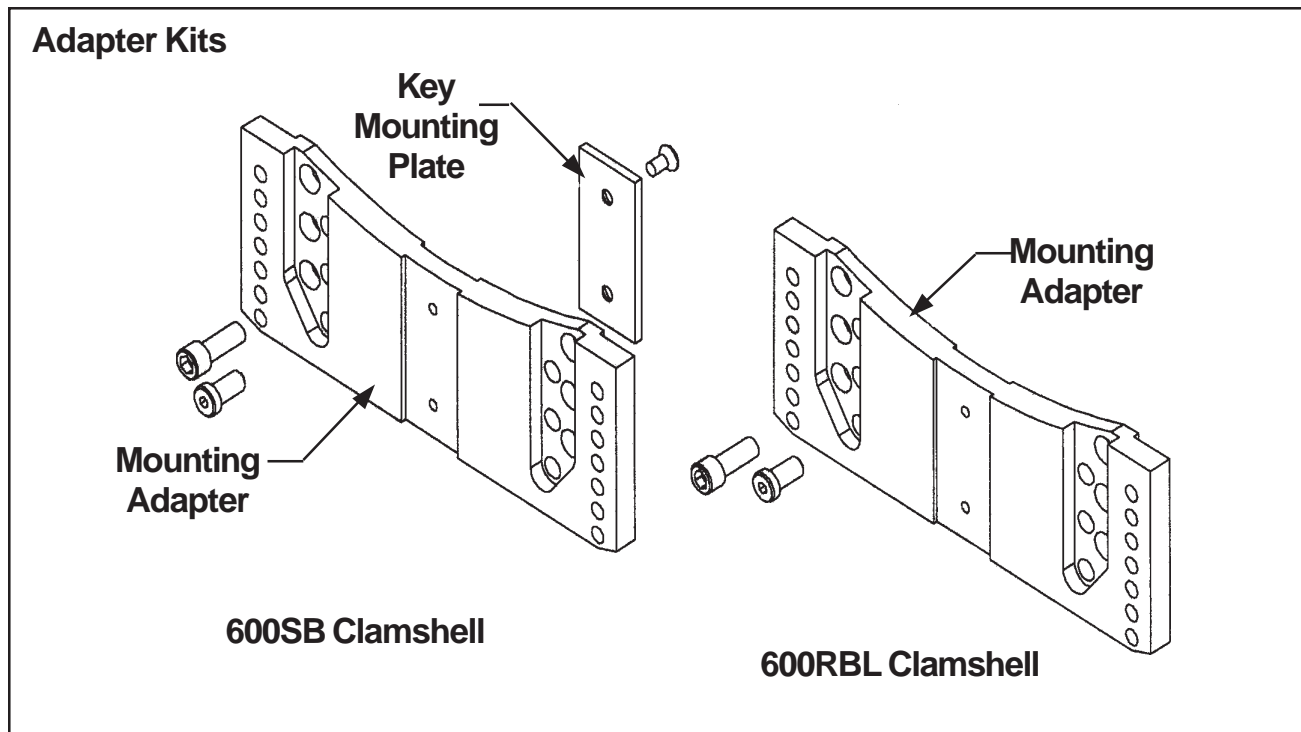
Select the proper Clamping Bar and Jackscrew Set.

Refer to the Operator's Manual for the Clamshell being used because of the different sizes, types and quantities of clamping bars and jackscrews that may be required for the current application.

Install the clamping bar and jackscrew set.

Mount the tripper bracket onto the Clamshell.

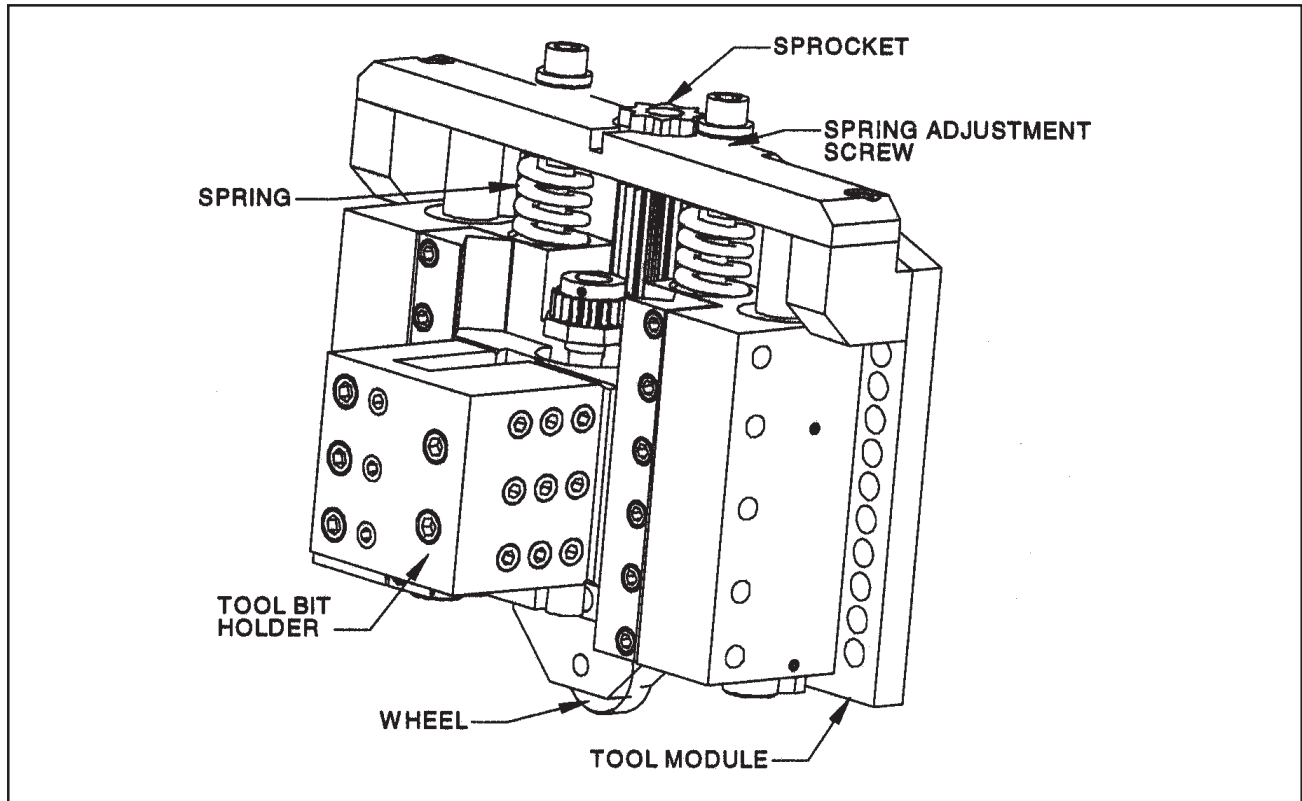
**NOTE:** The tripper bracket that is used for the standard tool modules will not work with the OD Tracking Module.



## Model 600SB & RBL OD Tracking Module

Mount the Mounting Adapters onto the Clamshell.

Attach the mounting adapter to the Headstock of the Clamshell using the (4) four or (6) six inside holes for the 600SB Clamshells and the (4) four or (6) six outside holes for the 600RBL Clamshells.



### INSTALLATION OF THE CLAMSHELL ON AN IN-LINE PIPE

Install the Clamshell on the pipe using the instructions in the operator's manual for the Clamshell being used.

Compress the springs to the maximum with the spring compression cap screws for maximum clearance over the pipe.

Mount the OD Tracking Modules onto the mounting adapters on the Clamshell.

Position the tool module on the adapter plate and use the mounting holes, which will position the roller with some clearance above the surface pipe.

Rotate the Headstock with the OD Tracking Modules mounted one full revolution around the pipe.

Check for clearance of the roller above the surface of the pipe and note the high spots.

Continue to rotate the OD Tracking Modules around and stop each over the highest spot.

Unscrew the spring compression cap screws until the roller touches the surface of the pipe.

**WARNING:** Remove the spring compression cap screws.

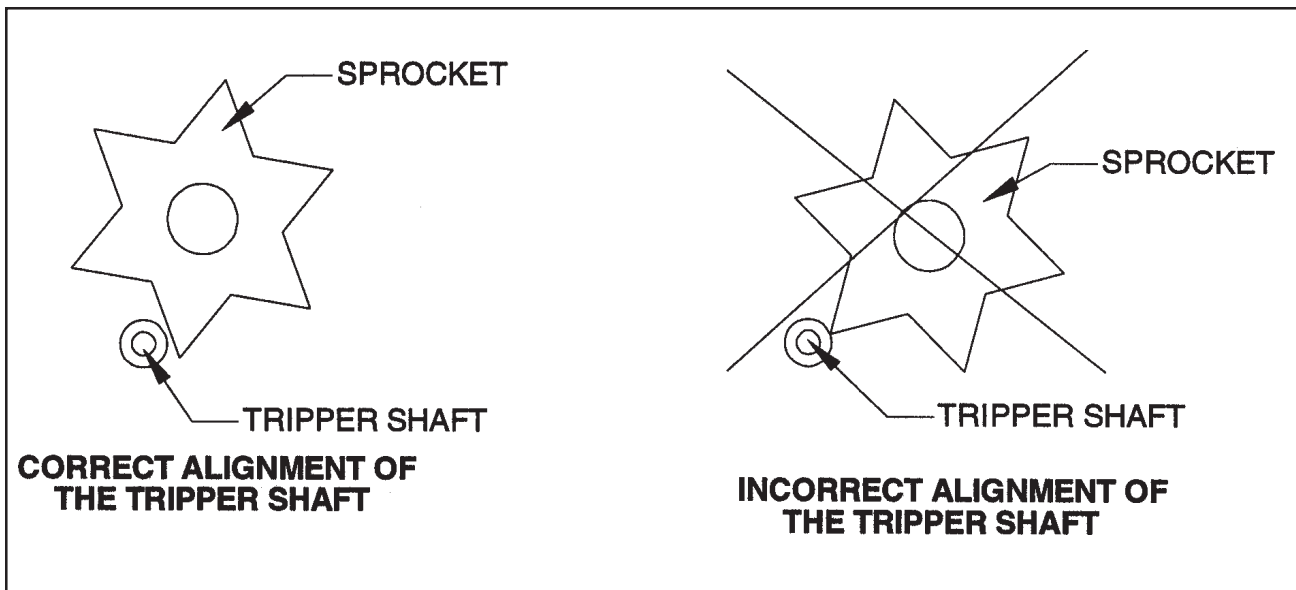
Rotate the Headstock again one full revolution, making sure that the rollers remain in contact with the surface of the pipe at all times.

**CAUTION:** Make sure that the spring do not fully compress or become decompressed. The OD Tracking Module works best if there is some spring compression at all times.

**CHECK THE TRIPPER SHAFT TO SPROCKET ENGAGEMENT**

Rotate the Headstock until the sprocket on the OD Tracking Module begins to approach the tripper shaft.

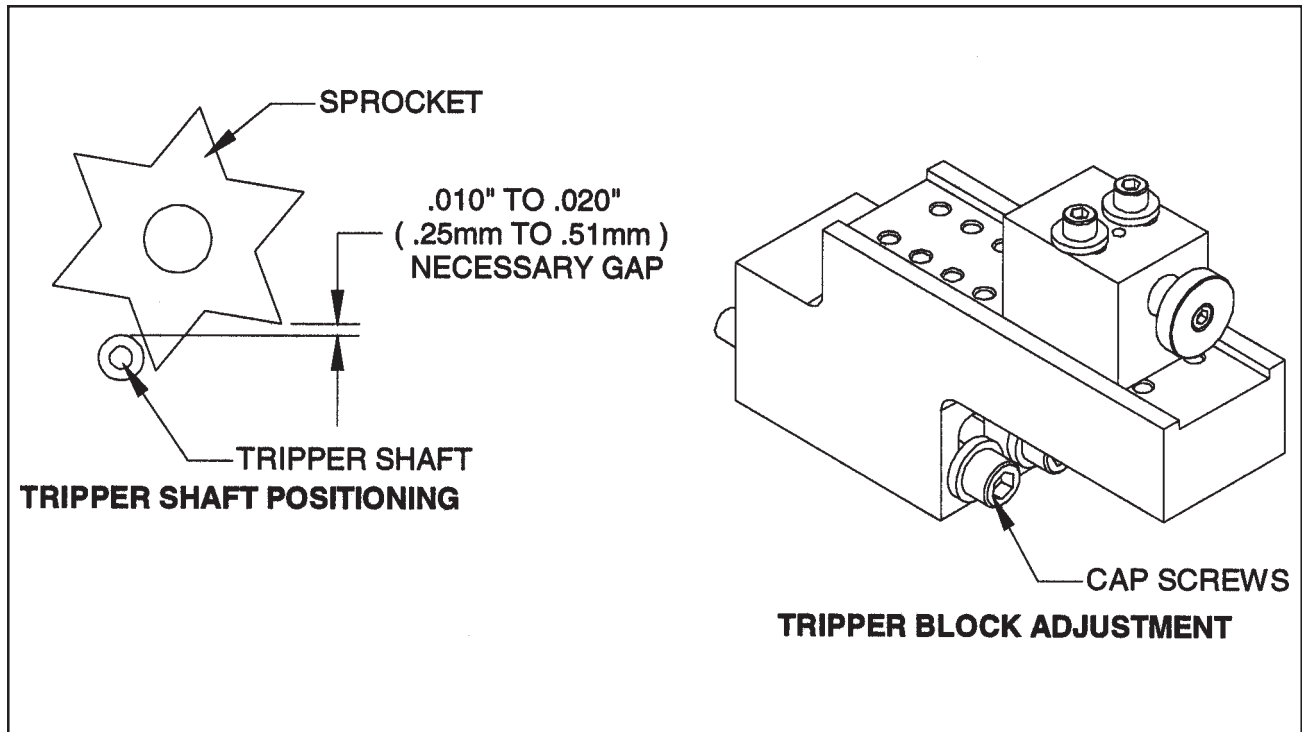
The tripper shaft must not strike the sprocket tooth straight on.



The tripper shaft must strike the sprocket on the edge of the tooth.

**CAUTION:** If the tripper shaft to sprocket engagement is not as correct, operation of the Clamshell may break the tripper shaft and/or the sprocket.

If the tripper shaft to sprocket engagement is incorrect, then it will be necessary to loosen the (2) two cap screws on the tripper bracket, so that it may be adjusted to the proper gap [.010" to .020" (.25 mm to .51 mm)] required for proper engagement.



### INSTALL THE REQUIRED TOOL BITS INTO THE OD TRACKING MODULE

Select the proper tool bit set.

**WARNING:** Use of dull or improperly designed tool bits or tool bits not manufactured by TRI TOOL Inc. may result in poor performance and may constitute abuse of this machine and therefore voids the TRI TOOL Inc. factory warranty.

Install and adjust the tool bit height until it almost touches the pipe at the highest point of the pipe.

Tighten the tool bit set screws, then verify that there is adequate clearance between the tool bits and the pipe by rotating the Headstock by hand.

### GENERAL MATCHING SEQUENCE

Refer to the operator's manual for the Model Clamshell being used.

Start the cutting operation.

If the tool bit starts to back off, increase the spring pressure with the 7/16" hex wrench in the shaft adjustment screws.

When the cutting operation is completed, bring the tool holder to the starting position by turning the sprocket with the spanner wrench.

### REMOVAL OF THE CLAMSHELL FROM THE PIPE

Retract the tool bits.

Reinstall the spring compression cap screws.

Tighten the spring compression cap screws until the tracking wheel lifts away from the surface of the pipe.

The Clamshell may now be removed from the pipe following the instructions in the Clamshell operator's manual.

### CHANGING THE ROLLER BRACKET ASSEMBLY

Remove the (2) two spring compression cap screws.

**CAUTION:**

Take care that the compression springs don't fly off when the tool holder assembly comes out the bottom of the tool module.

Slide the tool holder bracket downward until access to the (4) four cap screws, which hold the roller bracket assembly in place, is possible.

Remove the (4) cap screws and remove the existing roller bracket from the back of the tool module.

Attach the replacement roller bracket to the back of the tool module using the (4) four cap screws.

Slide the tool holder assembly up into the tool module.

Place the compression springs in position on the tool holder bracket.

Slide the spring compression cap screws into the top of the tool holder assembly and tighten until the compression springs are compressed to the maximum.

## CUTTING SPEEDS AND FEEDS

The following table shows RPM to obtain specified tool bit surface cutting speed on the surface of the pipe.

<b>Cutting Speeds (Approximatly for HSS cutting tools)</b>				
<b>Diameter</b>		<b>RPM for 200 in/min (5080 mm/min)</b>	<b>RPM for 250 in/min (6350 mm/min)</b>	<b>RPM for 300 in/min (7620 mm/min)</b>
36.00"	914.0 mm	2	2	3
34.00"	864.0 mm	2	2	3
32.00"	813.0 mm	2	3	3
30.00"	762.0 mm	2	3	3
28.00"	711.0 mm	2	3	3
26.00"	660.0 mm	3	3	4
24.00"	610.0 mm	3	3	4
22.00"	559.0 mm	3	4	4
20.00"	508.0 mm	3	4	5
18.00"	457.2 mm	4	4	5
16.00"	406.4 mm	4	5	6
14.00"	355.6 mm	5	6	7
12.00"	304.8 mm	5	7	8
10.00"	254.0 mm	5	8	10

Use 200 surface inches per minute (5080 surface millimeters per minute) for:  
Stainless steels in general when no coolant is allowed, all heavy-wall tube and some of  
the chrome/molybdenum steels.

Use 250 surface inches per minute (6350 surface millimeters per minute) for:  
Mild steels and some thin wall stainless steels when coolants are permitted and  
used.

Use 300 surface inches per minute (7620 surface millimeters per minute) for:  
Aluminum and thin-wall mild steel and tube with coolants.

## CUTTING FEEDS

Use very light feed for initial severing or until a continuous cut is established.

Use a feed rate .002" to .003" (.05 mm to .08 mm) per revolution once a continuous cut is established.

If the feed is too light, only light stringer chips will be removed.

If the feed is too heavy, the drive will start to overload and the chip will take on a rough or torn appearance.

Stainless steel, which work hardens, must be worked with a heavy enough feed to stay under the work hardened surface.

Feed at rate of at least .003" to .005" (.08 mm to .13 mm) per revolution.

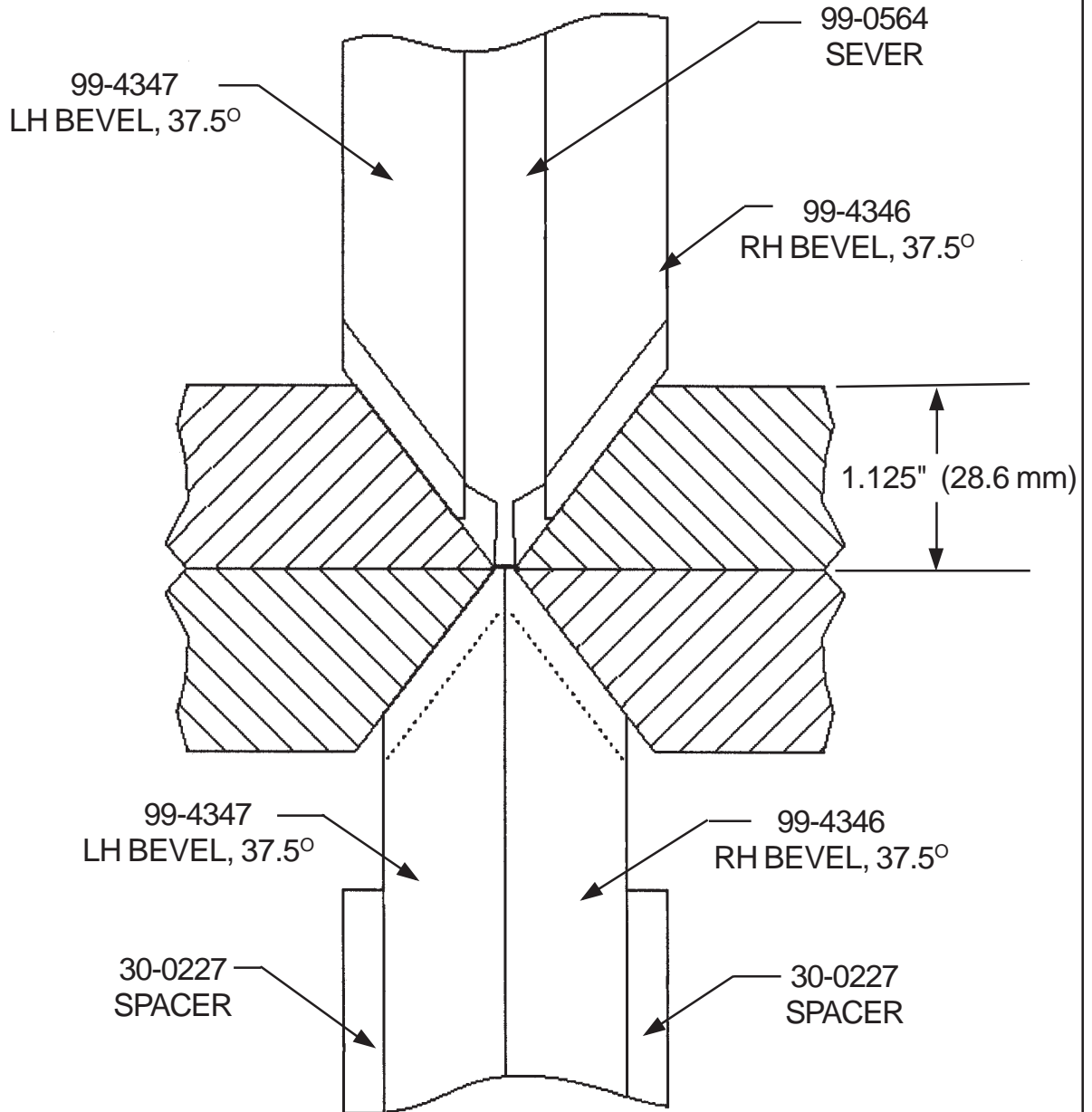
Never allow the tool bit to burnish the surface.

Reducing cutting feed and speed will normally minimize any chatter problems.



## TOOL BITS

TYPICAL TOOL BIT SET UP



TOOL BIT SET-UP, 37.5° - UP TO 1.125" (28.1 mm) WALL THICKNESS.

## TROUBLE SHOOTING

### **Problem: The Tool Bit Chatters**

**Probable causes:**

- The tool bit is loose or overextended.
- The tool bit is damaged.
- The tool holder is too loose in the slides.
- The cutting speed is too fast.
- The clamping pads are loose on the pipe or tube.
- Cutting fluid is required.
- The main bearing pre-load is loose.

### **Problem: There is excessive Tool Bit wear**

**Probable causes:**

- The pipe or tube material is too hard or abrasive.
- The cutting speed is too fast.
- Cutting fluid is required.
- A dull Tool Bit is causing surface hardening conditions (Stainless pipe or tubing).
- There is scale or other foreign matter on the pipe or tube, which is dulling the tool bit at the start of the cut.
- The tool bit is incorrect for the material being cut.

### **Problem: The Tool Bit is diving and the Clamshell is stalling**

**Probable causes:**

- The tool bit is dull, chipped, etc.
- The tool holder adjustment slide is too loose.
- The parting tool bit is leading the beveling tool bit by too much for proper chip clearance.
- The tool bit is overextended.
- The tool holder is overextended.
- The main bearing pre-load is too loose.

### **Problem: The surface finish is rough**

**Probable causes:**

- The tool bit is dull, chipped, etc.
- Metal build-up on the cutting edge of the tool bit is creating a false cutting edge.
- Cutting fluid is required.

**Problem: The headstock is hard to rotate by hand.**

**Probable causes:**

- The hydraulic motors are engaged.
- The clamping pads are too tight on the pipe or tube.
- Foreign material is on the mating surface of the split lines.
- Chips and/or other foreign material are in the rotating section.
- The tool bit is in contact with the pipe or tube.
- The tool block is in contact with the pipe or tube.
- The main bearing pre-load is too tight.

**Problem: The tool holder is not feeding**

**Probable causes:**

- The feed pin is broken or out of position.
- The feed sprocket shear pin is broken.
- The feed screw is stripped.
- The feed nut is stripped.
- The slide rails are too tight.

**Problem: There is a loss of air power**

**Probable causes:**

- The air supply pressure is too low.
- The air filter is plugged.
- The air line size is insufficient.
- The air line is too long.

**Problem: There is a loss of hydraulic power**

**Probable causes:**

- The hydraulic supply pressure is too low.
- The hydraulic filter is plugged.
- The hydraulic line size is insufficient.
- The hydraulic line is too long.

**Problem: The Clamshell is slipping on the pipe or tube**

**Probable causes:**

- The clamping pads are not in full contact with the pipe or tube.
- The clamping pressure is too light.
- Scale and/or other foreign material is present on the pipe or tube.
- Weld seams, swelling, or bumps under the clamping pads are preventing full contact.
- Dull tool bits are causing extra force in the axial and/or radial direction.
- The pipe or tube wall is too thin which allows the tube wall to flex and the machine to move.

**Problem: The tool bit will not reach the work**

**Probable causes:**

Incorrect tool blocks are installed for the size of the pipe or tube being worked on.  
Incorrect tool bit is installed.

**Problem: The air motor will not start**

**Probable causes:**

The air power supply is shut off.  
The air motor is damaged and will not run free.  
The air motor needs lubrication.  
Add lubrication and do not run the air motor for a few minutes, then try running the air motor again.  
Tap on the side of the air motor casing lightly with a piece of wood or with a soft rubber mallet just in case the vanes may be sticking. Sand or other foreign material may be in the vanes of the air motor.

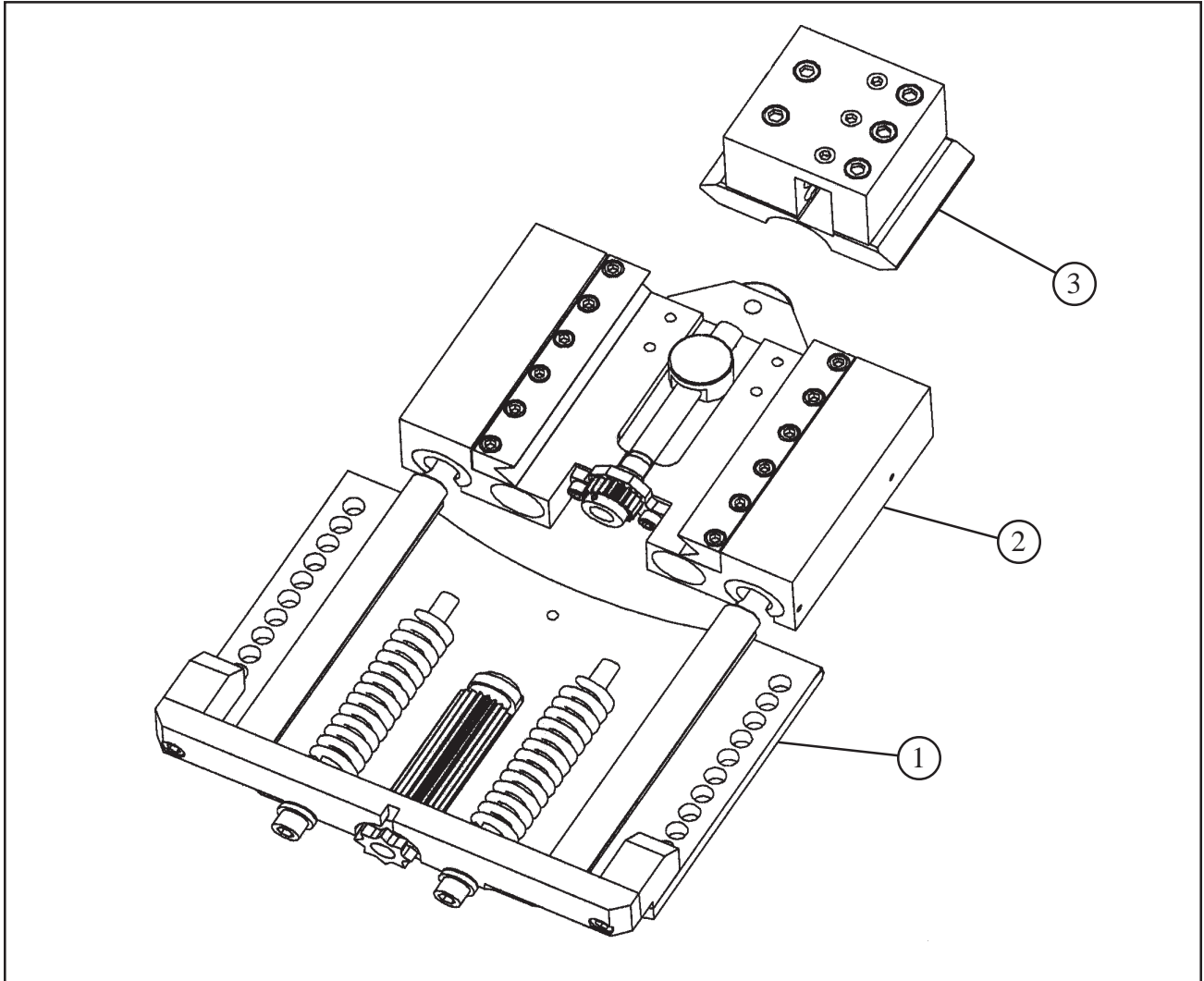
**Problem: The hydraulic motor will not start**

**Probable causes:**

The hydraulic power supply is shut off.  
The hydraulic motor is damaged and will not run free.

**ILLUSTRATED PARTS BREAKDOWN**

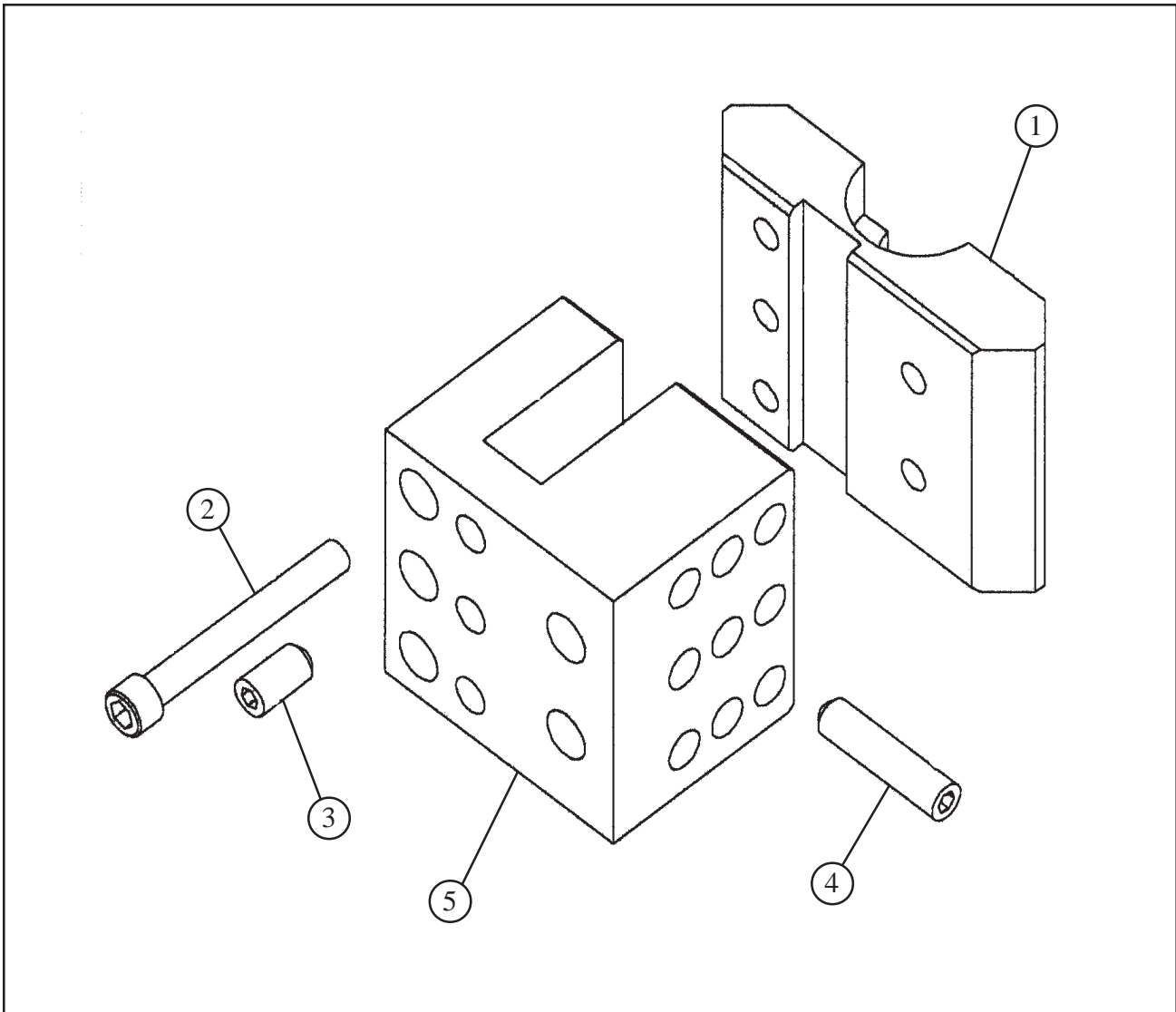
**BLOCK ASSEMBLY, OD TRACKING**



Parts List, Block Assembly, OD Tracking (P/N 08-0436)

Item No.	Part No.	Description	Qty
1.	24-1593	PLATE ASSY, ODTM	1
2.	47-1207	BRACKET ASSY, SLIDE	1
3.	48-0309	HOLDER ASSY, TOOL	1
NOT SHOWN:			
	33-0530	SCREW, SET, 3/8-16 X 5/8", CUP PT	3
	33-0531	SCREW, SET, 3/8-16 X 3/4", CUP PT	9

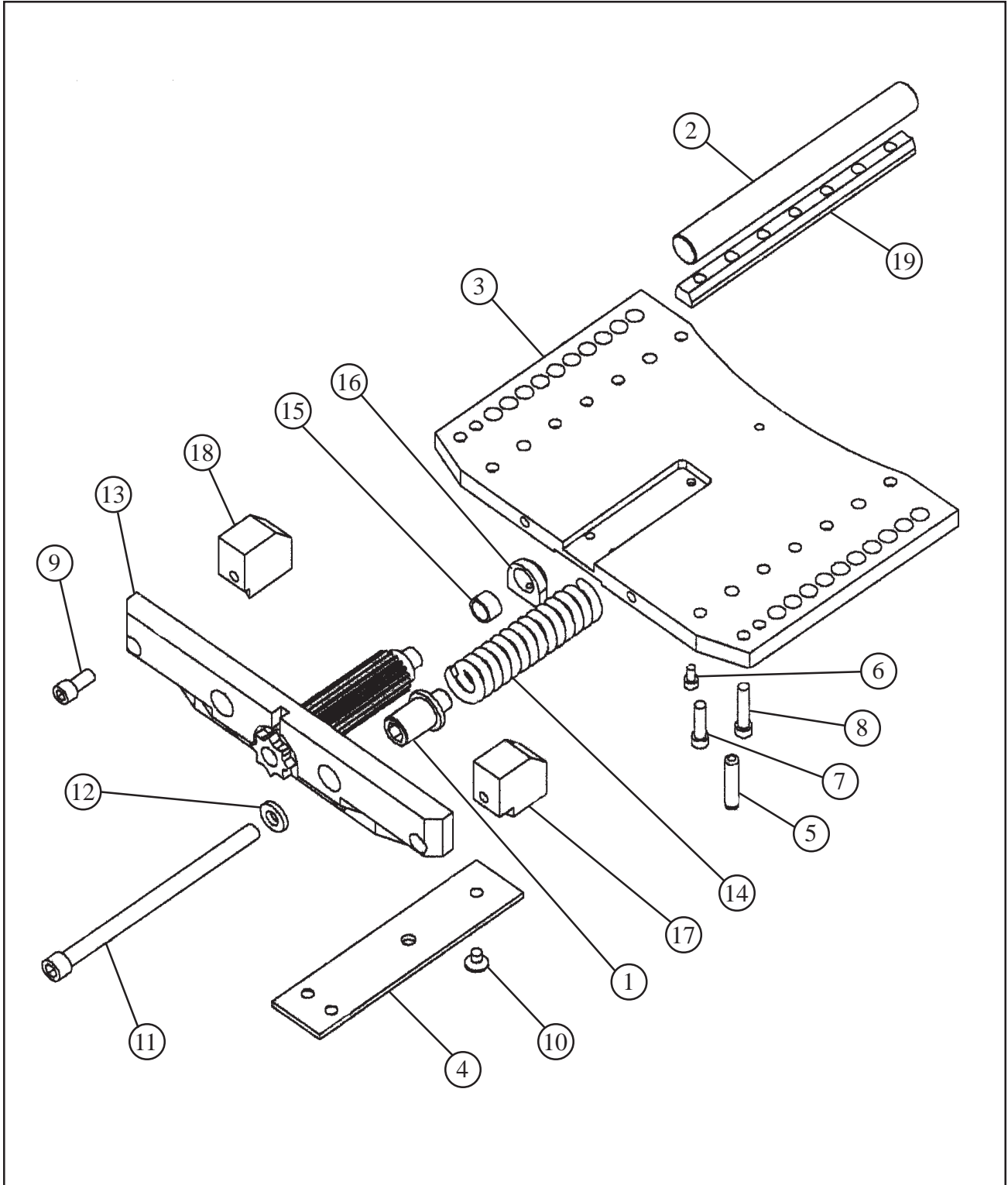
TOOL BLOCK ASSEMBLY



Parts List, Tool Block Assembly (P/N 48-0309)

Item No.	Part No.	Description	Qty
1.	24-0459	PLATE, SLIDE	1
2.	33-0062	SCREW, CAP, 5/16-18 X 2 1/2"	5
3.	33-0530	SCREW, SET, 3/8-16 X 5/8", CUP PT	3
4.	33-0535	SCREW, SET, 3/8-16 X 1 1/2", CUP PT	9
5.	48-0316	BLOCK, TOOL	1

PLATE ASSEMBLY, ODTM



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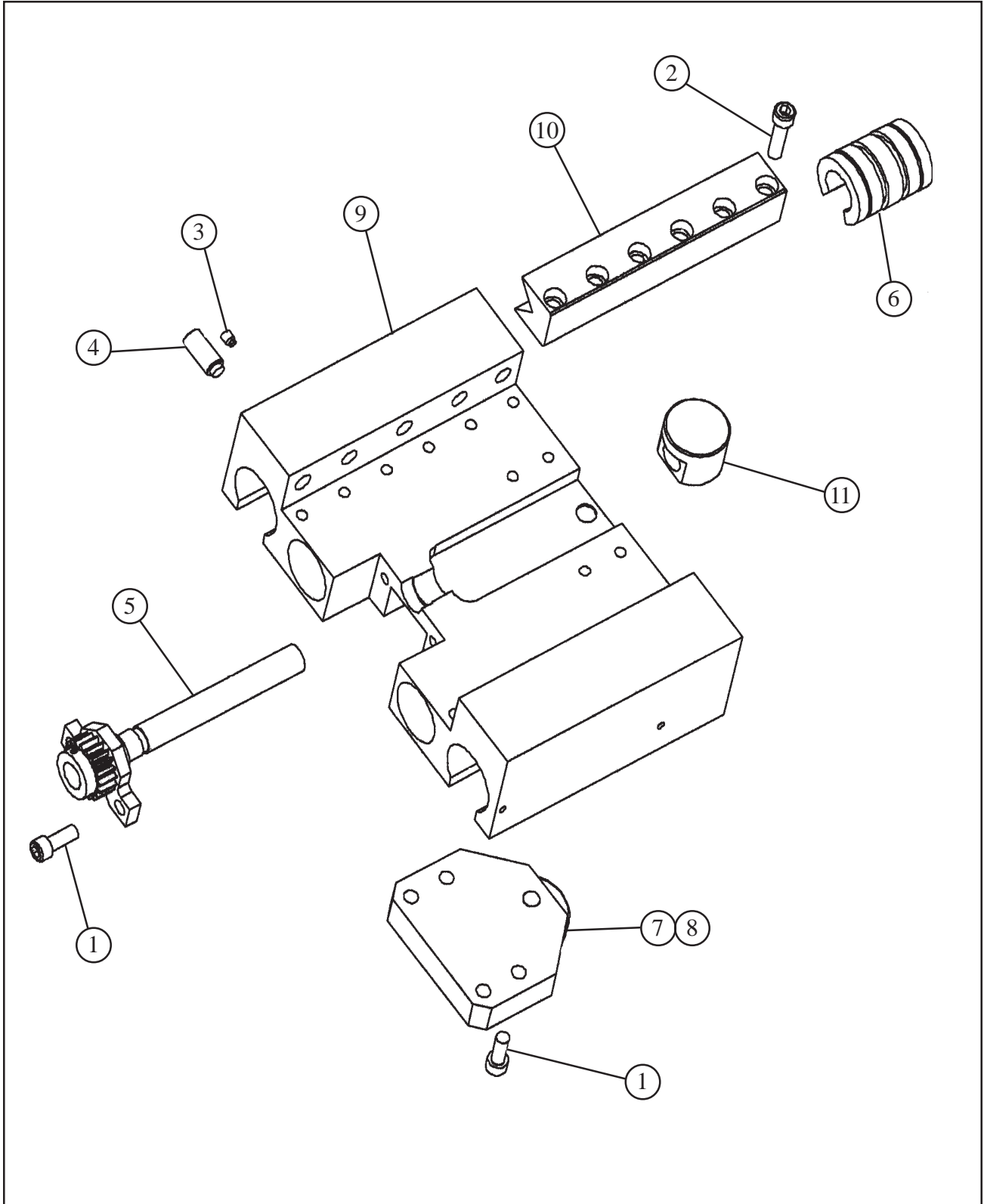
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Parts List, Plate Assembly, ODTM (P/N 24-1593)

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
1.	20-0671	SHAFT, ADJUSTMENT	2
2.	20-0675	SHAFT, RAIL	2
3.	24-1592	PLATE, ODTM	1
4.	31-0179	KEY, PLATE	1
5.	32-0143	PIN, DOWEL, 5/16 DIA X 1 1/4"	4
6.	33-0027	SCREW, CAP, #10-24 X 3/8"	1
7.	33-0042	SCREW, CAP, 1/4-20 X 1"	10
8.	33-0040	SCREW, CAP, 1/4-20 X 3/4"	4
9.	33-0053	SCREW, CAP, 5/16-18 X 5/8"	4
10.	33-0358	SCREW, FLAT, 1/4-20 X 3/8"	3
11.	33-2040	SCREW, CAP, 3/8-16 X 6, SPCL	2
12.	34-0028	WASHER	2
13.	38-0146	SPROCKET ASSY, FEED	1
14.	40-0252	SPRING, DIE	2
15.	45-0261	BUSHING	1
16.	47-1173	BRACKET, GEAR SHAFT	1
17.	48-1162	BLOCK, SUPPORT, RIGHT	1
18.	48-1163	BLOCK, SUPPORT, LEFT	1
19.	66-0168	RAIL, SLIDE	2



BRACKET SLIDE ASSEMBLY, ODTM



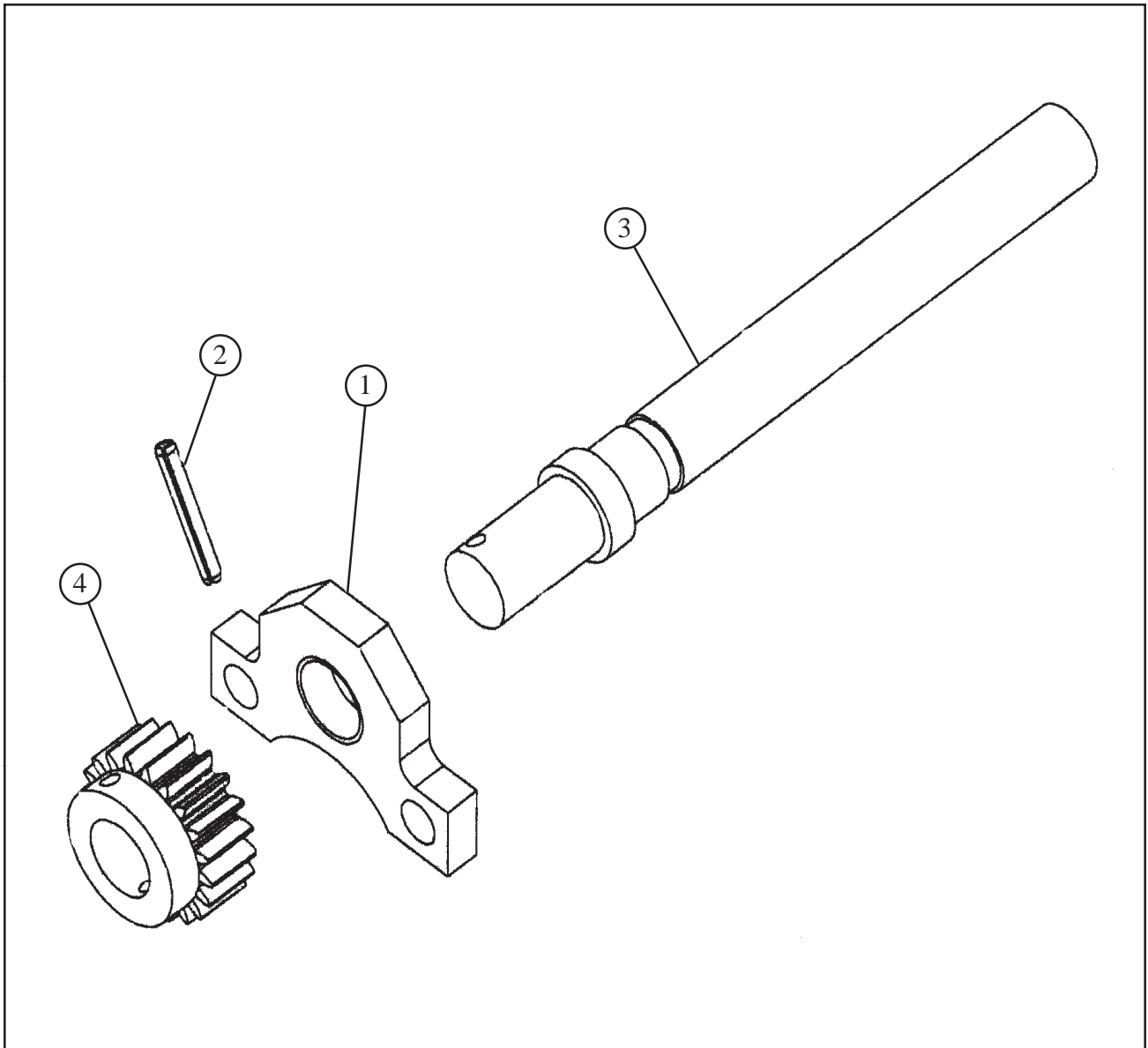
**TRI TOOL INC.**

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## Parts List, Bracket Slide Assembly, ODTM (P/N 47-1207)

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
1.	33-0039	SCREW, CAP, 1/4-20 X 5/8"	6
2.	33-0042	SCREW, CAP, 1/4-20 X 1"	12
3.	33-0954	SCREW, SET, #10-24 X 1/4", HDOG	4
4.	33-1261	SCREW, SET, 3/8-24 X 3/4", HDOG	5
5.	33-2039	SCREW ASSY, FEED, LH	1
6.	45-0276	BUSHING, LINEAR BEARING	4
7.	47-1050	BRACKET ASSY, ROLLER, EXTENSION	1
	29-0084	BEARING, BALL	1
	33-1658	SCREW, SHOULDER, 3/8 DIA X 3/8", SPCL	1
	47-1047	BRACKET, ROLLER, EXT	1
	61-0045	WHEEL, ODTM	1
8.	47-1051	BRACKET ASSY, ROLLER, EXTENSION	1
	29-0084	BEARING, BALL	1
	33-1658	SCREW, SHOULDER, 3/8 DIA X 3/8", SPCL	1
	47-1046	BRACKET, ROLLER	1
	61-0045	WHEEL, ODTM	1
9.	47-1185	BRACKET, SLIDE	1
10.	66-0043	RAIL, SLIDE	2
11.	35-0325	NUT, FEED, LH	1

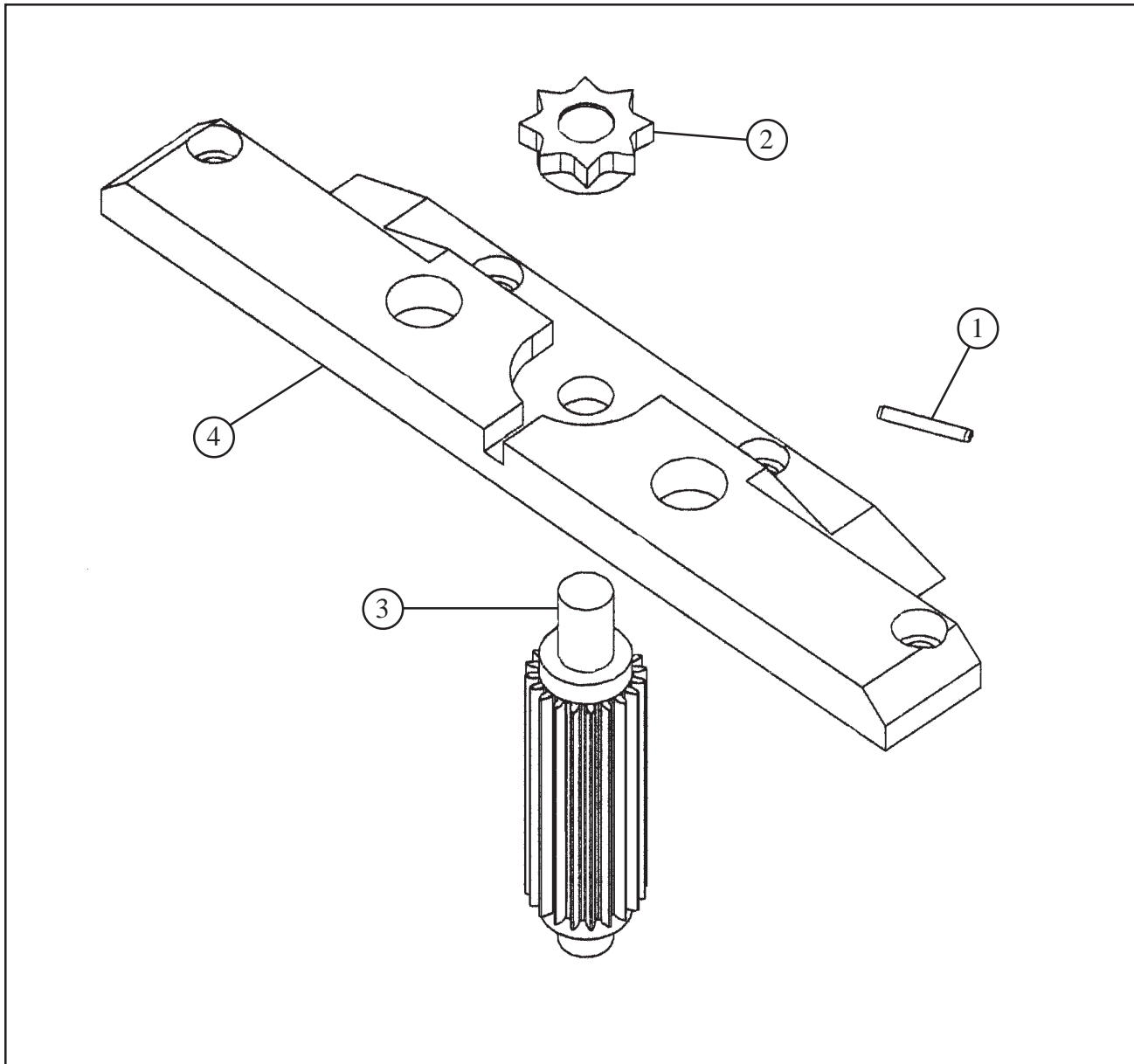
SCREW ASSEMBLY, FEED, LEFT HAND



Parts List, Screw Assembly, Feed, Left Hand (P/N 33-2039)

Item No.	Part No.	Description	Qty
1.	24-1000	PLATE, THRUST	1
2.	32-0027	PIN, ROLL, 1/8" DIA X 7/8"	1
3.	33-2038	FEEDSCREW, LH	1
4.	39-0579	GEAR, FEED	1

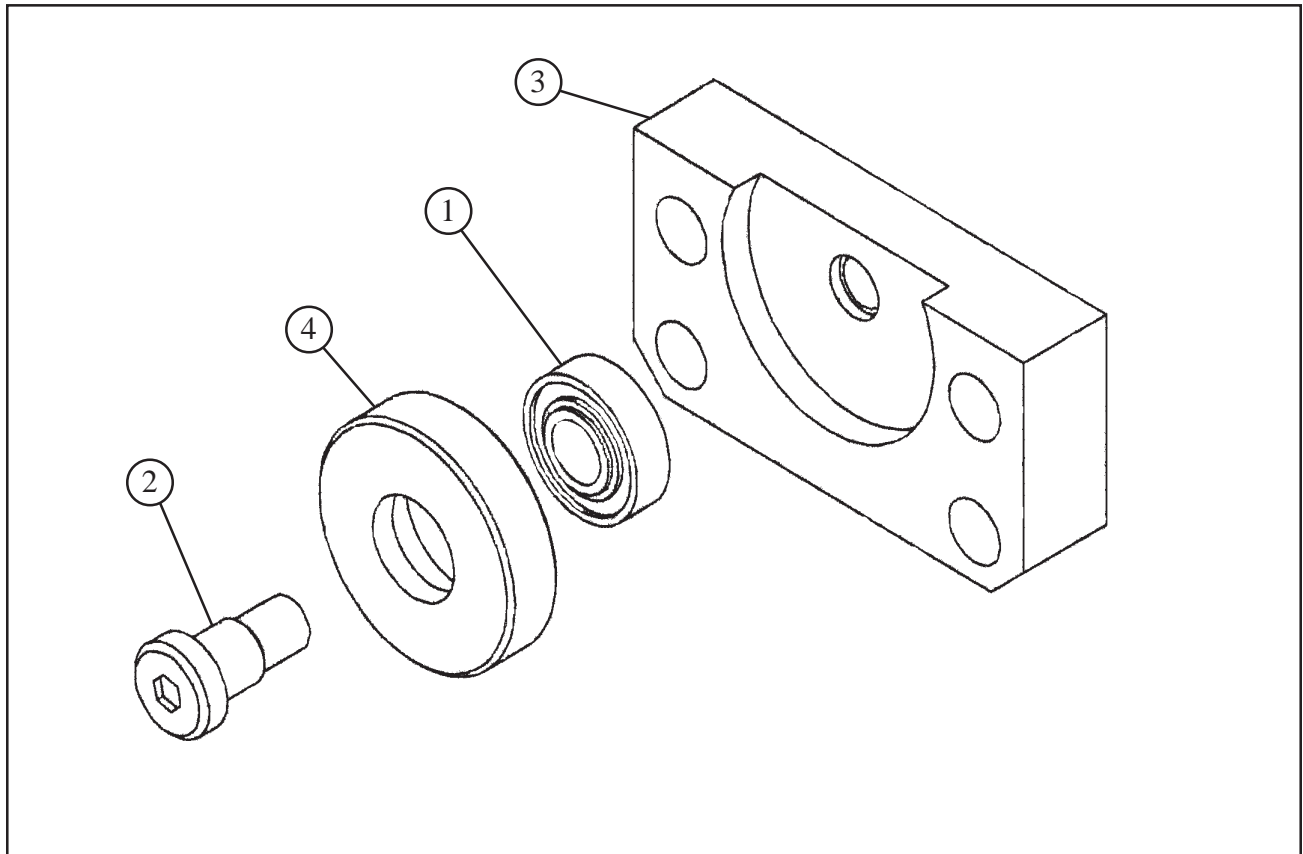
SPROCKET ASSEMBLY



Parts List, Sprocket Assembly (P/N 38-0146)

Item No.	Part No.	Description	Qty
1.	32-0027	PIN, ROLL, 1/8" DIA X 7/8"	1
2.	38-0057	SPROCKET	1
3.	39-0823	GEAR, SPROCKET	1
4.	47-1172	BRACKET, RETAINING	1

**BRACKET ASSEMBLY, ROLLER**



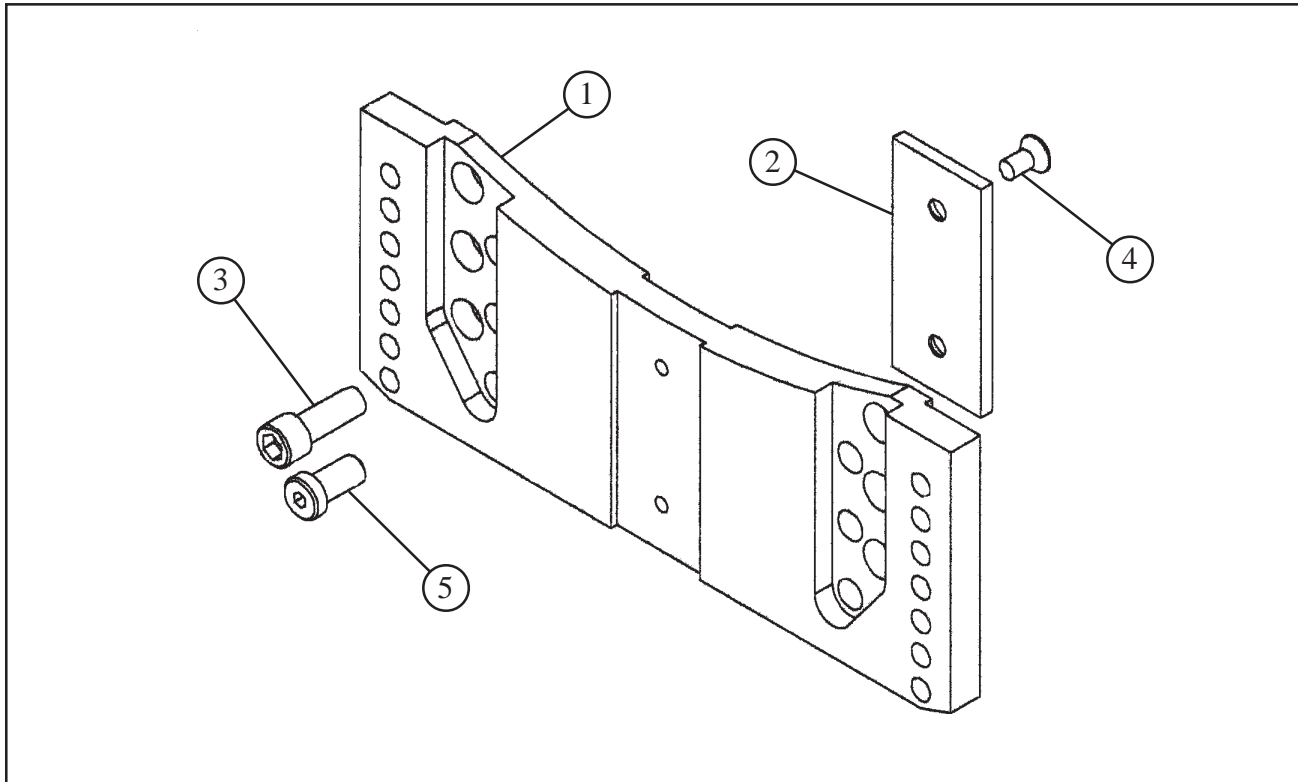
Parts List, Bracket Assembly, Roller, Extension (P/N 47-1050)

Item No.	Part No.	Description	Qty
1.	29-0084	BEARING, BALL	1
2.	33-1658	SCREW, SHOULDER, 3/8" DIA X 3/8", SPCL	1
3.	47-1047	BRACKET, ROLLER, EXT	1
4.	61-0045	WHEEL, ODTM	1

Parts List, Bracket Assembly, Roller (P/N 47-1051)

Item No.	Part No.	Description	Qty
1.	29-0084	BEARING, BALL	1
2.	33-1658	SCREW, SHOULDER, 3/8" DIA X 3/8", SPCL	1
3.	47-1046	BRACKET, ROLLER	1
4.	61-0045	WHEEL, ODTM	1

**ADAPTER KIT FOR CLAMSHELLS**



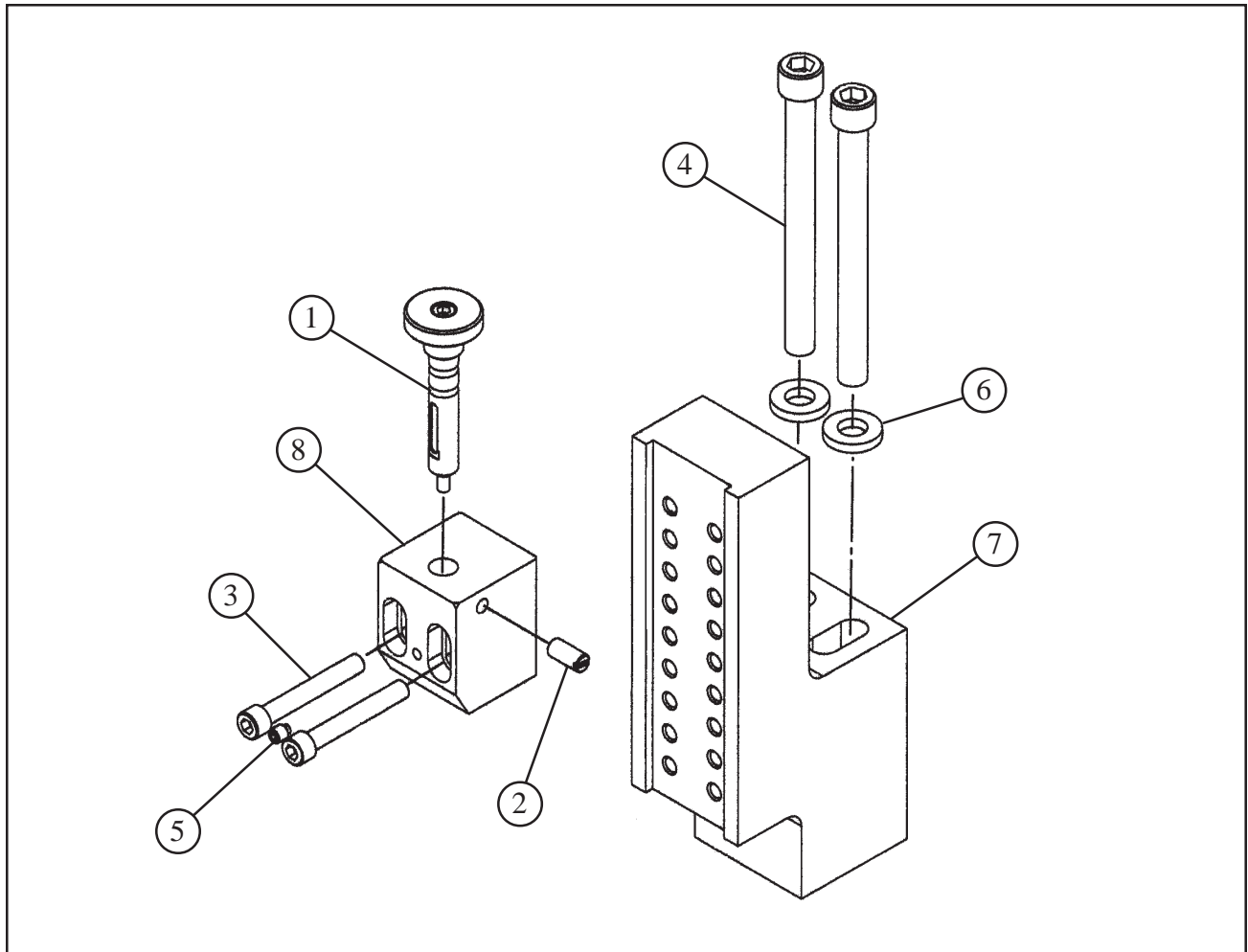
Parts List, Adapter Kit for 600SB Clamshell (P/N 05-1324)  
(for use with the Model 600SB's)

Item No.	Part No.	Description	Qty
1.	24-1530	PLATE, MOUNTING	1
2.	31-0153	KEY, MOUNTING PLATE	1
3.	33-0071	SCREW, CAP, 3/8-16 X 1"	6
4.	33-0359	SCREW, FLAT, 1/4-20 X 1/2"	2
5.	33-1952	SCREW, LOW CAP, 3/8-16 X 3/4"	6

Parts List, Adapter Kit for 600RBL Clamshell (P/N 05-1323)  
(for use with the Model 600RBL's)

Item No.	Part No.	Description	Qty
1.	24-1530	PLATE, MOUNTING	1
2.	N/A		-
3.	33-0071	SCREW, CAP, 3/8-16 X 1"	6
4.	N/A		-
5.	33-1953	SCREW, LOW CAP, 1/2-20 UNF SPCL	6

**BRACKET ASSEMBLY, TRIPPER**



Parts List, Bracket Assembly, Tripper (P/N 47-1179)  
(for use with the Model 614RBL thru 636RBL)

Item No.	Part No.	Description	Qty
1.	14-0011	SHAFT ASSY, TRIPPER	1
	20-0023	SHAFT, TRIPPER	1
	32-0084	PIN, DOWEL, 5/32 X 13/16"	1
	33-0030	SCREW, CAP, #10-24 X 3/4"	1
	42-0023	KNOB, ROUND	1
2.	30-0125	PLUNGER, BALL	1
3.	33-0045	SCREW, CAP, 1/4-20 X 1 3/4"	2
4.	33-0082	SCREW, CAP, 3/8-16 X 4"	2
5.	33-0954	SCREW, SET, #10-24 X 1/4", HDOG	1
6.	34-0028	WASHER	2
7.	47-1178	BRACKET, TRIPPER	1
8.	48-1376	BLOCK, TRIPPER, ODTM	1

## TRI TOOL INC.

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Parts List, Bracket Assembly, Tripper (P/N 47-1175)  
(for use with the Model 616SB Only)

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
1.	14-0011	SHAFT ASSY, TRIPPER	1
	20-0023	SHAFT, TRIPPER	1
	32-0084	PIN, DOWEL, 5/32 X 13/16"	1
	33-0030	SCREW, CAP, #10-24 X 3/4"	1
	42-0023	KNOB, ROUND	1
2.	30-0125	PLUNGER, BALL	1
3.	33-0045	SCREW, CAP, 1/4-20 X 1 3/4"	2
4.	33-0050	SCREW, CAP, 3/8-16 X 3"	4
5.	33-0954	SCREW, SET, #10-24 X 1/4", HDOG	1
6.	24-0452	WASHER	1
7.	47-1174	BRACKET, TRIPPER	1
8.	48-1376	BLOCK, TRIPPER, ODTM	1

Parts List, Bracket Assembly, Tripper (P/N 47-1177)  
(for use with the Model 620SB thru 624SB)

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
1.	14-0011	SHAFT ASSY, TRIPPER	1
	20-0023	SHAFT, TRIPPER	1
	32-0084	PIN, DOWEL, 5/32 X 13/16"	1
	33-0030	SCREW, CAP, #10-24 X 3/4"	1
	42-0023	KNOB, ROUND	1
2.	30-0125	PLUNGER, BALL	1
3.	33-0045	SCREW, CAP, 1/4-20 X 1 3/4"	2
4.	33-0050	SCREW, CAP, 3/8-16 X 3"	4
5.	33-0954	SCREW, SET, #10-24 X 1/4", HDOG	1
6.	24-0452	WASHER	1
7.	47-1176	BRACKET, TRIPPER	1
8.	48-1376	BLOCK, TRIPPER, ODTM	1