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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 are 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 Model 230B BEVELMASTER™ is a Portable I.D. Mount Machine Tool for beveling, facing and/or counterboring 12" through 30" pipe. The tool is configured with an Inline Feed Knob and Hydraulic Drive Motor at a right angle to the Lathe Head.

## SPECIFICATIONS

### GENERAL

The Model 230B BEVELMASTER™ is designed for facing, beveling and/or counterboring the ends of pipe or tubing in preparation for welding.

These machining operations may be performed either simultaneously or separately.

Pipe weld preparations that meet all existing conventional codes including the more stringent nuclear codes may be machined using the Model 230B.

The various interchangeable Jaw Blocks, Ramps and Adapters will secure the Model 230B to pipe and tubing having an inside diameter of 11.38" (289.1 mm) minimum, with a maximum outside diameter of 30.00" (762.0 mm).

The Expanding Mandrel provides fast, accurate self-centering and alignment to the pipe or tubing to be machined.

The Lathe accepts it's own torque through the Mandrel generated by machining operations. No additional torque restraining devices are required.

The Model 230B is provided with a Lathe Stand and Hoist Ring.

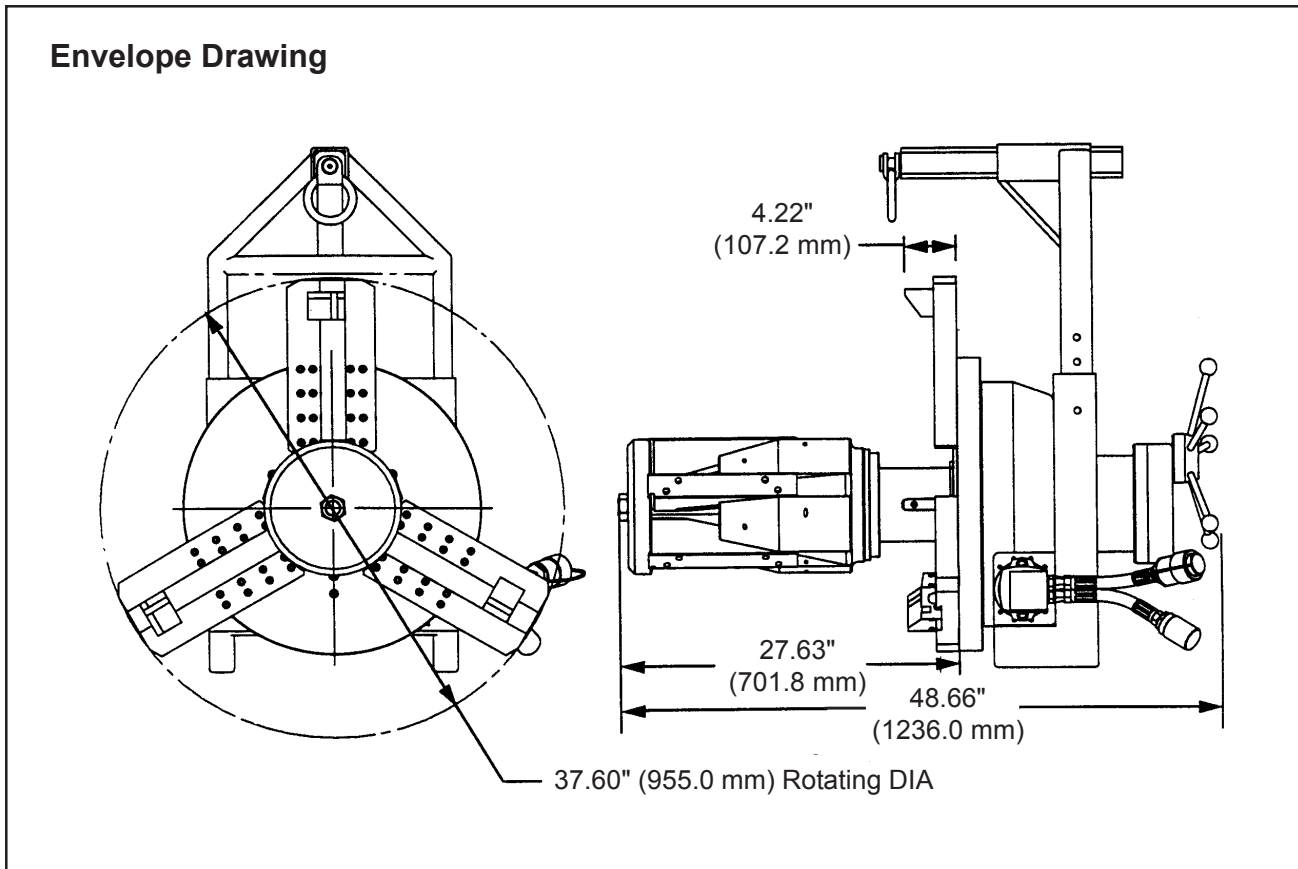
Various attachments are available to further enhance the capabilities of the machine.

### SPECIFICS

Weight	1200 lbs (554 kg) complete with Stand.
Power Requirements	20 GPM at 1250 PSI (1.3 L/s at 8619 kPa)
Feed Rate	.033" (.84 mm) per rev of the Feed Handle
Feed Travel	5.50" (139.7 mm)
Rotating Diameter	37.60" (955.0 mm)

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. Disconnect tools from the power source and store the tools in a safe place. Remove Tool Bits for safe handling of the tool.



**CUTTING CAPACITIES**

Basic Pipe Sizes

12" Pipe

Schedule 5 through 80

14" through 30" Pipe

All schedules

Basic Tube Sizes

Up to 1.312" (33.3 mm) wall tubing with a maximum O.D. of 30.00" (762.0 mm) and a minimum I.D. of 11.38" (289.1 mm) may be beveled with the Standard Mandrel.

### Wall Thickness Capacity

Wall thickness of all standard pipe schedules 1.312" (33.3 mm) maximum in the range listed. Tubing or pipe with a greater wall thickness may be handled provided the I.D. is greater than 11.38" (289.1 mm) and the O.D. is less than 30.00" (762.0 mm). Contact TRI TOOL Inc. for heavier wall procedures.

### Counterboring Operations

The tool will counterbore pipe and tubing with an I.D. range of 11.38" (289.1 mm) to 29.50" (749.3 mm).

## MAINTENANCE

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

When the Model 230B is operated in the vertical position, Headstock facing Up, the chips and/or other debris should be removed after each bevel cut has been completed.

**CAUTION:** Tool Life may be severely shortened, unless chips and/or other debris that have been deposited on or around the Headstock during the machining operation are removed.

### DAILY

A visual inspection of all parts for damage due to chips, impact or improper use.

Repair or replace broken or damaged parts as necessary.

Wipe the machine clean of cutting fluids, dirt and grime and then coat it with a light film of oil.

### WEEKLY

Check the Mandrel and wipe the oil and grime from the surface and then relubricate it with a light film of oil.

Re-lubricate the Main Bearing via a grease fitting on the Headstock.

Re-lubricate the Main Gear via a grease fitting on the Main Housing.

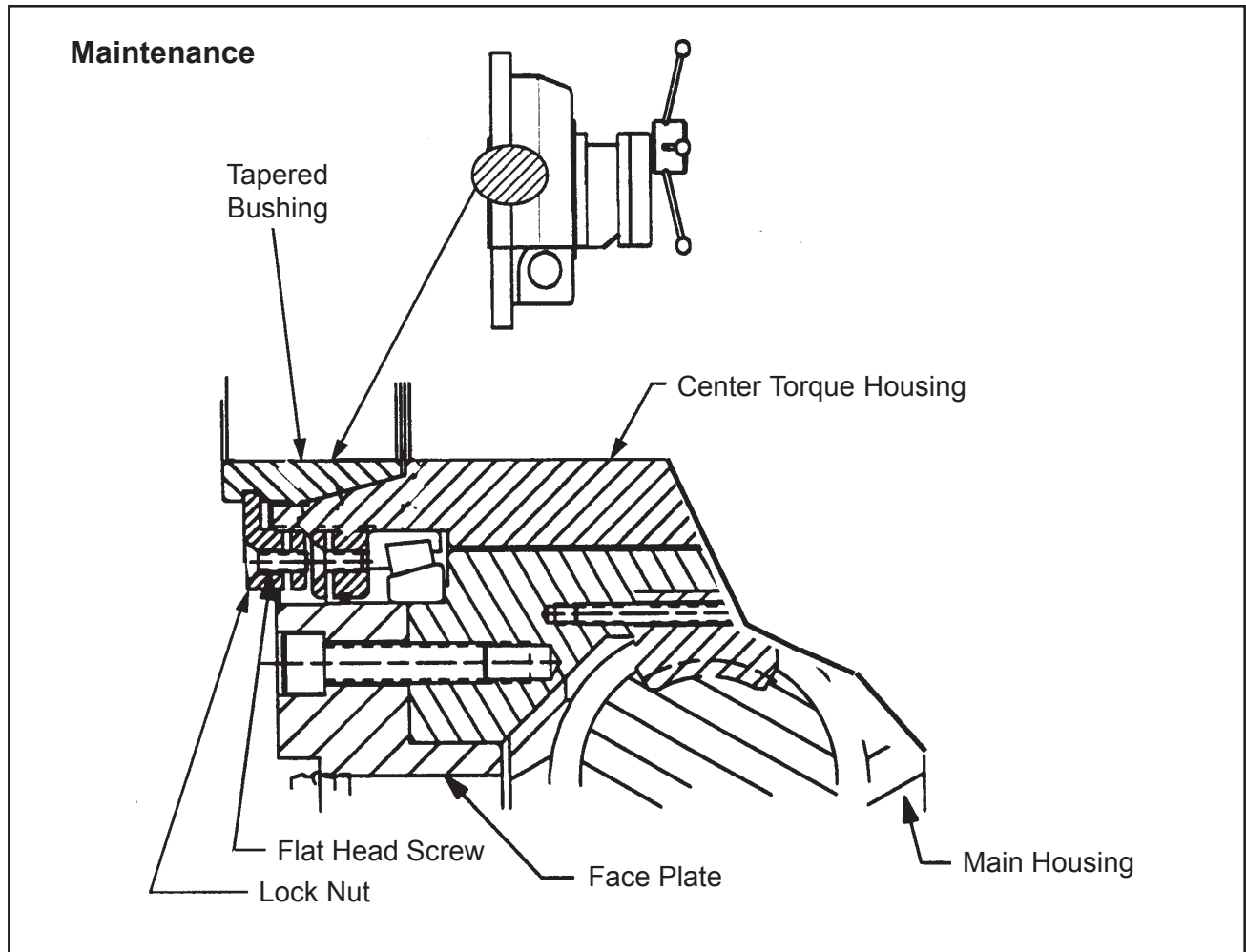
Tighten the Front Bushing.

Rotate the Feed Handle to extend the Mandrel outward to the limit line.

Remove the Tool Modules from the Headstock to provide working room for using the Spanner Wrench during the Lock Nut loosening.

Loosen the two (2) Flat Head Screws in the Lock Nut on the front of the Headstock.

Tighten the first Lock Nut on the front of the Center Torque Housing.



Tighten the two (2) Flat Head Screws in the Lock Nut.

## STORAGE AND TORQUE SPECIFICATIONS

Remove the Tool Bits from the Tool Holders before storing the machine.

When the Model 230B 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.

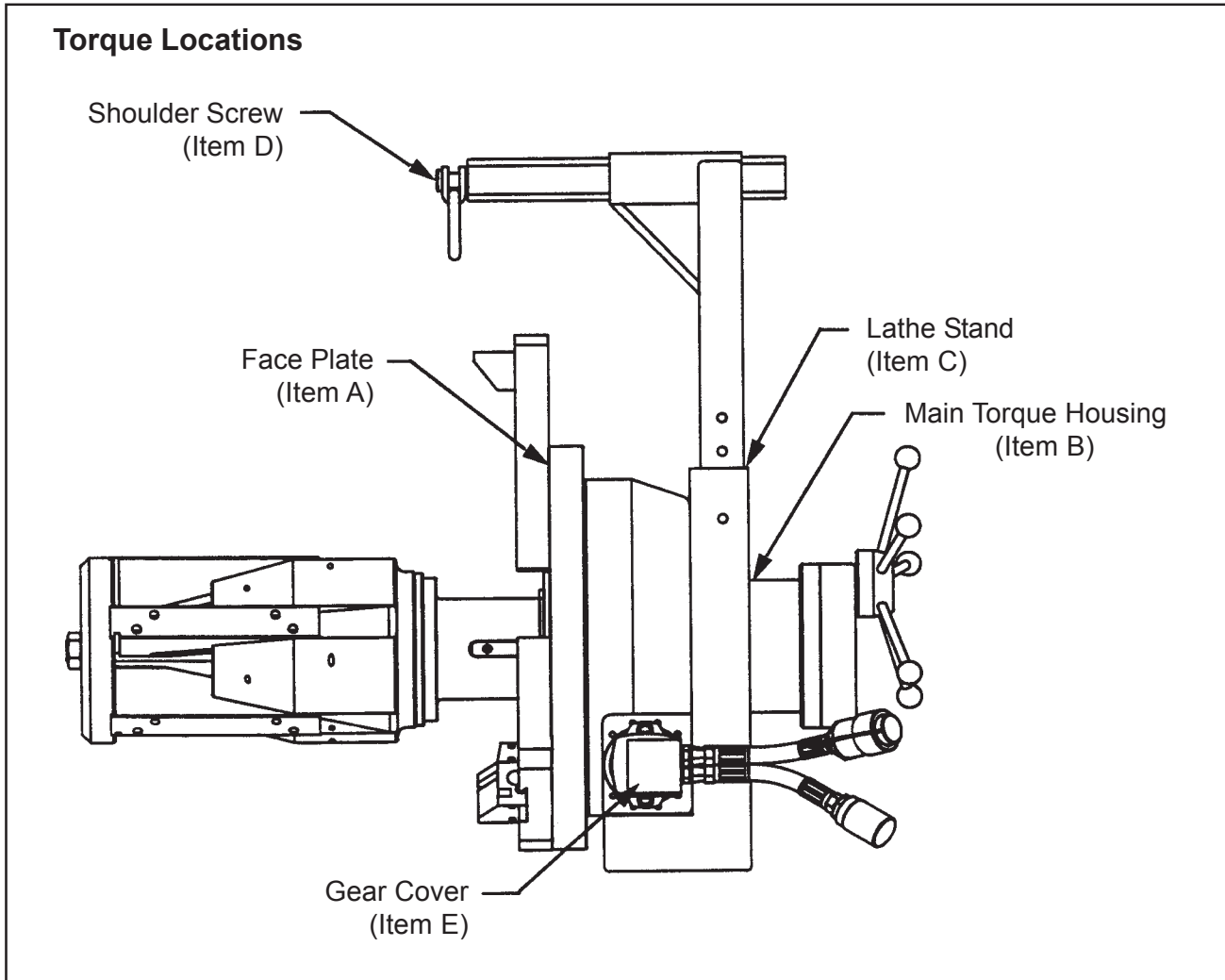
The twelve (12) Cap Screws that hold the Face Plate, Item A, onto the Shaft Housing are torqued to 100 ft-lbs (136 N m).

The twelve (12) Cap Screws that hold the Main Torque Housing, Item B, to the Main Housing are to be torqued to 80 ft-lbs (108 N m).

The four (4) Cap Screws that hold the Model 230B to the Lathe Stand, Item C, are to be torqued to 100 ft-lbs (136 N m).

The Shoulder Screw, Item D, holding the Hoist Ring to the Lifting Bracket is to be torqued at 25 ft-lbs (34 N m).

There are eight (8) Cap Screws that hold each Gear Cover, Item E, onto the Main Housing. They are torqued to 50 ft-lbs (68 N m).



**LUBRICATION**

The Drive Gears require a grease such as “Chevron Ultra-Duty Grease EP NLGI 2” (P/N 68-0024).

The Slide Rails and Tool Blocks require a light oil such as SAE 10 light machine oil.

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

The Bearings in the Hydraulic Motor(s) are sealed and do not require any lubrication.

## OPERATION

### PREPARATION

Read the operating instructions carefully before attempting to operate the Model 230B BEVELMASTER™.

Use eye protection at all times when operating the 230B.

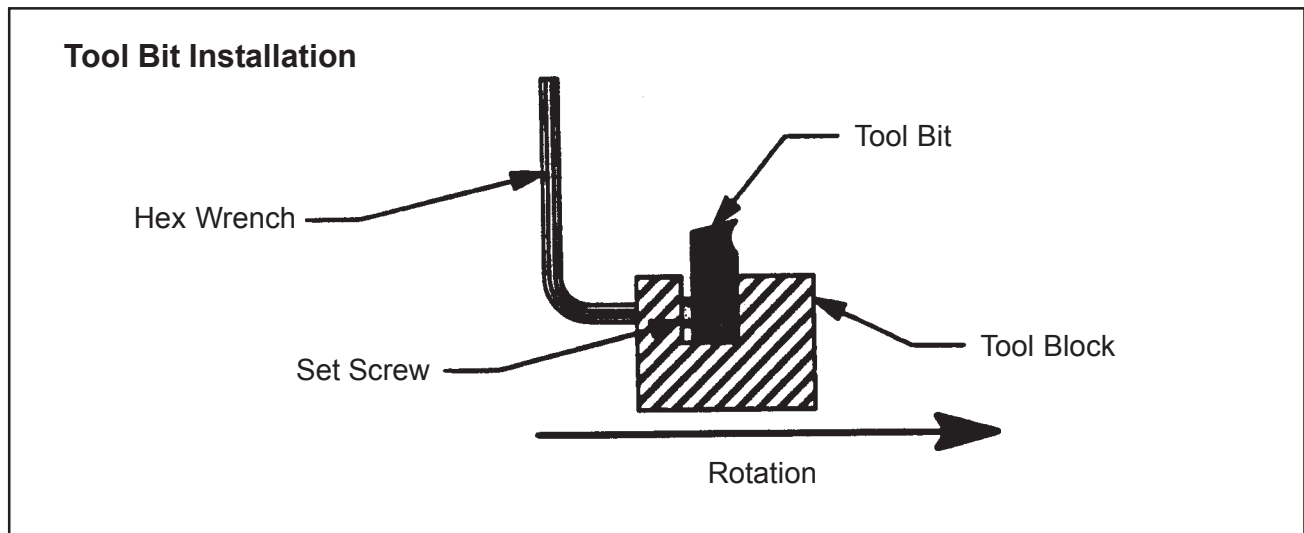
The Tool Holders may be positioned in several various locations on the Headstock in order to accommodate any particular pipe size.

TRI TOOL Inc. recommends that the Tool Blocks be mounted so that the Tool Bits may be set as close to the face of the Headstock as possible.

### TOOL BIT INSTALLATION

To select the appropriate Tool Bit(s) refer to the 'Tool Bits' section to help with your choice.

**CAUTION:** Use of a dull Tool Bit 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.



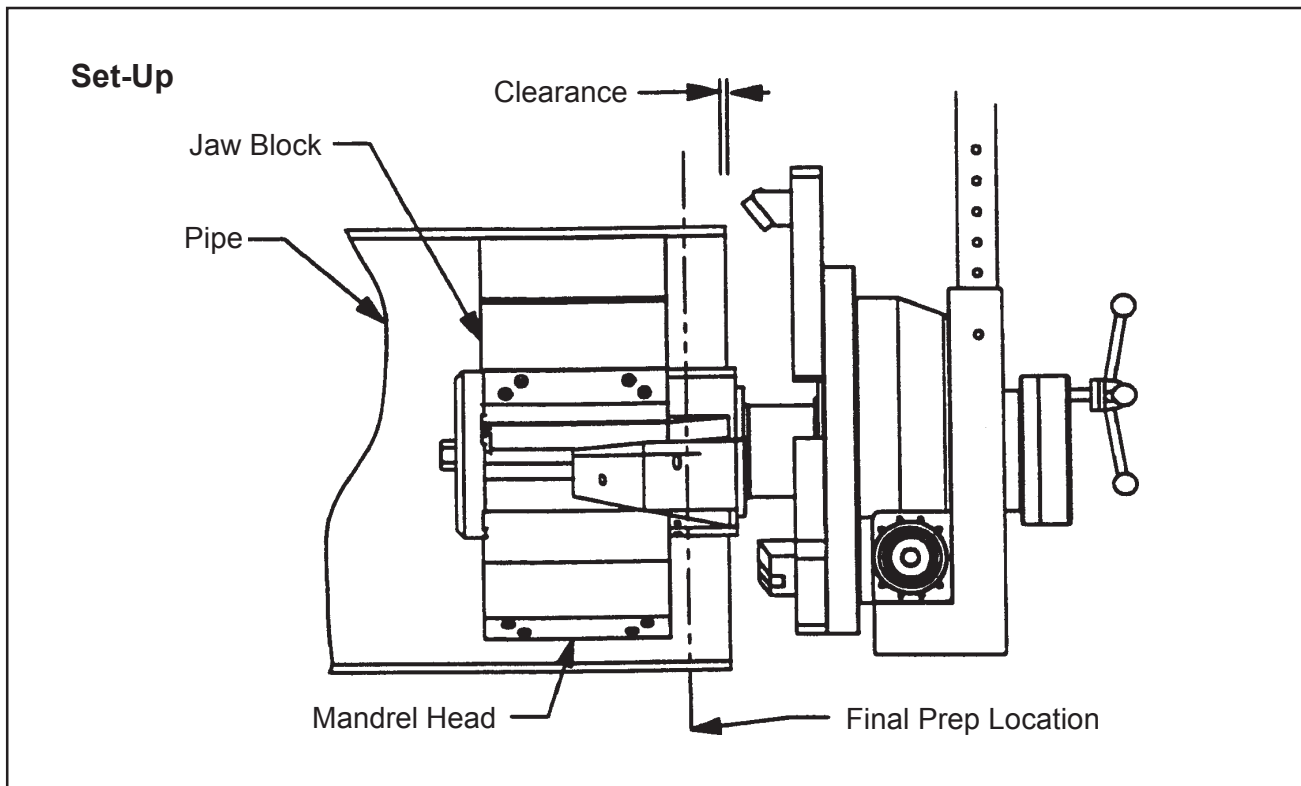
Make sure the Tool Bit(s) sits flush against the Slot and then tighten the Locking Set Screws.

Make sure the cutting edge of the Beveling Tool Bit is along the radial centerline of the Headstock, advance into the cut.

To select the proper Jaw Blocks refer to the 'Jaw Blocks, Ramps and Spacers' section for help.

Set the Jaw Blocks into the Ramp Blocks and tighten them. If the Jaw Blocks do not fit smoothly, check for burrs and remove them with a file.

Install the Machine Into the Pipe.



**NOTE:**

In order to avoid cutting the Jaw Blocks with the Tool Bits during the machining operation, the Jaw Blocks on the Mandrel Head must be installed beyond the final end preparation location.

Tighten the Draw Rod clockwise to force the Jaw Blocks out against the inside diameter of the pipe.

Verify a minimum clearance of 1/8" (3 mm) between the Tool Bit(s) and the pipe face as held by the Mandrel.

Attach the machine to the Hydraulic Power Supply.

Turn the hydraulic power on.

Adjust the cutting speed by rotating the Feed Knob on the Remote Operator's Pendant.

Rotate the Feed Knob clockwise to bring the Headstock and pipe closer together.

**CAUTION:** The actual machining operation will begin when the first Tool Bit makes contact with pipe.

When the pipe end is not square with the pipe axis, the Tool Bit will contact only a small segment of the pipe during each revolution.

To avoid Tool Bit damage, the Feed Rate should be very slow until the Tool Bit has contacted the pipe continually for at least one full revolution.

Continue rotating the Feed Knob clockwise until the end of the pipe is completely machined.

Discontinue feed and allow the Headstock to rotate one (1) to three (3) revolutions at low rpm to improve the finish of the prep surface.

Rotate the Feed Knob counterclockwise to separate the Headstock from the pipe.

Turn the Hydraulic Motor off to stop the Headstock rotation.

Loosen the Draw Nut on the Mandrel counter-clockwise to release the pipe.

Remove the machine from the pipe.

Check to see if any of the Tool Bits are dull or broken.

Damage or worn Tool Bits are evidenced by increased feed pressure, visual observations, poor surface finish, etc.

## MANDREL STOP

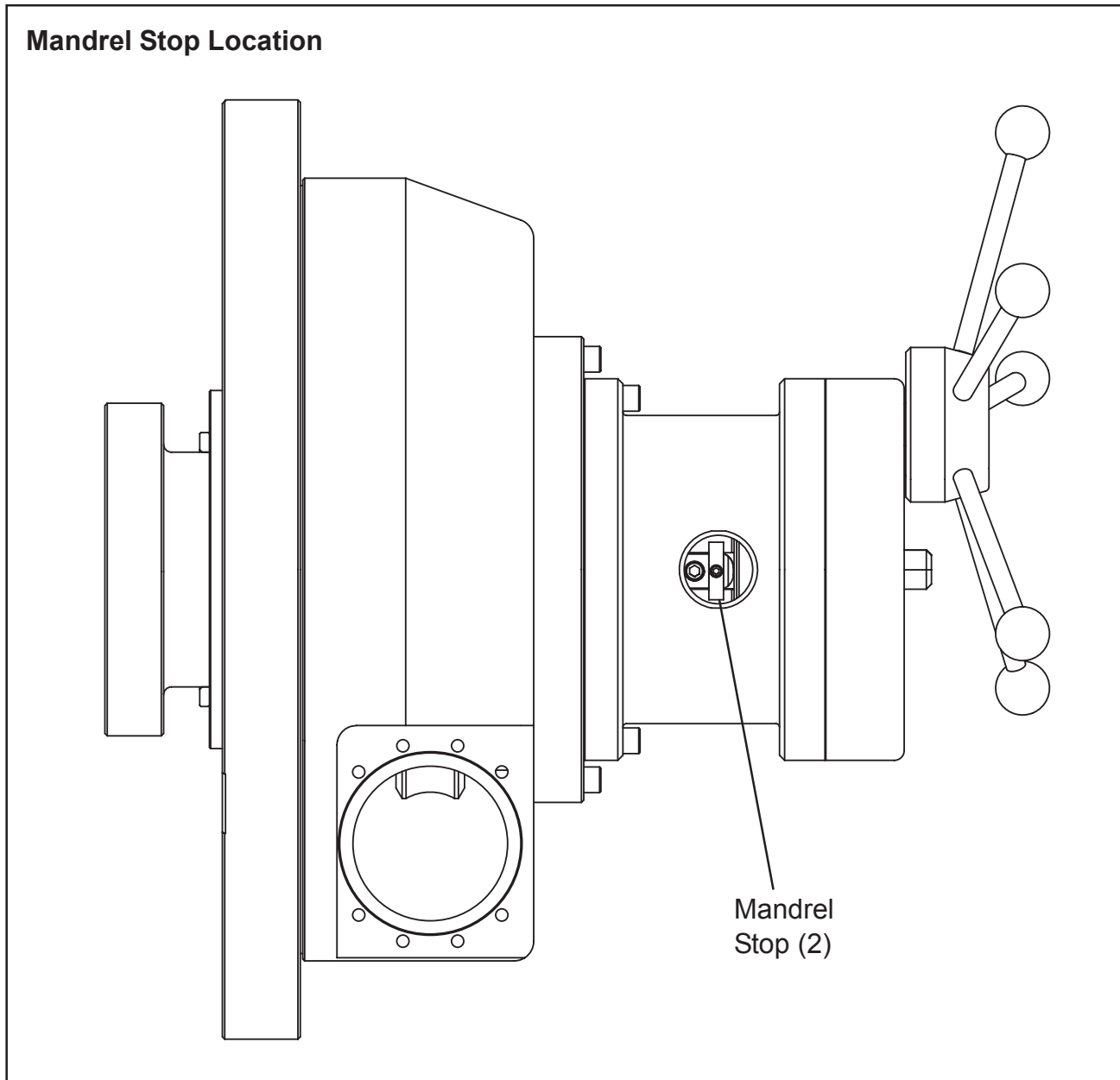
When the Mandrel Stops are installed the feed cannot be retracted to the point of disengaging from the threads.

When installing the Machine and the Mandrel as a unit, the Mandrel Stops are installed in the Mandrel before the Mandrel has been secured in the pipe.

**CAUTION:** DO NOT Operate the Machine without the Mandrel Stops installed.

When the Mandrel is to be pre-installed by itself, the Mandrel Stops are installed after the machine has been fitted over the Mandrel.

The Mandrel Feed Travel 5.50" (139.7 mm) is not limited by the Mandrel Stops.



## CUTTING SPEEDS

Pipe Size	True DIA		RPM for 200 in/min (5080 mm/min)	RPM for 250 in/min (6350 mm/min)	RPM 300 in/min (7620 mm/min)
	Inches	Centimeters			
32"	32.00"	81.3 cm	2.0	2.5	3.0
30"	30.00"	76.2 cm	2.1	2.7	3.2
28"	28.00"	71.1 cm	2.3	2.8	3.4
26"	26.00"	66.0 cm	2.0	3.0	4.0
24"	24.00"	61.0 cm	3.0	3.0	4.0
22"	22.00"	55.9 cm	3.0	4.0	4.0
20"	20.00"	50.8 cm	3.0	4.0	5.0
18"	18.00"	45.7 cm	4.0	4.0	5.0
16"	16.00"	40.6 cm	4.0	5.0	6.0
14"	14.00"	35.5 cm	5.0	6.0	7.0
12"	12.75"	32.3 cm	5.0	6.0	7.0
Cutting Speed (approximately)					

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 applied.

Use 300 surface inches per minute (7620 surface millimeters per minute) for:

Aluminum and some thin-wall mild steel and tube with coolants.

**JAW BLOCKS, RAMPS AND SPACERS**

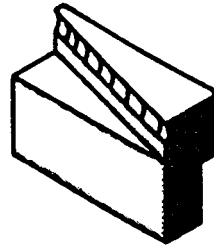
<b>ID Mounting Range</b>	<b>Standard Ramp (5 Req'd)</b>	<b>Adapter (5 Req'd)</b>	<b>Jaw Block (5 Req'd)</b>	<b>Adapter (5 Req'd)</b>
11.38" thru 14.49" 289.1 mm thru 368.0 mm	48-0973		08-0388	
14.26" thru 16.84" 362.2 mm thru 427.7 mm	48-0973		08-0389	
16.61" thru 19.20" 421.9 mm thru 487.7 mm	48-0973		08-0390	
18.97" thru 21.56" 481.8 mm thru 547.6 mm	48-0973		08-0391	
21.33" thru 23.93" 541.8 mm thru 607.8 mm	48-0973		08-0392	
23.70" thru 26.30" 602.0 mm thru 668.0 mm	48-0973	08-0393	08-0389	
26.07" thru 28.67" 662.2 mm thru 728.2 mm	48-0973	08-0393	08-0390	
28.44" thru 31.04" 722.4 mm thru 788.4 mm	48-0973	08-0393	08-0391	
30.81" thru 33.41" 782.6 mm thru 812.8 mm	48-0973	08-0393	08-0392	
33.18" thru 35.78" 842.8 mm thru 908.8 mm	48-0973	08-0552	08-0389	
35.55" thru 38.15" 903.0 mm thru 969.0 mm	48-0973	08-0552	08-0390	
<b>Jaw Block Assembly Ranges</b>				

<b>ID Mounting Range</b>	<b>Standard Ramp (5 Req'd)</b>	<b>Adapter (5 Req'd)</b>	<b>Jaw Block (5 Req'd)</b>	<b>Adapter (5 Req'd)</b>
37.92" thru 40.52" 963.2 mm thru 1029.2 mm	48-0973	08-0552	08-0391	
40.29" thru 42.89" 1023.4 mm thru 1089.4 mm	48-0973	08-0552	08-0392	
42.66" thru 45.26" 1083.6 mm thru 1149.6 mm	48-0973	08-0552	08-0389	08-0393
45.03" thru 47.63" 1143.8 mm thru 1209.8 mm	48-0973	08-0552	08-0390	08-0393
47.40" thru 50.00" 1204.0 mm thru 1270.0 mm	48-0973	08-0552	08-0391	08-0389
49.77" thru 52.37" 1264.2 mm thru 1330.2 mm	48-0973	08-0552	08-0392	08-0389
52.14" thru 54.74" 1324.4 mm thru 1390.4 mm	48-0973	08-0552	08-0389	08-0552
54.51" thru 57.11" 1384.6 mm thru 1450.6 mm	48-0973	08-0552	08-0390	08-0552
56.88" thru 59.48" 1444.8 mm thru 1510.8 mm	48-0973	08-0552	08-0391	08-0552
59.26" thru 61.85" 1505.2 mm thru 1571.0 mm	48-0973	08-0552	08-0392	08-0552
Jaw Block Assembly Ranges				

**TOOL BITS**

**STANDARD SELECTION**

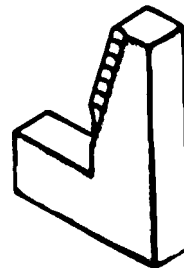
Tool Bit, 37.5° Beveling  
(P/N 99-0009)



Tool Bit, Facing  
(P/N 99-0016)



Tool Bit, Counterboring  
(P/N 99-1939)



## TROUBLE SHOOTING

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

- 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**

- 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 surface finish is rough**

- 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 tool holder is not feeding**

- 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**

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**

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 tool bit will not reach the work**

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

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

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

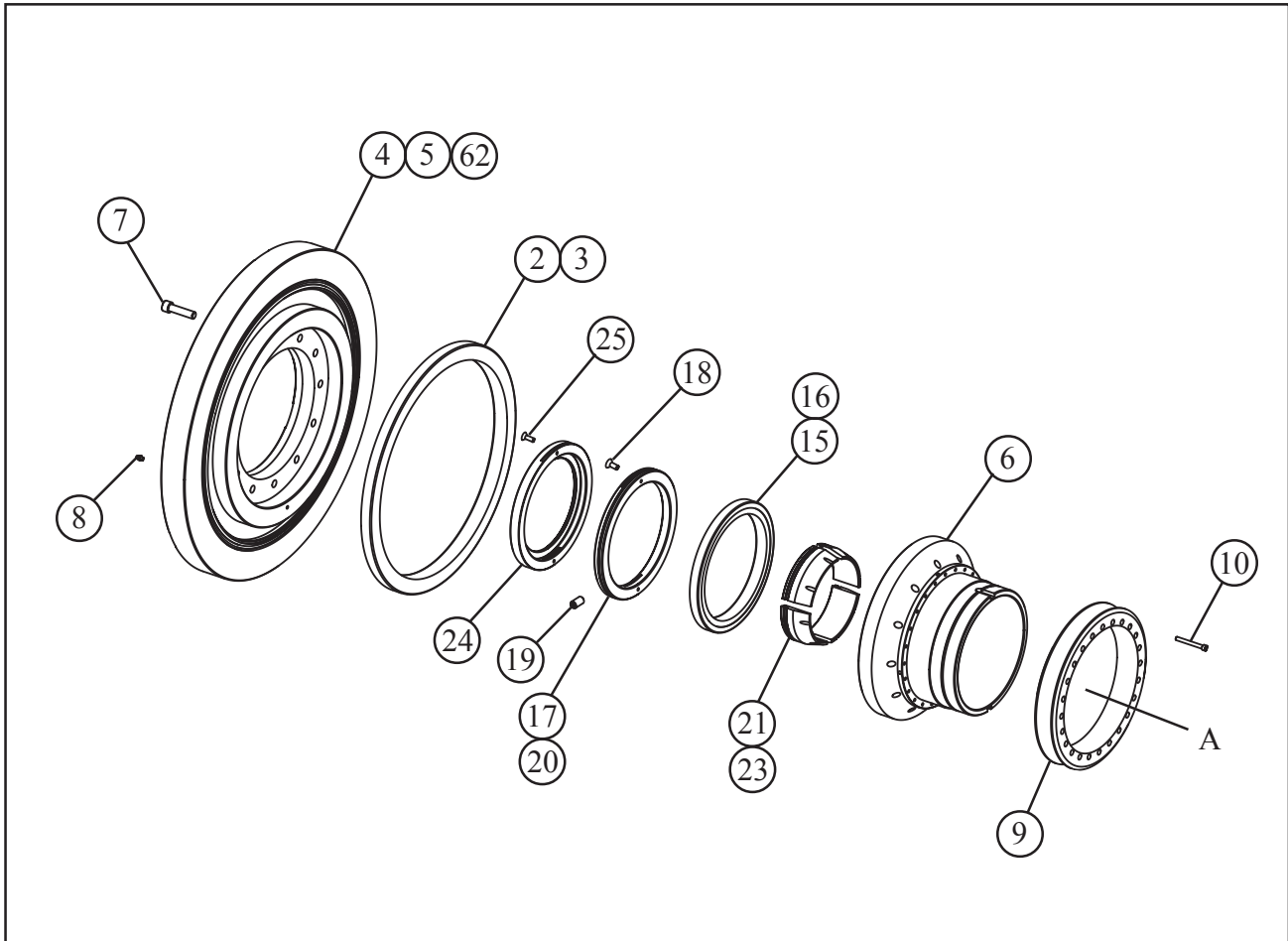
## ACCESSORIES

The following accessories are recommended for use with the Model 230B BEVELMASTER™ and are available from TRI TOOL INC.

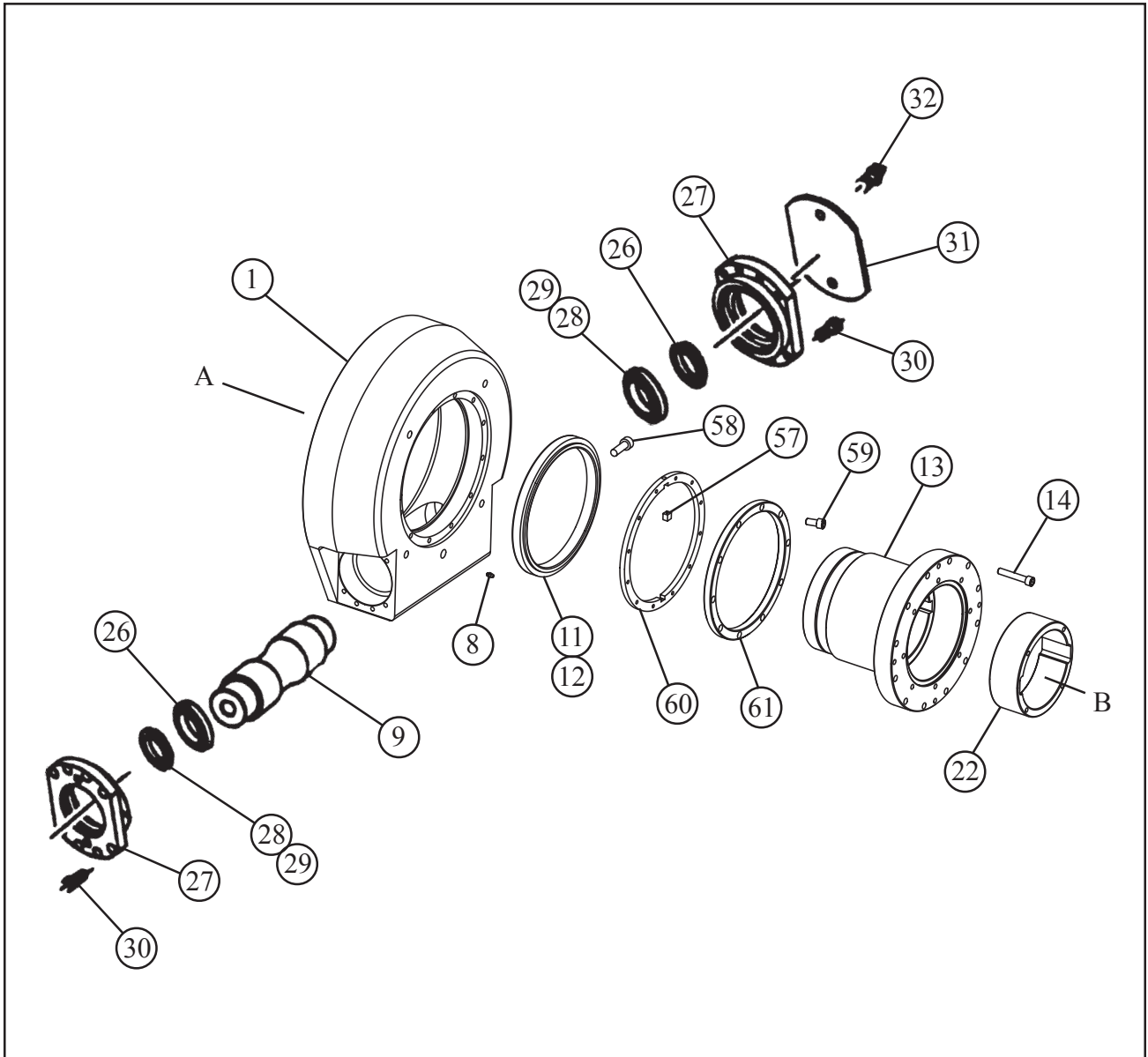
1. Single Point Module Kit
2. I.D. Tracking Module Kit
3. Miter Mandrel Kit
4. Model 765RVC Hydraulic Power Supply

# ILLUSTRATED PARTS BREAKDOWN

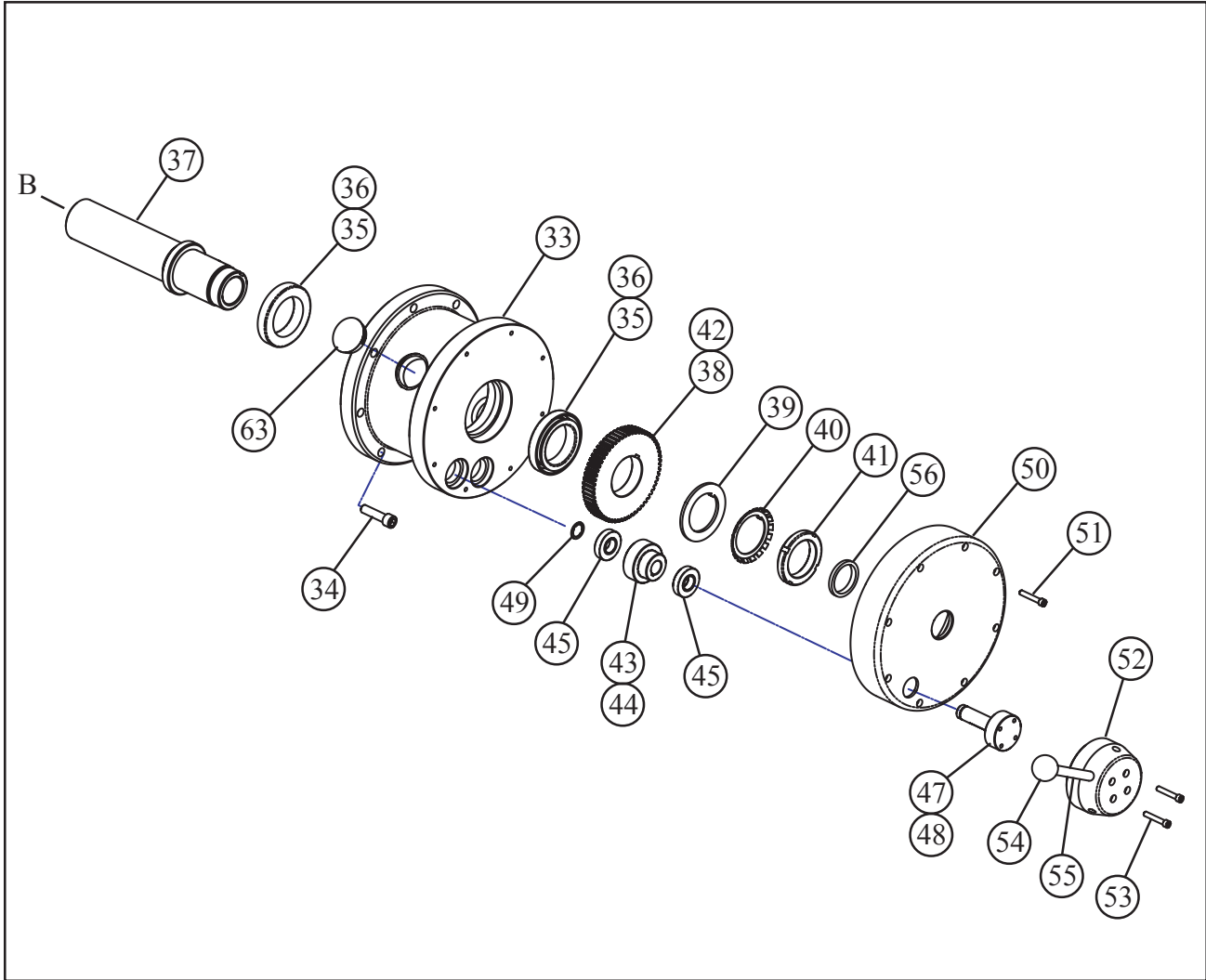
## MAIN ASSEMBLY HOUSING (1 of 3) (P/N 02-2296)



MAIN ASSEMBLY HOUSING (2 of 3) (P/N 02-2296)



MAIN ASSEMBLY HOUSING (3 of 3) (P/N 02-2296)



Parts List, Housing, Main Assembly (P/N 02-2296)

Item No.	Part No.	Description	Qty
1.	19-0842	HOUSING, MAIN	1
2.	29-0341	BEARING, TAPERED CONE	1
3.	29-0342	BEARING ,TAPERED CUP	1
4.	24-1469	PLATE, FACE	1
5.	28-0176	SEAL, EXTRUDED	62"
6.	19-0843	HOUSING, SHAFT	1
7.	33-0109	SCREW, CAP, 1/2-13 X 2"	12
8.	54-0375	FITTING, GREASE	2
9.	39-0795	WORM GEAR SET	1
10.	33-0046	SCREW, CAP, 1/4-20 X 2"	24
11.	29-0339	BEARING, TAPERED CONE	1
12.	29-0340	BEARING, TAPERED CUP	1
13.	19-0844	HOUSING, MAIN TORQUE	1
14.	33-0095	SCREW, CAP, 7/16-14 X 2 1/2"	12
15.	29-0337	BEARING, TAPERED CONE	1
16.	29-0338	BEARING, TAPERED CUP	1
17.	35-0502	NUT, LOCK	1
18.	33-0360	SCREW, FLAT, 1/4-20 X 3/6"	2
19.	33-0503	SCREW, SET, CUP PT, 1/4-20 X 1/2"	1
20.	28-0255	O-RING	1
21.	45-0257	BUSHING	1
22.	45-0303	BUSHING, REAR	1
23.	32-0046	PIN, ROLL, 3/16" DIA X 2"	8
24.	35-0501	NUT, LOCK	1
25.	33-0361	SCREW, FLAT, 1/4-20 X 3/4"	2
26.	28-0254	SEAL	2
27.	43-0481	COVER, WORM GEAR	2
28.	29-0343	BEARING, TAPERED CONE	2
29.	29-0344	BEARING, TAPERED CUP	2
30.	33-0071	SCREW, CAP, 3/8-16 X 1"	16
31.	43-0482	COVER, DUST	1
32.	33-0103	SCREW, CAP, 1/2-13 X 3/4"	2
33.	19-0845	HOUSING, FEED	1

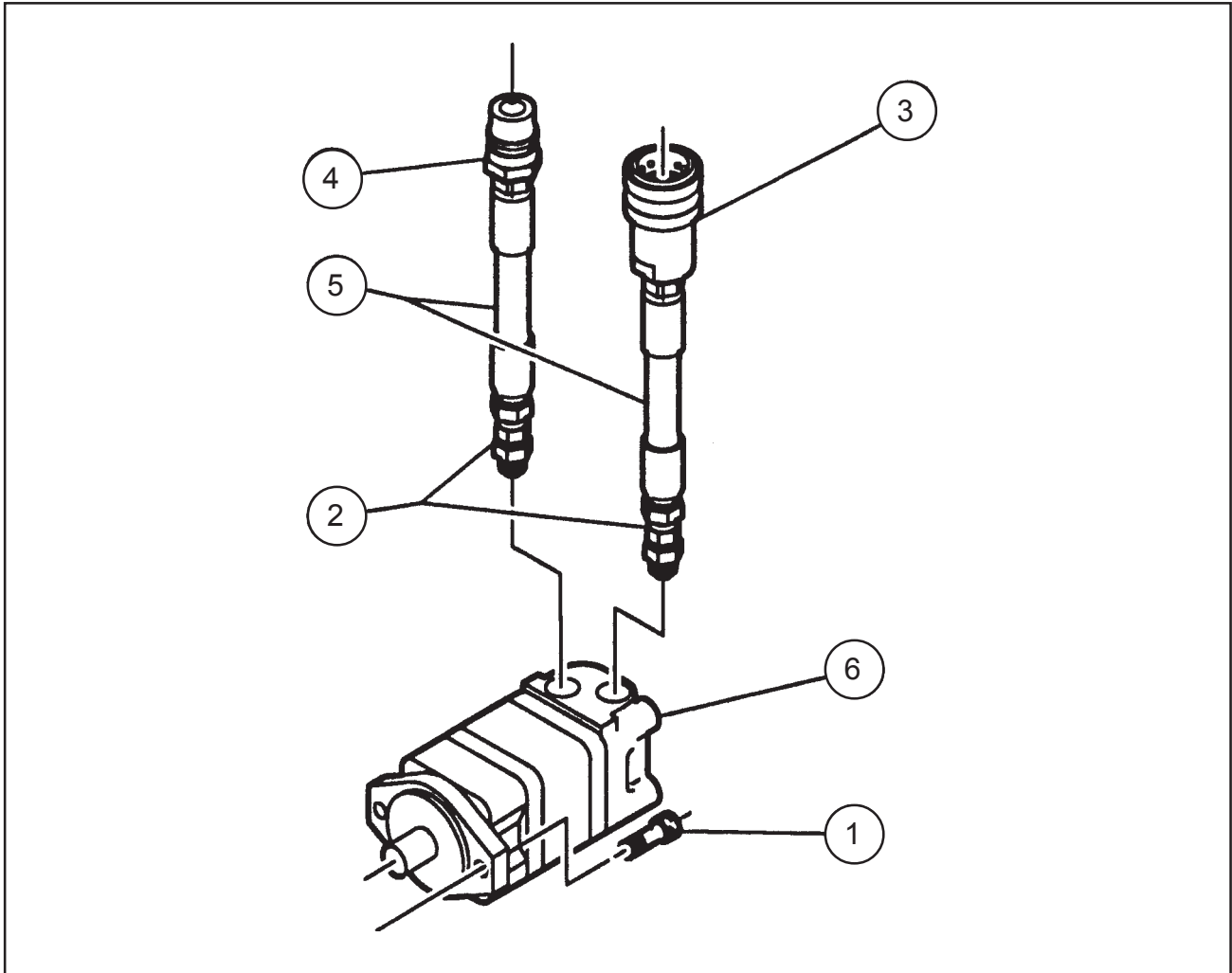
**TRI TOOL INC.**

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## Parts List, Housing, Main Assembly (P/N 02-2296) Continued

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
34.	33-0092	SCREW, CAP, 7/16-14 X 1 3/4"	8
35.	29-0346	BEARING, TAPERED CONE	2
36.	29-0347	BEARING TAPERED CUP	2
37.	33-2124	SCREW, FEED, 2 1/4-12UN	1
38.	31-0161	KEY, 5/16" SQUARE	1
39.	34-0313	WASHER, TONGUED	1
40.	34-0312	LOCKWASHER	1
41.	35-0449	LOCK NUT	1
42.	39-0796	GEAR, FEED , 60 TEETH	1
43.	39-0798	GEAR, IDLER, 24 TEETH	1
44.	20-0628	SHAFT	1
45.	29-0020	BEARING, BALL	4
46.	39-0867	GEAR, PINION, 24 TEETH	1
47.	20-0720	SHAFT, FEED	1
48.	31-0054	KEY	1
49.	30-0060	RING, RETAINING, EXT.	1
50.	24-1468	PLATE, COVER	1
51.	33-0047	SCREW, CAP, 1/4-20 X 2 1/4"	8
52.	42-0185	KNOB, FEED	1
53.	33-0044	SCREW, CAP, 1/4-20 X 1 1/2"	4
54.	42-0017	KNOB	5
55.	41-0131	HANDLE, FEED	5
56.	28-0176	SEAL	7"
57.	31-0183	KEY	2
58.	33-0029	SCREW, CAP, #10-24 X 5/8"	2
59.	33-0053	SCREW, CAP, 5/16-18 X 5/8"	22
60.	34-0349	WASHER, LOCK	1
61.	35-0550	NUT, LOCK	1
62.	28-0057	SEAL	62"
63.	54-0554	PLUG	2

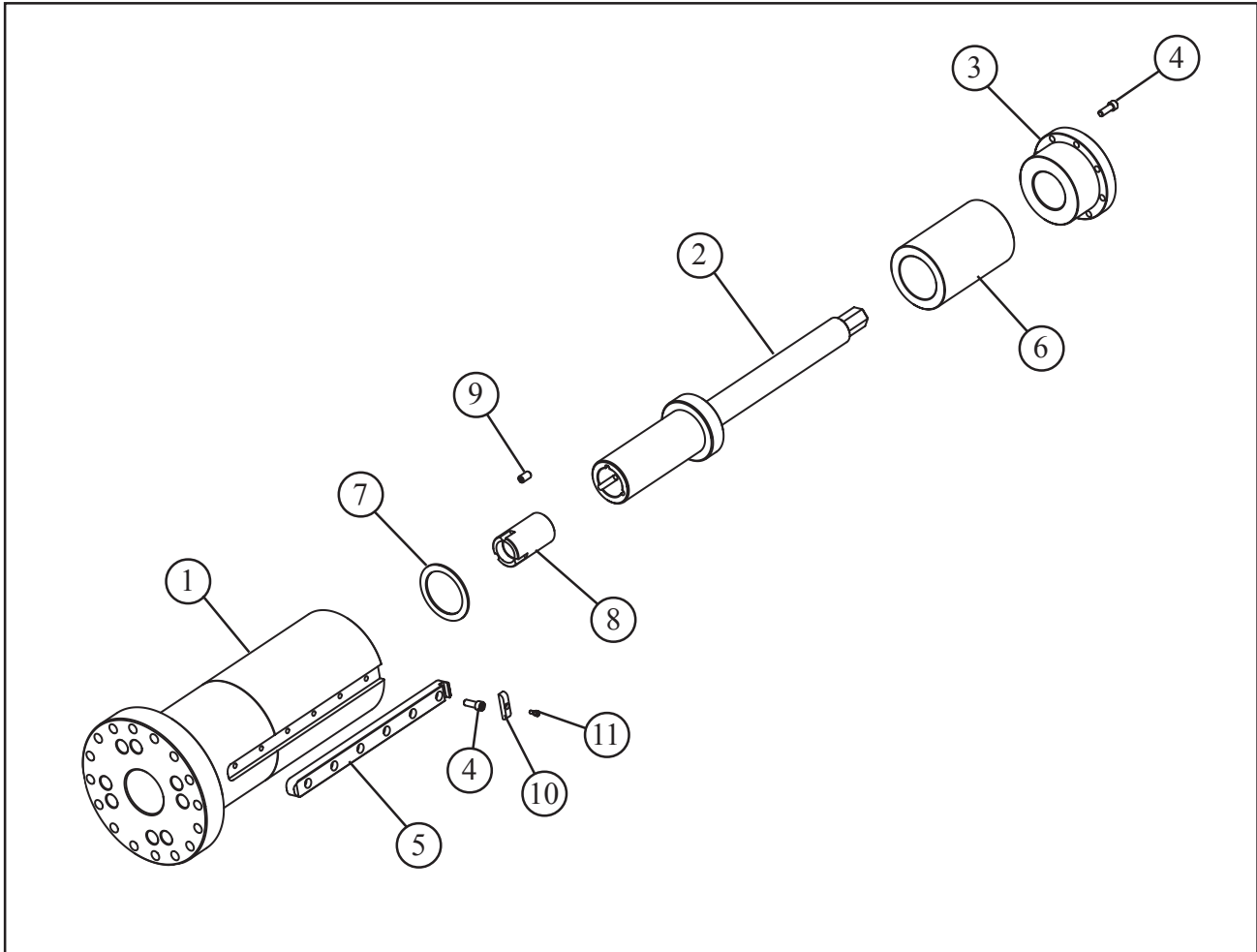
HYDRAULIC MOTOR ASSEMBLY (P/N 56-0061)



Parts List, Motor Assembly, Hydraulic (P/N 56-0061)

Item No.	Part No.	Description	Qty
1.	33-0106	SCREW, CAP, 1/2-13 x 1 1/4"	2
2.	54-0002	ADAPTER	2
	54-0111	COUPLER SET, QD	1
3.	54-0294	COUPLER, QD, BODY	1
4.	54-0295	COUPLER, QD, TIP	1
5.	55-0156	HOSE ASSEMBLY, HYDRAULIC	2
6.	56-0002	MOTOR, HYDRAULIC	1
NOT SHOWN:			
	54-0114	CAP, DUST	1
	54-0115	PLUG, DUST	1

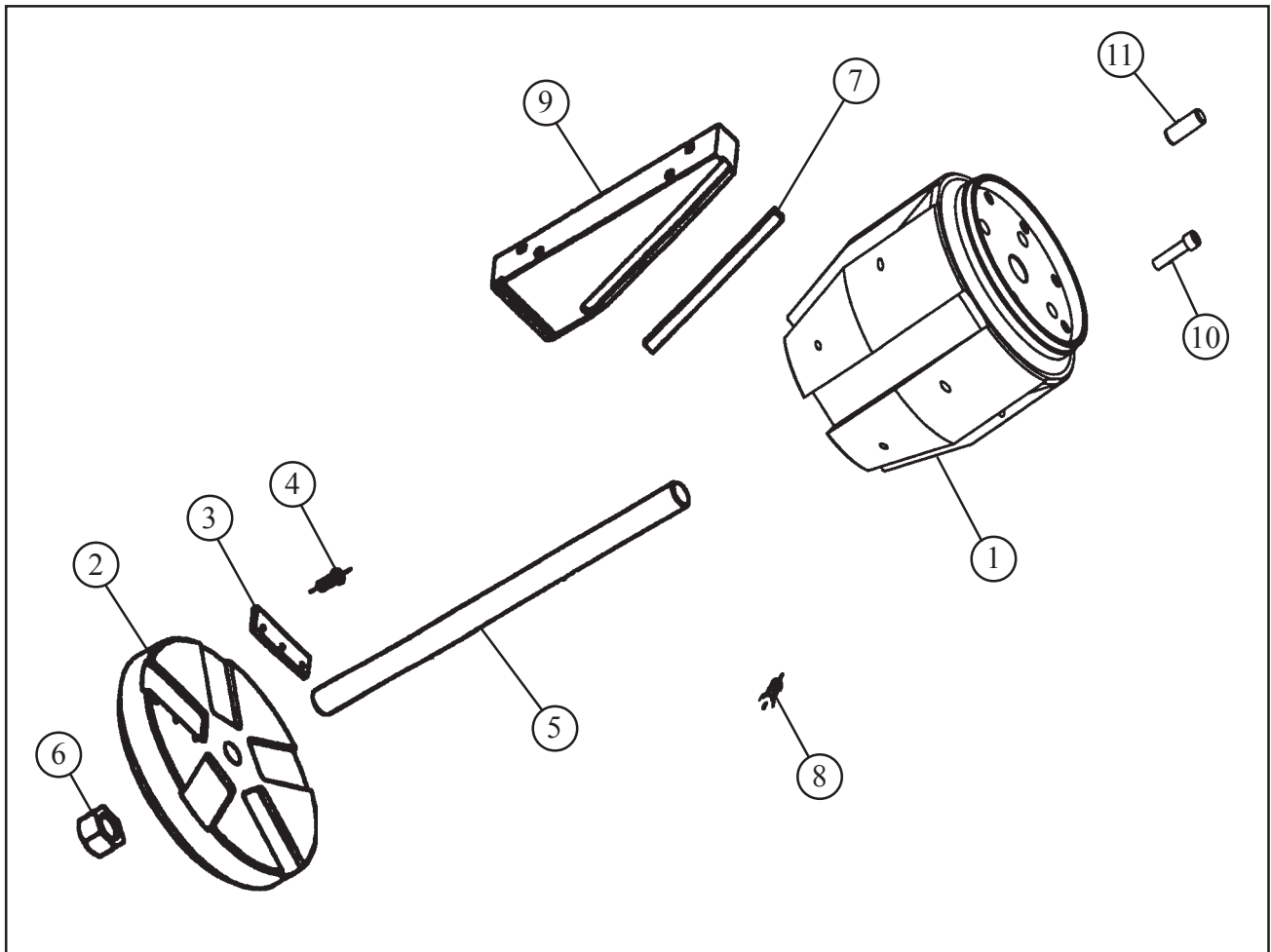
**MANDREL ASSEMBLY (P/N 06-0432)**



Parts List, Mandrel Assembly (P/N 06-0432)

Item No.	Part No.	Description	Qty
1.	13-0443	MANDREL	1
2.	20-0719	SHAFT, WRENCH	1
3.	35-0448	NUT, FEED	1
4.	33-0055	SCREW, CAP, 5/16-18 X 7/8"	20
5.	31-0160	KEY, MANDREL	2
6.	44-0502	SPACER	1
7.	34-0148	WASHER	1
8.	30-2935	INSERT, THREADED	1
9.	33-0531	SCREW, SET, 3/8-16 X 3/4"	3
10.	31-0219	KEY, MANDREL STOP	2
11.	33-2392	SCREW, MOD	2

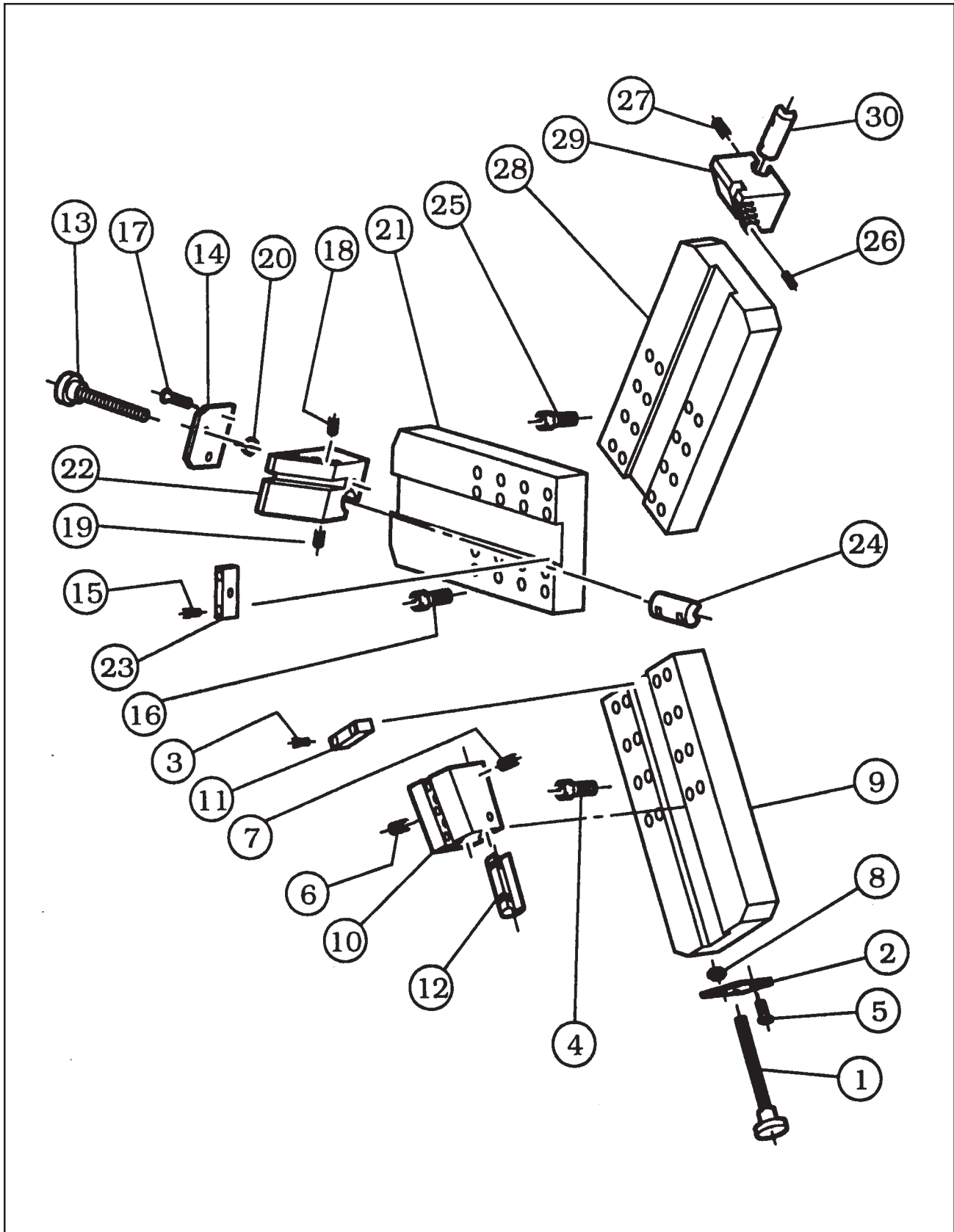
MANDREL HEAD ASSEMBLY (P/N 21-0518)



Parts List, Mandrel Head Assembly (P/N 21-0518)

Item No.	Part No.	Description	Qty
1.	21-0520	HEAD, MANDREL	1
2.	24-1621	PLATE, BUTT	1
3.	24-1465	PLATE, RETAINING	5
4.	33-0287	SCREW, BUTTON HEAD, 1/4-20 X 3/4"	15
5.	23-0319	DRAW ROD	1
6.	35-0538	NUT, HEX	1
7.	31-0144	KEY, RAMP	5
8.	33-0040	SCREW, CAP, 1/4-20 X 3/4"	10
9.	48-0973	BLOCK, RAMP	5
10.	33-0109	SCREW, CAP, 1/2-13 X 2"	8
11.	32-0533	PIN, DOWEL, PULL	4

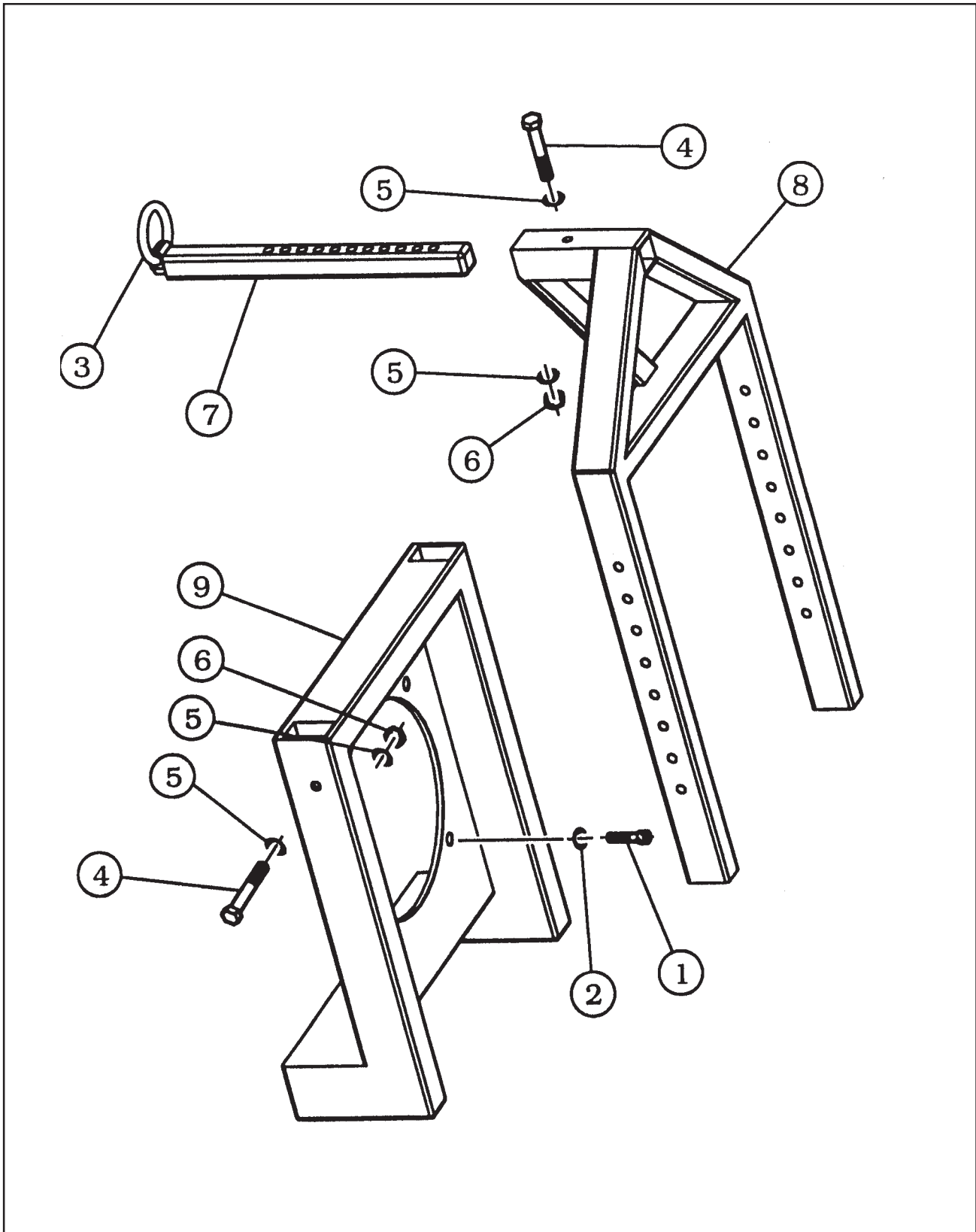
TOOL BLOCK ASSEMBLY



Parts List, Assembly, Tool Block

Item No.	Part No.	Description	Qty
	08-0385	BLOCK ASSEMBLY, C'BORE TOOL	1
1.	14-0076	SHAFT ASSY, THREADED	1
2.	24-0425	PLATE, THRUST	1
3.	33-0031	SCREW, CAP, #10-24 X 7/8"	2
4.	33-0076	SCREW, CAP, 3/8-16 X 2 1/4"	16
5.	33-0286	SCREW, BUTTON HEAD, 1/4-20 X 5/8"	2
6.	33-0504	SCREW, SET, 1/4-20 X 5/8"	10
7.	33-1320	SCREW, SET, 3/8-16 X 2 1/4"	2
8.	35-0203	NUT. LOCK, 1/4-20	1
9.	47-1093	BRACKET, MOUNTING	1
10.	48-0280	BLOCK, C'BORE TOOL	1
11.	48-0977	BLOCK, SUPPORT	1
12.	62-0048	CAM, TOOL BLOCK LOCKING	1
	08-0386	BLOCK ASSEMBLY, BEVELING TOOL	1
13.	14-0076	SHAFT ASSY, THREADED	1
14.	24-0425	PLATE, THRUST	1
15.	33-0031	SCREW, CAP, #10-24 X 7/8"	2
16.	33-0076	SCREW, CAP, 3/8-16 X 2 1/4"	16
17.	33-0286	SCREW, BUTTON HEAD, 1/4-20 X 5/8"	2
18.	33-0504	SCREW, SET, 1/4-20 X 5/8"	10
19.	33-1320	SCREW, SET, 3/8-16 X 1"	2
20.	35-0203	NUT, LOCK, 1/4-20	1
21.	47-1093	BRACKET, MOUNTING	1
22.	48-0281	BLOCK, BEVELING TOOL	1
23.	48-0977	BLOCK, SUPPORT	1
24.	62-0048	CAM, TOOL BLOCK LOCKING	1
	08-0387	BLOCK ASSEMBLY, FACING TOOL	1
25.	33-0076	SCREW, CAP, 3/8-16 X 2 1/4"	16
26.	33-0504	SCREW, SET, 1/4-20 X 5/8"	10
27.	33-1320	SCREW, SET, 3/8-16 X 1"	2
28.	47-1093	BRACKET, MOUNTING	1
29.	48-0361	BLOCK, FACING TOOL	1
30.	62-0048	CAM, TOOL BLOCK LOCKING	1

LATHE STAND ASSEMBLY (P/N 60-0083)



## Parts List, Lathe Stand Assembly (P/N 60-0083)

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
1.	33-0126	SCREW, CAP, 5/8-11 X 1 1/2"	4
2.	34-0320	WASHER, HARDENED, 5/8"	4
	60-0083	STAND ASSY, LATHE	1
3.	30-0304	RING, HOIST	1
4.	33-1972	SCREW, HEX HEAD, 1/2-13 X 3"	3
5.	34-0020	WASHER, FLAT	6
6.	35-0254	NUT, LOCK	3
7.	47-1222	BRACKET, LIFTING	1
8.	60-0087	STAND, UPPER LATHE	1
9.	60-0082	STAND, LOWER LATHE	1
NOT SHOWN			
	05-1316	WRENCH KIT	1