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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 Model 648RBL Low-Profile Clamshell is a four piece split-frame pipe lathe designed for severing and beveling in-line pipe with a minimum range of 42” through 48” pipe with minimal radial and axial clearance.

Using extended Tool Blocks the Model 648RBL may be configured to perform the following operations.

- Sever in-line pipe.
- Sever and bevel in-line pipe.
- Sever and double bevel in-line pipe.

DESIGN AND OPERATING FEATURES

The easily adjustable precision 90° Vee Bearing pre-load and stabilize the rotating head to provide long life, low maintenance, stability and precision.

The Clamshell splits into four (4) quarters for mounting on closed loop systems.

All parts are secured to the four (4) quarters, thus avoiding the loss of parts and at the same time providing maximum ease of handling.

The Clamshell is equipped with Jackscrews and Adjustable Mounting Pads for out-of-round pipe conditions.

Dual Tool Blocks with Auto-Feed Sprockets and Adjustable Slides provide maximum maintainability, life, and operator safety, with a minimum of operator training.

The Auto-Feed Sprockets provide .004” (.10 mm) of radial feed per revolution of the Headstock for a controlled depth of cut.

The drive gears and bearing surfaces are covered for operator safety and are sealed to provide protection from dust and chips.

The operator’s controls are located away from the rotating Headstock for the operator’s safety.

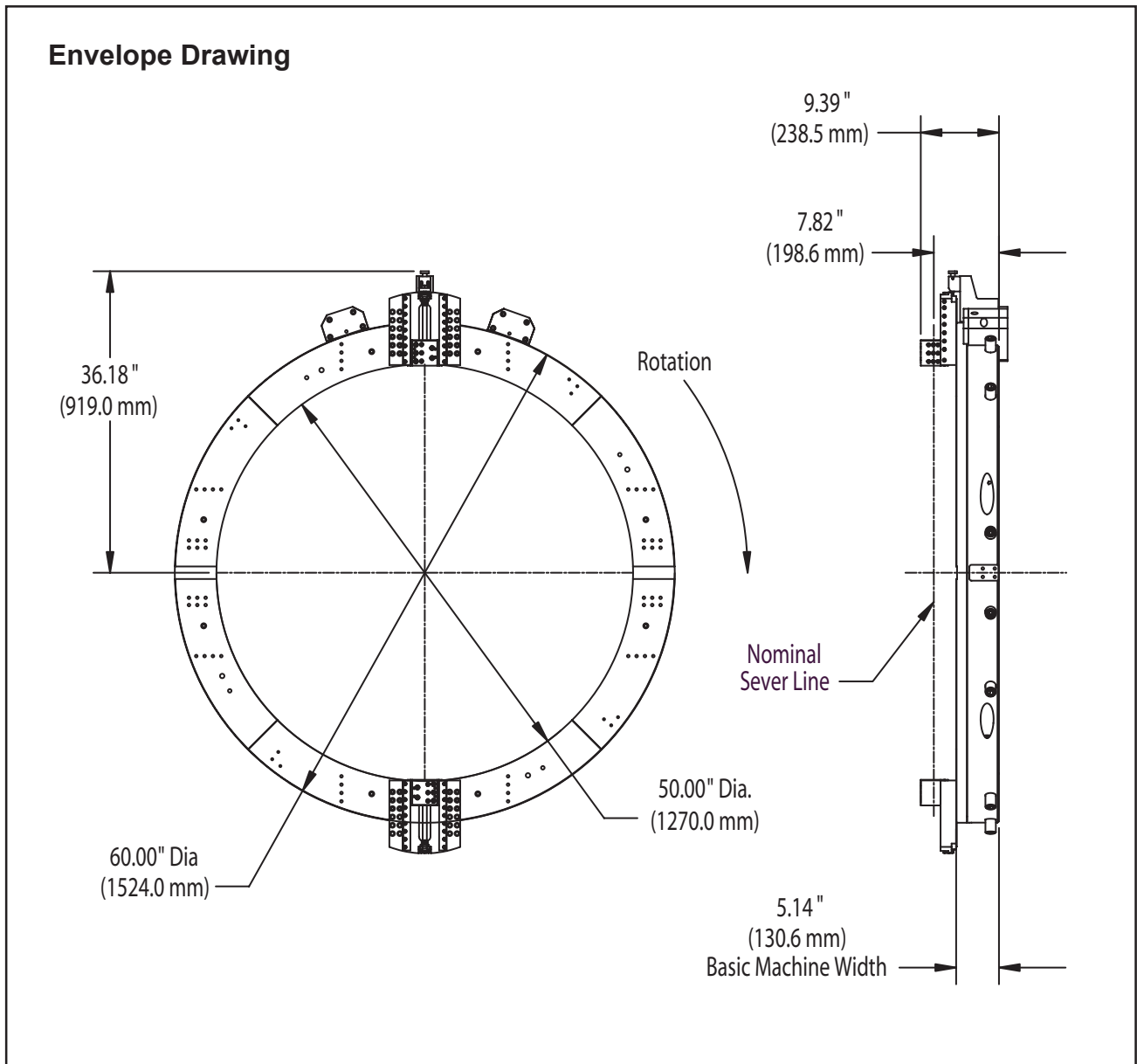
A Modular design concept provides quick, easy maintenance and maximum versatility in the drive and tooling options.

Two (2) detachable Motors provide maximum handling ease and low axial clearance.

SPECIFICATIONS

WEIGHT

900 lbs (Less Motor)



CUTTING CAPACITIES ON 42" THROUGH 48" PIPE

NOTE: Capacity may exceed the maximum wall thickness for small pipe sizes.

Severing with Standard Procedures

2.50" (63.5 mm) wall

Severing and Single Beveling

1.25" (31.8 mm) wall

Severing and Double Beveling

1.25" (31.8 mm) wall

Severing and Beveling with Special Procedures

2.00" (50.8 mm) wall

CLEARANCES

Main Frame Diameter

60.00" (1524.0 mm)

MAINTENANCE

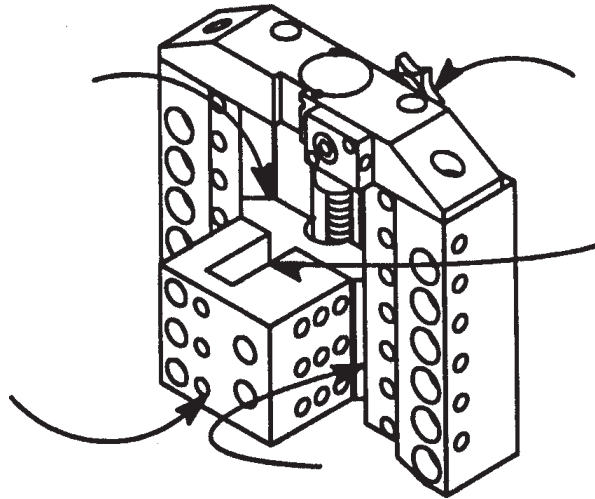
All components should be cleaned and coated with a light film of oil prior to use.

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

NOTE:

The motor warranty is void if damage occurs from contaminated hydraulic fluid or air supply.

Clean-Up



If the Clamshell is operated in such a manner that the tool blocks collect debris while cutting, the tool blocks and the feed screws should be cleaned after each cutting operation.

RECOMMENDED MAINTENANCE SCHEDULE

Daily

Wipe the unit down and spray with rust preventative under severe humidity conditions.

Visually inspect for loose screws, missing screws, damage, etc.

Every 20 Hours

Lubricate the male and female tool block slides and the feed screw.

Every 40 Hours

Thoroughly clean and lubricate main gear, drive gear, male and female tool slides, feed screws, and tripper block assembly.

NON-SCHEDULED

Thoroughly clean and check the tool blocks in the event of feed problems.

Readjust the 90° Vee bearings if the Headstock becomes loose on the Clamshell.

STORAGE

When the Clamshell 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.

ADJUSTMENT OF THE 90° VEE BEARINGS PRE-LOAD

Adjustment is done without the drive housing(s) attached.

Loosen all of the bearing lock screws and adjustment eccentric nuts about 1/4 turn.

Turn the four (4) bearing adjustment eccentric nuts in so that they are snugged tightly.

The OD of the gear is centered with the OD of the housing.

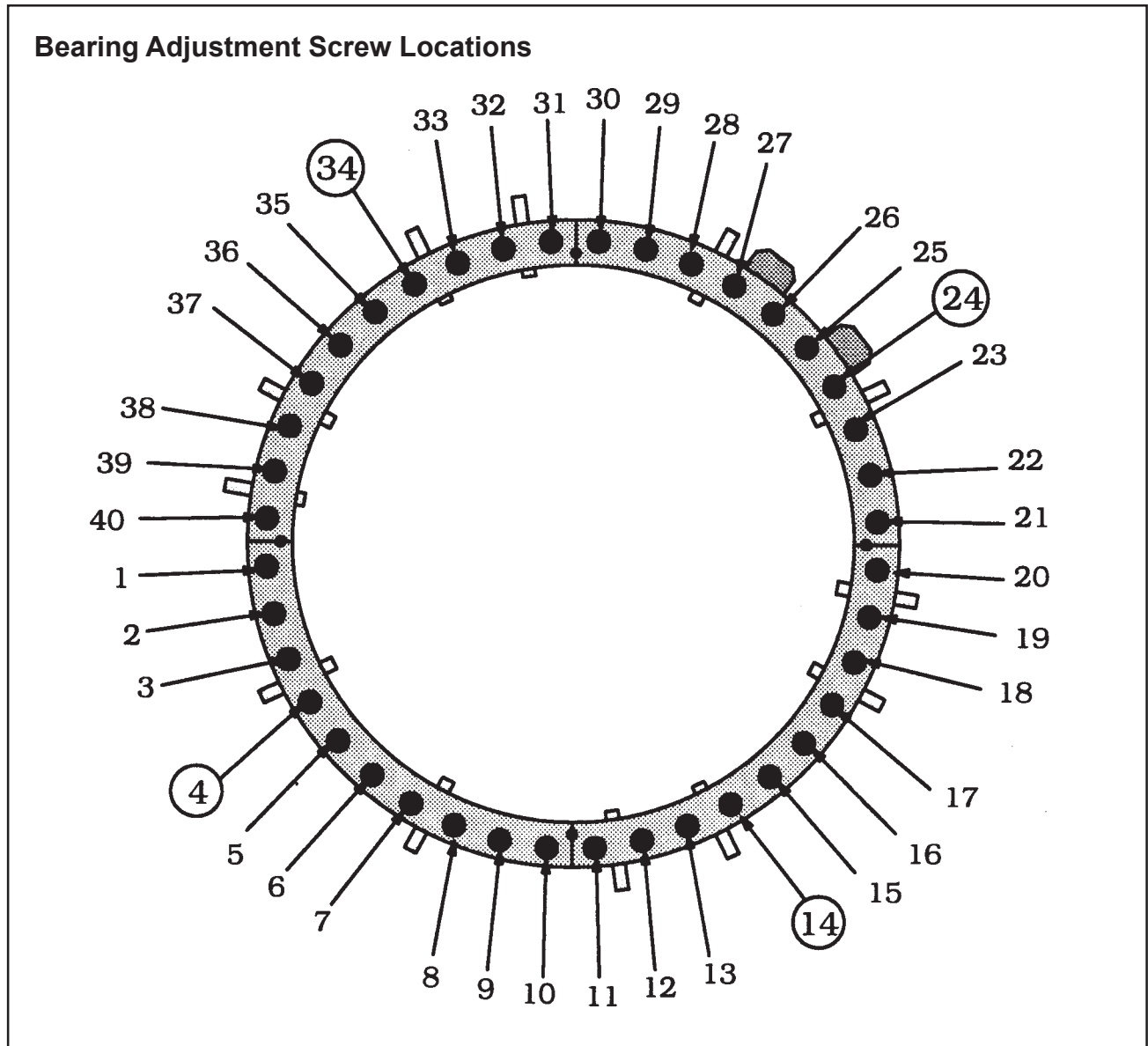
Lightly turn in the remaining bearing adjustment eccentric nuts until all of the bearings make contact with the Headstock.

The safe torque range on the bearing adjustment eccentric nuts is 1 in-lbs (.1 N m) to 3 in-lbs (.3 N m).

Relax the four (4) bearing adjustment eccentric nuts and resnug them so that all of the bearings are evenly loaded against the gear race.

NOTE:

Overtightening the bearing adjustment eccentric nuts will result in accelerated bearing wear and lower available power.



INSPECTION OF THE MAIN GEAR

When the Headstock does not run smoothly, even after adjustment, inspect the Main Gear to ensure that no chips, dirt or dust have damaged the gear.

DRIVE GEAR AND MAIN GEAR LUBRICATION

Remove the Drive Housings.

Inspect both Drive and Main Gears for chips or burrs and clean as required.

Coat the teeth of the Drive and Main Gears with a grease that is approved by TRI TOOL INC.

For further information see 'Lubricant Recommendations'.

TOOL BLOCK MAINTENANCE

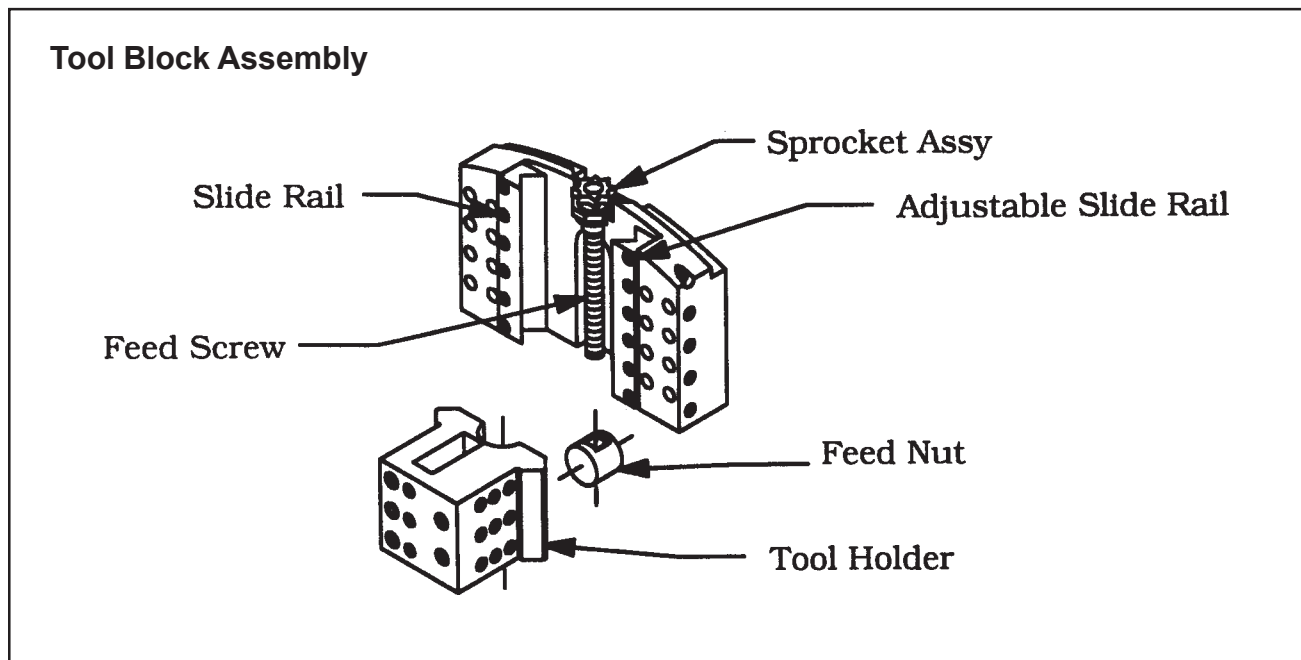
Clean the Slide Rails, the Feed Nut, the Sprocket Assembly and the Feed Screw.

Inspect these parts for damage and replace as required.

LUBRICATE AND REASSEMBLE THE TOOL BLOCK

Use lubricant on the Feed Screw sparingly or wipe to a film condition.

Excess lubricant will collect grit and/or chips and tend to cause thread jamming and/or damage.



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

The Slide Rails must be over-tightened to squeeze the oil into a thin film against the male and female surfaces of the Slide Rails.

Reset for proper operation.

NOTE:

When the mounting bracket has been overstressed, the Slide Rails may appear to loosen when mounted if they were adjusted off of the Clamshell.

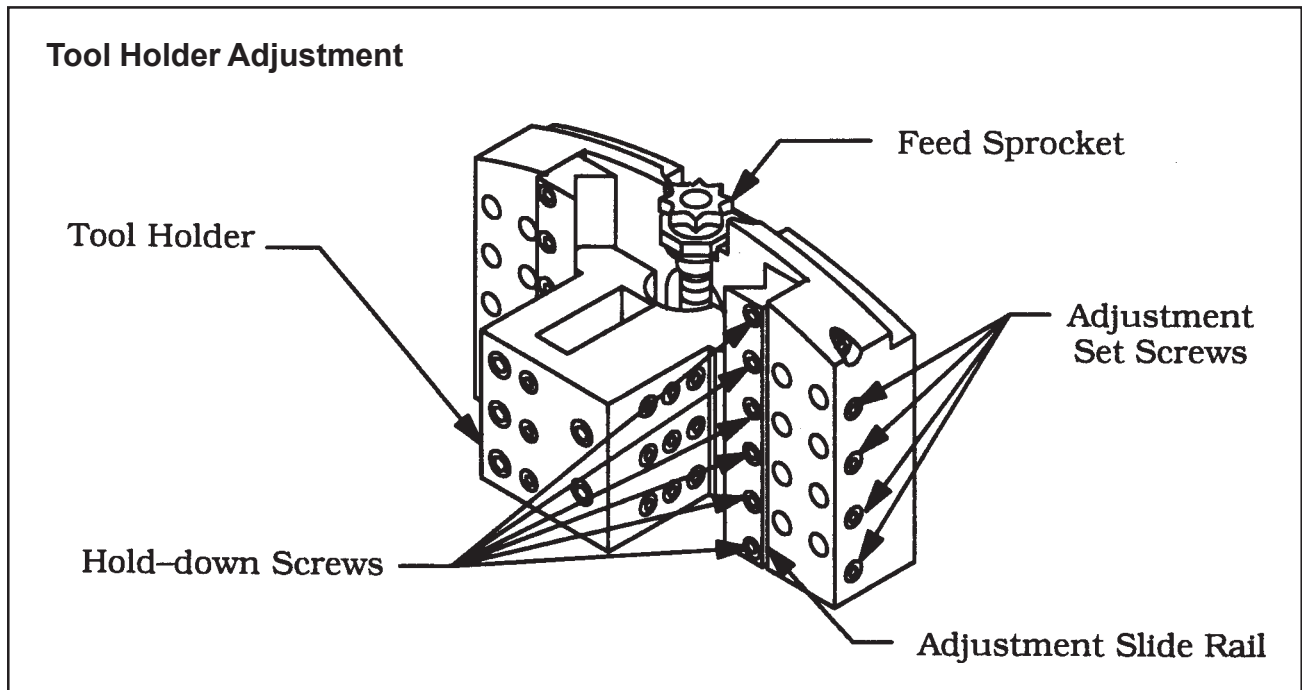
Adjustment when mounted provides the most satisfactory results.

TOOL HOLDER ADJUSTMENT

Loosen the Hold-Down Screws on the Adjustable Slide Rail.

Run the Tool Holder to the most outward position.

Using the Adjustment Set Screws, apply a light force to the side of the Adjustable Slide Rail so that it is in positive contact with the Tool Holder.



Adjust only those screws that bear directly in-line with the Tool Holder.

Tighten the Hold Down Screws to about 12 in-lbs (1.4 N m) to 24 in-lbs (2.7 N m).

Finger tight using a Hex Key.

Using the Hex Wrench, run the Tool Holder to the inward most position.

Note any changes in the feed pressure.

Adjust the remaining Adjustment Set Screws so that the Tool Holder has a smooth, even feel.

Run the Tool Holder the full length of the Slide Rail.

Tightly lock the Adjustable Slide Rail in place with the Hold-Down Screws and fully snug the adjustment set screws.

Check that the Tool Holder runs smoothly and evenly for the full length of travel.

Readjust as necessary.

The tool holder should move with some resistance.

In, general when the Slide Rail is set correctly, teh Feed Sprocket cannot be turned by hand but may be turned easily with the Spanner Wrench.

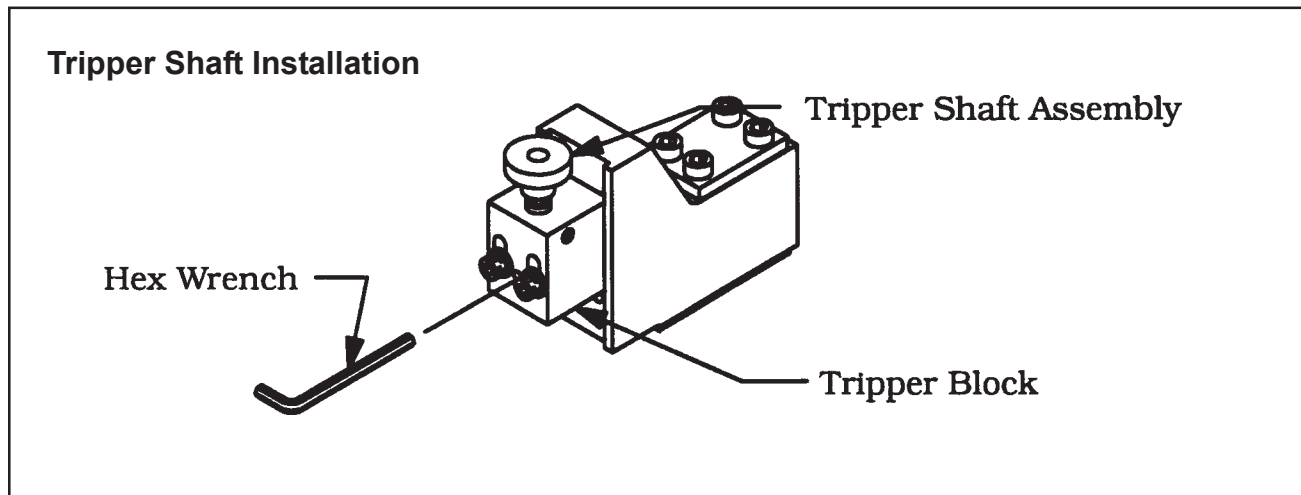
The torque on the Spanner Wrench should be about 2 ft-lbs (2.7 N m) to 5 ft-lbs (6.8 N m).

TRIPPER BLOCK ASSEMBLY LUBRICATION AND TRIPPER SHAFT ADJUSTMENT

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

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

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



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

LUBRICANT RECOMMENDATIONS

The drive gears require a high string lubrication grease such as 'Chevron Utility Grease, light

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

The feed screw for the tool block and the tripper block assembly require a 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.

LUBRICANT RECOMMENDATIONS FOR HYDRAULIC MOTORS

The bearings in the hydraulic motors are sealed and do not require any lubrication.

OPERATION

Read the 'Operation' section carefully before attempting to operate the Model 648RBL Low Profile Clamshell.

CONFIGURE THE CLAMSHELL FOR THE SPECIFIC TASK REQUIRED

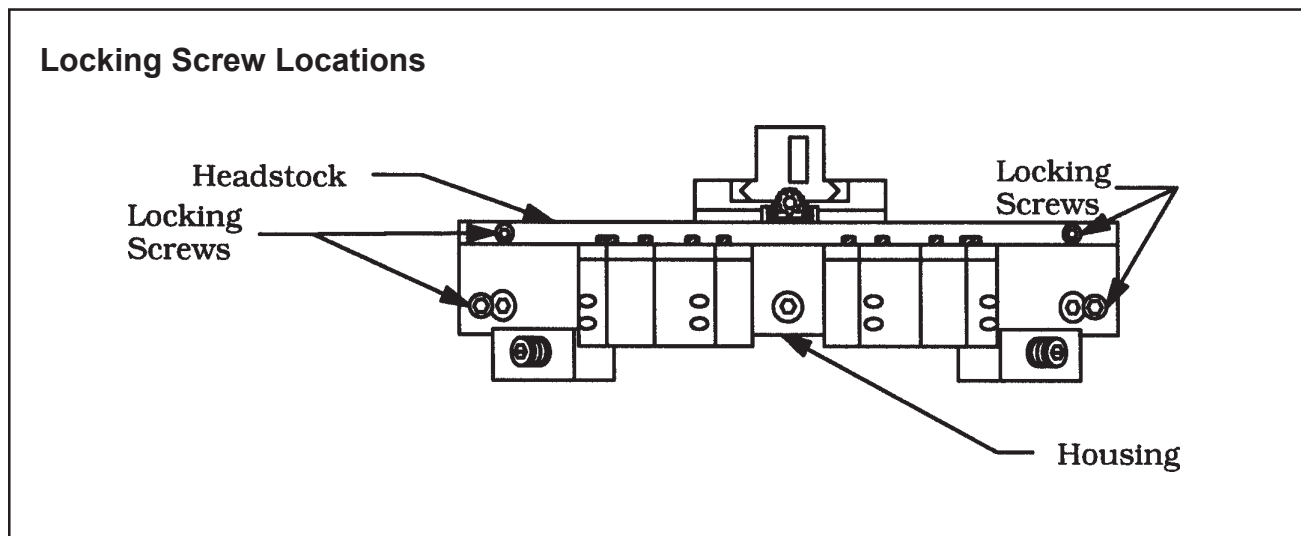
Mount the Tool Blocks and Tripper Bracket onto the Clamshell.

Select and install the proper Clamping Pad Set into the Clamshell.

Do not install the Tool Bits until the Clamshell has been installed on the pipe.

INSTALLATION OF THE CLAMSHELL ON AN IN-LINE PIPE

Separate the Clamshell into two (2) halves or four (4) quarters.



Rotate the Headstock until the split-lines of the Headstock match the split-lines of the Housing.

Unbolt the Red Lock Blocks attached to the Headstock, flip them over and re-attach them with the Dowel Pin going through the Headstock and into the Housing.

This is to prevent the Headstock from rotating out of the Housing while the Clamshell is split in half.

Unbolt the Clamshell.

The locking screws are located on the Housing and Headstock.

The Locking Screws are captured in their holes so that they will not come totally free of the Clamshell.

Separate the Clamshell sections evenly by pulling straight apart.

DO NOT FORCE OPEN.

SECURING THE CLAMSHELL TO THE PIPE

Clean the mating surfaces and the contact surface of the Mounting Pads and the Jackscrews on each half of the Clamshell.

Wipe clean the mounting surface on the pipe.

Check to ensure that the Tool Blocks will clear the pipe when the Clamshell is mounted.

Close the sections of the Clamshell around the pipe, keeping the mating surfaces clean.

Check that the Alignment Pins have seated the split-lines properly.

Bolt the sections of the Clamshell together using the Locking Screws in the Housing and Headstock.

Tightening torque should be 50 ft-lbs (68 N m) to 60 ft-lbs (81 N m).

Tighten the Adjustable Bars while centering the Clamshell around the pipe.

Wiggle the Clamshell around during this step to insure that the Space Bars are setting square on the pipe.

Tighten the Adjustable Bars 1 and 3 to no more than 10 ft-lbs (14 N m) of torque.

Tighten the Adjustable Bars 2 and 4 to no more than 10 ft-lbs (14 N m) of torque.

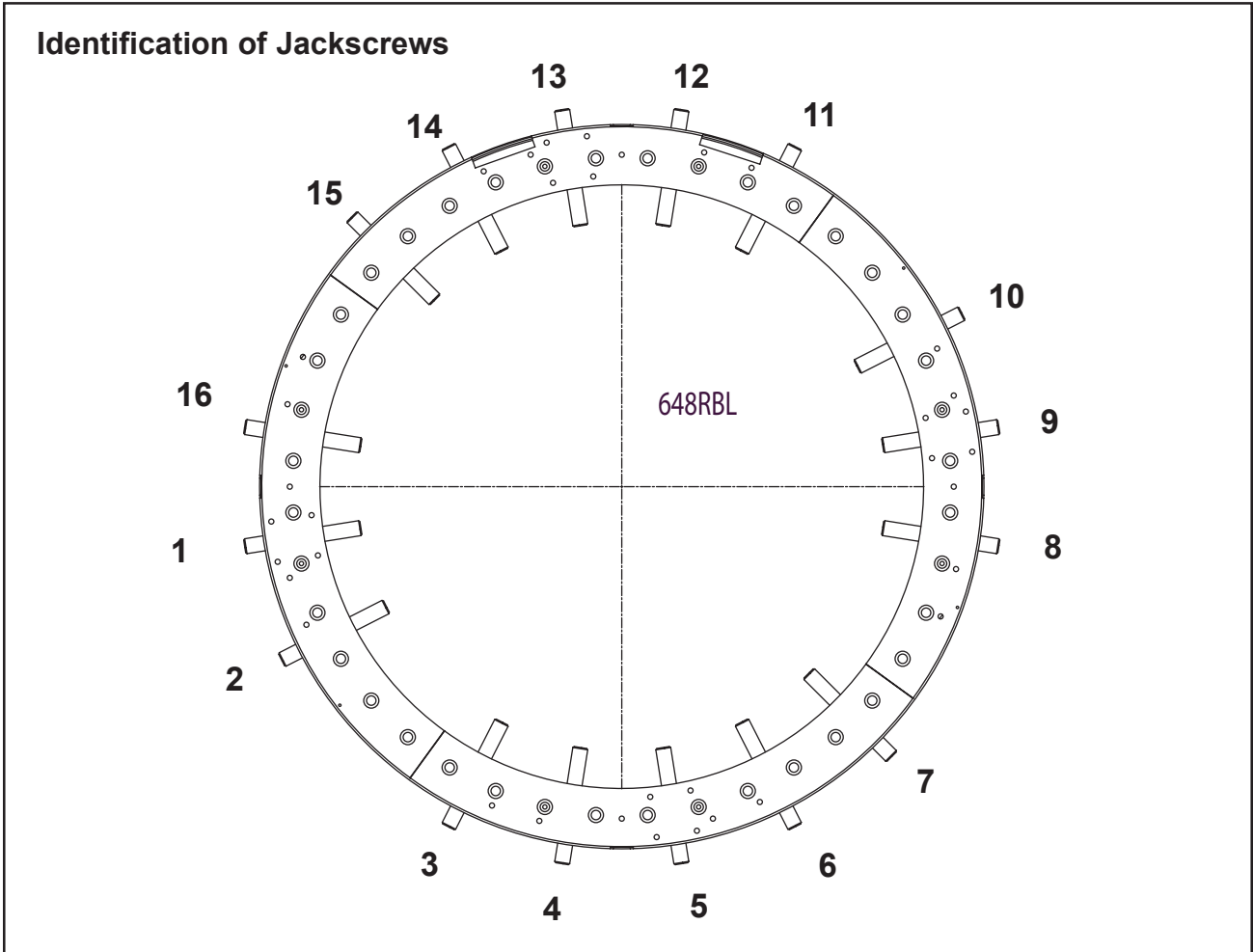
Fine center the Clamshell as you would a 4-jaw chuck.

Take measurements from the pipe OD to the Housing ID or use a dial indicator to sweep around the pipe's outside diameter.

If additional precision in squaring is required, consult TRI TOOL INC. about alternate methods of squaring.

WARNING: If additional squaring or centering is required, loosen the Adjustable Bars before attempting to move the Clamshell.

Once the Clamshell is centered about the pipe and the four (4) Adjustable Bars are evenly torqued down then it is time to tighten the Jackscrews.



Tighten 5 and 13 down to 10 ft-lbs (14 N m) of torque.

Tighten 1 and 9 down to 10 ft-lbs (14 N m) of torque.

Tighten 4 and 12 down to 10 ft-lbs (14 N m) of torque.

Tighten 8 and 16 down to 10 ft-lbs (14 N m) of torque.

Tighten 3 and 11 down to 10 ft-lbs (14 N m) of torque.

Tighten 2 and 10 down to 10 ft-lbs (14 N m) of torque.

Tighten 6 and 14 down to 10 ft-lbs (14 N m) of torque.

Tighten 7 and 15 down to 10 ft-lbs (14 N m) of torque.

Verify that the Clamshell is mounted square and centered to the pipe.

Adjust the Jackscrews and Adjustable Bars in opposing pairs to correct any off center positioning.

Once the Clamshell is mounted square and centered to the pipe, tighten all of the Adjustable Bars and Jackscrew to 25 ft-lbs (34 N m) to 30 ft-lbs (41 N m) of torque following the same sequence that was followed to set them up.

NOTE:

The Headstock should be able to be rotated by hand with the Motor(s) removed.

If not, the Jackscrews and/or the Adjustable Bars are too tight and will need to be loosened before the Clamshell is powered up.

GENERAL MACHINING SEQUENCE

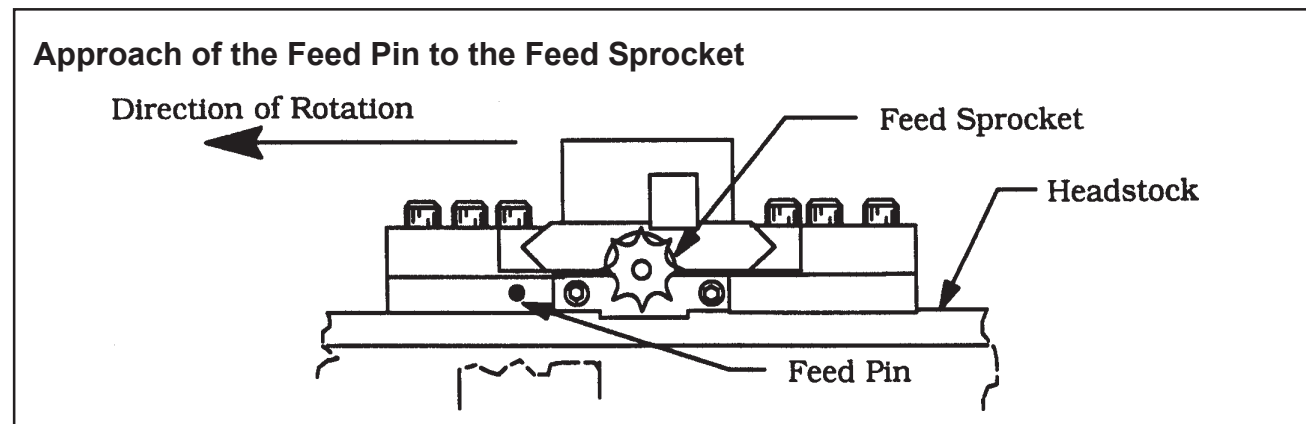
Install the Motor(s) Drive Housing(s), if required, into the slots and bolt them to the Clamshell.

CAUTION:

The Motor Mount reacts to the torque of the Motor only when the Motor Hold-Down Bolts are in place.

Connect the power supply to the Model 648RBL.

Rotate the Headstock slowly with the Tripper Shaft pushed 'in' for one full revolution to insure that the Feed Pin to Sprocket is set right on both Tool Blocks.



CAUTION: You will break the Feed Pin if the Feed Pin to Sprocket alignment is incorrect.

To check the Feed Pin to Sprocket engagement reference the 'Feed Pin to Sprocket Engagement' information later in this section.

SELECT AND INSTALL THE DESIRED TOOL BIT SET

Reference 'Tool Bit Set-Up' later in this section.

Turn the Motor(s) on to full speed.

Engage the feed by pushing the Tripper Shaft 'in'.

Monitor the cutting operation.

Apply cutting fluid as necessary.

When chips build up so much that they tangle in the Clamshell, disengage the feed for two (2) to three (3) revolutions to clear the chip.

Then stop the Clamshell and remove the chips.

Reference the 'Severing' information later in this section for specific machining procedures.

CAUTION: In-line pipe stores energy.

When the pipe is severed, the pipe may move.

To prevent accidents due to the spring in the pipe system, be sure to secure the pipe on both sides of the sever line in order to prevent differential movement of the pipe ends.

When the machining operation is finished, disengage the Feed Pin by pulling the Tripper Shaft to the 'out' position.

Allow the Headstock to continue for three (3) revolutions to complete the cutting operation.

Turn the Motor(s) off.

Retract the Tool Holders so that the Tool Bit(s) clear the Pipe OD.

NOTE:

The Tool Holders are retracted by rotating the Feed Sprocket clockwise using the special Spanner Wrench supplied with the Clamshell.

Run the Motor(s) until the split-lines of the Headstock and the Housing match.

Loosen the Jackscrews.

Remove the Clamshell from the pipe.

When the Clamshell must be split to remove it, refer back to the information under 'Installation of the Clamshell on an In-Line Pipe'.

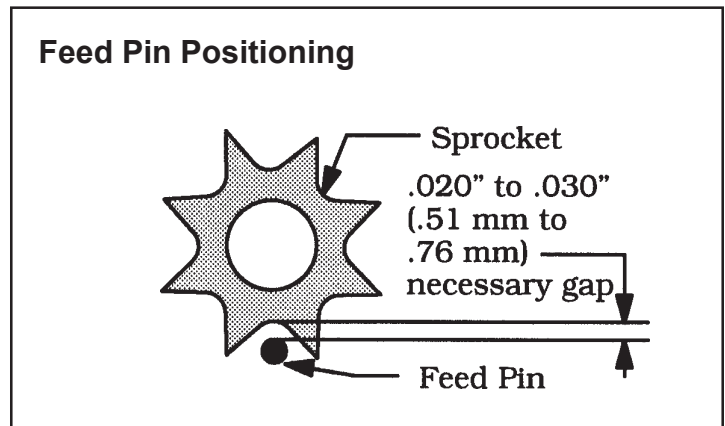
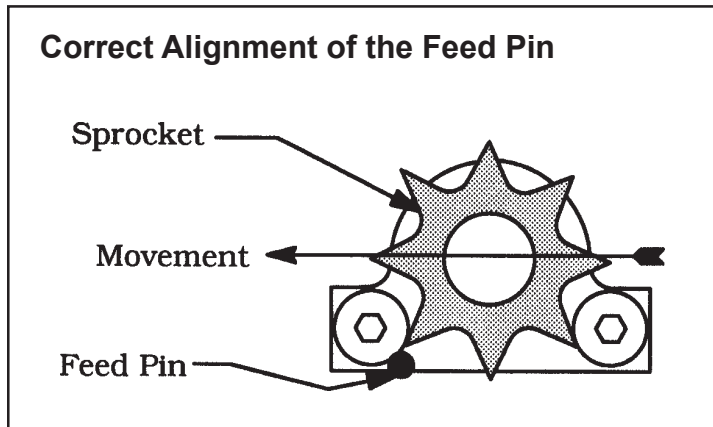
You should have a complete pipe sever at this time.

FEED PIN TO SPROCKET ENGAGEMENT

Rotate the Headstock until the Sprocket on the Tool Block begins to approach the Feed Pin.

The Feed Pin must not strike the Sprocket Tooth straight on.

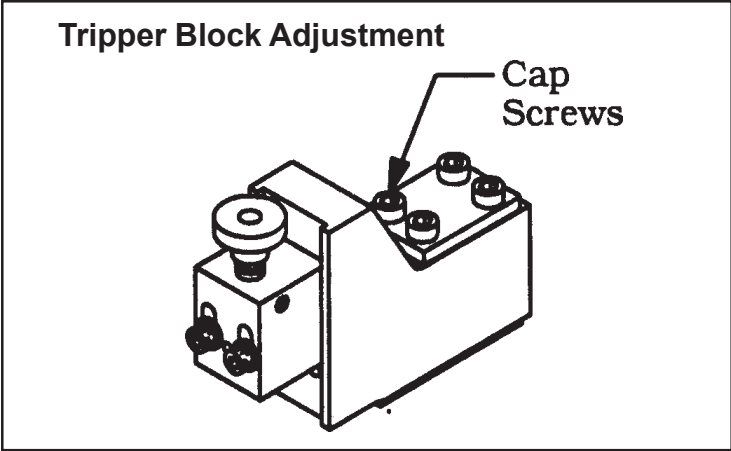
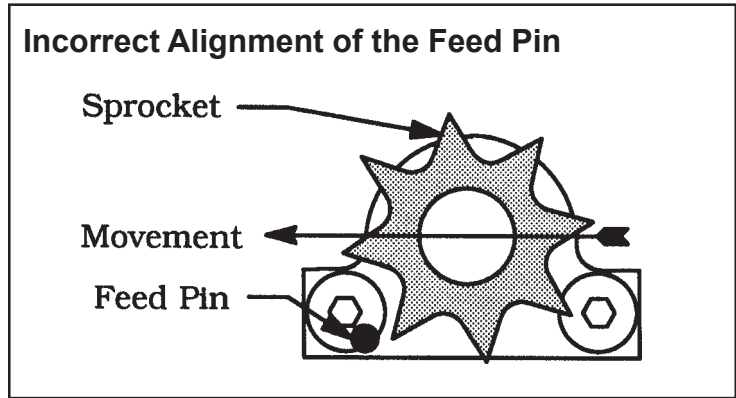
This action would damage or break the Feed Pin and/or the Sprocket.



The Feed Pin must strike the Sprocket on the edge of the Tooth.

Reference the previous two images, 'Correct Alignment of the Feed Pin' and 'Feed Pin Positioning'.

CAUTION: When the Feed Pin to Sprocket engagement is not as shown in the referenced images, operation of the Clamshell may cause serious damage or destroy the Feed Pin and/or the Sprocket.



When the Feed Pin to Sprocket engagement is as shown above, then it will be necessary to loosen the four (4) Cap Screws on the Tripper Bracket, so that it may be adjusted to the proper gap, .020" (.51 mm) to .030" (.76 mm), required for proper engagement.

SELECT AND INSTALL THE DESIRED TOOL BIT SET

Tool Bit Set-Up

Select the proper Tool Bit set. See "Tool Bit" section of this manual.

WARNING:

Use of dull or improperly designed Tool Bits or Tool Bits not manufactured by TRI TOOL INC. factory warranty may result in poor performance and may constitute abuse of this machine and therefore voids the TRI TOOL Inc. factory warranty.

Install the Tool Bits into the Tool holders.

NOTE:

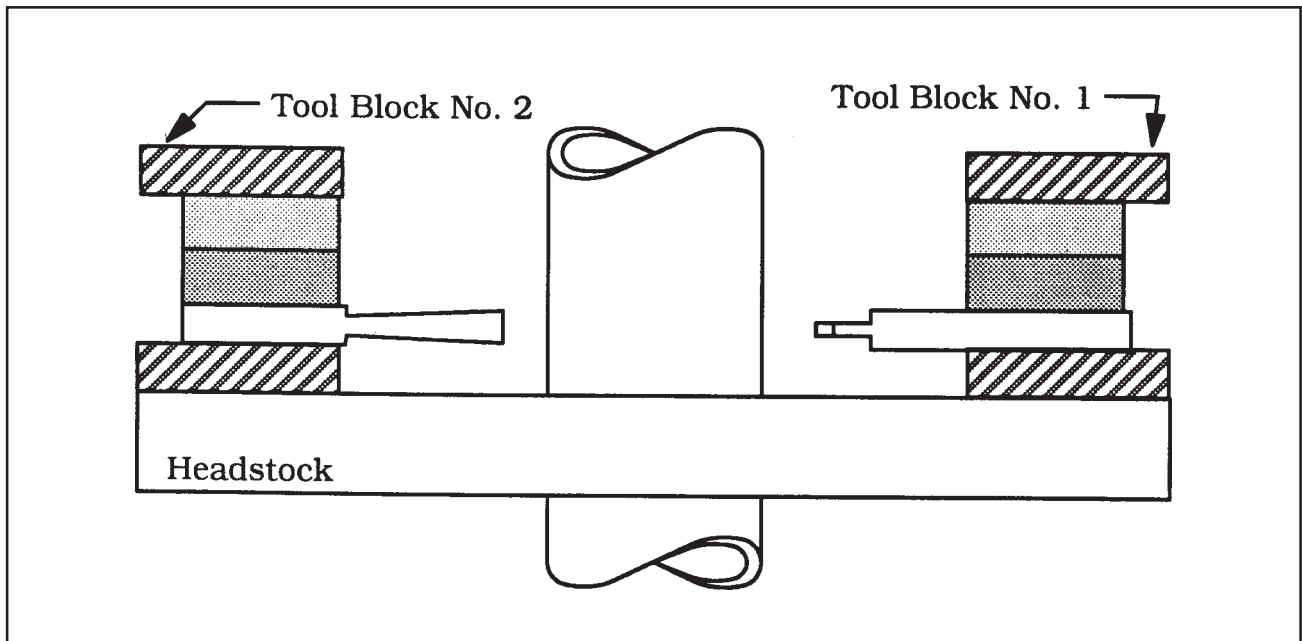
Refer to the 'Tool Bits' section of this manual for installation drawings for each of the Tool Bits to see Tool Bit set-up.

The wall thickness plus 3/4" (19.0 mm) of Tool Bit should be protruding from the end of the Tool Holder.

Tighten the Tool Bit set screws, then verify that there is adequate clearance between the Tool Bits and the pipe by rotating the Headstock.

The Leading Tool Bit should contact the pipe approximately .020" (.51 mm) to .040" (1.02 mm) before the Trailing Tool Bit.

SEVERING



When the Tool Bits sever the pipe, disengage the Feed Pin and let the Headstock rotate two (2) to three (3) times to clear the chip.

When the machining operation is finished, disengage the Feed Pin by pulling the Tripper Shaft to the 'out' position.

Allow the Headstock to continue for three (3) revolutions to complete the cutting operation.

Turn the Motor(s) off.

Retract the Tool Holders so that the Tool Bit(s) clear the Pipe OD.

NOTE:

The Tool Holders are retracted by rotating the Feed Sprocket clockwise using the special Spanner Wrench supplied with the Clamshell.

Run the Motor(s) until the split-lines of the Headstock and the Housing match.

Loosen the Jackscrews.

Remove the Clamshell from the pipe.

When the Clamshell must be split to remove it, refer back to the information under 'Installation of the Clamshell on an In-Line Pipe'.

You should have a complete pipe sever at this time.

CUTTING SPEEDS AND FEEDS

Cutting Speeds (approximate)					
Pipe Size	True Diameter		RPM for 200 in/min (508 cm/min)	RPM for 250 in/min (635 cm/min)	RPM for 300 in/min (762 cm/min)
	48"	48.00"	122 cm	1.3	1.7
46"	46.00"	117 cm	1.4	1.7	2.1
44"	44.00"	112 cm	1.4	1.8	2.2
42"	42.00"	107 cm	1.5	1.9	2.3

Use 200 surface inches per minute (508 surface centimeters 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 (635 surface centimeters per minute) for:

Mild steels and some thin-wall stainless steels when coolants are permitted and applied.

Use 300 surface inches per minute (762 surface centimeters per minute) for:

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

Air Motor Lubrication

The Air Motor requires a Class II Lubricant with a viscosity of 100 to 200 SSU at 100° F (38° C) and a minimum aniline point of 200° F (93° C).

TRI TOOL INC. Air Tool Lubricant (P/N 68-0022)

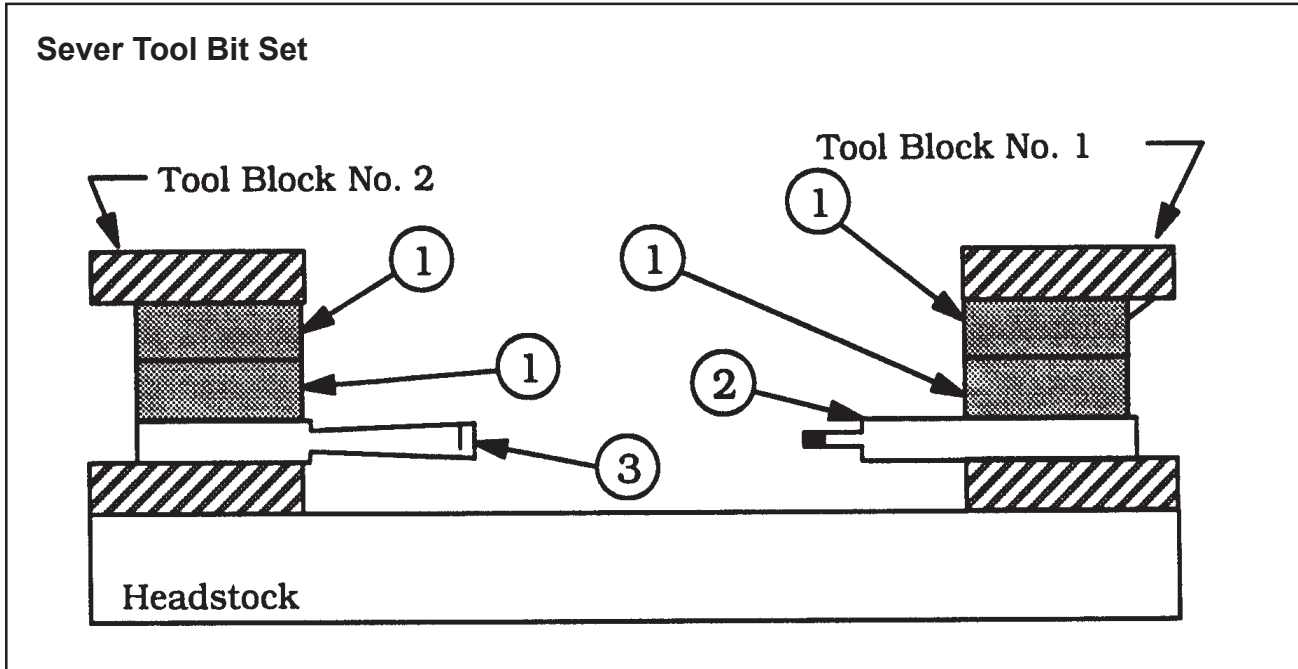
- AMOCO – American Industrial Oil No. 32
- Atlantic Richfield – Duro Oil S – 150
- Chevron – A.W. Machine Oil 32
- Exxon – Nuto H32
- Shell – Tellus Oil 32

The Bearings in the Air or Electric Motor are sealed and do not require any lubrication.

TOOL BITS

SEVER TOOL BIT SETS

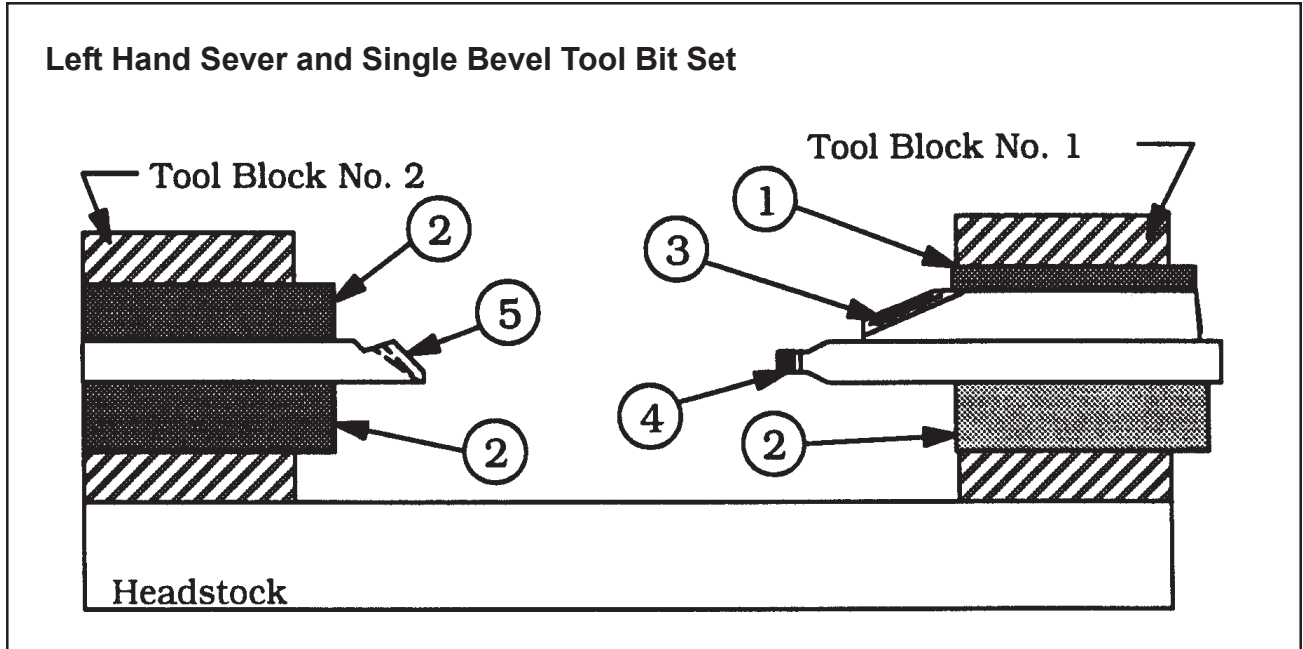
This Tool Bit will sever up to 2 1/2" (63.5 mm) wall with a 1/2" (12.7 mm) wide cut.



Item No.	Part No.	Description	Qty
1.	30-0295	SPACER	4
2.	99-0821	TOOL BIT, LEADING SEVER	1
3.	99-0822	TOOL BIT, TRAILING SEVER	1

LEFT HAND SEVER AND SINGLE BEVEL TOOL BIT SETS

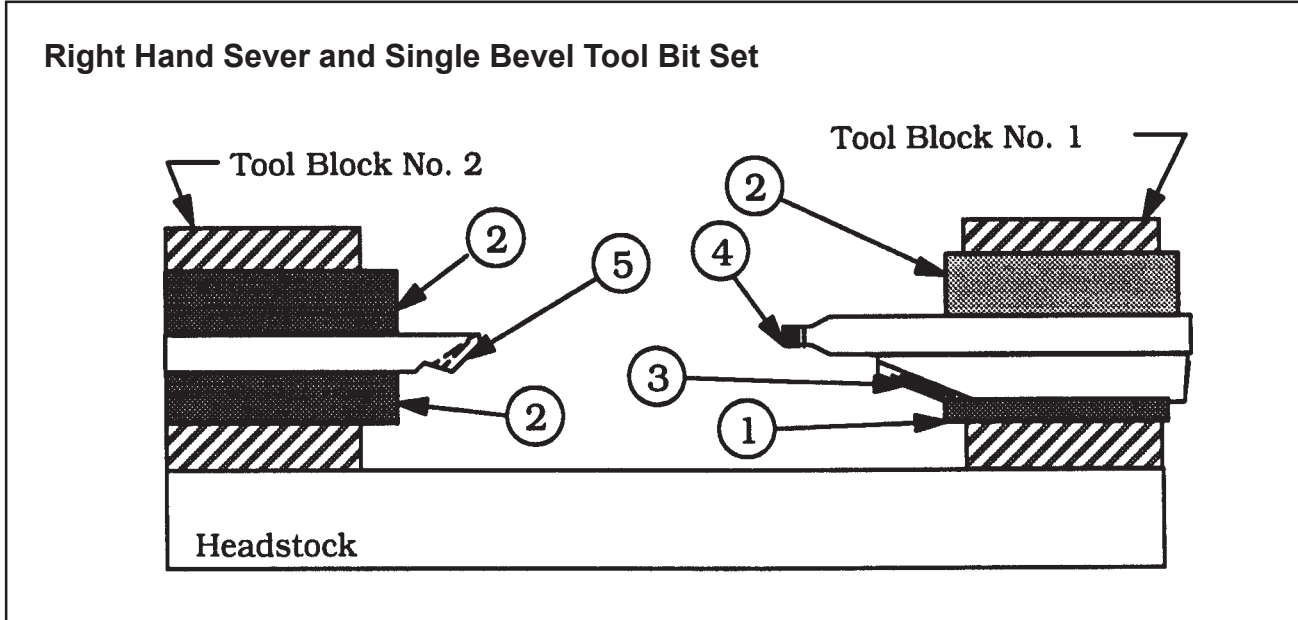
This Tool Bit Set will sever and 37.5° bevel up to a 1 1/4" (31.8 mm) wall on the pipe being cut off.



Item No.	Part No.	Description	Qty
1.	30-0223	SPACER	1
2.	30-0310	SPACER	3
3.	99-4347	TOOL BIT, TRAILING BEVEL	1
4.	99-4078	TOOL BIT, SEVER	1
5.	99-4082	TOOL BIT, LEADING BEVEL	1

RIGHT HAND SEVER AND SINGLE BEVEL TOOL BIT SETS

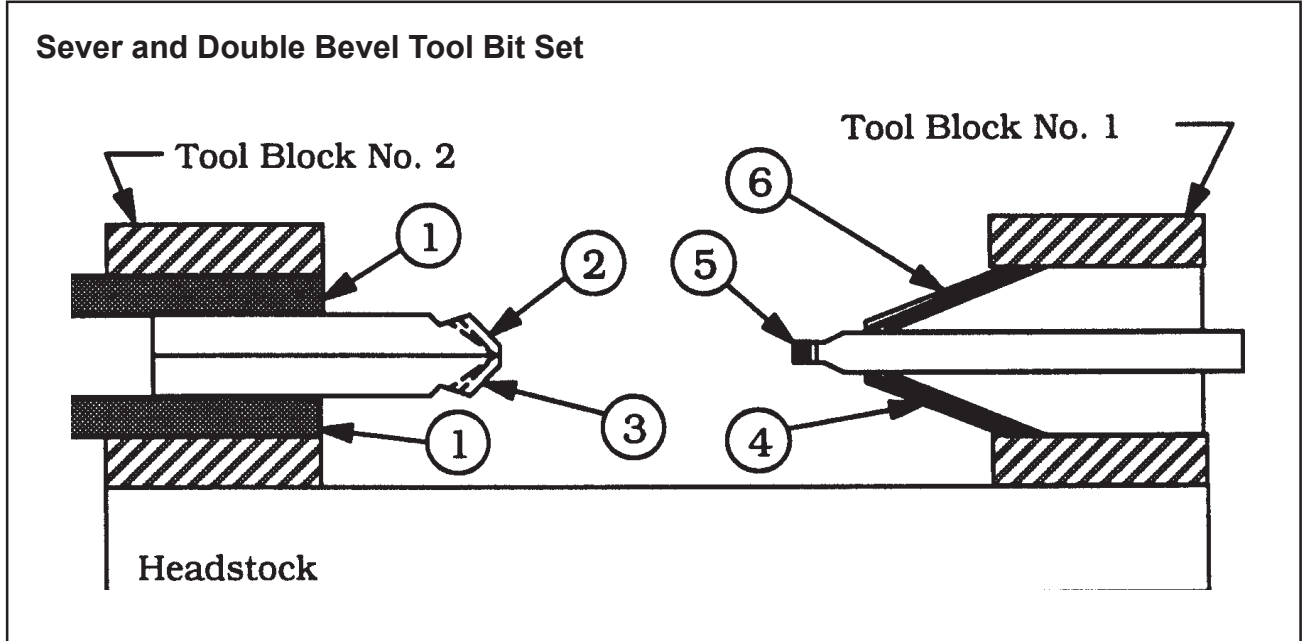
This Tool Bit Set will sever and 37.5° bevel up to 1 1/4" (31.8 mm) wall on the pipe on which the Clamshell is mounted.



Item No.	Part No.	Description	Qty
1.	30-0223	SPACER	1
2.	30-0310	SPACER	3
3.	99-4346	TOOL BIT, TRAILING BEVEL	1
4.	99-4077	TOOL BIT, SEVER	1
5.	99-4081	TOOL BIT, LEADING BEVEL	1

SEVER AND DOUBLE BEVEL TOOL BIT SETS

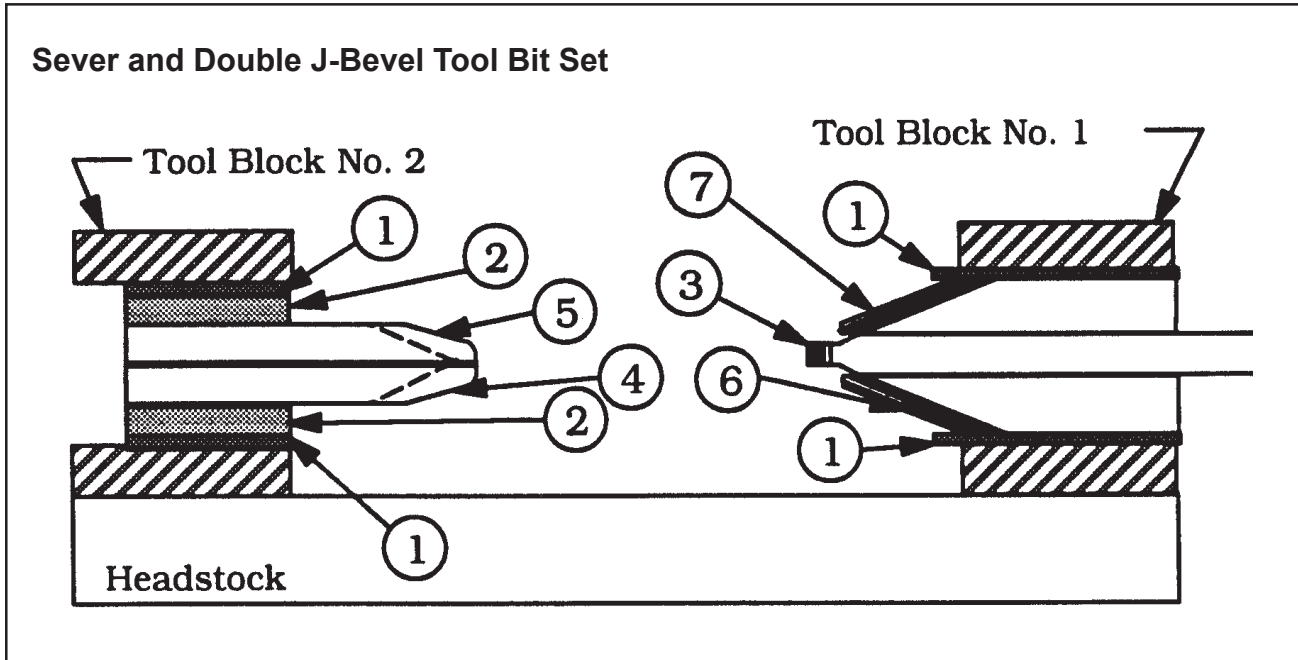
This Tool Bit Set will sever and 37.5° bevel on both sections of pipe up to 1 1/4" (31.8 mm) wall.



Item No.	Part No.	Description	Qty
1.	30-0206	SPACER	2
2.	99-0561	TOOL BIT, LEADING BEVEL, LH	1
3.	99-0562	TOOL BIT, LEADING BEVEL, RH	1
4.	99-4346	TOOL BIT, TRAILING BEVEL, RH	1
5.	99-0564	TOOL BIT, SEVER	1
6.	99-4347	TOOL BIT, TRAILING BEVEL, LH	1

SEVER AND DOUBLE J-BEVEL TOOL BIT SETS

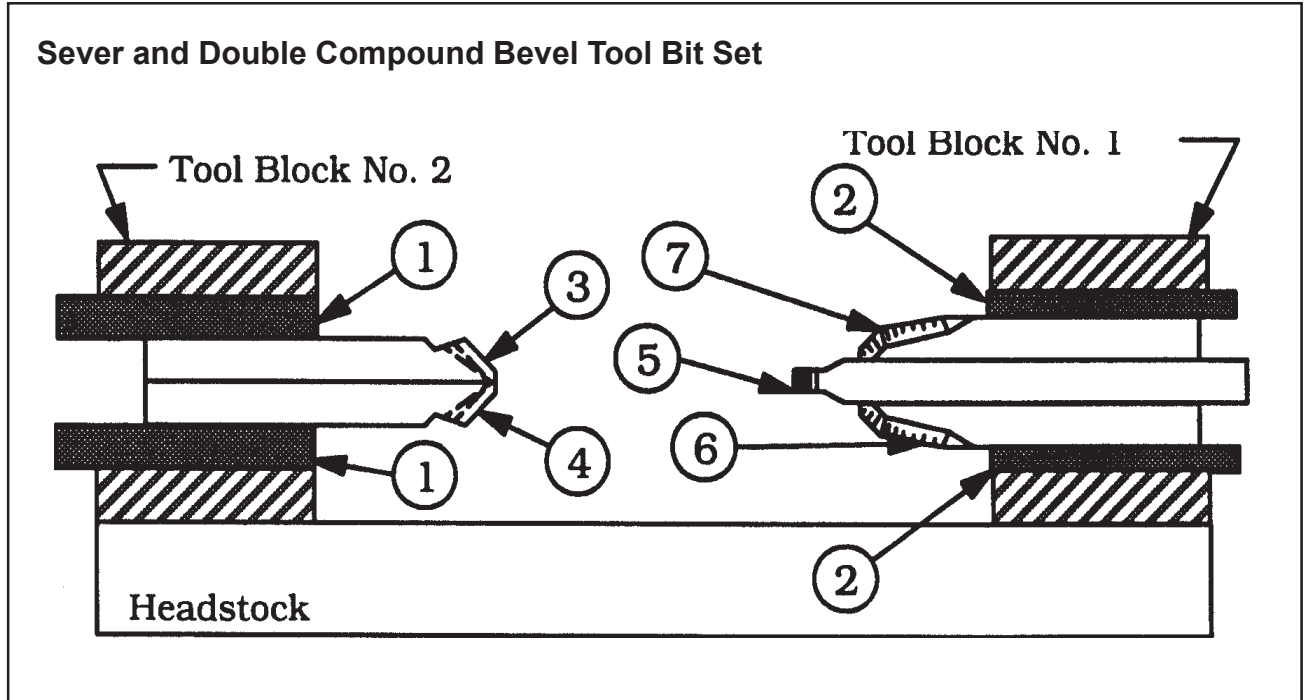
This Tool Bit Set will sever and 22 1/2° bevel with a 3/16" (4.8 mm) radius J up to 1 3/8" (35.1 mm) wall both sections of pipe.



Item No.	Part No.	Description	Qty
1.	30-0223	SPACER	4
2.	30-0206	SPACER	2
3.	99-1524	TOOL BIT, SEVER	1
4.	99-2630	TOOL BIT, LEADING BEVEL, RH	1
5.	99-2631	TOOL BIT, LEADING BEVEL, LH	1
6.	99-2632	TOOL BIT, TRAILING BEVEL, RH	1
7.	99-2633	TOOL BIT, TRAILING BEVEL, LH	1

SEVER AND DOUBLE COMPOUND BEVEL TOOL BIT SETS

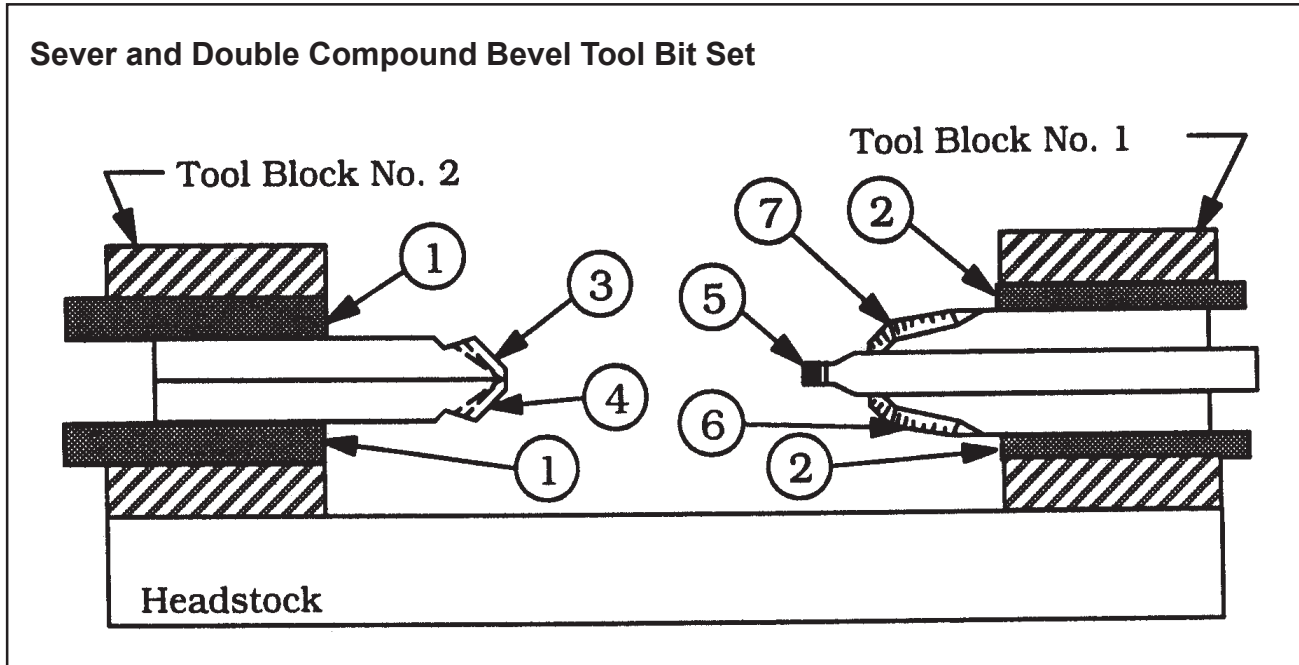
This Tool Bit Set will sever and 37.5°/10° compound bevel with 3/4" (19.1 mm) transition up to 1 3/8" (35.1 mm) wall.



Item No.	Part No.	Description	Qty
1.	30-0206	SPACER	2
2.	30-0227	SPECER	2
3.	99-0561	TOOL BIT, LEADING BEVEL, LH	1
4.	99-0562	TOOL BIT, LEADING BEVEL, RH	1
5.	99-0564	TOOL BIT, SEVER	1
6.	99-0678	TOOL BIT, TRAILING BEVEL, RH	1
7.	99-0679	TOOL BIT, TRAILING BEVEL, LH	1

SEVER AND DOUBLE COMPOUND BEVEL TOOL BIT SETS

This Tool Bit Set will sever and 37.5° /15° compound bevel with 3/4" (19.1 mm) transition up to 1 3/8" (35.1 mm) wall.



Item No.	Part No.	Description	Qty
1.	30-0206	SPACER	2
2.	30-0227	SPACER	2
3.	99-0561	TOOL BIT, LEADING BEVEL, LH	1
4.	99-0562	TOOL BIT, LEADING BEVEL, RH	1
5.	99-0564	TOOL BIT, CUT-OFF	1
6.	99-1442	TOOL BIT, TRAILING BEVEL, RH	1
7.	99-1443	TOOL BIT, TRAILING BEVEL, LH	1

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's 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's 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's 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

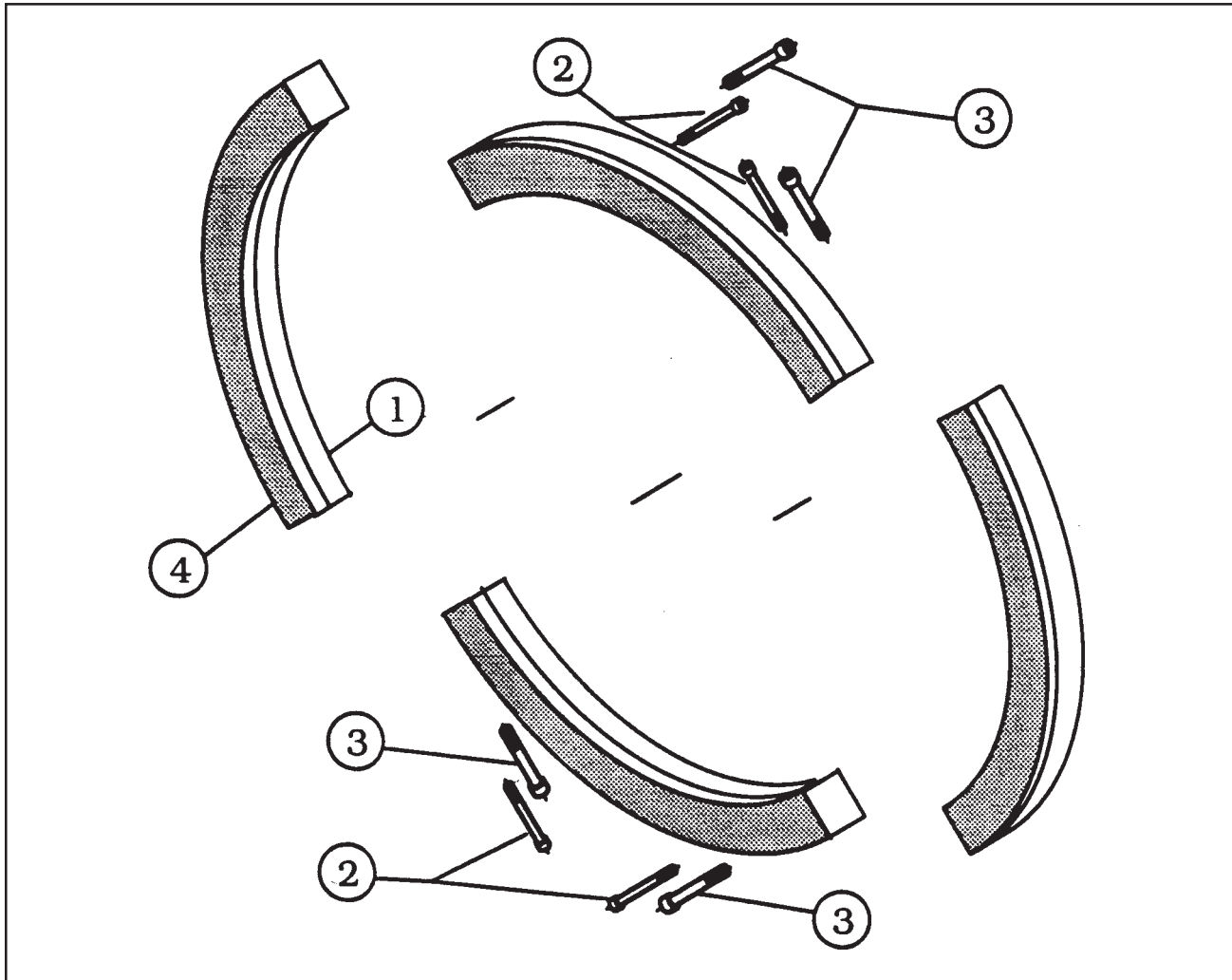
The following accessories are recommended for use with the Model 648RBL and are available from TRI TOOL INC.

1. Model 765RVC Hydraulic Power Supply
 - A. Available in 480 volt, 380 volt and 240 volt configurations.
2. Single Point Module

A portable Air Caddy (FRL) is required to protect the warranty on all TRI TOOL INC air driven tools.

ILLUSTRATED PARTS BREAKDOWN

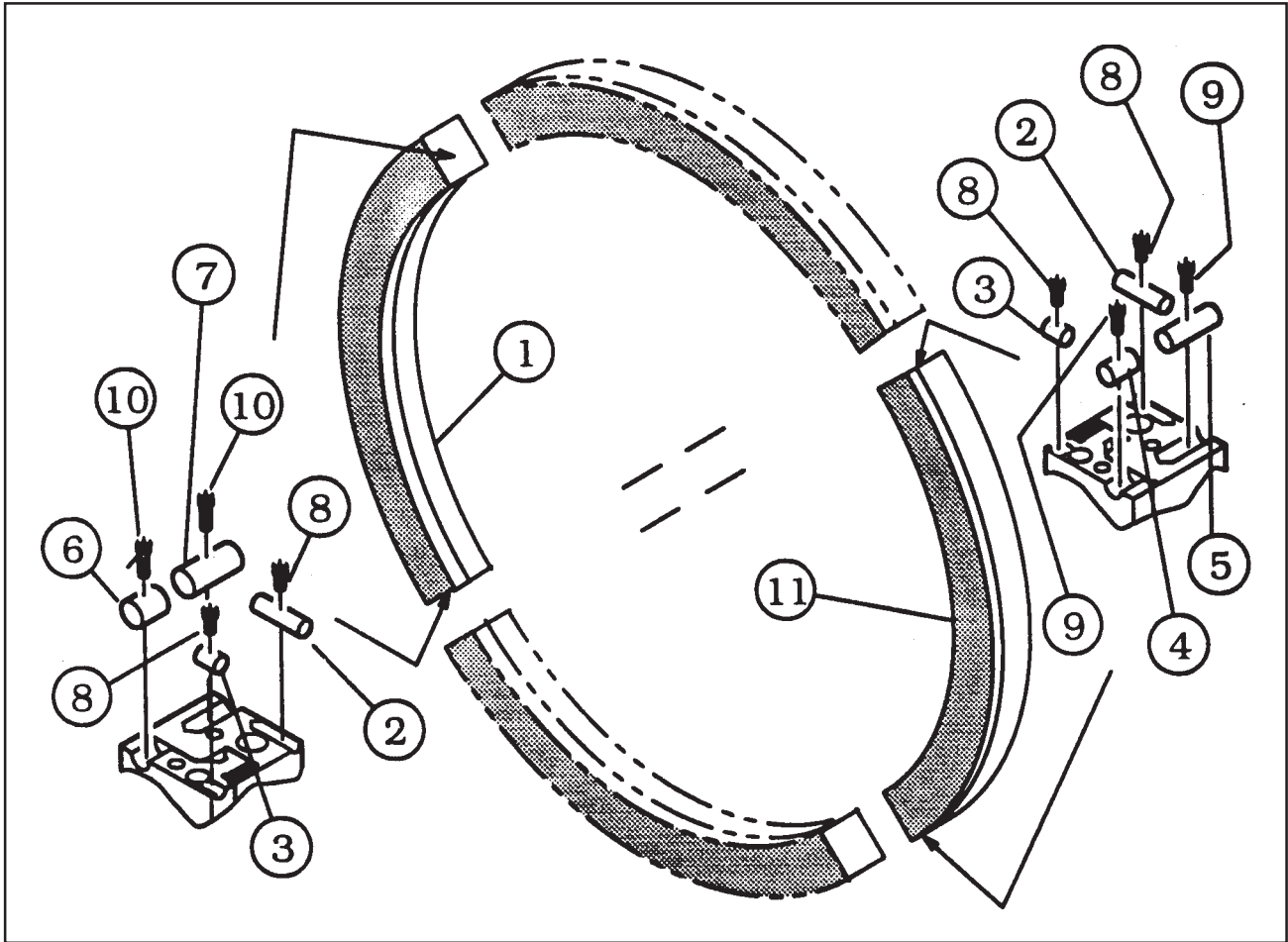
MODEL 648RBL CLAMSHELL SUB-ASSEMBLY (P/N 02-2203)



Parts List, Model 648RBL Clamshell Sub-Assembly (P/N 02-2203)

Item No.	Part No.	Description	Qty
1.	19-0673	HOUSING, MAIN	1 SET
2.	33-1828	SCREW, SPLITLINE, GEAR, HEADSTOCK	4
3.	33-0189	SCREW, SPLITLINE, HOUSING, MAIN	4
4.	39-0721	GEAR, HEADSTOCK	1 SET

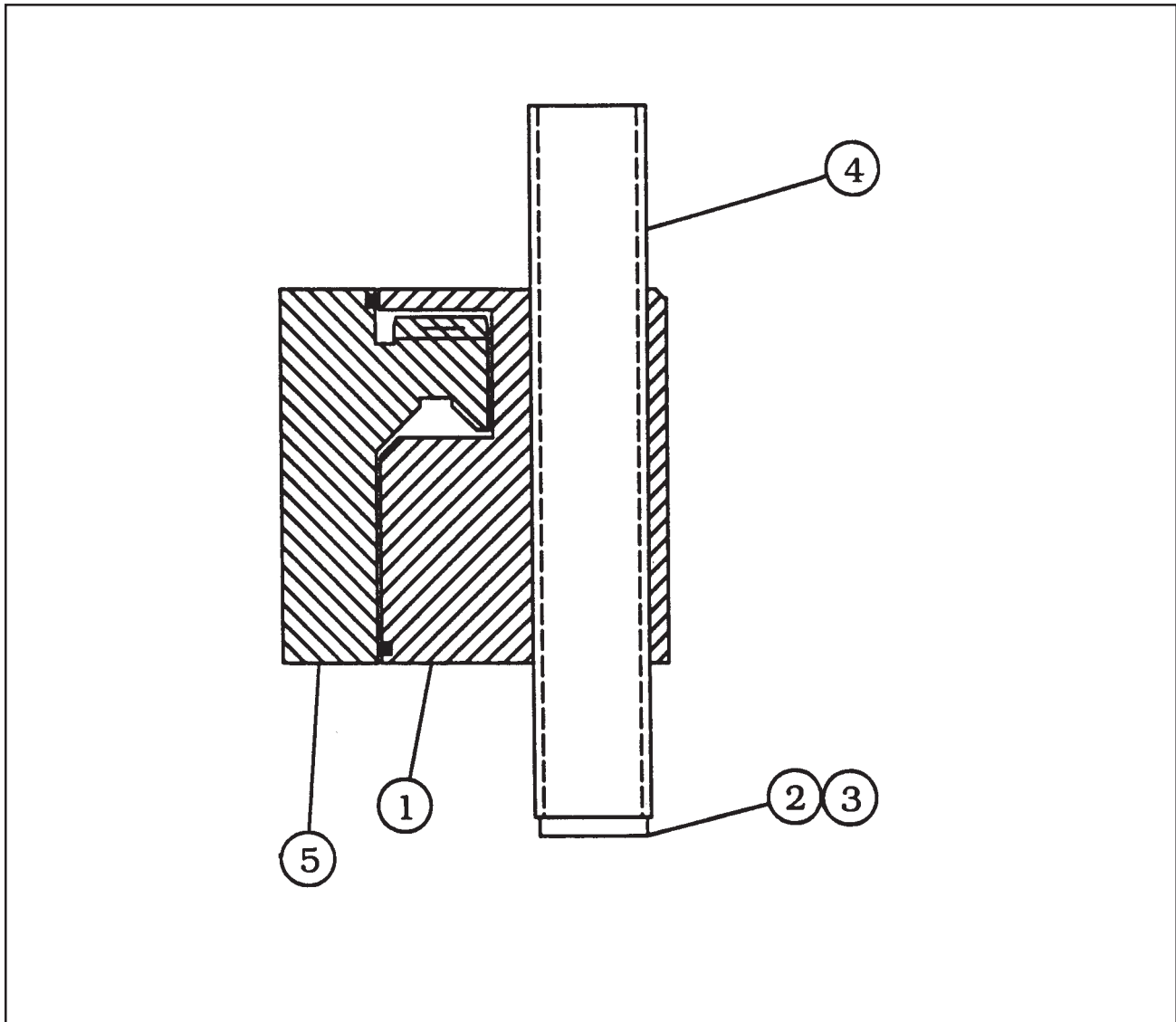
MODEL 648RBL CLAMSHELL SUB-ASSEMBLY



Parts List, Model 648RBL Clamshell Sub-Assembly

Item No.	Part No.	Description	Qty
1.	19-0673	HOUSING, MAIN	REF
2.	32-0440	PIN, ALIGNMENT	4
3.	32-0441	PIN, ALIGNMENT	4
4.	32-0442	PIN, ALIGNMENT	2
5.	32-0443	PIN, ALIGNMENT	2
6.	32-0444	PIN, ALIGNMENT	2
7.	32-0445	PIN, ALIGNMENT	2
8.	33-0039	SCREW, CAP	8
9.	33-0040	SCREW, CAP	4
10.	33-0042	SCREW, CAP	4
11.	39-0721	GEAR, HEADSTOCK	REF

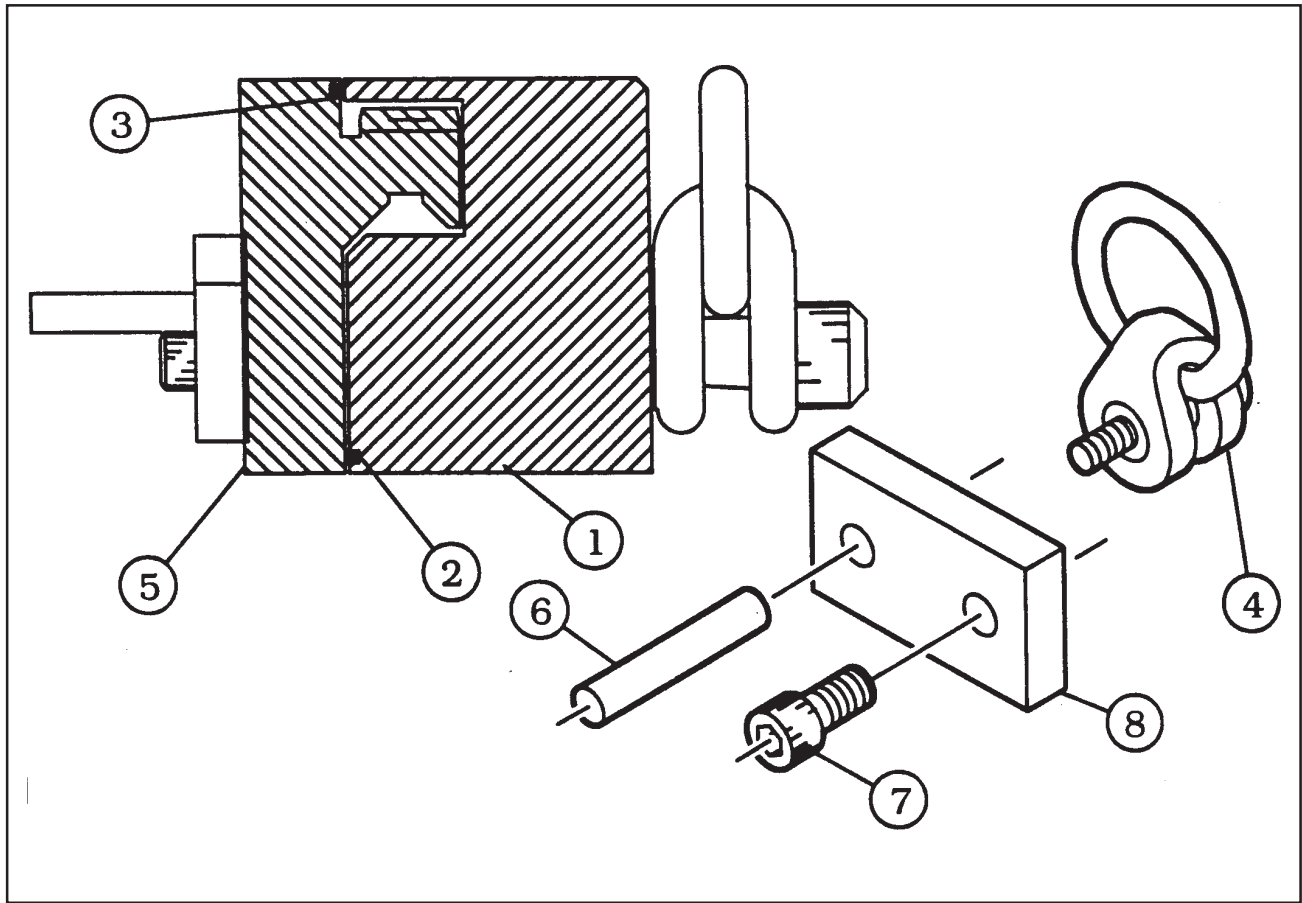
MODEL 648RBL CLAMSHELL SUB-ASSEMBLY



Parts List, Model 648RBL Clamshell Sub-Assembly

Item No.	Part No.	Description	Qty
1.	19-0673	HOUSING, MAIN	REF
2.	30-0622	BUTTON	16
3.	30-0615	BALL, STEEL	16
4.	33-1831	JACKSCREW	16
5.	39-0721	GEAR, HEADSTOCK	REF

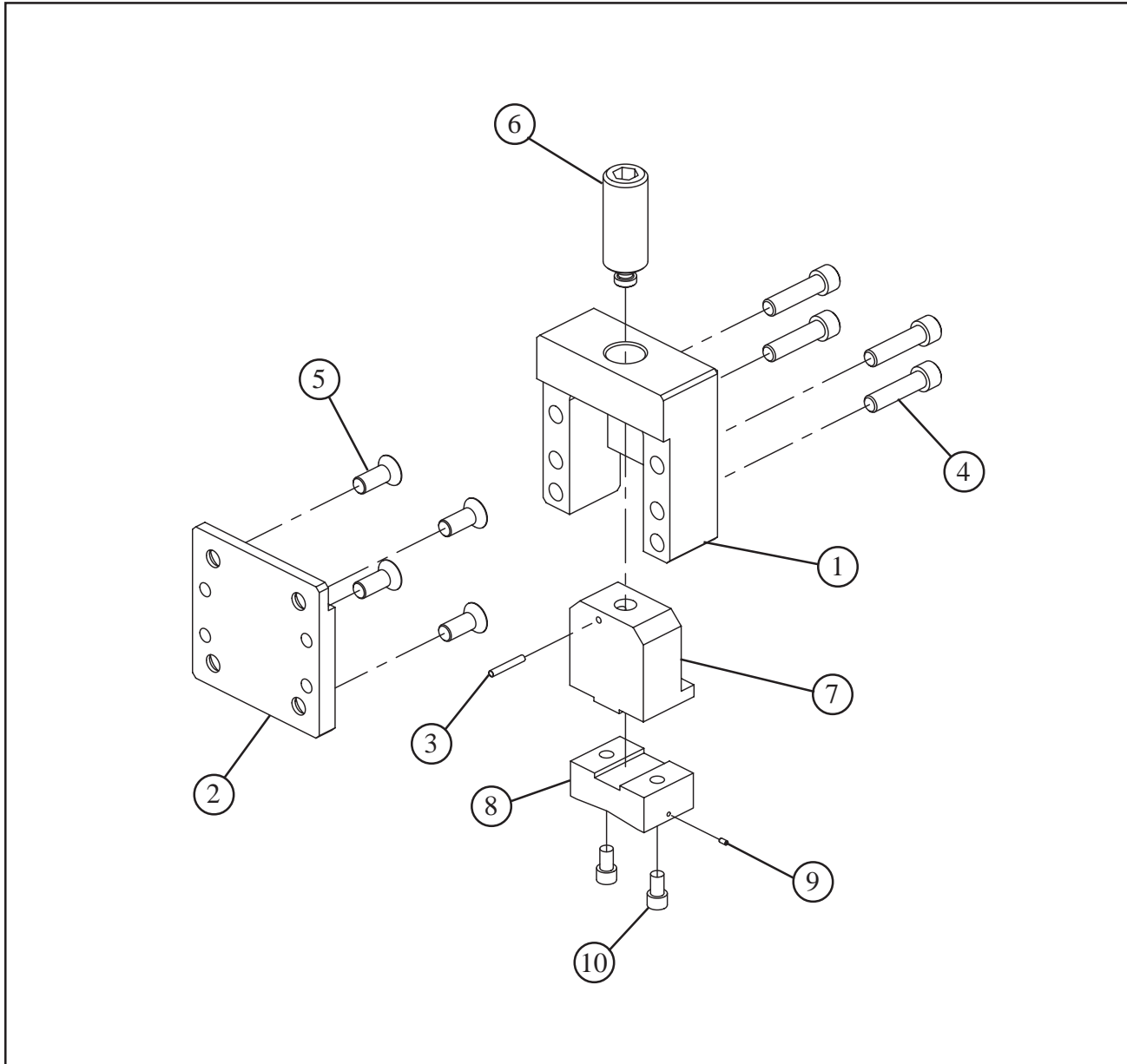
MODEL 648RBL CLAMSHELL SUB-ASSEMBLY



Parts List, Model 648RBL Clamshell Sub-Assembly

Item No.	Part No.	Description	Qty
1.	19-0673	HOUSING, MAIN	REF
2.	28-0057	SEAL, FELT	160"
3.	28-0057	SEAL, FELT	189"
4.	30-0304	RING, HOIST	4
5.	39-0721	GEAR, HEADSTOCK	REF
	48-0832	LOCKBLOCK ASSEMBLY	4
6.	32-0411	PIN, DOWEL	1
7.	33-0106	SCREW, CAP	1
8.	48-0798	BLOCK, LOCK	1

MODEL 648RBL CLAMSHELL SUB-ASSEMBLY



Parts List, Model 648RBL Clamshell Sub-Assembly

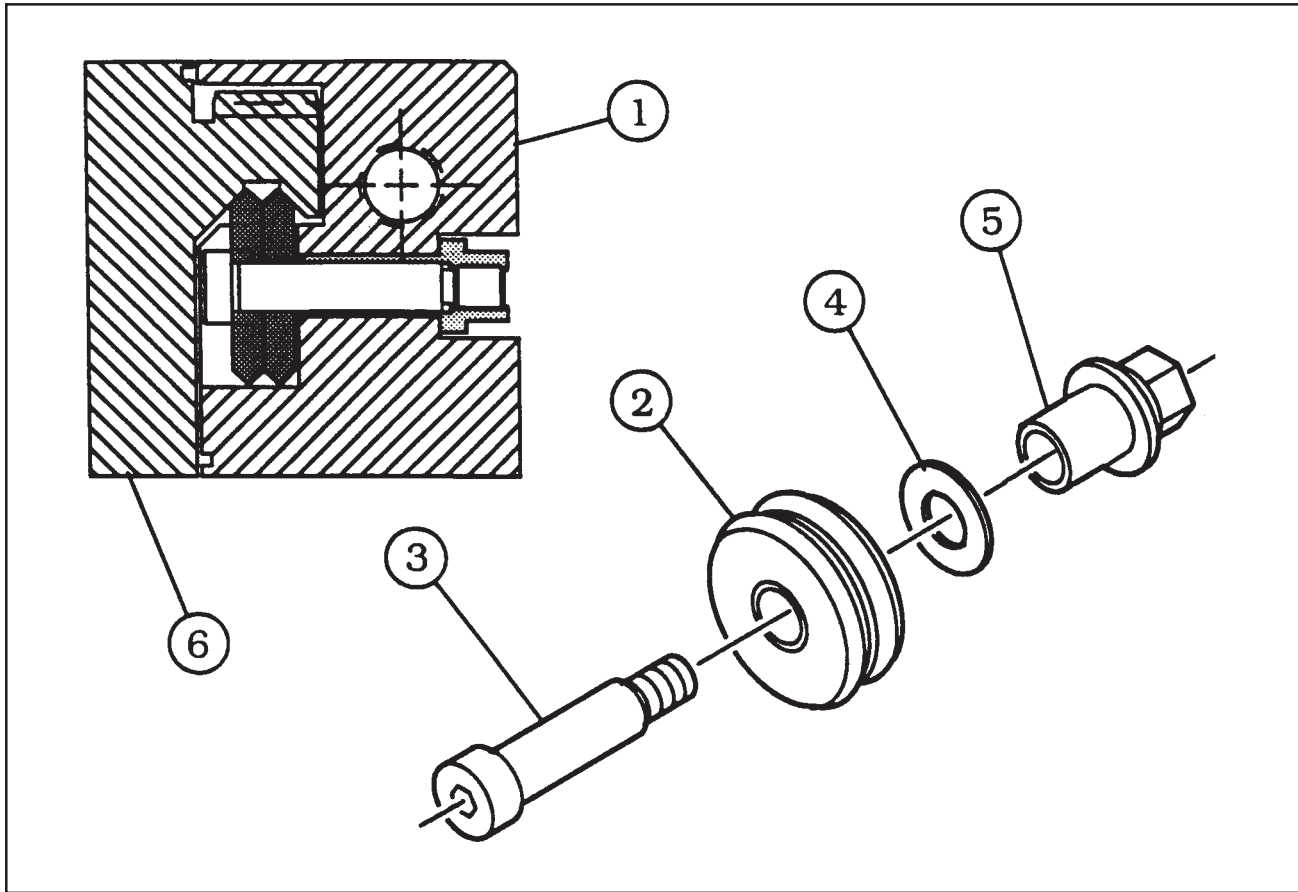
Item No.	Part No.	Description	Qty
	08-0337	BLOCK ASSEMBLY, CLAMP	4
1.	19-0659	HOUSING	1
2.	24-1242	PLATE, ADAPTER	1
3.	32-0043	PIN, ROLL	1
4.	33-0109	SCREW, CAP	4

Model 648RBL Low Profile Clamshell

Parts List, Model 648RBL Clamshell Sub-Assembly Continued

Item No.	Part No.	Description	Qty
5.	33-0396	SCREW, FLAT	4
6.	33-1343	SCREW, ADJUST	1
7.	48-0315	BLOCK, GUIDE	1
	26-0480	BAR ASSEMBLY, CLAMPING, 48"	4
8.	26-0476	BAR FIXED	1
9.	32-0290	PIN, ROLL	2
10.	33-0068	SCREW, CAP	2
	26-0479	BAR ASSEMBLY, CLAMPING, 46"	4
8.	26-0475	BAR FIXED	1
9.	32-0290	PIN, ROLL	2
10.	33-0073	SCREW, CAP	2
	26-0478	BAR ASSEMBLY, CLAMPING, 44"	4
8.	26-0474	BAR FIXED	1
9.	32-0290	PIN, ROLL	2
10.	33-0077	SCREW, CAP	2
	26-0477	BAR ASSEMBLY, CLAMPING, 42"	4
8.	26-0473	BAR FIXED	1
9.	32-0290	PIN, ROLL	2
10.	33-0081	SCREW, CAP	2

MODEL 648RBL CLAMSHELL SUB-ASSEMBLY



Parts List, Model 648RBL Clamshell Sub-Assembly

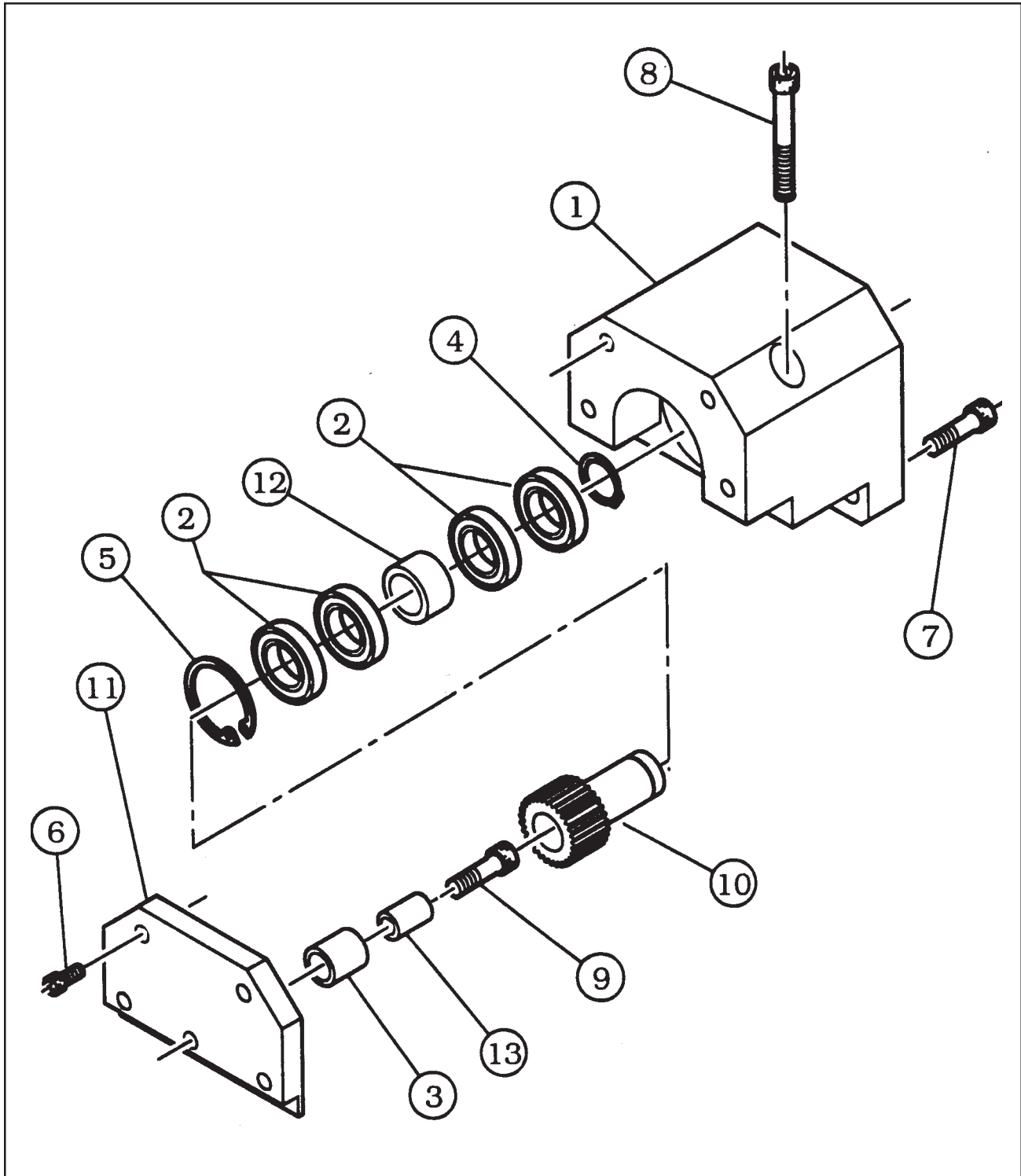
Item No.	Part No.	Description	Qty
1.	19-0673	HOUSING, MAIN	REF
2.	29-0300	BEARING	40
3.	33-1801	SCREW, SHOULDER	40
4.	34-0275	WASHER, THRUST	40
5.	35-0382	NUT, ADJUSTMENT	40
6.	39-0721	GEAR, HEADSTOCK	REF

Model 648RBL Low Profile Clamshell

Parts List, Model 648RBL Clamshell Sub-Assembly Continued

Item No.	Part No.	Description	Qty
NOT SHOWN			
	36-0003	WRENCH, L, 3/32" HEX	1
	36-0008	WRENCH, L, 3/16" HEX	1
	36-0010	WRENCH, L, 1/4" HEX	1
	36-0011	WRENCH, L, 5/16" HEX	1
	36-0012	WRENCH, L, 3/8" HEX	1
	36-0014	WRENCH, L, 5/8" HEX	1
	36-0015	WRENCH, L, 3/4" HEX	1
	36-0021	WRENCH, T, 3/16" HEX	1
	36-0115	WRENCH, SPANNER	1
	36-0193	WRENCH, T, 3/4" SOCKET	1

HOUSING ASSEMBLY, DRIVE (P/N 19-0643)

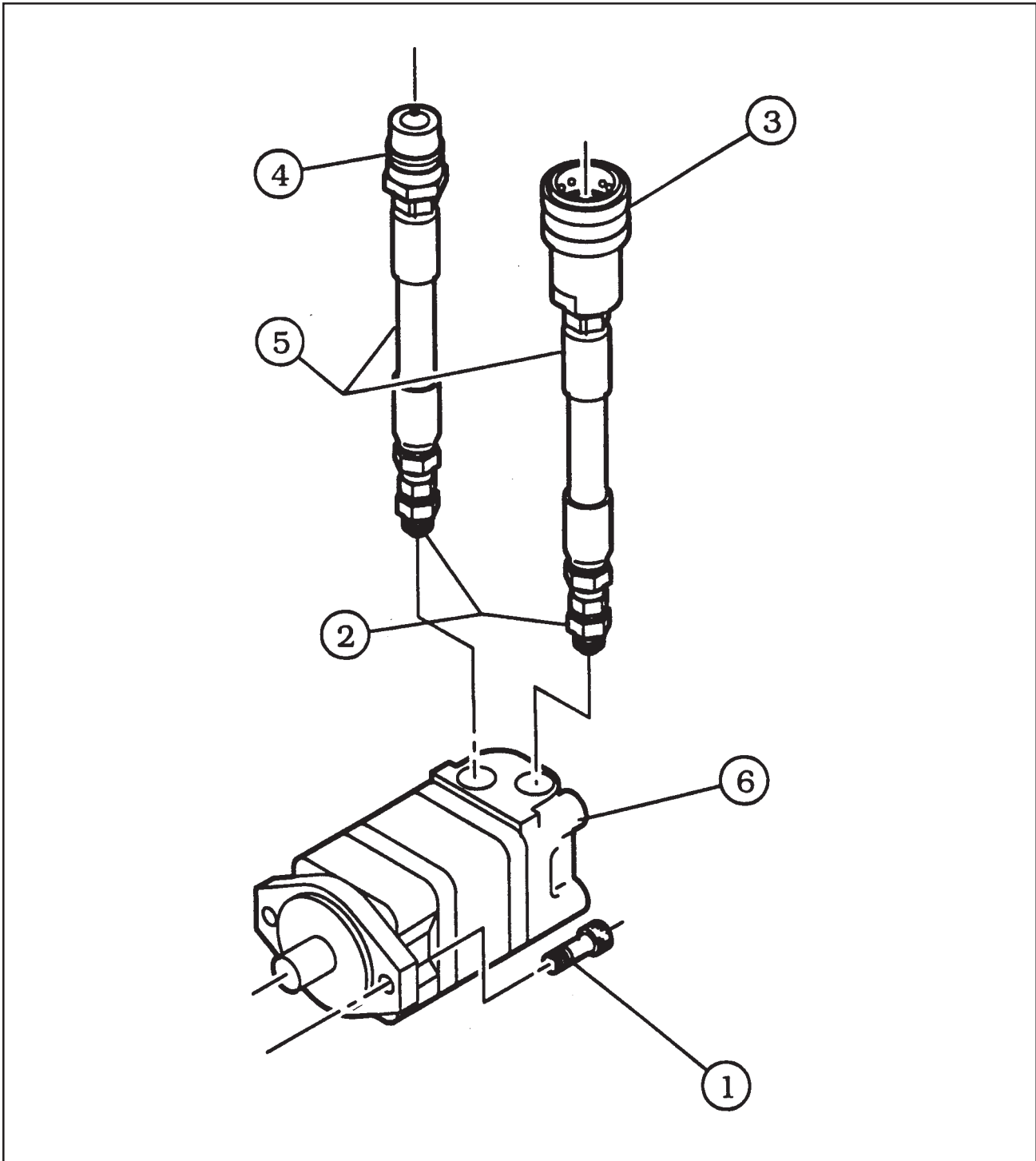


Model 648RBL Low Profile Clamshell

Parts List, Housing Assembly, Drive (P/N 19-0643)

Item No.	Part No.	Description	Qty
1.	19-0642	HOUSING, DRIVE	1
2.	29-0010	BEARING, BALL	4
3.	29-0291	BEARING, NEEDLE	1
4.	30-0007	RING, RETAINING, EXTERNAL	1
5.	30-0286	RING, RETAINING, INTERNAL	1
6.	33-0070	SCREW, CAP	4
7.	33-0106	SCREW, CAP	2
8.	33-0115	SCREW, CAP	2
9.	33-0237	SCREW, CAP	1
10.	39-0697	GEAR, PINION	1
11.	43-0413	COVER	1
12.	44-0397	SPACER	1
13.	45-0205	BUSHING	1

MOTOR ASSEMBLY, HYDRAULIC (P/N 56-0061)

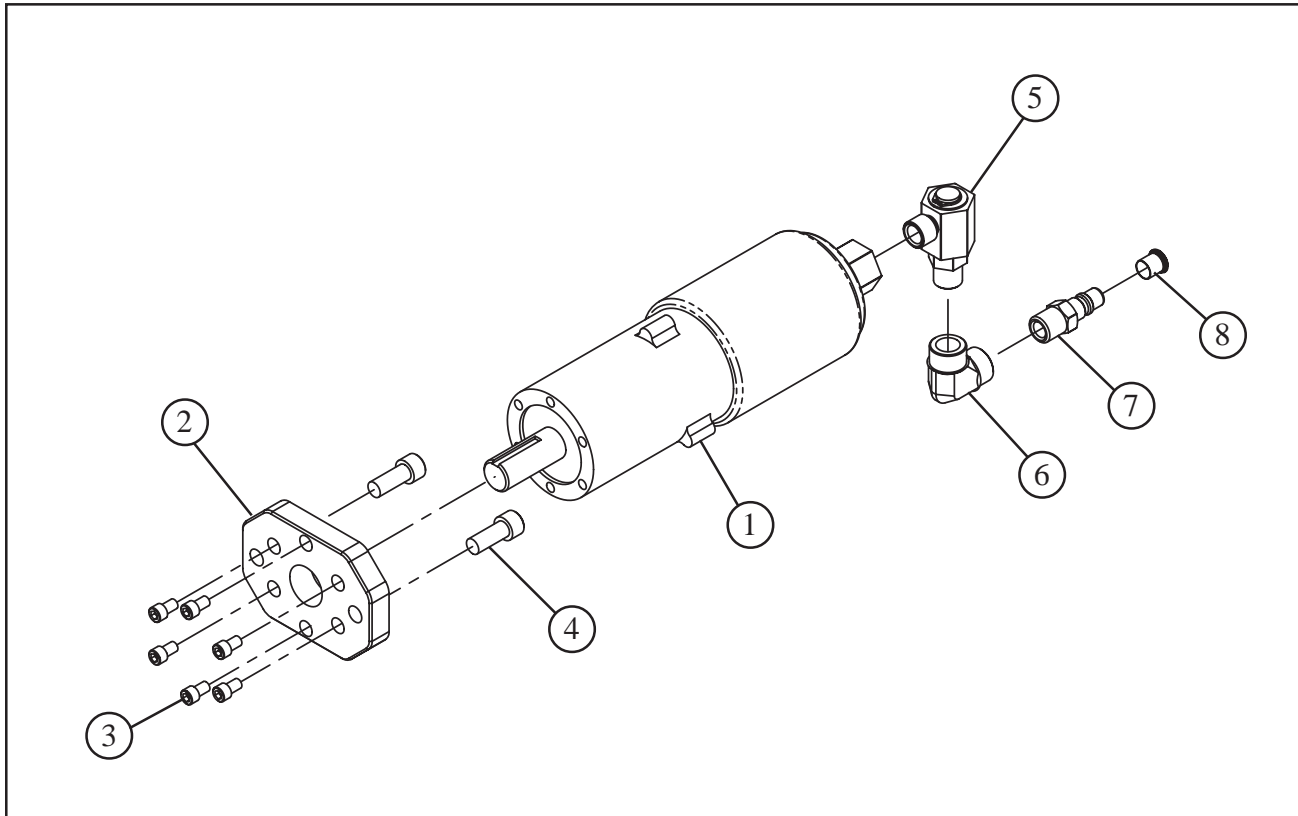


Model 648RBL Low Profile Clamshell

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

Item No.	Part No.	Description	Qty
1.	33-0107	SCREW, CAP	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

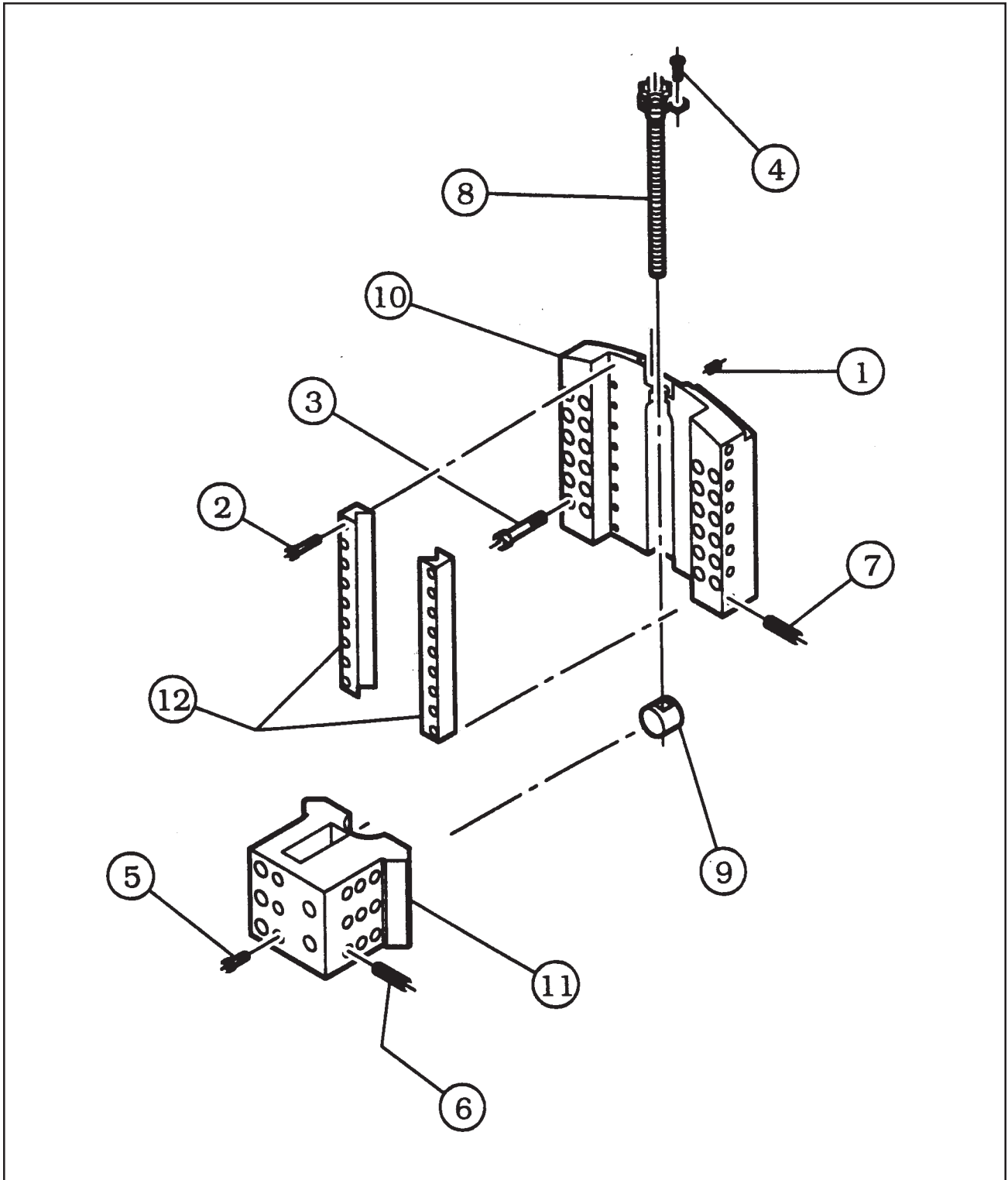
MOTOR ASSEMBLY, AIR (P/N 57-0204)



Parts List, Motor Assembly, Air (P/N 57-0204)

Item No.	Part No.	Description	Qty
1.	57-0020	MOTOR, AIR (IR 4800U)	1
2.	47-0837	BRACKET	1
3.	33-0052	SCREW, 5/16-18 X 1/2"	6
4.	33-0106	SCREW, 1/2-13 X 1 1/4"	2
5.	54-0204	FITTING, SWIVEL	1
6.	54-0062	ELBOW	1
7.	54-0126	QD FITTING	1
8.	54-0201	CAP	1
NOT SHOWN			
	30-0508	LABEL	1
	30-0962	LABEL	1

TOOL BLOCK (P/N 08-0336)

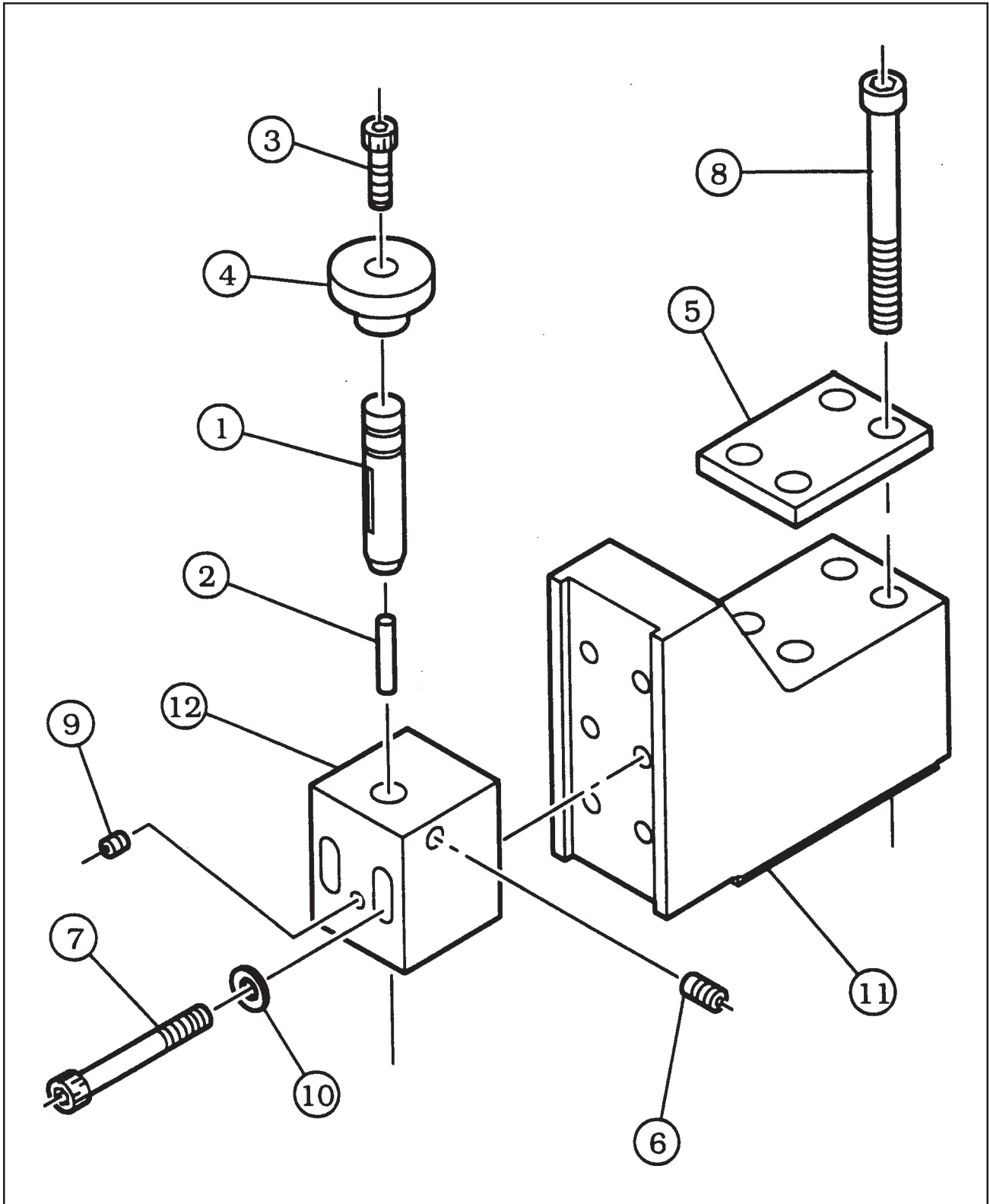


TRI TOOL INC.

Parts List, Tool Block (P/N 08-0336)

Item No.	Part No.	Description	Qty
1.	30-0464	PLUNGER, BALL	1
2.	33-0043	SCREW, CAP	18
3.	33-0075	SCREW, CAP	10
4.	33-0287	SCREW, BUTTON HEAD	2
5.	33-0530	SCREW, SET	3
6.	33-0531	SCREW, SET	9
7.	33-1333	SCREW, SET	8
8.	33-1502	SCREW ASSEMBLY, LEAD	1
9.	35-0204	NUT, FEED	1
10.	47-0527	BRACKET, TOOL MODULE	1
11.	48-0309	BLOCK ASSEMBLY, TOOL	1
12.	66-0090	RAIL, SLIDE	2

BRACKET ASSEMBLY, TRIPPER (P/N 47-0849)



TRI TOOL INC.

Parts List, Bracket Assembly, Tripper (P/N 47-0849)

Item No.	Part No.	Description	Qty
	14-0011	SHAFT ASSEMBLY	1
1.	20-0023	SHAFT, TRIPPER	1
2.	32-0084	PIN, DOWEL	1
3.	33-0030	SCREW, CAP	1
4.	42-0023	KNOB, ROUND	1
5.	24-1210	PLATE, WASHER	1
6.	30-0125	PLUNGER, BALL	1
7.	33-0046	SCREW, CAP	2
8.	33-0082	SCREW, CAP	4
9.	33-0954	SCREW, SET, HALF DOG	1
10.	34-0026	WASHER, FLAT	2
11.	47-0848	BRACKET, TRIPPER	1
12.	48-0421	BLOCK, TRIPPER	1