Operation Manual

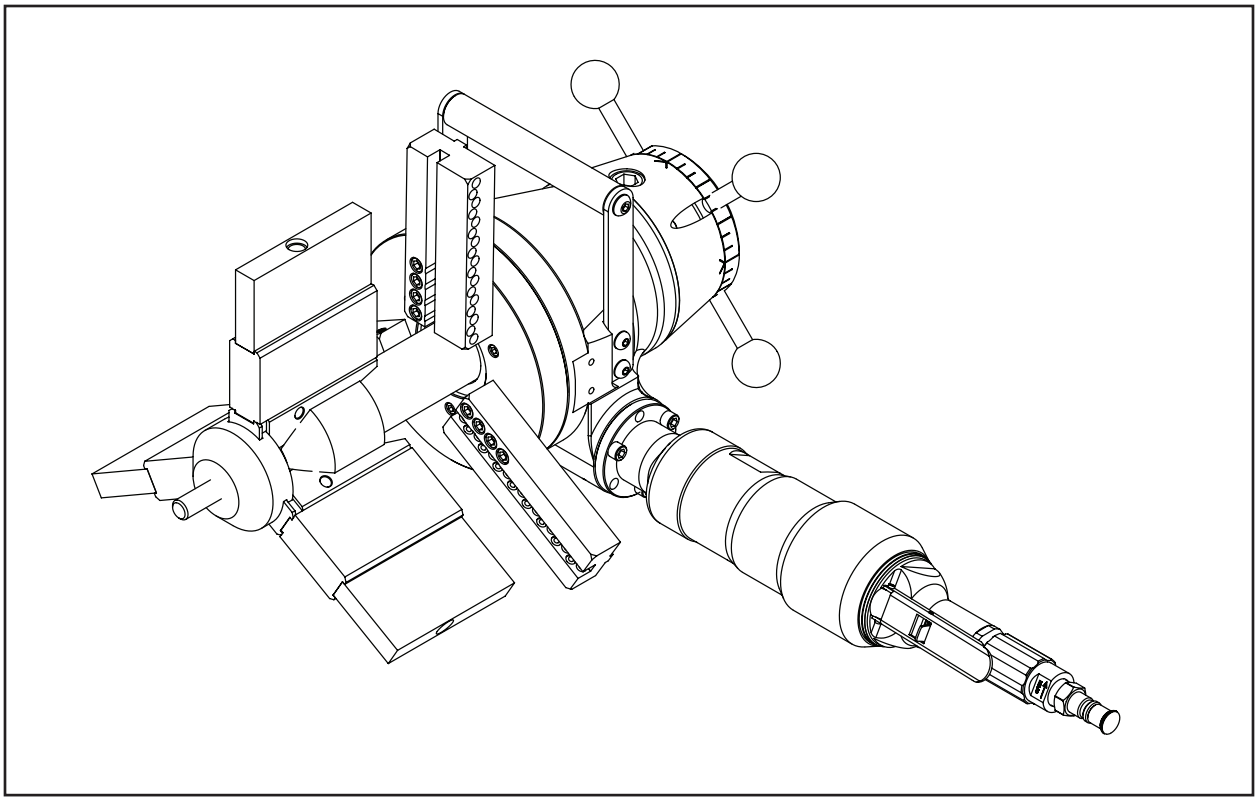
92-1500 Rev. 240709
Model 214B BEVELMASTER™

TRI TOOL TECHNOLOGIES

ABOUT TRI TOOL TECHNOLOGIES

At Tri Tool, we are committed to your success through relentless innovation and powerful partnership. We insist on developing tools and equipment that exceed your expectations of performance, precision, safety, and durability. As a full-service engineering firm, we are here to support you every step of the way.

For more information on engineered solutions, products, and trainings, visit tritool.com or contact our engineers at +1(916) 288-6100.



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TRI TOOL Inc. Warranty

LIMITED WARRANTY: All products manufactured by Seller are warranted to be free from defects in materials and workmanship under normal use. The period of this warranty shall be three years from the date of shipment for all products, except for welding and Non-Standard Products which shall be one year from the date of shipment. The Buyer shall bear all shipping, packing and insurance costs and all other costs to and from a designated repair service center. All return goods must be authorized in advance and communicated upon issuance of a Return Material Authorization (RMA) by Seller. The product will be returned to the Seller accompanied by a RMA number and associated paperwork, freight prepaid and billed to the Buyer. This warranty is not transferable and will not apply to tool bits or other consumables, or to any Goods to have been (i) mishandled, misused, abused or damaged by Buyer or any third party; (ii) altered without the express permission in writing by Seller, (iii) repaired by a party other than Seller without Seller's prior written approval; or (iv) improperly stored, installed, operated, or maintained in a manner inconsistent with Seller's instructions. This warranty does not apply to defects attributed to (i) normal wear and tear or (ii) failure to comply with Seller's safety warnings.

No warranty for any parts or other supplies provided to seller by buyer, whether or not they are incorporated into goods. Goods supplied by seller which are designed or manufactured by a third party are subject strictly to the third party's warranty for those goods. Seller makes no warranty and disclaims all statutory or implied warranties for these goods, including the implied warranties of merchantability, freedom from patent infringement and fitness for a particular purpose.

Neither this warranty nor any other warranty, expressed or implied, including implied warranties of mechanical ability, fitness for a particular use, or merchantability, shall extend beyond the warranty period. No responsibility is assumed for any incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts and some states do not allow the exclusion or limitations incidental or consequential damages, so the above limitation of exclusion does not apply to all Buyers. This warranty gives the Buyer specific legal rights. Other rights vary from state to state.

Warranty Claims and Remedies

Buyer must promptly notify Seller in writing during the applicable warranty period, of any defective Goods covered by Seller's warranties under the Limited Warranty section herein, and no later than fifteen (15) calendar days after discovery of the defect. Seller has no obligation to honor any warranty claim made after the expiration of the warranty period. However, despite the expiration of the warranty period, Seller, at its reasonable discretion, may accept warranty claims submitted up to fifteen (15) calendar days after the expiration of the warranty period provided that Buyer provides Seller with credible and persuasive documentary evidence that the defect was discovered during the warranty period. No warranty claims submitted after this fifteen (15) day calendar period will be considered by Seller.

Buyer's notice of a defective Goods must identify the specific Goods affected, and the nature of the defect. It is required when returning the defective Goods, that it is suitably packed, fully insured, and transportation and insurance prepaid in accordance with instructions issued by Seller. Seller, at its sole option, will either repair or replace any Goods authorized for return to Seller. Such repair, replacement, or credit shall be Buyer's sole remedy for defective Goods. Buyer must promptly provide Seller with all information requested regarding the identified defect.

If the defect claimed by Buyer cannot be reproduced or otherwise verified by Seller, the Goods will be returned to Buyer unmodified at Buyer's expense.

The warranty period for repaired or replaced Goods shall be (i) ninety (90) days or (ii) the unexpired portion of the original warranty period. Under no circumstances is Seller liable for recall, retrieval, removal, dismantling, re-installation, redeployment, or re-commissioning of any defective Goods or any costs associated therewith.

Tool Bit Resharpening Policy

Buyer is required to check all tool bits prior to returning and ensure they are packaged well for shipment. The price structure is available from the Seller's sales coordinator. Seller cannot resharpen badly gouged, chipped, or broken tool bits. Seller will return tool bits that are not suitable for resharpening with the tool bits that were resharpened upon Buyer's request. Buyer is responsible for all shipping charges to and from Seller.

1. ABOUT THE MANUAL

Copyright

Disclaimer

The instructions and descriptions in this manual were accurate when the manual was written. However, the information in the manual is subject to change without notice. Check for updated information before you start any job. The TRI TOOL Inc. web site has the most current information.

Do not operate or work on this equipment unless you have read and understood the instructions in this Manual. Failure to follow the instructions or follow the safety instructions could result in serious injury or death. This manual describes conditions and hazards that are common and anticipated during equipment operation. No manual can address all conditions which may occur.

Safety Symbols

The manual may contain one or more safety symbols. These symbols and the associated text warn you of potentially hazardous conditions. Examples of the safety symbols and the associated text follow:

DANGER

DANGER: Indicates a hazardous situation that, if not avoided, will result in serious injury or death.

WARNING

WARNING: Indicates a hazardous situation that, if not avoided, could result in serious injury or death.

CAUTION

CAUTION: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury, or cause property damage.

 GLASSES	**SAFETY GLASSES: Indicates a hazardous situation that requires the use of safety glasses.**
 HOT SURFACE	**HOT SURFACE: Indicates a hazardous situation that hot surfaces may be present.**
 GLOVES	**GLOVES: Indicates a hazardous situation that requires glasses.**
 SHOCK HAZARD	**ARC FLASH & SHOCK HAZARD: High voltage. Entry by authorized personnel only. Appropriate PPE and tools required when working on this equipment.**
 READ MANUAL	**READ MANUAL: Read manual before use, refer to manual for Tri Tool machine being used.**
 DISCONNECT FROM POWER	**DISCONNECT FROM POWER: Disconnect main plug from electrical outlet before performing all maintenance.**

2. SAFETY PRECAUTIONS

In General

Use standard safety equipment such as: hard hats, safety shoes, safety harnesses, protective clothes, and other safety devices when appropriate.

Operate this tool only in accordance with specific operating instructions.

WARNING: Do not override the dead-man switch on the power unit. Locking down, obstructing, or in any way defeating the dead-man switch on the power drive unit may result in serious injury.

Personal Protective Equipment

Use standard safety equipment such as: hard hats, safety shoes, safety harnesses, protective clothes, and other safety devices when appropriate.

Wear safety glasses.

Do not wear loose clothing or jewelry.

Wear nonskid footwear.

Put long hair in a cap or a net to make sure hair does not get tangled in equipment.

Personnel

Only personnel who are trained or are being trained may operate the equipment.

Keep the operation manual available where the equipment is used.

The operator must read the operation manual before using the equipment.

The equipment must be operated in accordance with the manual information.

The operator must follow the safety precautions in this manual and good engineering practices to reduce the risk of injury.

Before using the equipment, the operator must ensure that all safety messages on the equipment are legible.

Work Area

Keep the work area clean.

Keep the area well lit.

Keep items such as electrical cords, cables, rags, rigging straps, away from rotating equipment.

Do not use power-cutting tools in the presence of flammable liquids and gases.

Do not let visitors or untrained personnel near tools that are in use.

Ensure all observers wear eye protection.

Keep proper footing at all times.

Area Equipment

Secure the pipe with clamps, vises, chains or straps.

Ensure that both sides of the pipe at the cut site are fully supported so that the pipe will not move after the cut is completed. Long lengths of pipe may be under load and the separation of the pipe can release pressure. This pressure can cause both sides of the pipe to move.

Tool Care

Keep tools in good operating condition. Sharp tool bits perform better and are safer than dull tool bits.

Do not use damaged tools. Always check your tools for damage especially if a tool has malfunctioned, been dropped or hit, check it for damage.

Before you start operating the equipment, do no-load tests and feed function checks.

Tool Use

Use the right tool and tool bit for the job. Contact TRI TOOL Inc. to help with your application.

Keep the tool bits fully engaged in the tool bit holders. Loose bits are sharp and can cause cuts or punctures.

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. Check 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 recommended speeds.

Do not reach into rotating equipment.

Do not reach into the rotating head stock to remove chips, to make adjustments, or to check the surface finish.

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

Store tools properly. Disconnect tools from the power source, remove the tool bits, and store in a safe place.

3. GENERAL DESCRIPTION

The Model 214B BEVELMASTER™ is a portable ID mount machine tool designed for facing, beveling, and/or counterboring the ends of pipe or tubing in preparation for welding.

The tool is configured with an in-line feed knob and has the option for a pneumatic, electric 115V/230V heavy duty and/or hydraulic drive motor positioned in a right angle to the lathe head.

These machining operations may be performed either simultaneously or separately.

Pipe weld end preparations that meet all existing conventional codes including the more stringent nuclear codes may be machined.

The various interchangeable jaw blocks and ramps will secure the Model 214B BEVELMASTER™ to pipe and tubing having an inside diameter ranging from 4” (101.6 mm) through 14” (355.6 mm).

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

The Model 214B BEVELMASTER™ accepts the reaction torque generated by the machining operations through the mandrel.

No additional restraining devices are required.

4. SPECIFICATIONS

Design and Operating Features

The lathe accepts its own torque through the mandrel.

The expanding mandrel provides fast, accurate self-centering and alignment.

The lathe, provided with a convenient handle, is lightweight and easily handled by one operator.

Pipe weld end preparations that meet all existing conventional codes including the more stringent nuclear codes may be machined using the Model 214B.

The various interchangeable jaw blocks, ramps and adapters will secure the Model 214B Pipe Beveler to pipe and tubing having an inside diameter ranging from 4” (101.6 mm) through 14.08” (357.6 mm).

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

No additional restraining devices are required.

All 115V motors require a minimum of a 20-amp circuit.

The Tool is configured with an in-line feed knob and pneumatic drive motor at a right angle to the lathe head.

Model 214B BEVELMASTER™ with Air Motor Attached

Weight: 80 lbs (36.3 kg)

Clearances and Dimensions

Maximum Rotating Head DIA: 15.35” (389.9 mm)

Length (parallel to axis of pipe): 21.25” (539.8 mm)

Length Over Motor: 31.00” (787.4 mm)

Maximum Width: 10.60” (269.3 mm)

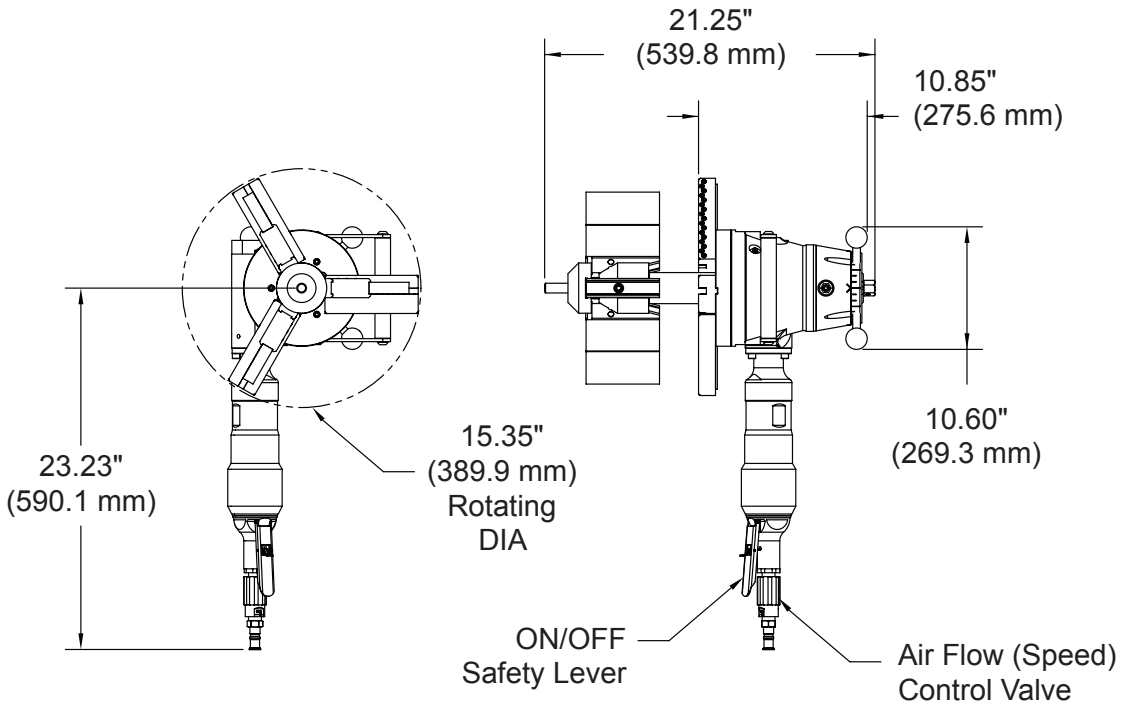


Figure 1: Model 214B with an Air Motor

Cutting Capacities

Basic Pipe Sizes

4” Pipe - Schedule 5 through 160

5” through 14” pipe - All schedules

Basic Tube Sizes

Up to 1.32” (33.4 mm) wall tubing with a maximum O.D. of 14.00” (355.6 mm) and a minimum I.D. of 3.44” (87.4 mm) may be beveled with standard mandrel.

Wall Thickness Capacity

Wall thickness of all standard pipe schedules 1.41” (35.7 mm) maximum in the range listed. Tubing with greater wall thickness may be handled provided the I.D. is greater than 3.44” (87.4 mm) and the O.D. is less than 14.00” (355.6 mm). Contact Tri Tool for heavier wall procedures.

Counterboring Operations

The tool will counterbore pipe and tubing with an I.D. range of 3.44” (87.4 mm) to 13.75” (330.2 mm).

Material Cutting Capability

Mild steels, chrome steels (Rc 35 max), stainless steel, copper-nickel alloys and aluminum without limitations except size and wall thickness as specified.

Inconel and some other high temperature alloys may require special procedures as a function of wall thickness and type of end preparation. Contact TRI TOOL Inc. Engineering Department for details.

Cutting Speeds

Maximum Head Speed: 20 rpm

Maximum Head H.P.: 10 rpm

Functional Head Range: 5 -20 rpm

RPM @ 200 in/min (5080/min)

14.00” (355.6 mm)/5 rpm

4.00” (101.6 mm)/16 rpm

Speed Control

On/off safety lever valve and twist-type air flow control valve.

Feeds

Manual-Feed handle is in-line at the back of the machine.

Feed Rate: .083” (2.1 mm) per revolution of the feed handle.

Maximum Feed Travel: 2.00” (50.8 mm).

Mounting

Manually actuated draw rod expands mandrel ramps and jaw blocks.

Drive System

Gear Driven

Pneumatic Motor

Free Speed: 310 RPM

Maximum HP Speed: 155 RPM

110V and 220V Electric Drive and Hydraulic Motor Drive are also available.

Power Requirements

Pneumatic motor requires 85 cfm (40 L/s) air supply at 90 psi (621 kPa) for maximum horsepower delivery.

NOTE: Air supply must have a filter/regulator/lubricator (FRL) system to protect the warranty on the air motor.

Model 214B BEVELMASTER™ with Electric HD (Heavy Duty) Motor Attached

Weight: 87 lbs (39.5 kg)

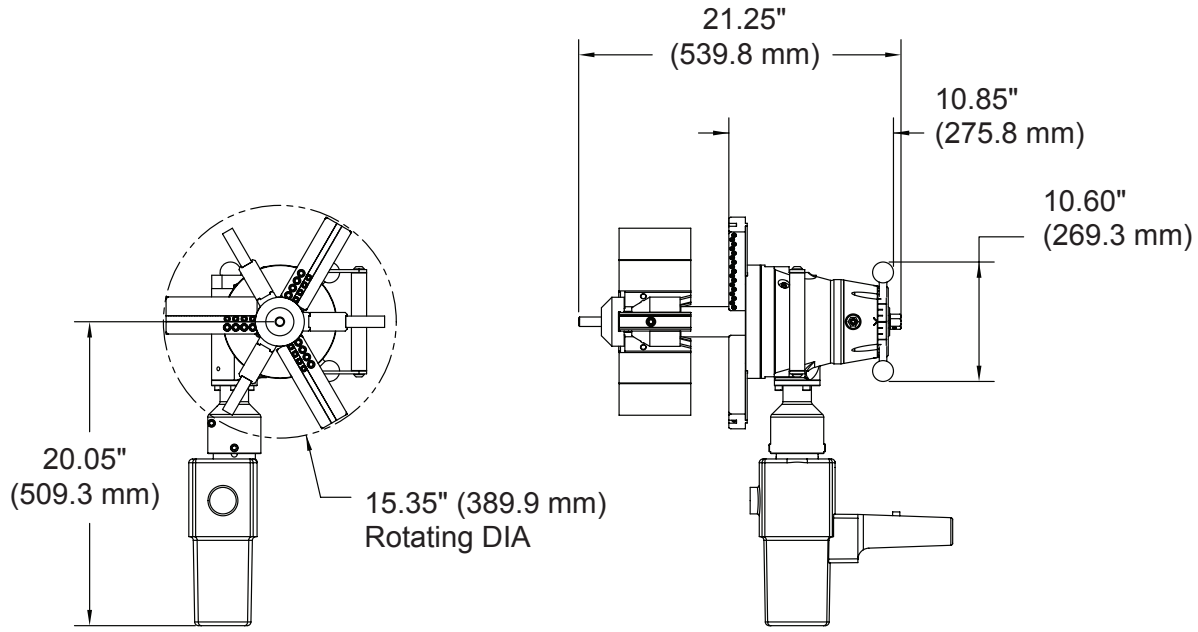


Figure 2: Model 214B with an Electric Motor

Clearance and Dimensions

Maximum Rotating Head DIA.: 15.35” (389.9 mm)

Length (Parallel to Axis of Pipe): 21.25” (539.8 mm)

Length Over Motor: 20.50” (509.3 mm)

Maximum Width: 10.60” (269.3 mm)

Cutting Capacities

Unitec Motor* Summary - Maximum Wall Thickness for Continuous Duty

*Applies to Unitec Model EBH 32/2.2 110VAC & 220VAC
(58-0165 & 58-0189 base part numbers)

Pipe Size	Maximum Wall Thickness
5"	.85 Inch
6"	SCH 120
8"	SCH 80
10"	SCH 40
12"	SCH 40S
14"	SCH 20

Counterboring Operations

The tool will counterbore pipe and tubing with an ID range of 3.328” (84.6 mm) to 14.00” (355.6 mm).

Material Cutting Capabilities

Mild steels, chrome steels (Rc 35 max.), stainless steel, copper-nickel alloys and aluminum without limitations except size and wall thickness as specified.

Inconel and some other high temperature alloys may require special procedures as a function of wall thickness and type of end preparation. Contact TRI TOOL Inc. Engineering Department for details.

Cutting Speeds

Maximum Cutting Head Speed: 9 rpm

Cutting Head Speed at Maximum HP: 6 rpm

Functional Speed Range: 4 – 9 rpm

RPM @ 200 in/min

14.00” (355.6 mm)/5 RPM

4.00” (101.6 mm)/16 RPM

Speed Control

Trigger with lock and adjustable speed dial

Feed

Manual-Feed handle is in line at the back of the machine.

Feed Rate: .083” (2.1 mm) per revolution of the feed handle.

Maximum Feed Travel: 2.00” (50.8 mm)

Mounting

Manually actuated draw rod expands mandrel ramps and jaw blocks.

Drive System

Gear Driven

Electric Motor

Free Speed: 150 RPM

Maximum H.P. Speed: 100 RPM

Power Requirements

115 VAC, 40 – 60 Hz, 2300 Watt Rated Supply

230 VAC, 40 – 60 Hz, 2300 Watt Rated Supply

All 115V Motors require a minimum of a 20 amp circuit.

Model 214B BEVELMASTER™ with Hydraulic Motor Attached

Weight: 100 lbs (45.4 kg)

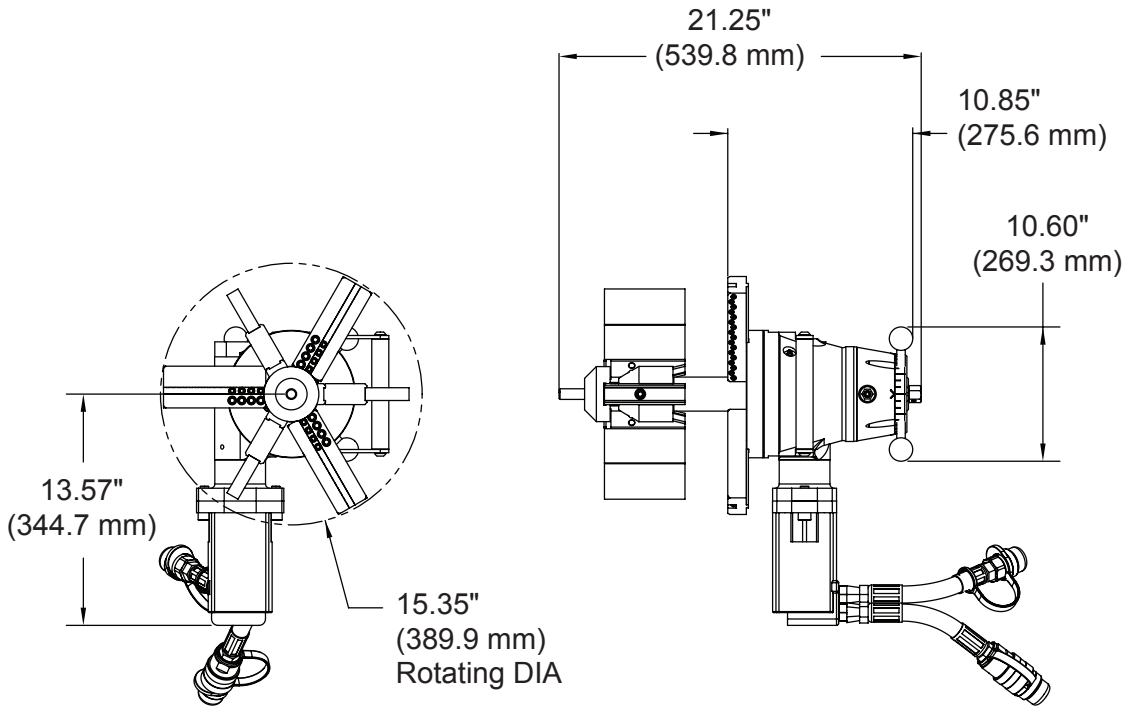


Figure 3: Model 214B with Hydraulic Motor

Clearance and Dimensions

Maximum Rotating Head DIA: 15.35” (389.9 mm)

Length (parallel to axis of pipe): 21.25” (539.8 mm)

Length Over Motor: 13.57” (344.7 mm)

Maximum Width: 10.60” (269.3 mm)

Cutting Capacities

Basic Pipe sizes

4” - Schedules 5 and 160

5” through 14” – All Schedules

Basic Tube Sizes

Up to 1.32” (33.5 mm) wall tubing with a maximum OD of 14.00” (355.6 mm) and a minimum ID of 3.44” (87.4 mm) may be beveled with standard mandrel.

Wall Thickness Capacity

Wall thickness of all standard pipe schedules, 1.32” (33.5 mm) maximum, in the range listed. Tubing with greater wall thickness may be handled provided the ID is greater than 3.44” (87.4 mm) and the OD is less than 14.00” (355.6 mm). Contact TRI TOOL Inc. for heavier wall procedures.

Counterboring Operations

The tool will counterbore pipe and tubing with an ID range of 3.328” (84.6 mm) to 14.00” (355.6 mm).

Material Cutting Capabilities

Mild steels, chrome steels (Rc 35 max.), stainless steel, copper-nickel and aluminum without limitations other than size and wall thickness as specified.

Inconel and some other high-temperature alloys may require special procedures as a function of wall thickness and type of end preparation. Contact TRI TOOL Inc. Engineering Department for details.

Cutting Speeds

Maximum Head Speed: 37 RPM

Cutting Head Speeds @ Maximum H.P.: 10 RPM

Functional Head Range: 1 - 37 RPM

RPM @ 200 in/min

14.00” (355.6 mm)/5 RPM

4.00” (101.6 mm)/16 RPM

Feeds

Manual-Feed handle is in line at the back of the machine.

Feed Rate: .083” (2.1 mm) per revolution of the feed handle.

Maximum Feed Travel: 2.00” (50.8 mm)

Mounting

Manually actuated draw rod expands mandrel ramps and jaw blocks.

Drive System

Gear Driven

Hydraulic Motor

Free Speed: 550 RPM

Maximum H.P. Speed: 155 RPM

Power Requirements

Requires separate hydraulic power supply.

Reference the TRI TOOL Inc. Model 765RVC.

Flow

3 gpm (.19 L/s) - 15 gpm (.94 L/s) @ 1500 PSI (10.342 kPa)

15 gpm (.94 L/s) - 20 gpm (1.265 L/s) @ 1000 PSI (6895 kPa)

Temperature

Maximum Operating Temperature: 180° F (82° C)

5. SETUP AND OPERATION

Always read the operating instructions carefully/completely before operating the Model 214B BEVELMASTER™.

When operating any/all Tri Tool Inc. equipment follow the 'Note' statements through the manual for equipment safety and the 'Warning' and/or 'Caution' notes for operator safety.

A FRL (Filter/Regulator/Lubricator) is required to protect the warranty on all TRI TOOL Inc. air or hydraulic driven tools.

NOTE: The motor warranty is void if damage occurs from contaminated air or lack of lubrication.

The FRL unit must be maintained as specified in the manual. The frequency depends on the basic air supply. Keep the water trap drained, filter cleaned and the lubricator oil reservoir filled so there's a drop of oil every two (2) to five (5) seconds.

If the unit is to be left idle for 24 hours or more after being run on 'wet' air, it is advisable to squirt oil directly into the air motor inlet and run the motor for two (2) to three (3) seconds. This will prevent rusting and 'freezing' of the rotor vanes.

For Hydraulic Motors refer to their 'Operator's Manual' for specifics.

When the unit is operated in the vertical position, cutting head up, it should be turned upside down and the chips and/or other debris removed after each cutting operation has been completed.

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

Configuration

Jaw Blocks

Select the recommended ramps, jaw blocks and adapters for the pipe size to be machined.

Install the ramps, adapters and jaw blocks as required onto the mandrel.

Loosen the draw nut to retract the jaw blocks to a diameter smaller than the ID of the pipe to be prepped.

Install the mandrel assembly into the pipe.

NOTE: In order to avoid cutting the jaw blocks during the machining operation, the mandrel must be installed beyond the end preparation location.

Tighten the draw nut to force the jaw blocks out to the ID of the pipe or tube.

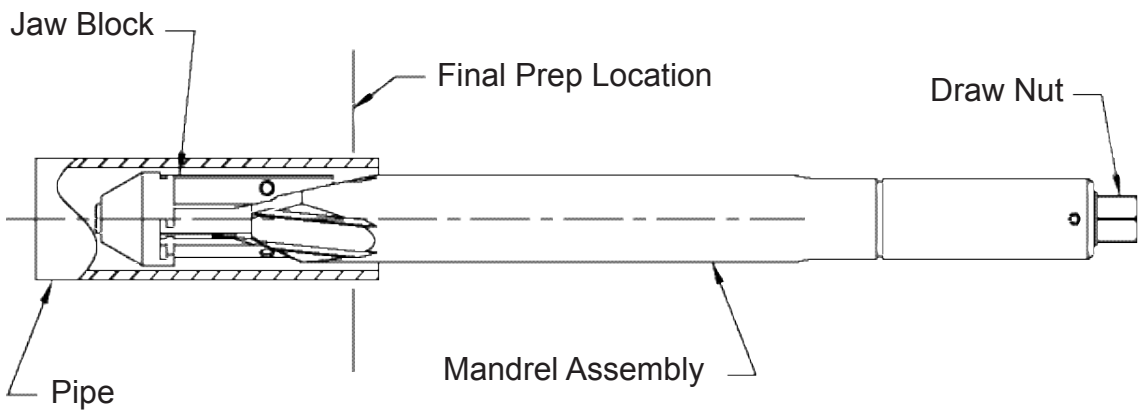


Figure 4: Mandrel Components

Tool Bits

Attach the tool holders in the appropriate position. Select the tool bit(s) required to machine the pipe for the configuration desired.

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.

When performing any separate machining operation such as facing, beveling or counterboring, the tool bit should be installed in the correct tool bit holders.

The beveling tool bit should be installed in the steel tool holder.

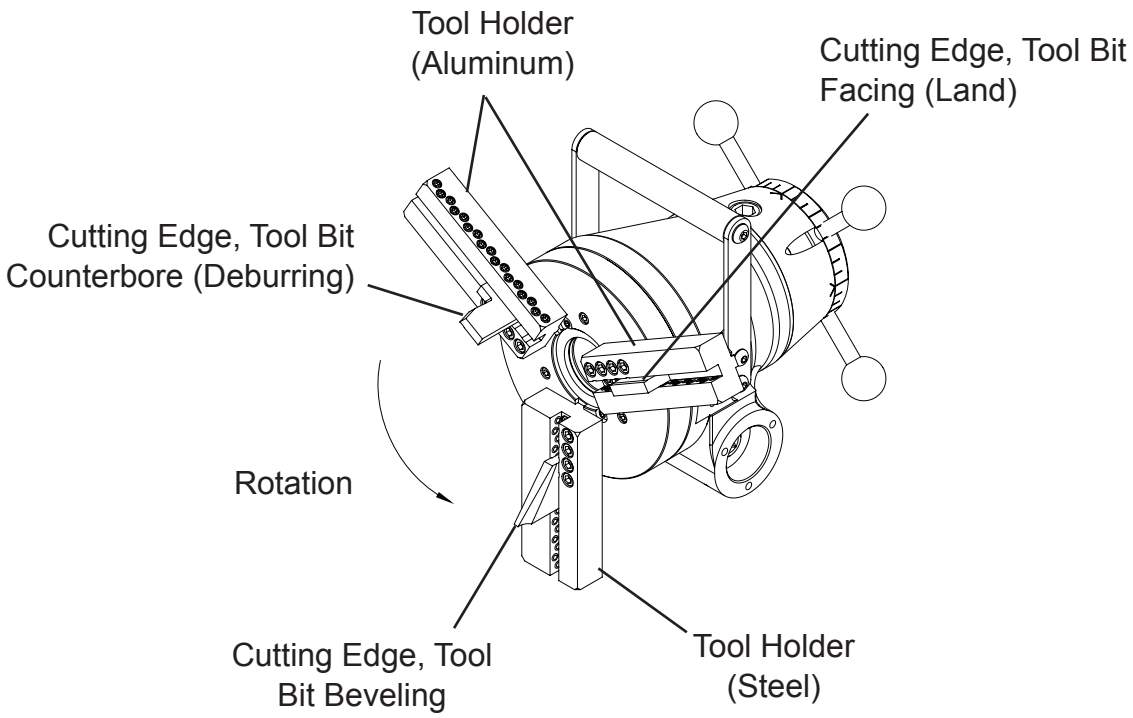


Figure 5: Tool Bit Installation

When performing any multiple machining operation such as facing, beveling, and/or counterboring, the counterbore tool bit should be installed to ‘lead’ the bevel tool bit.

Insert the tool bit(s) into the slot(s) in the tool holder(s).

NOTE: The cutting edge of the tool bit(s) must be on the radial centerline.

NOTE: Ensure that the tool bit is not installed backwards.

Tighten the set screws to secure the tool bit(s) in the tool holder(s).

Adjust the counterbore tool bit radially to control counterbore diameter.

Adjust the bevel tool bit radially to control the counterbore depth to the bevel relationship.

Install the Mandrel in the Model 214B

Slide the Model 214B gently onto the mandrel assembly until it comes to a solid stop against the torque acceptance keys.

Rotate the Model 214B as required to engage the torque acceptance keys with the slots in the mandrel shaft.

NOTE: Since the mandrel shaft will contact the torque acceptance keys, before the feed nut engages the mandrel shaft threads, caution should be taken not to force (or allow) the machine to impact the lead threads of the feed nut with the lead threads of the mandrel.

Adjustment of the Torque Acceptance Keys

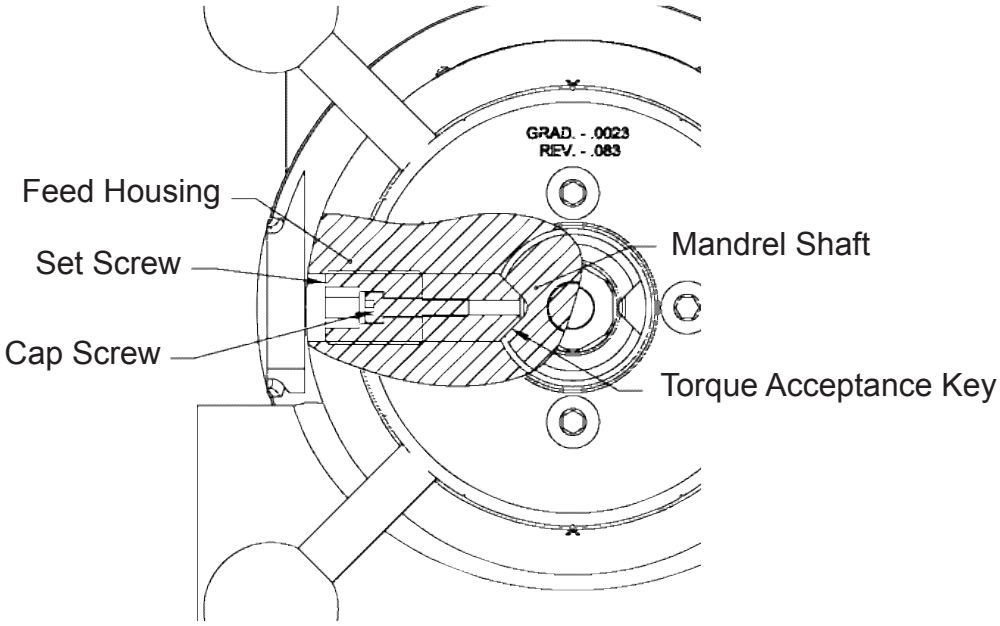


Figure 6: Adjustment of Torque Acceptance Keys

Adjustment of the torque acceptance keys will be required if the BEVELMASTER™ is loose radially on the mandrel shaft.

NOTE: This may appear as chatter in the tool bit.

Loosen the cap screws in both torque acceptance keys.

Rotate the set screw as required until the torque acceptance keys are riding snugly in the slots in the mandrel shaft.

Run the feed in and out to insure that the torque acceptance keys are not so tight that the feed is impaired.

Retighten the cap screws to retain the new setting.

Rotate the feed handle clockwise to engage the feed nut with the thread on the Mandrel shaft.

The Model 214B with the mandrel assembly installed may be mounted into the pipe as one unit.

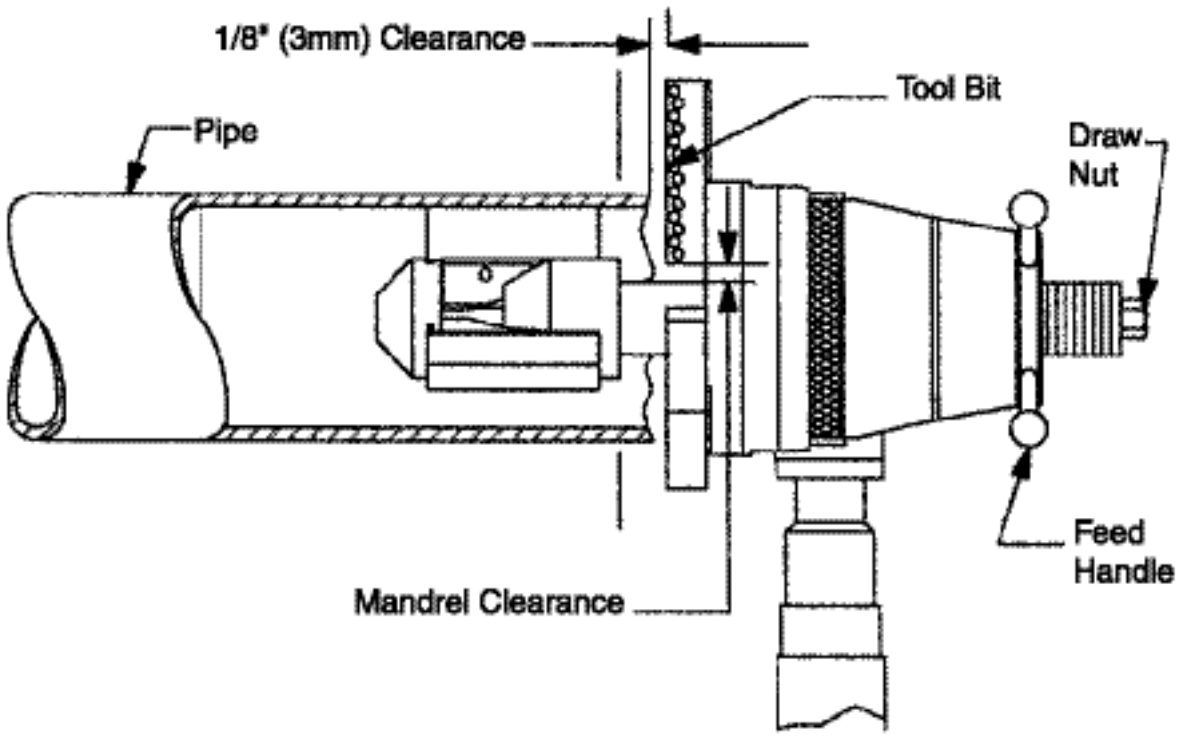


Figure 7: Clearance Between the Tool Bit and Pipe Face

NOTE: A minimum of ten (10) threads must be engaged to prevent the threads from stripping during the machining operation.

Verify a clearance of 1/8” (3 mm) minimum between the tool bit and the pipe face.

Make sure there’s a clearance between the tool bit(s) and the mandrel.

Machining Sequence

Electric Motor

Attach the power cord to the proper AC outlet.

Depress the trigger.

Adjust the cutting speed by rotating the speed control dial on the trigger.

Air Motor

Attach the proper air supply line to the Model 214B.

Depress the air motor trigger.

CAUTION

CAUTION: DO NOT OVERRIDE THE DEAD MAN SWITCH. Locking down, obstructing, or in any way defeating the dead man switch on this unit may result in serious injury.

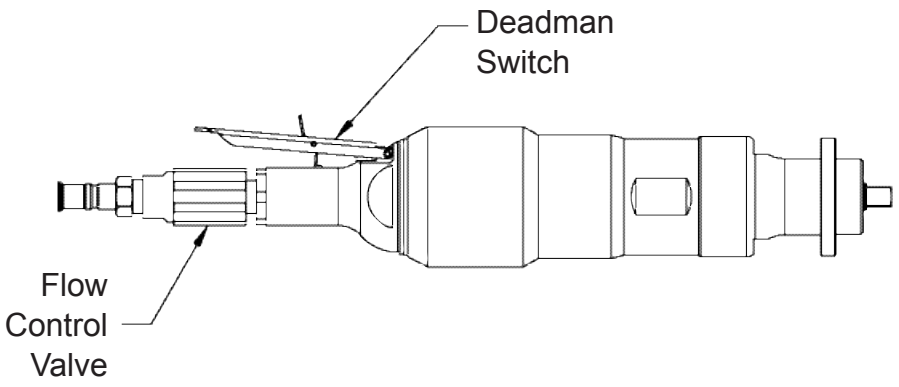


Figure 8: Air Motor Components

Feeding the Tool Bit Into the Work

Rotate the feed handle clockwise to bring the tool bit(s) and pipe closer together.

The machining operation begins when the first tool bit contacts the pipe.

If the pipe end is not square to 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 all of the tool bit(s) are in contact with the pipe continually during at least one full revolution.

Continue rotating the feed handle clockwise until the end of the pipe is completely machined.

The axial feed rate of the tool bit is .0023” (.06 mm) for each graduation or .083” (2.11 mm) for each complete revolution of the feed handle.

Continue machining until the end of the pipe has a complete prep.

Discontinue feed and allow the head to rotate 1 to 3 revolutions to improve finish of the prep surface.

Release the trigger to stop the head rotation.

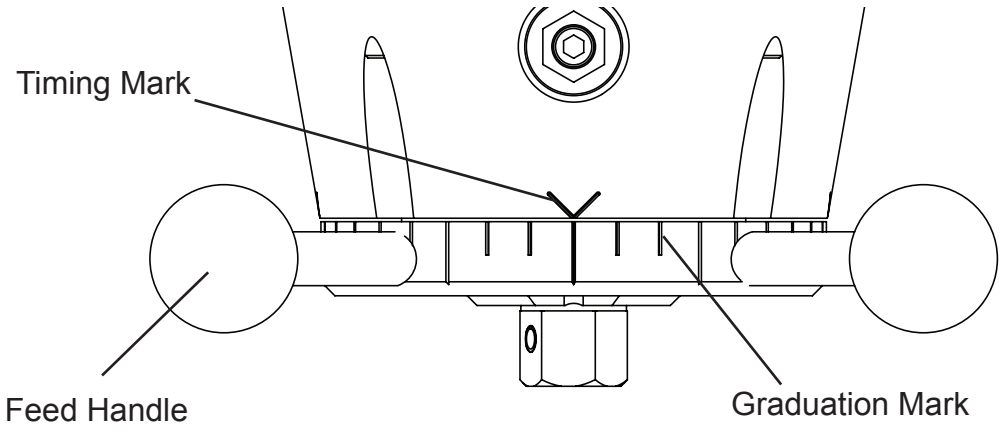


Figure 9: Feed Handle

Rotate the feed handle counterclockwise to separate the tool bit(s) from the pipe.

Rotate the feed handle counterclockwise until the tool bit is approximately 1/8” (3 mm) away from the end of the pipe.

When the unit is operated in the vertical position, cutting head up, it should be turned upside down and the chips and/or other debris removed after each cutting operation has been completed.

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

Loosen the Mandrel draw nut to release the mandrel from the pipe.

Slowly pull the Model 214B and the mandrel from the end of the pipe.

The mandrel assembly may be left in the Model 214B and installed as a complete assembly in the next pipe to be machined.

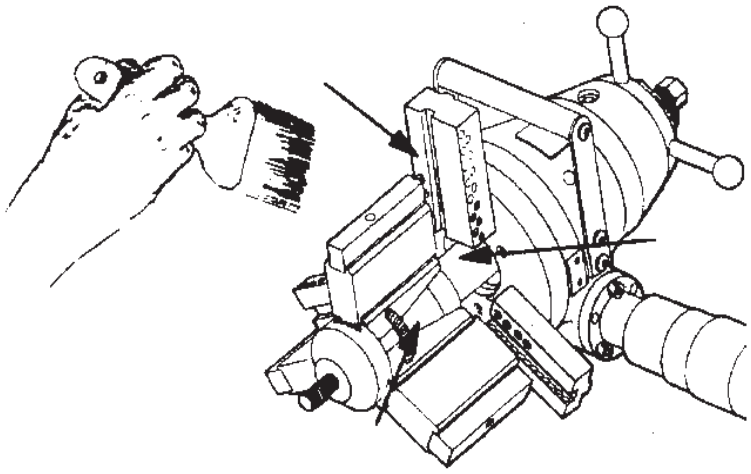


Figure 10: Chip Cleanup

6. CUTTING SPEEDS AND FEEDS

Pipe Size	Actual OD	RPM for 200 in/min (5080 mm/min)	RPM for 250in/min (6350 mm/min)	RPM for 300 in/min (7620 mm/min)
4"	4.500" (114.3 mm)	16	20	24
6"	6.625" (168.3 mm)	10	13	15
8"	8.625" (219.1 mm)	8	10	12
10"	10.750" (273.1 mm)	6	8	9
12"	12.750" (323.9 mm)	5	7	8
14"	14.000" (355.6 mm)	5	6	7
The Cutting Speeds are approximate				

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 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.

Inconel and some other high-temperature alloys may require special procedures as a function of wall thickness and type of end preparation. Contact TRI TOOL Inc. Engineering Department for details.

Basic Feed Recommendation

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

This is very important for longer tool bit life when cutting through flame cut or out of square pipe ends.

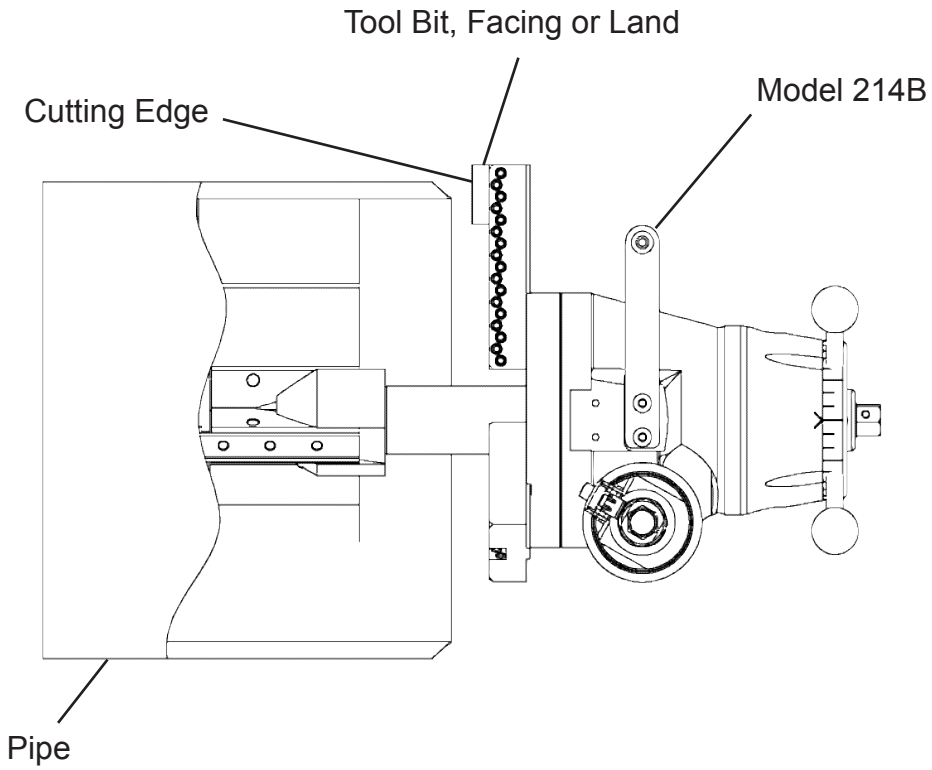
Use adequate feed, .003” (.08 mm) to .006” (.15 mm) per revolution thereafter, to establish a continuous chip cut.

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 start to have a rough or torn appearance.

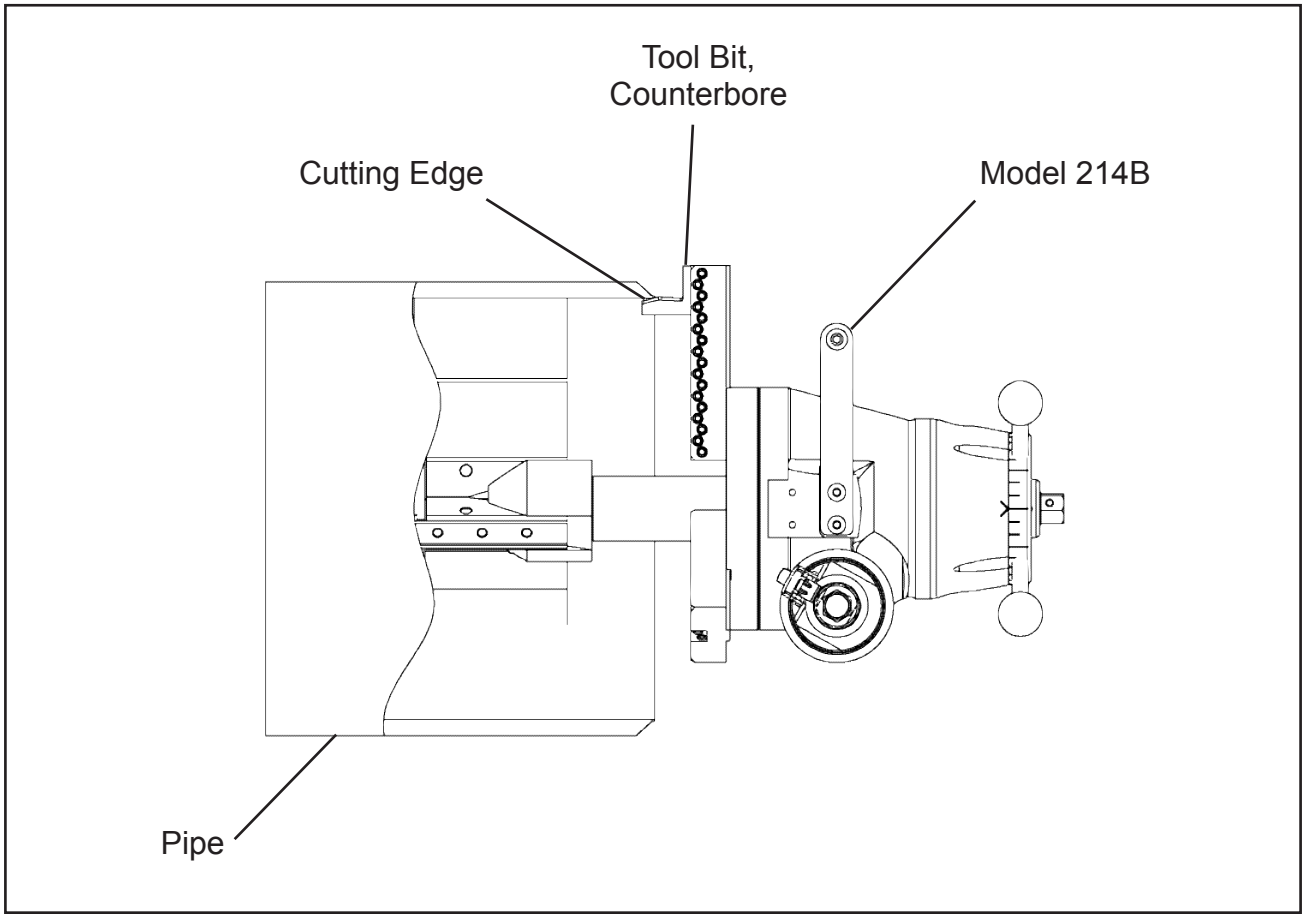
7. TOOL BITS

Facing



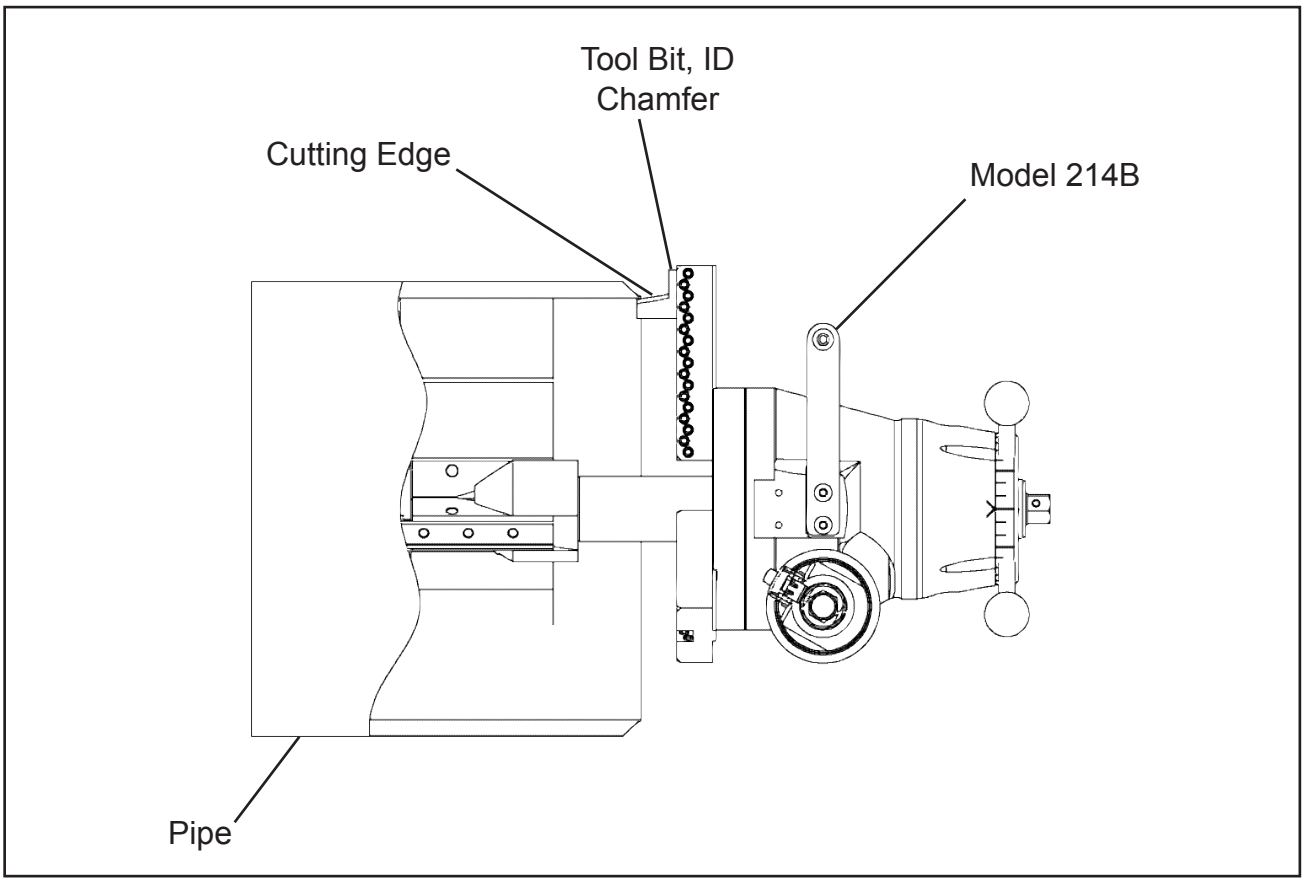
Facing Tool Bit Chart		
Face Range	**Pipe or Tube Material**	**Facing Tool Bit P/N**
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	CS	DURABIT4
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2917
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2979*
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	Copper	99-4537
*M42		
Cobalt High Heat Tool Bits are available.		

Counterbore



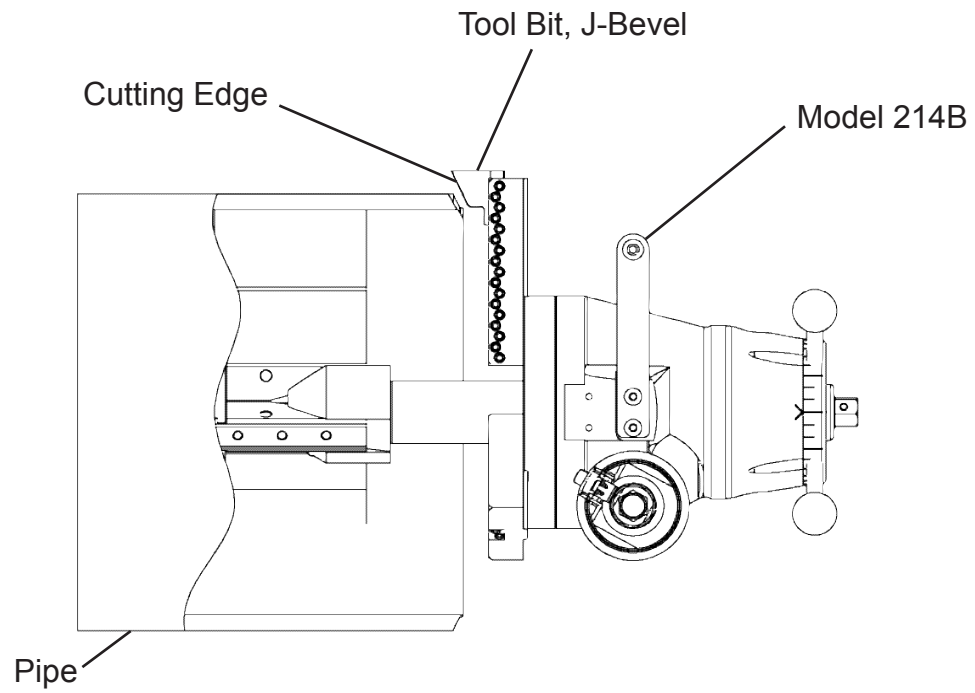
Counterbore Tool Bit Chart			
Counterbore Range	**Pipe or Tube Material**	**14.5° C'Bore Tool Bit P/N**	**Facing Tool Bit P/N**
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	CS	99-2908	DURABIT4
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2921	99-2917
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2981*	99-2979
4.460" ID through 14.000" ID (113.3 mm ID through 355.6 mm ID)	CS	99-2909	DURABIT4
4.460" ID through 14.000" ID (113.3 mm ID through 355.6 mm ID)	SS	99-2922	99-2917
4.460" ID through 14.000" ID (113.3 mm ID through 355.6 mm ID)	SS	99-2982*	99-2979
*M42			

ID Chamfer



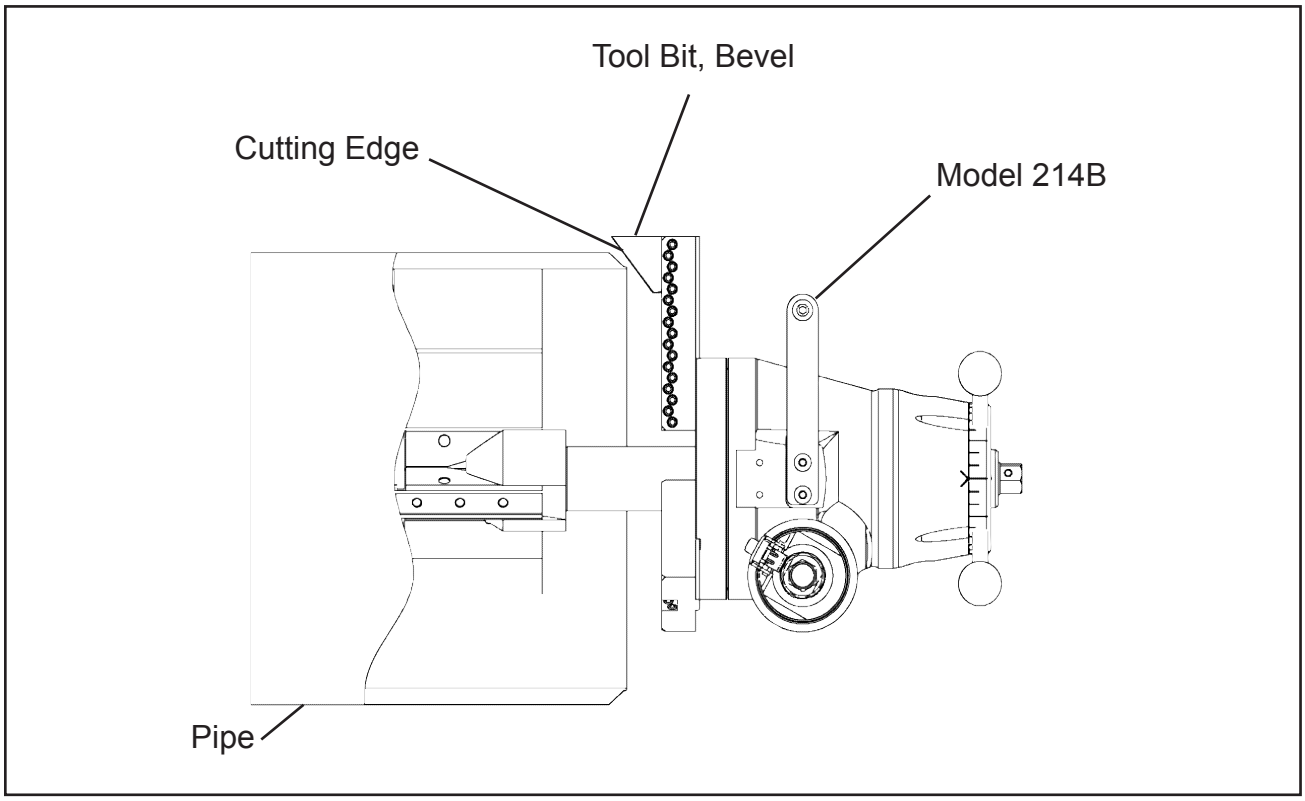
Chamfer and Facing Tool Bit Chart			
ID Chamfer Range	**Pipe or Tube Material**	**10° ID Chamfer Tool Bit P/N**	**Facing Tool Bit P/N**
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	CS	99-2911	DURABIT4
4.460" ID through 14.000" ID (113.3 mm ID through 355.6 mm ID)	CS	99-2912	DURABIT4
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2924	99-2917
4.460" ID through 14.000" ID (113.3 mm ID through 355.6 mm ID)	SS	99-2925	99-2917
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2984*	99-2979*
4.460" ID through 14.000" ID (113.3 mm ID through 355.6 mm ID)	SS	99-2985*	99-2979*
*M42			

J-Bevel



J-Bevel Range and Facing Tool Bit Chart			
J-Bevel Range	**Pipe or Tube Material**	**25° .187R J-Bevel Tool Bit P/N**	**Facing Tool Bit P/N**
3.328" ID through 12.750" ID (84.1 mm ID through 323.9 mm ID)	CS	99-2915	DURABIT4
3.328" ID through 13.625" ID (84.1 mm ID through 346.1 mm ID)	CS	29-2916	DURABIT4
3.328" ID through 12.750" ID (84.1 mm ID through 323.9 mm ID)	SS	99-2928	99-2917
3.328" ID through 13.625" ID (84.1 mm ID through 346.1 mm ID)	SS	99-2929	99-2917
3.328" ID through 12.750" ID (84.1 mm ID through 323.9 mm ID)	SS	99-2986*	99-2979*
3.328" ID through 13.625" ID (84.1 mm ID through 346.1 mm ID)	SS	99-2987*	99-2979*
*M42			

Bevel



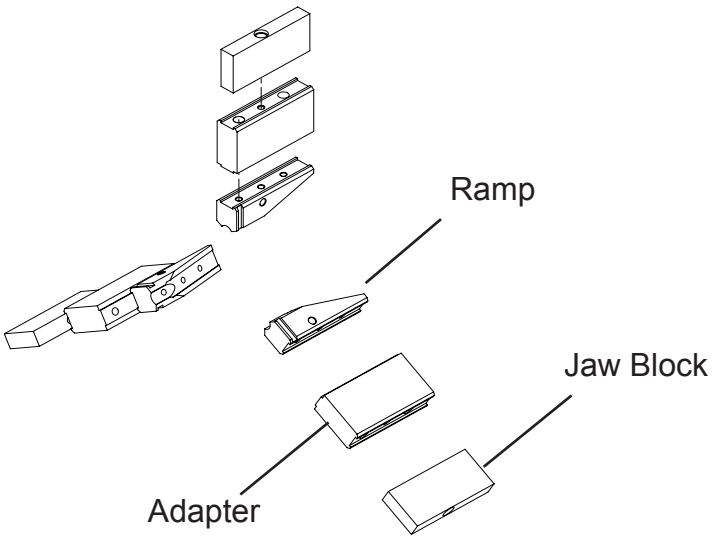
37 1/2° Bevel and Facing Tool Bit Chart			
Bevel and Face Range	**Pipe or Tube Material**	**37 1/2° Bevel Tool Bit P/N**	**Facing Tool Bit P/N**
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	CS	99-3341	DURABIT4
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	SS	99-3338	99-2917
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	SS	99-3342*	99-2979*

37 1/2° Bevel Tool Bit Chart		
Bevel (Only) Range	**Pipe or Tube Material**	**37 1/2° Bevel Tool Bit P/N**
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	CS	99-3341
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-3338
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-3342*
*M42		

45° Bevel and Facing Tool Bit Chart			
Bevel and Face Range	**Pipe or Tube Material**	**45° Bevel Tool Bit P/N**	**Facing Tool Bit P/N**
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	CS	99-3343	DURABIT4
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	SS	99-3344	99-2917
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	SS	99-3345*	99-2979*

45° Bevel Tool Bit Chart		
Bevel (Only) Range	**Pipe or Tube Material**	**45° Bevel Tool Bit P/N**
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	CS	99-3343
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-3344
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-3345*
*M42		

8. JAW BLOCKS, RAMPS, AND ADAPTERS



Standard Ramp, Jaw Block Assy and Adapter Chart			
ID Mounting Range	**Standard Ramp (3 Req'd)**	**Jaw Block Assembly (3 Req'd)**	**Adapters (3 Req'd)**
3.31" thru 4.35" (84.1 mm thru 110.5 mm)	48-0520	N/A	N/A
4.25" thru 5.31" (108.0 mm thru 134.9 mm)	48-0520	08-0185	N/A
5.21" thru 6.27" (132.3 mm thru 159.3 mm)	48-0520	08-0186	N/A
6.17" thru 7.24" (156.7 mm thru 183.9 mm)	48-0520	08-0187	N/A
7.14" thru 8.21" (181.4 mm thru 208.5 mm)	48-0520	08-0188	N/A
8.11" thru 9.18" (206.0 mm thru 233.2 mm)	48-0520	N/A	08-0189
9.10" thru 10.17" (231.1 mm thru 258.3 mm)	48-0520	08-0185	08-0189
10.07" thru 11.14" (255.8 mm thru 283.0 mm)	48-0520	08-0186	08-0189
11.04" thru 12.11" (280.4 mm thru 307.6 mm)	48-0520	08-0187	08-0189
12.01" thru 13.09" (305.1 mm thru 332.5 mm)	48-0520	08-0188	08-0189
13.00" thru 14.08" (330.2 mm thru 357.6 mm)	48-0520	08-1064	08-0189

9. FULL SUPPORT PAD KITS

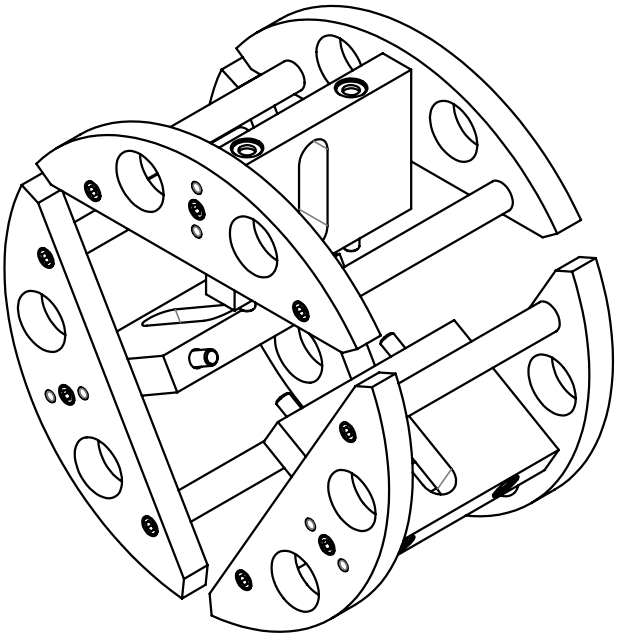


Figure 11: Full Support Pad Assembly

Pipe ID	Kit Set
8" SCH5S	05-1628
8" SCH10S	05-1629
10" SCH5S	05-1630
10" SCH10S	05-1631
12" SCH5S	05-1632
12" SCH10S	05-1633
14" SCH5S	05-1634
14" SCH10S	05-1635

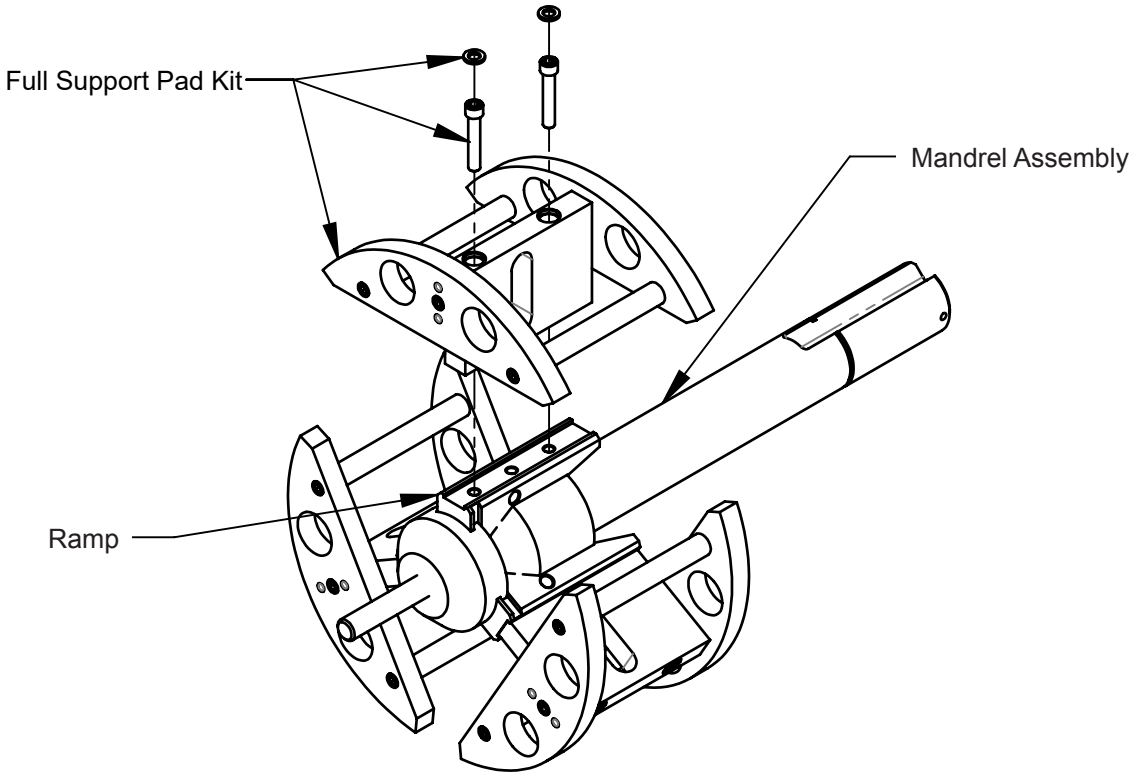


Figure 12: Pad Assembly 05-1628 through 05-1635

Mounting Instructions for Full Support Pad Kits

Attach the Pad Assembly to the mandrel by securing it to the ramp with the two designated screws that are retained inside the assembly.

Fully retract the Full Support Pad Assembly by turning mandrel feed nut counterclockwise before mounting inside the pipe.

10. MAINTENANCE

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

Use a clean, non-detergent oil, preferably SAE 10 (90 SSU) or lighter or oil as specified for the air motor.

Air Supply

Air Supply for the Model 214B with an air motor requires an adequate filter/regulator/lubricator (FRL) to be used in the air supply line.

NOTE: The motor warranty is void if damage occurs from contaminated air or lack of lubrication.

When the Model 214B is operated in the vertical position, cutting head up, it should be turned upside down and the chips and/or other debris removed after each bevel has been completed.

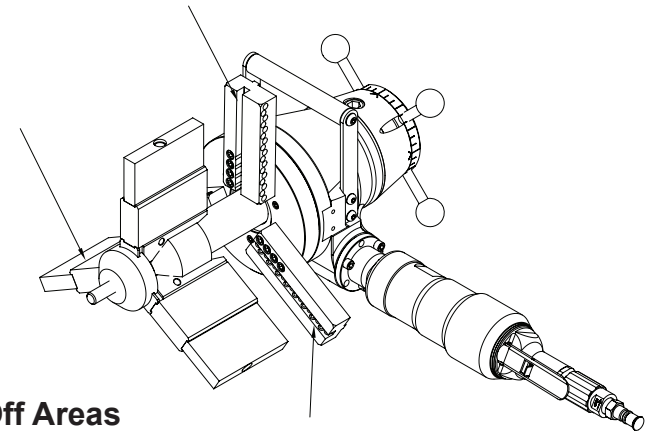


Figure 13: Clean Off Areas

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

Verify that there is adequate grease in the gear box. Bearing and gears are to be lubricated using a high string utility grease (P/N 68-0024).

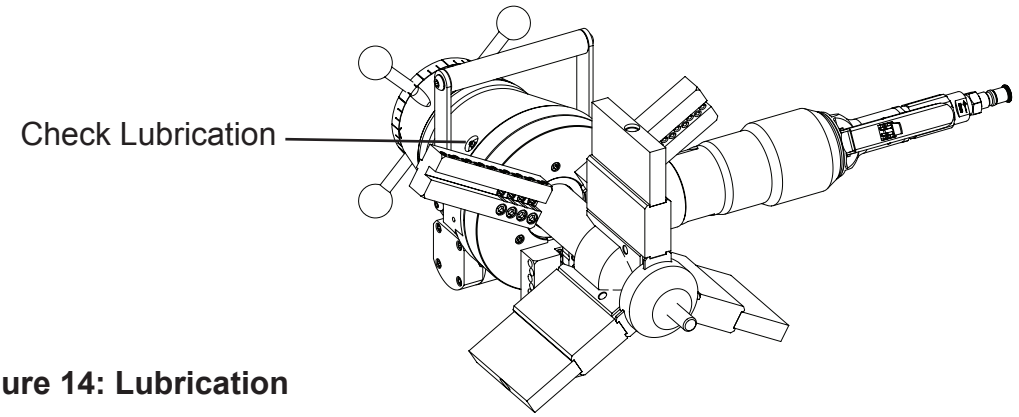


Figure 14: Lubrication

NOTE: Disassembly of a power unit voids the warranty, except when performed by a TRI TOOL Inc. designated repair technician. (A letter of designation is required.)

Air Motor Lubrication

No direct maintenance is normally required on the air motor.

However, the air supply must flow through a filter/regulator/lubricator (FRL) unit or separate units before arriving at the air motor.

The FRL unit must be maintained as required (frequency dependent on the basic air supply) to keep the water trap drained, filter cleaned and the lubricator oil reservoir filled so that a drop of oil every 2 to 5 seconds is flowing.

When the Model 214B BEVELMASTER™ is to be left idle for 24 hours or more after being run on 'wet' air, it is advisable to squirt oil directly into the air motor inlet and run the motor for two (2) to three (3) seconds. This will prevent rusting and freezing of the rotor.

Lubricant Recommendations

The drive gears require a high string lubrication grease such as Chevron Ultra-Duty Grease EP NCG12 (P/N 68-0024).

The air motor requires a Class 2 lubricant, viscosity of 100 to 200 SSU at 100° F (38° C) 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.

11. TROUBLESHOOTING

Problem: 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: 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: Rough Surface Finish

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: Tool Bit Does Not Reach Work

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

Incorrect tool bit is installed.

Problem: 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: Tool Bit Is Diving and the BEVELMASTER™ Is Stalling

The Tool Bit is dull, chipped, etc.

The Tool Holder Adjustment Slide is to loose.

The Parting Tool Bit is leading the Beveling Tool Bit by to much for proper chip clearance.

The Tool Bit is overextended.

The Tool Holder is overextended.

The Main Bearing pre-load is to loose.

Problem: Pipe/Tube Is Slipping In The Collet

The clamping pressure is not tight enough.

Scale and/or other foreign material is present on the pipe/tube.

Weld seams, swell

ing, or bumps are preventing full contact of the collet.

Dull Tool Bits are causing extra force in the axial and/or radial direction.

Problem: 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: Air Motor Does Not Start

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 motor

Lightly 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.

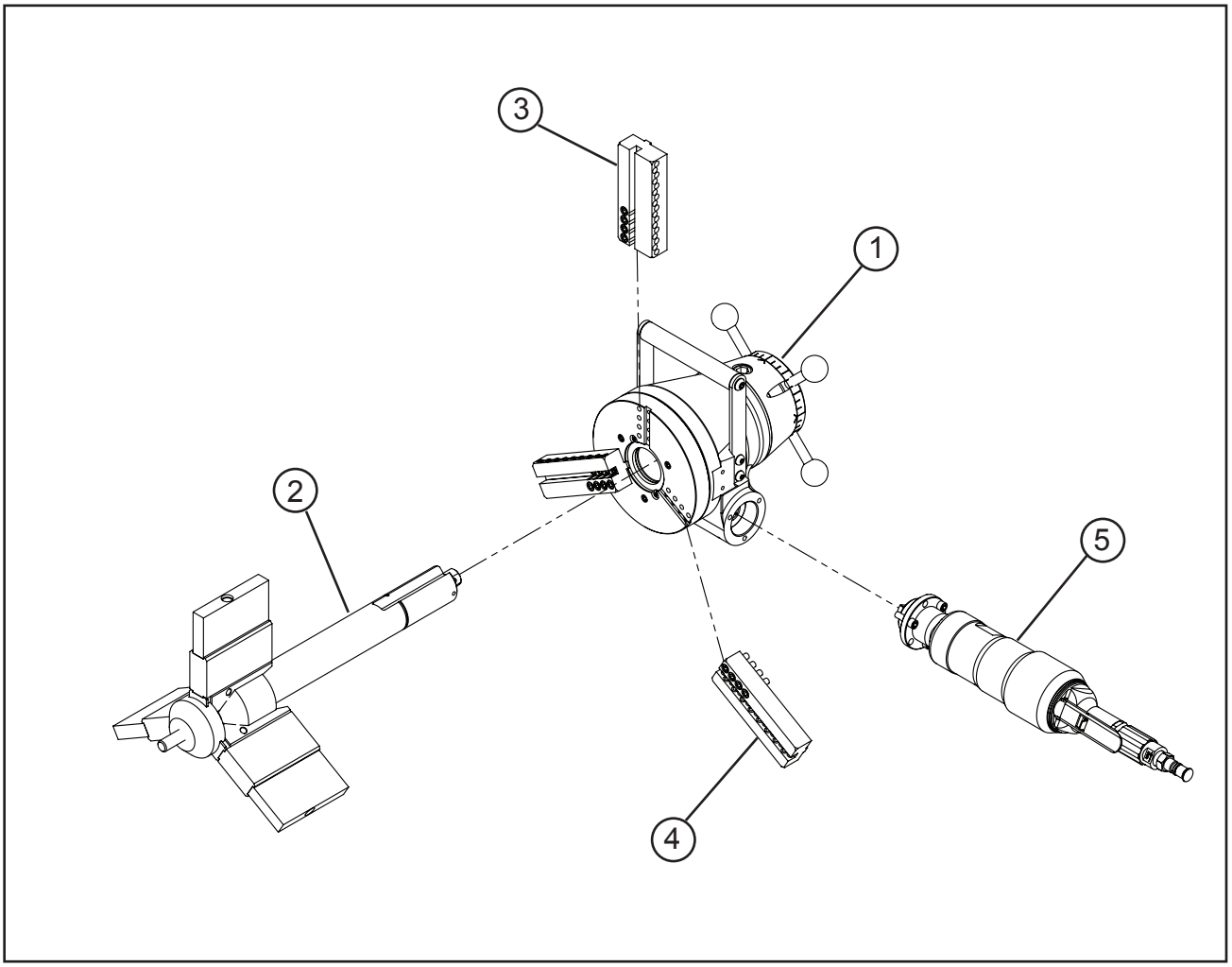
12. ACCESSORIES

The following accessories are available for use with the
Model 214B BEVELMASTER™ and are available from TRI TOOL Inc.

- Dial Indicator Kit
- Elbow Mandrel Adjustable Pin Kit
- Elbow Mandrel Assembly, Small
- Elbow Mandrel Kit
- Elbow Mandrel Pointer Kit
- Elbow Mandrel Squaring Plate Kit
- Flange Facer Kit
- ID Tracking Module Kit
- Miter Mandrel Kit
- Portable Air Caddy
- Single Point Kit
- Sleeve Mandrel Kit, 4” - 12” pipe
- Sleeve Mandrel Kit, 8” - 12” pipe

13. ILLUSTRATED PARTS BREAKDOWN

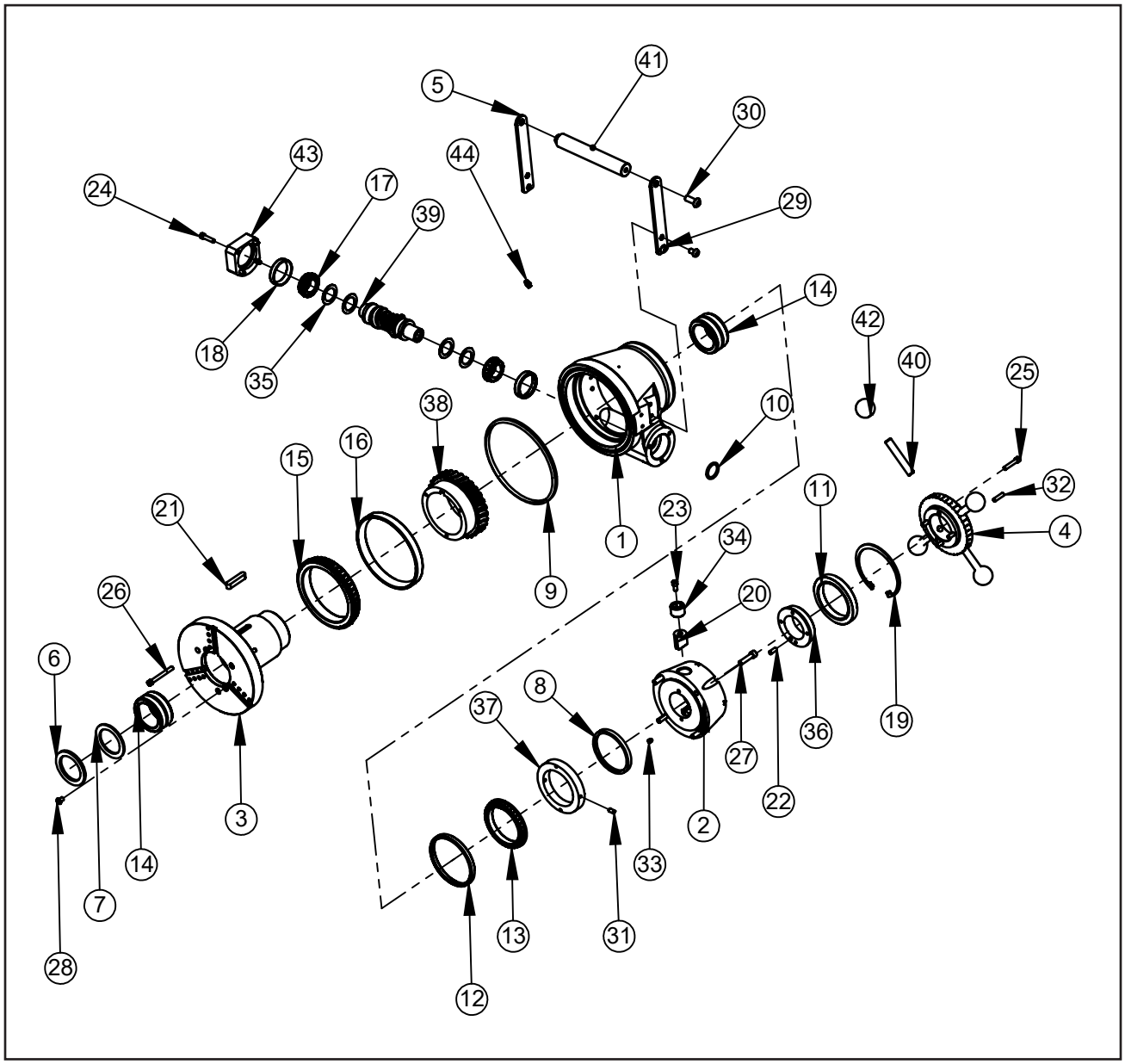
MODEL 214B BEVELMASTER™ (P/N 01-1141)



Parts List, Model 214B BEVELMASTER™ (P/N 01-1141)

Item No.	Part No.	Description	Qty
1.	02-2115	BEVELER SUB-ASSY, 212B/214B	1
2.	06-0528	MANDREL ASSY, 214B	1
3.	49-0393	HOLDER ASSY, TOOL, STEEL	1
4.	49-0995	HOLDER ASSY, TOOL, ALUM	2
5.	57-0168	MOTOR ASSY, AIR, INLINE, 310RPM	1
NOT SHOWN			
	05-1270	SHIPPING KIT, 212B/214B	1
	30-0105	LABEL, “ROTATION”	1
	30-0727	LABEL, CASE	1
	30-0887	PLATE, DATA, BEVELMASTER	1
	30-2061	LABEL, TRI TOOL	1
	30-4712	LABEL, PATENT, 214B	1
	33-0995	SCREW, DRIVE, #2 X 3/16	4
	86-0133	CASE, 212B/214B	1

MODEL 214B SUB-ASSEMBLY (P/N 02-2115)



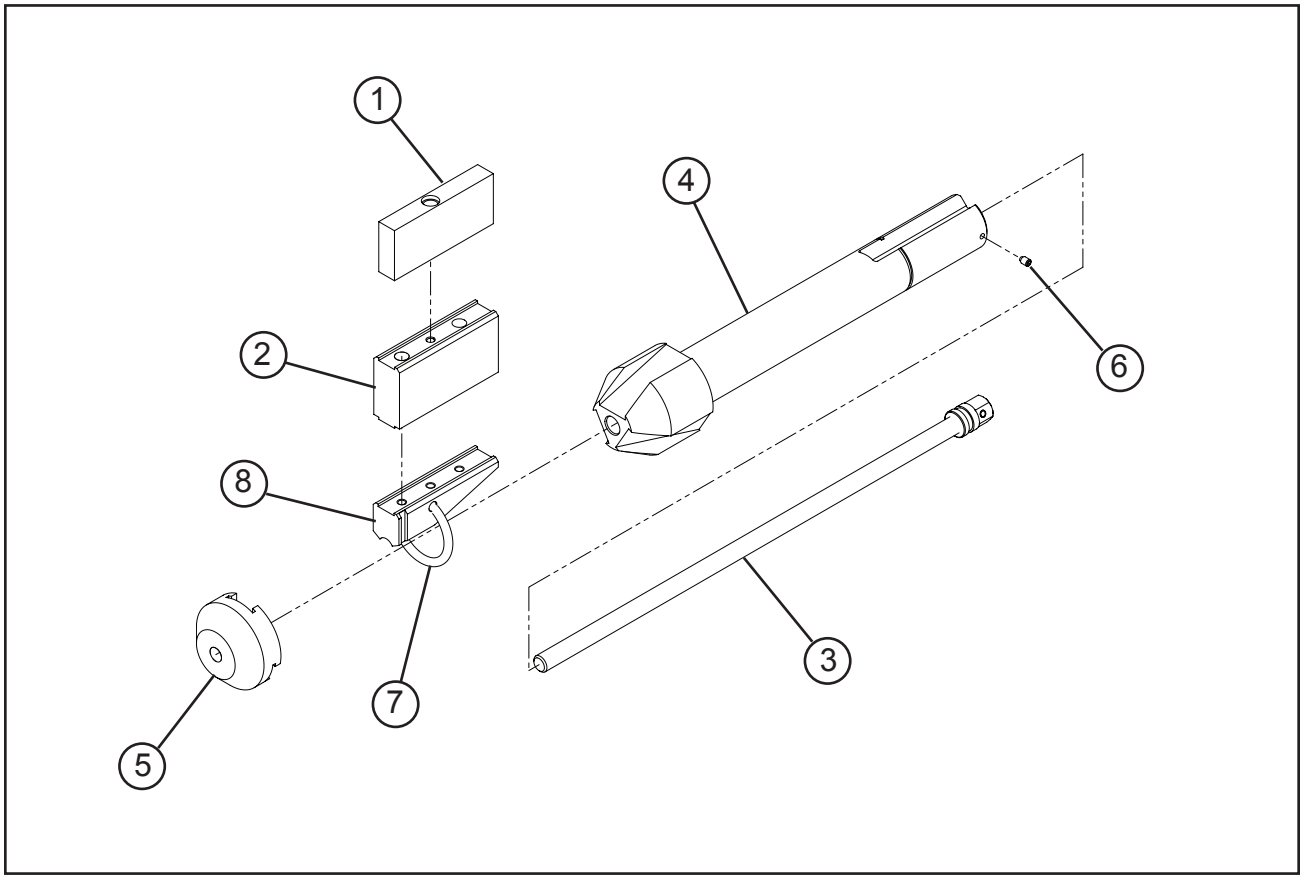
Parts List, Model 214B Sub-Assembly (P/N 02-2115)

Item No	Part No.	Description	Qty
1.	19-0449	HOUSING, MAIN 214B	1
2.	19-0450	HOUSING, FEED	1
3.	20-0391	SHAFT, MAIN	1
4.	24-0781	PLATE, FEED	1
5.	24-0782	PLATE, HANDLE	2
6.	24-0783	PLATE, SEAL	1
7.	28-0175	SEAL, SHAFT	1
8.	28-0176 X 10.50"	SEAL, EXTRUDED 3/16 X BULK	10.50" (27CM)
9.	28-0176 X 21.25"	SEAL, EXTRUDED 3/16 X BULK	21.25" (54CM)
10.	28-0177	O-RING	1
11.	29-0002	BRG, BALL, 2-15/16 X 3-7/8 X 7/16	1
12.	29-0215	BRG, TAPER CUP, 4-5/32 OD X 3/8	1
13.	29-0216	BRG TAPER CONE, 3" ID X 17/32	1
14.	29-0226	BEARING, ROLLER, 2 X 2-3/4 X 1-1/4	2
15.	29-0229	BRG, TAPER CONE, 4-1/2"ID X 27/32"	1
16.	29-0230	BRG, TAPER CUP, 6" O.D. X 21/32"	1
17.	29-0232	BRG, TAPER CONE, 1" ID X 9/16"	2
18.	29-0233	BRG, TAPER CUP, 1-31/32"OD X 3/8"	2
19.	30-0300	RING, RETAIN, INT, 3-7/8" ID	1
20.	31-0091	BRONZE, KEY	2
21.	31-0092	KEY, SQUARE	1
22.	32-0304	PIN, LK	1
23.	33-0038	SCREW, CAP (1/4-20 x .50)	2
24.	33-0042	SCREW, CAP, 1/4 - 20 X 1"	4
25.	33-0043	SCREW, CAP, 1/4-20 X 1-1/4	4
26.	33-0047	SCREW, CAP, 1/4-20 X 2 1/4	3
27.	33-0057	SCREW, CAP (5/16-18 x 1.25)	4
28.	33-0284	SCREW, BUTTON, 1/4-20 X 3/8	2
29.	33-0291	SCREW, BUTTON, 5/16-18 X 1/2	4
30.	33-0300	SCREW, BUTTON HEAD (3/8-16 x .75)	2

Parts List, Model 214B Sub-Assembly (P/N 02-2115) *continued*

Item No	Part No.	Description	Qty
31.	33-0503	SCREW, SET, CUP POINT (1/4-20 x .50)	2
32.	33-0507	SCREW, SET, 1/4-20 X 1 CUP PT	1
33.	33-0903	SCREW, SET, 1/4-20 X 5/16, HDOG	2
34.	33-1572	SCREW, SET, 1" - 12 X 3/4	2
35.	34-0225	SHIM, BRG, 1" ID X 1-1/2" O.D.	4
36.	35-0284	NUT, FEED, 212B/214B	1
37.	35-0285	NUT, LOCK	1
38.	39-0508-1	GEAR SET, MOD MAIN GEAR	1
39.	39-0508-2	GEAR SET, MOD. PINION	1
40.	41-0076	HANDLE, FEED	4
41.	41-0080	HANDLE	1
42.	42-0017	KNOB, SPHERICAL, 1-3/8 DIA	4
43.	43-0313	COVER, GEAR	1
44.	54-0375	FITTING, GREASE	1

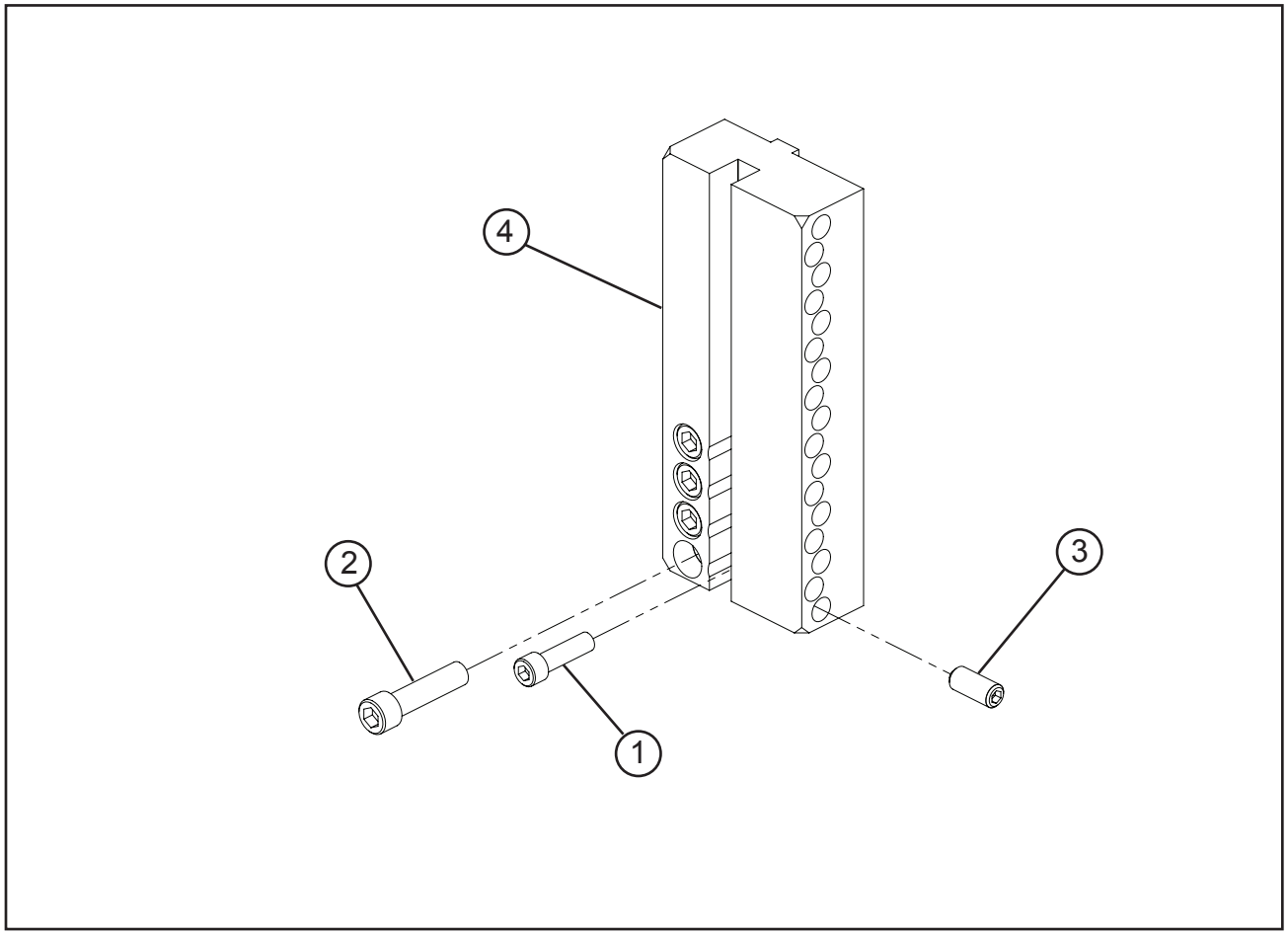
MANDREL ASSEMBLY (P/N 06-0528)



Parts List, Mandrel Assembly (P/N 06-0528)

Item No.	Part No.	Description	Qty
1.	08-0185	BLOCK ASSEMBLY, JAW, AL, .609" (15.5 MM)	3
	08-0186	BLOCK ASSEMBLY, JAW, AL, 1.096" (27.8 MM)	3
	08-0187	BLOCK ASSEMBLY, JAW, AL, 1.583" (40.2 MM)	3
	08-0188	BLOCK ASSEMBLY, JAW, AL, 2.070" (52.6 MM)	3
	08-1064	BLOCK ASSEMBLY, JAW, AL, 2.570" (62.3 MM)	3
2.	08-0189	BLOCK ASSEMBLY, ADAPTER	3
3.	11-0060	ROD ASSEMBLY, DRAW	1
4.	13-0309	MANDREL	1
5.	24-0799	PLATE, BUTT	1
6.	33-0928	SCREW, SET, 1/4-20 X 3/8", H DOG	2
7.	40-0172	SPRING, EXTENSION	1
8.	48-0520	BLOCK, RAMP	3

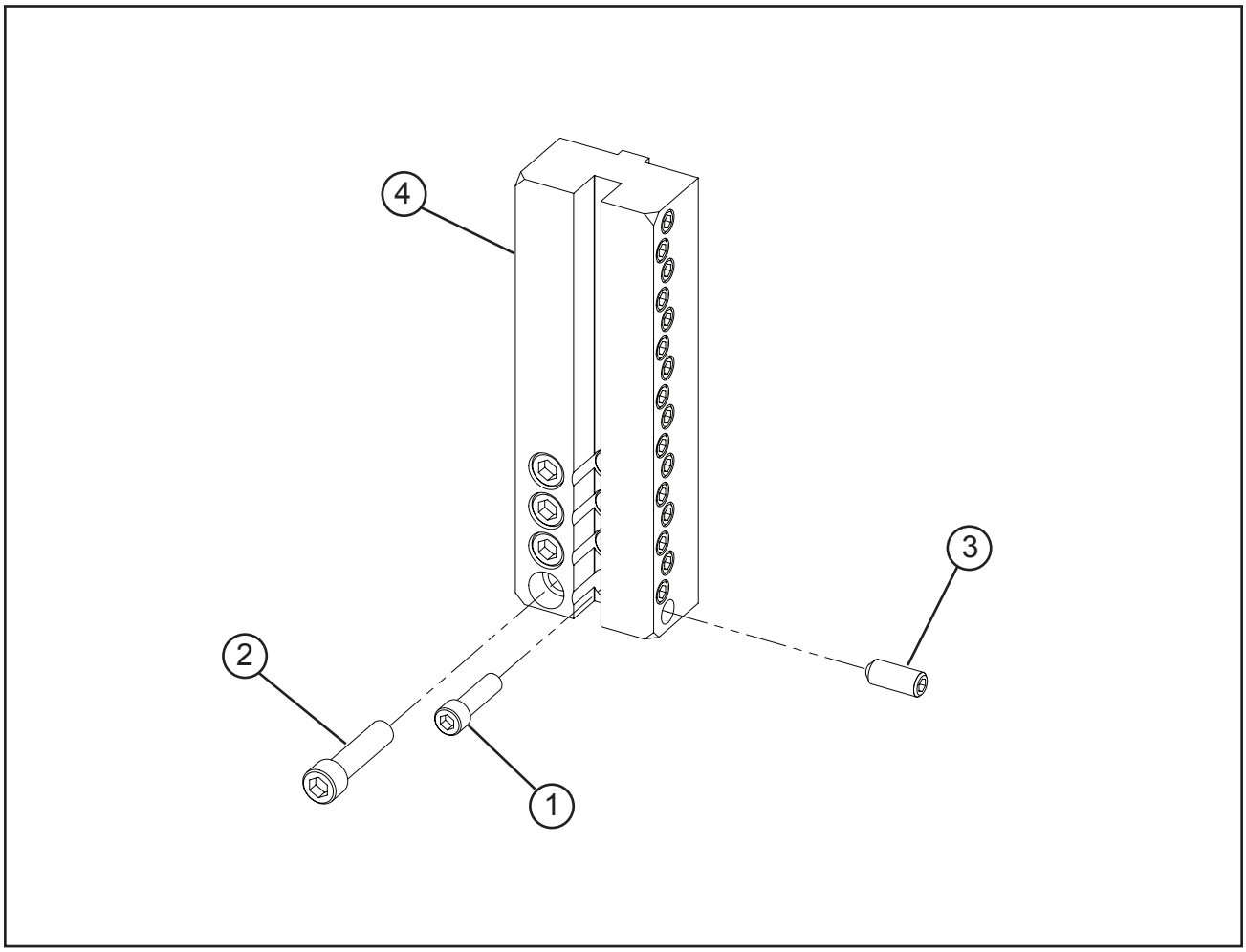
TOOL HOLDER ASSEMBLY, STEEL (P/N 49-0393)



Parts List, Tool Holder Assembly, Steel (P/N 49-0393)

Item No.	Part No.	Description	Qty
1.	33-0041	SCREW, CAP, 1/4-20 X 7/8	4
2.	33-0057	SCREW, CAP, 5/16-18 X 1-1/4	4
3.	33-0518	SCREW, SET,5 /16-18 X 3/4 CUP PT	17
4.	49-0307	HOLDER, TOOL, STEEL	1

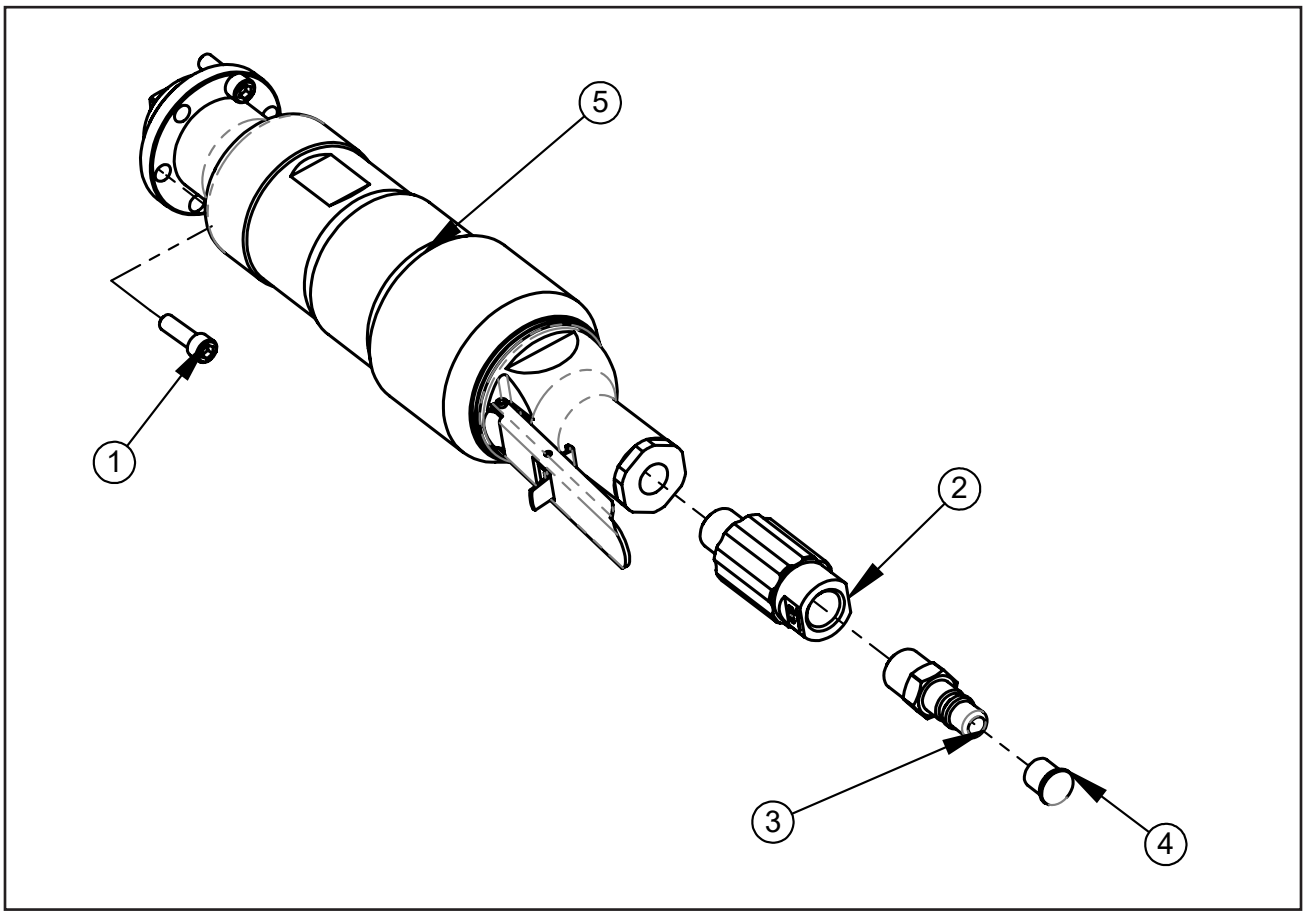
TOOL HOLDER ASSEMBLY, ALUMINUM (P/N 49-0995)



Parts List, Tool Holder Assembly, Aluminum (P/N 49-0995)

Item No.	Part No.	Description	Qty
1.	33-0041	SCREW, CAP, 1/4-20 X 7/8	4
2.	33-0057	SCREW, CAP, 5/16-18 X 1-1/4	4
3.	33-0518	SCREW, SET, 5/16-18 X 3/4 CUP PT	17
4.	49-0994	HOLDER, TOOL, ALUMINUM	1

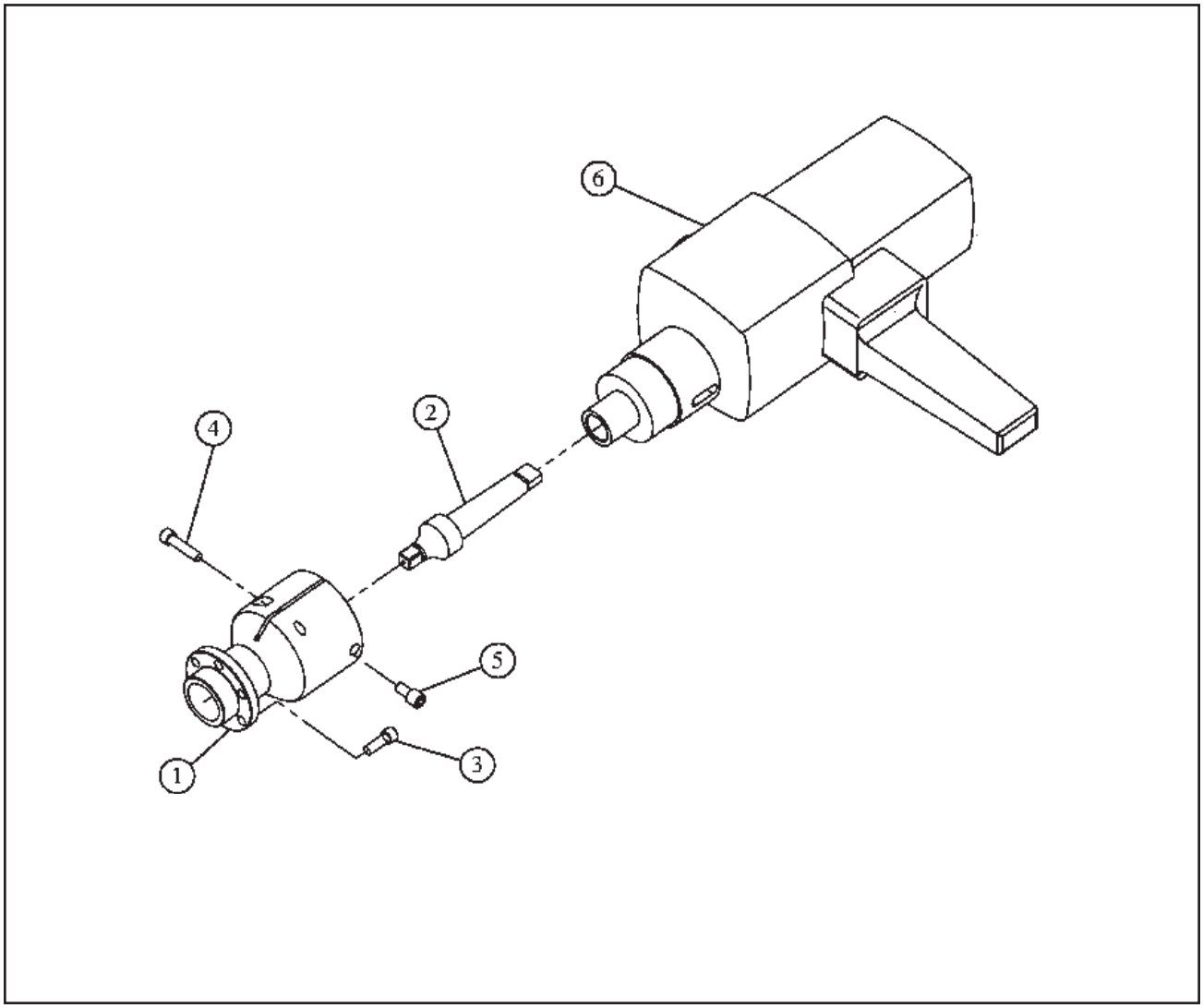
MOTOR ASSEMBLY, AIR, IN-LINE, 310 RPM (P/N 57-0168)



Parts List, IN-LINE Air Motor Assembly, 310 RPM (P/N 57-0168)

Item No.	Part No.	Description	Qty
1.	33-0056	SCREW, CAP, 5/16-18 X 1”	3
2.	53-0046	VALVE, FLOW CONTROL, 1/2” NPT	1
3.	54-0126	COUPLING, MALE QD TO 1/2” EPIPE	1
4.	54-0201	CAP, YELLOW	1
5.	57-0161	AIR MOTOR, IN-LINE, 1/2" SQ, 310 RPM	1

MOTOR ASSEMBLY, ELECTRIC, HD, 115V/230V



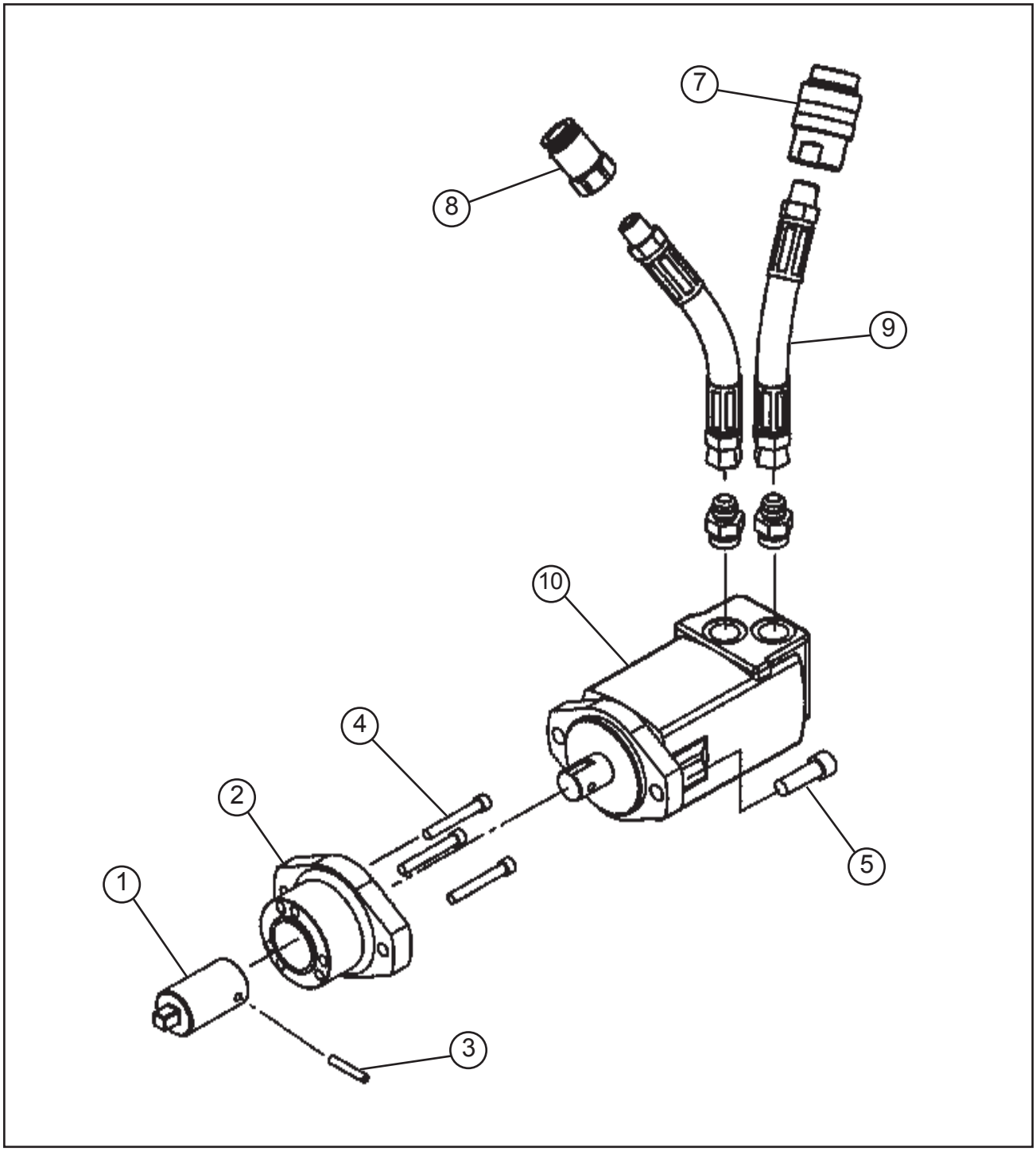
Parts List, Motor Assembly, Electric, HD, 115V (P/N 58-0167)

Item No.	Part No.	Description	Qty
1.	27-0826	ADAPTER, DRIVE	1
2.	30-3143	1/2" SQUARE DRIVE	1
3.	33-0055	SCREW, CAP, 5/16-18 X 7/8" LG.	3
4.	33-0057	SCREW, CAP, 5/16-18 X 1 1/4" LG.	1
5.	33-1874	SCREW, ANTI-ROTATION	2
6.	58-0192	MOTOR, ELECTRIC, 115V, MODIFIED	1

Parts List, Motor Assembly, Electric, HD, 230V (P/N 58-0174)

Item No.	Part No.	Description	Qty
1.	27-0826	ADAPTER, DRIVE	1
2.	30-3143	1/2" SQUARE DRIVE	1
3.	33-0055	SCREW, CAP, 5/16-18 X 7/8" LG.	3
4.	33-0057	SCREW, CAP, 5/16-18 X 1 1/4" LG.	1
5.	33-1874	SCREW, ANTI-ROTATION	2
6.	58-0173	MOTOR, ELECTRIC, 230V, MODIFIED	1

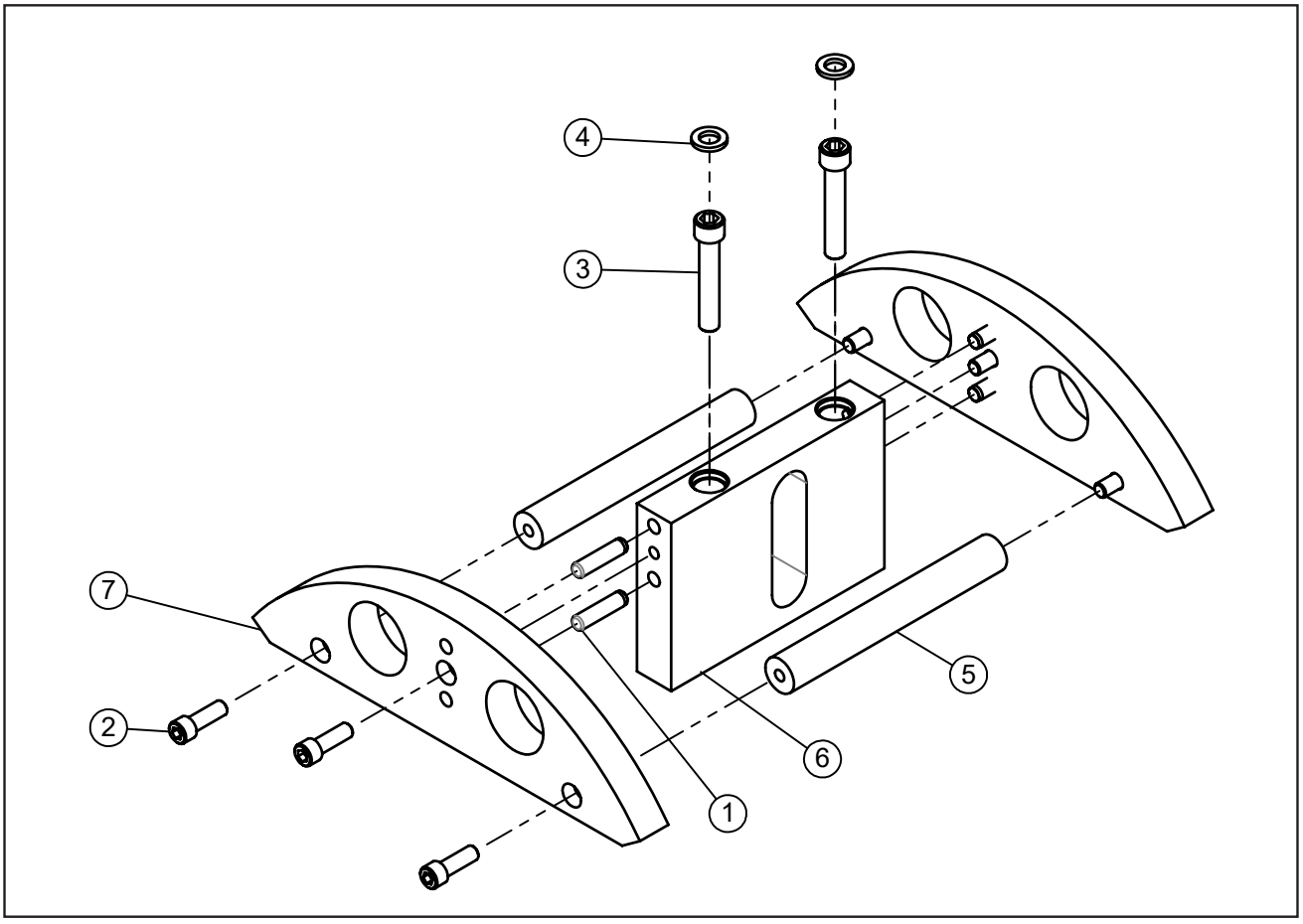
MOTOR ASSEMBLY, HYDRAULIC (P/N 56-0101)



Parts List, Motor Assembly, Hydraulic (P/N 56-0101)

Item No.	Part No.	Description	Qty
1.	27-0618	ADAPTER, DRIVE	1
2.	27-0619	ADAPTER, HYDRAULIC MOTOR	1
3.	32-0090	PIN, SHEAR	1
4.	33-0061	SCREW, CAP, 5/16-18 X 2 1/4"	3
5.	33-0107	SCREW, CAP, 1/2-13 X 1 1/2"	2
6.	54-0002	ADAPTER	2
7.	54-0333	COUPLER, QD, HYD, DRIPLESS, FEMALE	1
8.	54-0334	COUPLER, QD, HYD, DRIPLESS, MALE	1
9.	55-0156	HOSE ASSEMBLY, HYDRAULIC	2
10.	56-0102	MOTOR, HYDRAULIC	1
NOT SHOWN:			
	54-0335	DUST PLUG, DRIPLESS	2

KIT, FULL SUPPORT PAD, 214B (P/N 05-1628 & 05-1635)



Parts List, Kit, Full Support Pad, 214B (P/N 05-1628 & 05-1629)

Item No.	Part No.	Description	Qty
1.	33-0144	SCREW, CAP, 3/4-10 X 1-1/2	12
2.	33-0040	SCREW, CAP, 1/4-20 X 3/4	18
3.	33-0057	SCREW, CAP, 5/16-18 X 1-1/4	6
4.	34-0757	WASHER, NYLON, .562"OD X .328"ID X.060"	6
5.	44-1735	SPACER, FULL SUPPORT, SCH 5/10,214	6
6.	48-4697	BLOCK, EXTENSION, SUREFIRE 14, 8" PIPE	3
7.	67-5827	PAD, FULL SUPPORT, SUREFIRE 14, 8"SCH5S	6
	67-5828	PAD, FULL SUPPORT, SUREFIRE 14, 8"SCH10S	6

Parts List, Kit, Full Support Pad, 214B (P/N 05-1630 & 05-1631)

Item No.	Part No.	Description	Qty
1.	33-0144	SCREW, CAP, 3/4-10 X 1-1/2	12
2.	33-0040	SCREW, CAP, 1/4-20 X 3/4	18
3.	33-0059	SCREW, CAP, 5/16-18 X 1-3/4	6
4.	34-0757	WASHER, NYLON, .562"OD X .328"ID X.060"	6
5.	44-1735	SPACER, FULL SUPPORT, SCH 5/10, 214	6
6.	48-4698	BLOCK, EXTENSION, SUREFIRE 14, 10" PIPE	3
7.	67-5775	PAD, FULL SUPPORT, SUREFIRE 14, 10"SCH5S	6
	67-5776	PAD, FULL SUPPORT, SUREFIRE 14, 10"SCH10S	6

Parts List, Kit, Full Support Pad, 214B (P/N 05-1632 & 05-1633)

Item No.	Part No.	Description	Qty
1.	33-0144	SCREW, CAP, 3/4-10 X 1-1/2	12
2.	33-0040	SCREW, CAP,1 /4-20 X 3/4	18
3.	33-0062	SCREW, CAP, 5/16-18 X 2-1/2	6
4.	34-0757	WASHER, NYLON, .562" OD X .328"ID X.060"	6
5.	44-1735	SPACER, FULL SUPPORT, SCH 5/10, 214	6
6.	48-4699	BLOCK, EXTENSION, SUREFIRE 14, 12" PIPE	3
7.	67-5777	PAD, FULL SUPPORT, SUREFIRE 14, 12"SCH5S	6
	67-5778	PAD, FULL SUPPORT, SUREFIRE 14, 12"SCH10S	6

Parts List, Kit, Full Support Pad, 214B (P/N 05-1634 & 05-1635)

Item No.	Part No.	Description	Qty
1.	33-0144	SCREW, CAP, 3/4-10 X 1-1/2	12
2.	33-0040	SCREW, CAP, 1/4-20 X 3/4	18
3.	33-0064	SCREW, CAP, 5/16-18 X 3	6
4.	34-0757	WASHER, NYLON, .562"OD X .328"ID X.060"	6
5.	44-1735	SPACER, FULL SUPPORT, SCH 5/10, 214	6
6.	48-4700	BLOCK, EXTENSION, SUREFIRE 14, 14" PIPE	3
7.	67-5779	PAD, FULL SUPPORT, SUREFIRE 14, 14"SCH5S	6
	67-5780	PAD, FULL SUPPORT, SUREFIRE 14, 14"SCH10S	6

WARNING

Read the manual and be familiar with all safety precautions before operating equipment. The following are general warnings for industrial equipment with moving parts. Refer to the manual for specific warnings applicable to your equipment.

EYE HAZARD - Always wear appropriate eye protection while operating the equipment.

PINCH HAZARD - Keep your hands and clothing away from moving parts.

CRUSH HAZARD - The machinery, pipe, or work piece can shift, separate, lurch, or fall.

CHIP HAZARD - Metal chips may be hot and sharp. Be careful when you clear the tooling path or clean up chips.

TIE DOWN HAZARD - Deliberate overriding of safety triggers can result in serious injury. Never lock or tie down any safety triggers.

SHOCK HAZARD - Ensure that the equipment is properly installed and grounded. Ensure that the equipment is not damaged and that the power cord is intact.

OTHER HAZARDS

• Tool bits are sharp and can cause serious injury.
• Do not defate or modify safety features.
• Disconnect power sources before servicing or moving the equipment.
• Remove all loose articles of clothing and jewelry before operating the equipment.

Be Safety Conscious!

TRI TOOL TECHNOLOGIES

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