

TABLE OF CONTENTS

CUSTOMER MESSAGE	Inside Front Cover
SAFETY PRECAUTIONS	3
GENERAL DESCRIPTION	6
SPECIFICATIONS	7
SETUP AND OPERATION	20
CUTTING SPEEDS AND FEEDS	28
TOOL BITS	30
JAW BLOCKS, RAMPS AND ADAPTERS	41
MAINTENANCE	43
TROUBLESHOOTING	46
ACCESSORIES	48
ILLUSTRATED PARTS BREAKDOWN	49
TOOL BIT RESHARPENING POLICY	Inside Back Cover
WARRANTY INFORMATION	Inside Back Cover

Copyright 2010
Proprietary property of TRI TOOL Inc.
No reproduction, use, or duplication of the
information shown hereon is permitted without the
express written consent of TRI TOOL Inc.

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 the 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 214B BEVELMASTER® is a portable ID mount machine tool for beveling, facing and counterboring 4" (101.6 mm) through 14" (355.6 mm) pipe. 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.

The machining operations can be performed either separately or simultaneously.

The Model 214B BEVELMASTER® is available in the following configurations.

P/N	Power
01-1141	Air
01-1977	Hydraulic
01-1978	Electric, 115V AC, H.D., 40 - 60 Hz
01-1979	Electric, 230V AC, H.D., 40 - 60 Hz

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)

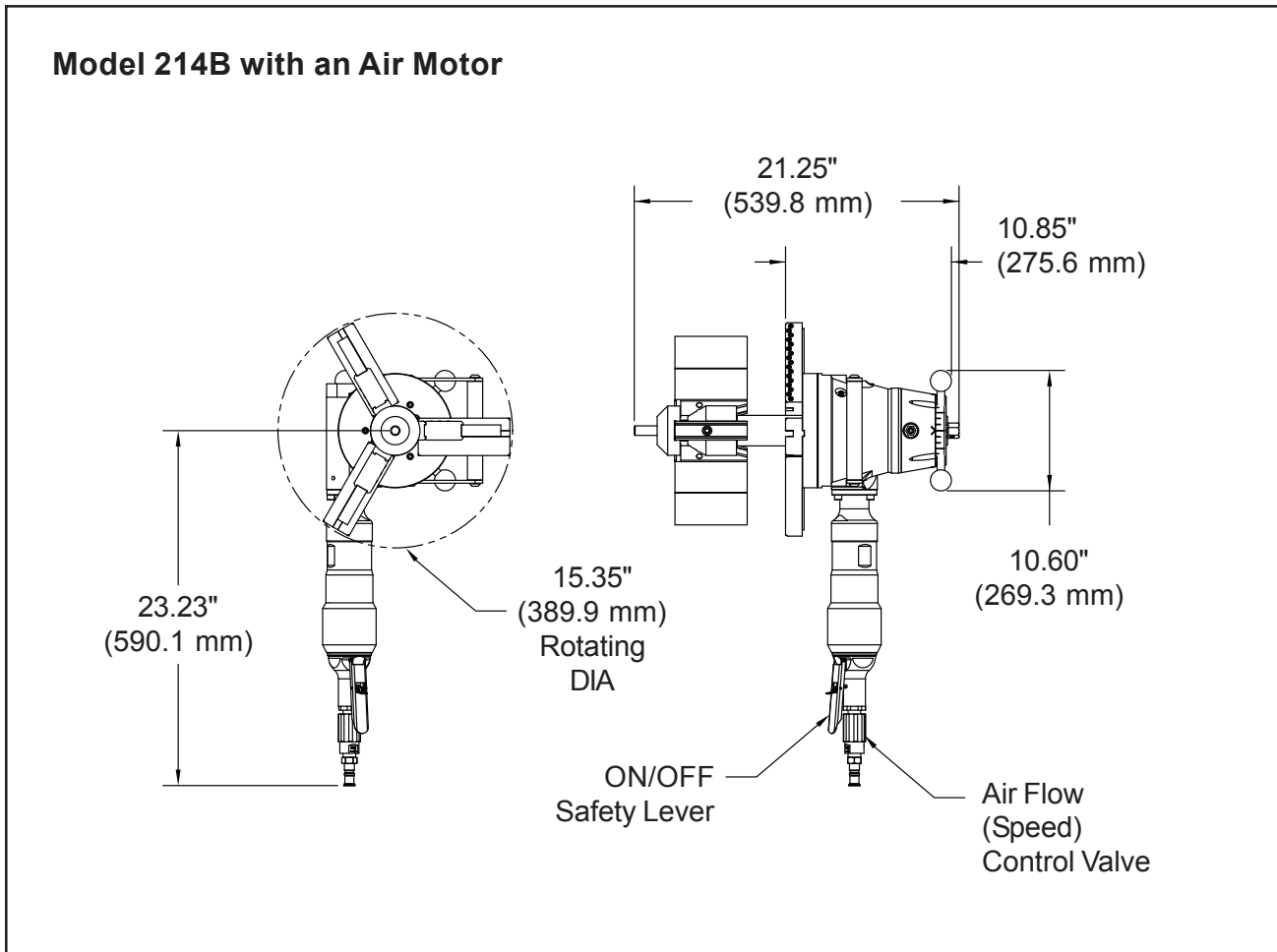
Clearances and Dimensions

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)

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 1.32" (33.4 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's 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 (xx mm/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.

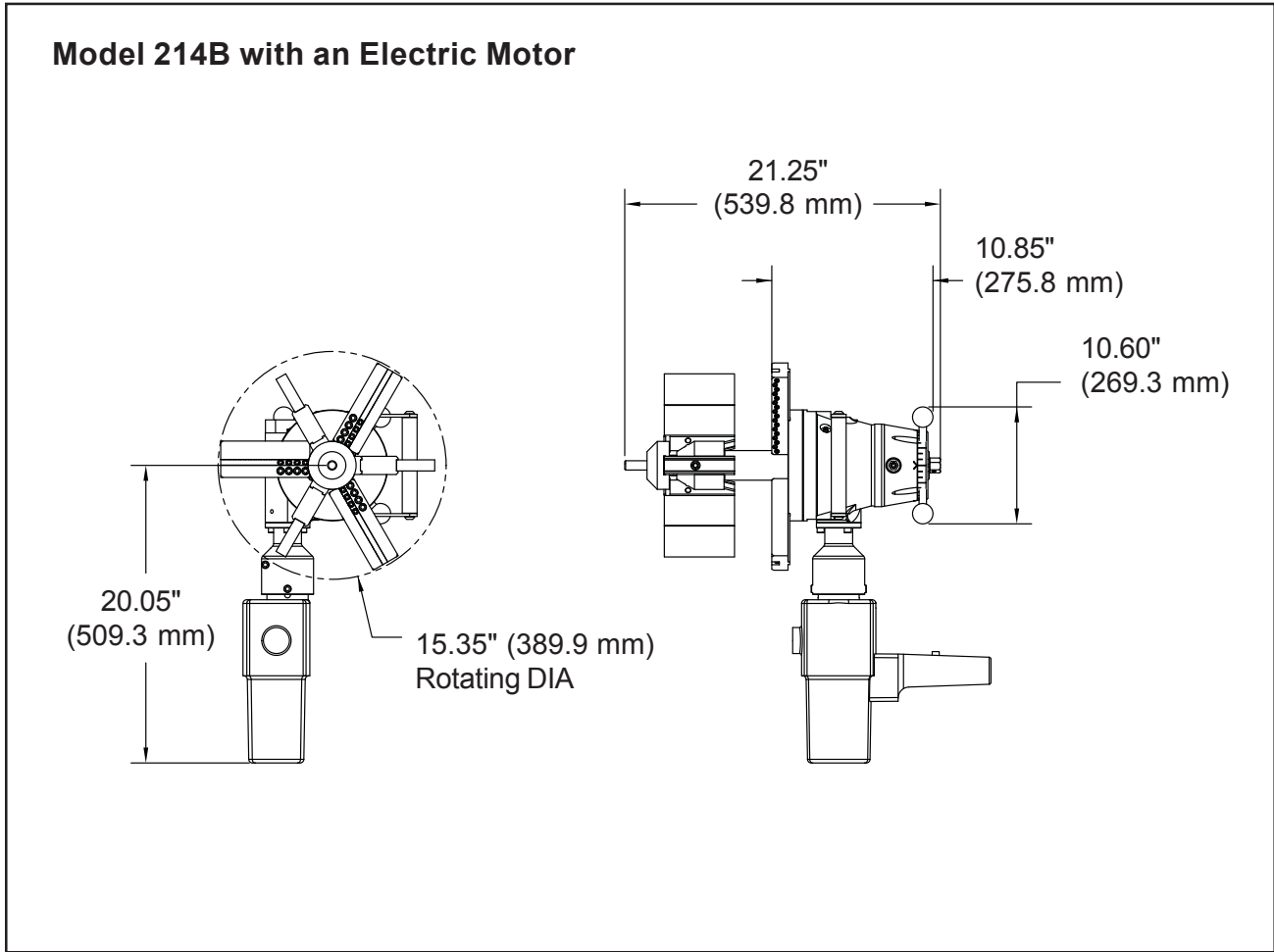
NOTE:

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

MODEL 214B BEVELMASTER® WITH ELECTRIC H.D. (HEAVY DUTY) MOTOR ATTACHED

Weight

87 lbs (39.5 kg)



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

Basic Pipe Sizes

4" - 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 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" (33.4 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 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

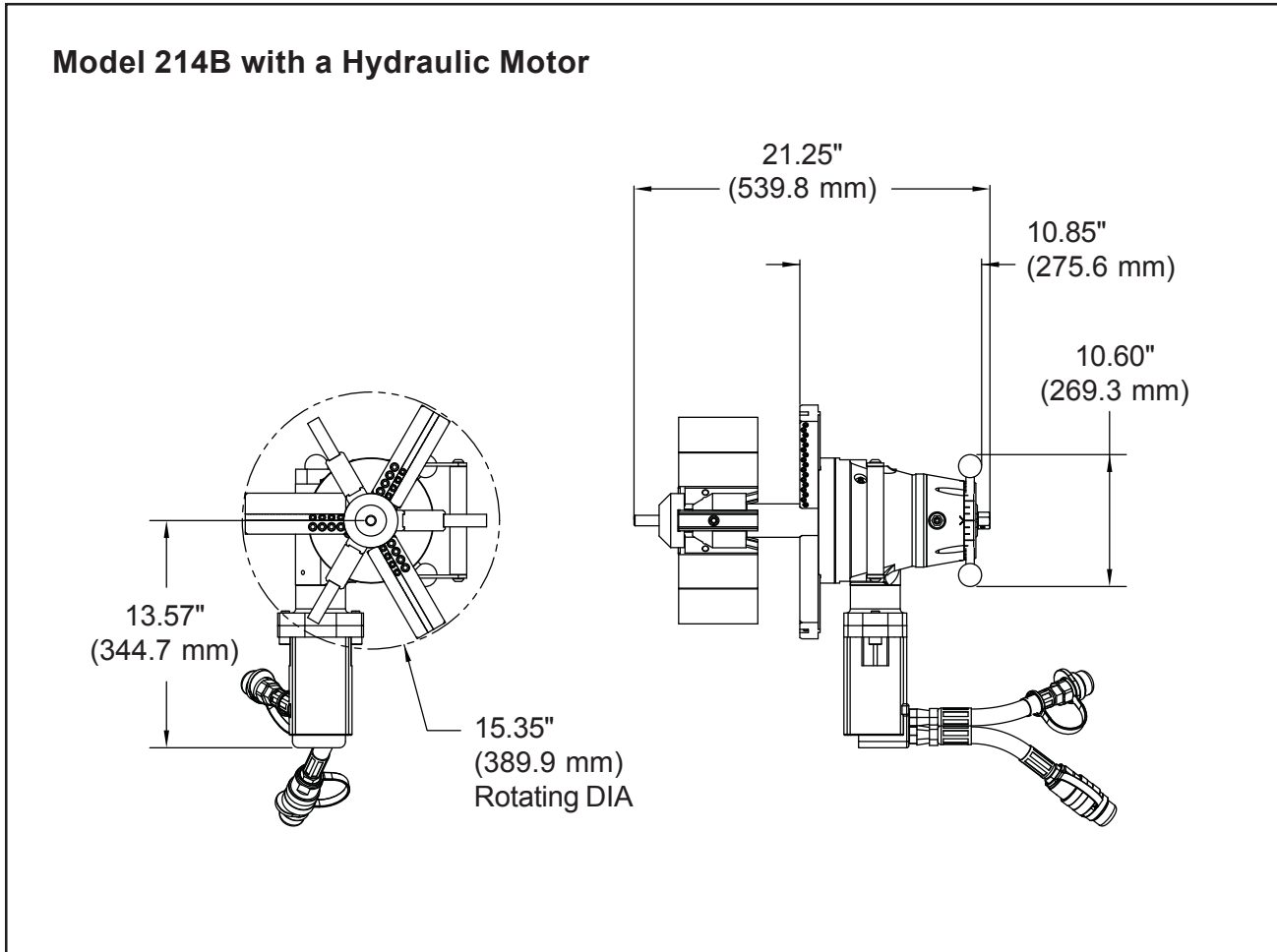
230 VAC, 40 – 60 Hz, 2300 Watt Rated Supply

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

MODEL 214B BEVELMASTER® WITH HYDRAULIC MOTOR ATTACHED

Weight (Approx.)

100 lbs (45.4 kg)



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's 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)

SETUP AND OPERATION

Always read the operating instructions carefully/completely before attempting to operate 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 required. The frequency will depend 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.

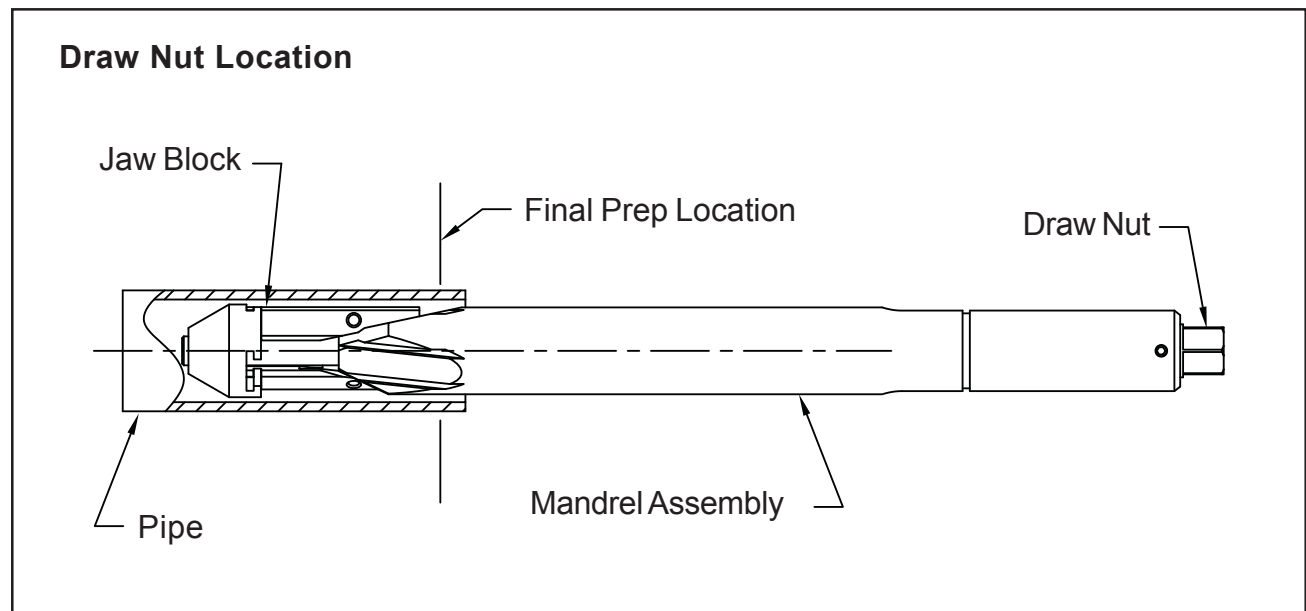
Loosen the draw nut to retract the jaw blocks to a diameter smaller than the ID of the pipe to be prepped.

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.



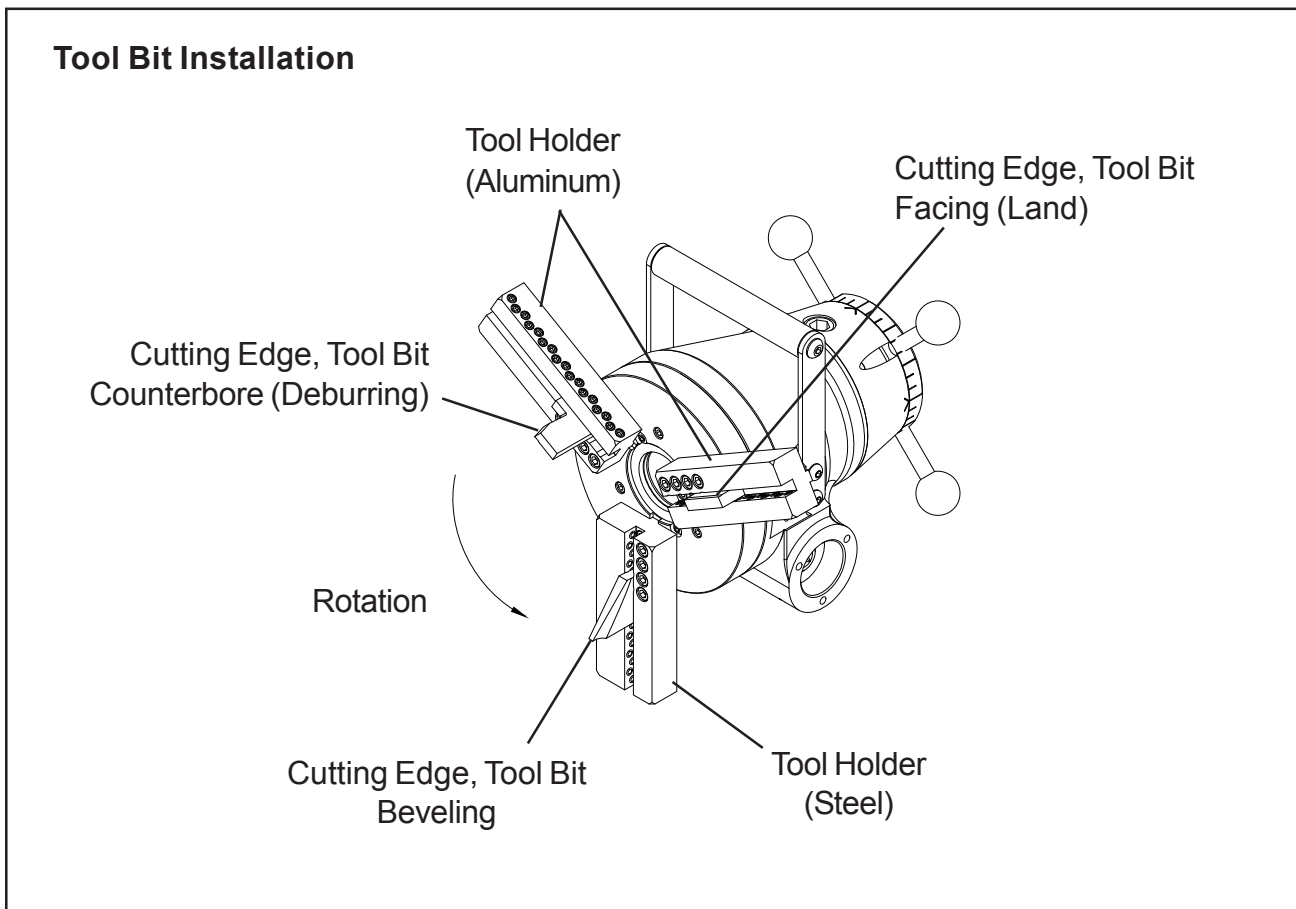
Tool Bits

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.



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 located on the radial centerline.*

NOTE: *Insure that the tool bit is not installed backwards.*

Tighten the set screws that come in contact with the tool bit 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

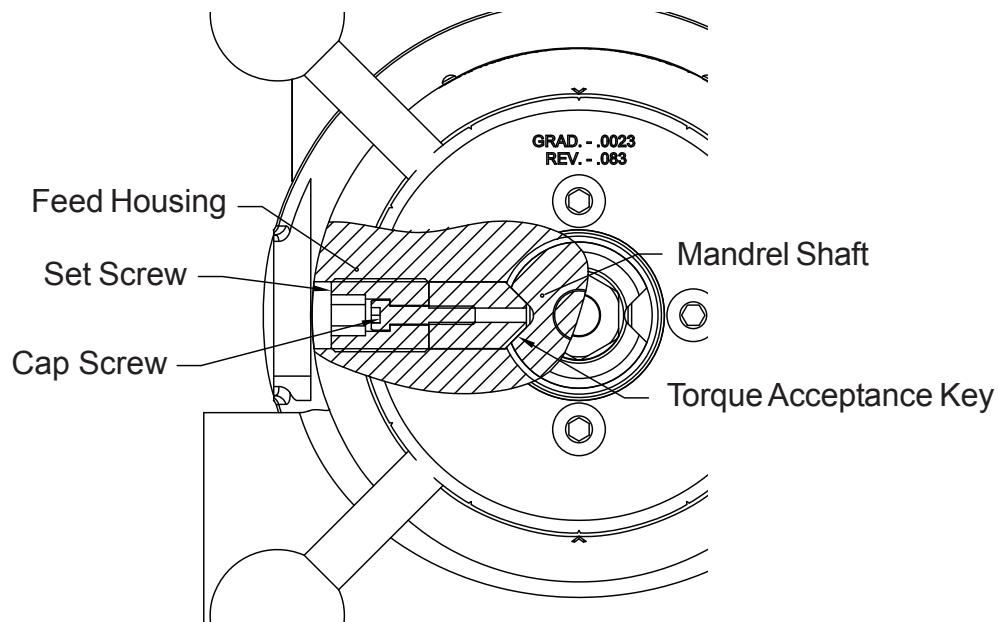
Slide the Model 214B gently onto the mandrel assembly until it comes to a solid stop against the torque acceptance keys.

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 Torque Acceptance Keys



ADJUSTMENT OF THE TORQUE ACCEPTANCE KEYS

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

This may appear as chatter in the tool bit.

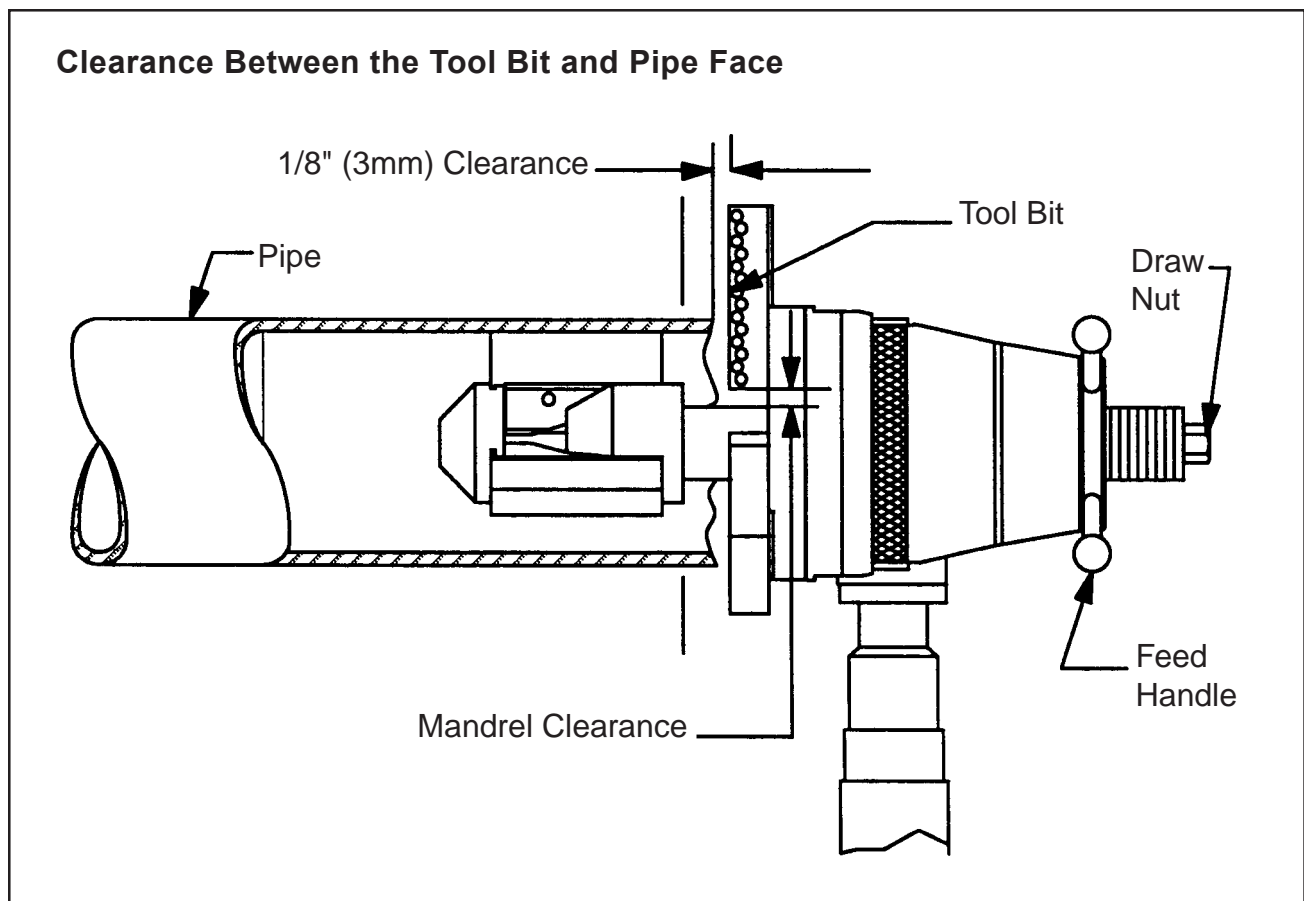
Loosen the cap screws in both torque acceptance keys.

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.

NOTE:

A minimum of ten (10) threads must be engaged to keep 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.

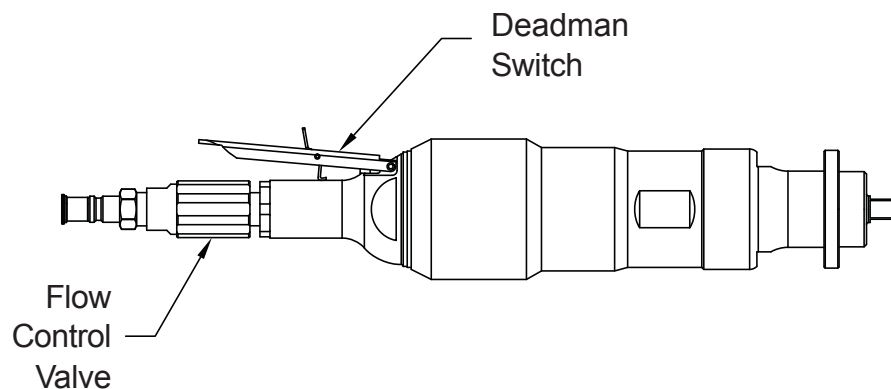
Adjust the cutting speed by rotating the speed control dial on the trigger.

Air Motor

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

Depress the air motor trigger.

Deadman Switch



CAUTION: *DO NOT OVERRIDE THE DEADMAN SWITCH. Locking down, obstructing, or in any way defeating the deadman switch on this unit may result in serious injury.*

Adjust the cutting speed by rotating the air flow control valve at the air connection.

Feeding the Tool Bit Into the Work

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

The actual machining operation will begin when the first tool bit contacts the pipe.

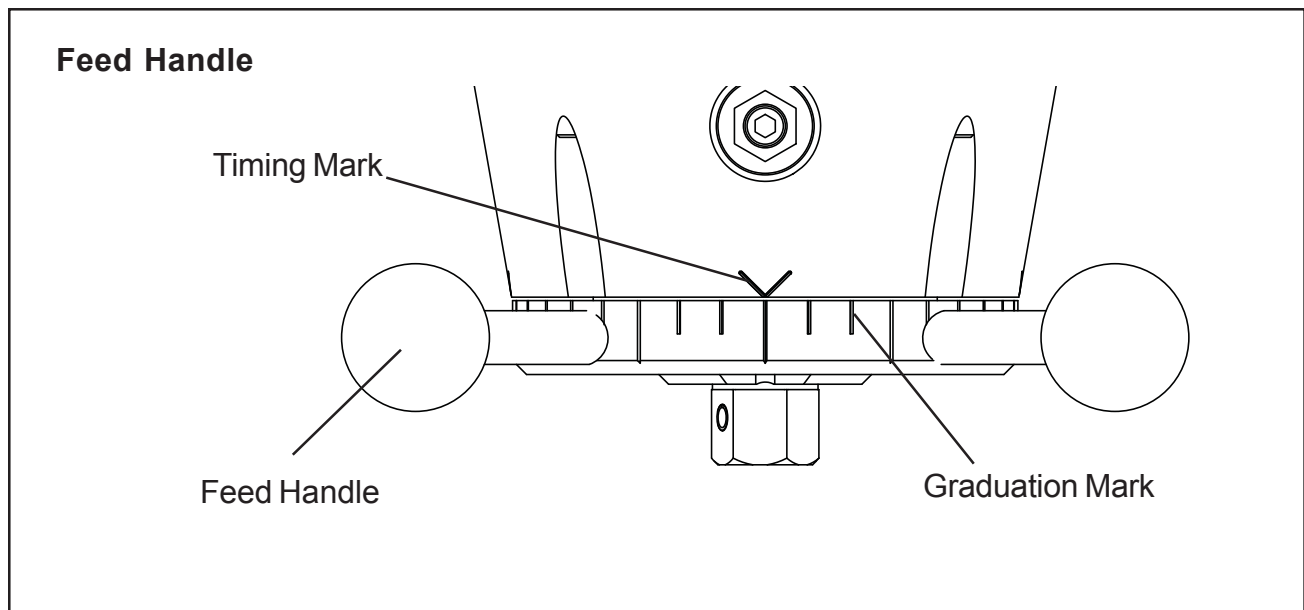
If the pipe end is not square to the pipe axis, the tool bit will contact only a small segment of the pipe during each revolution.

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.

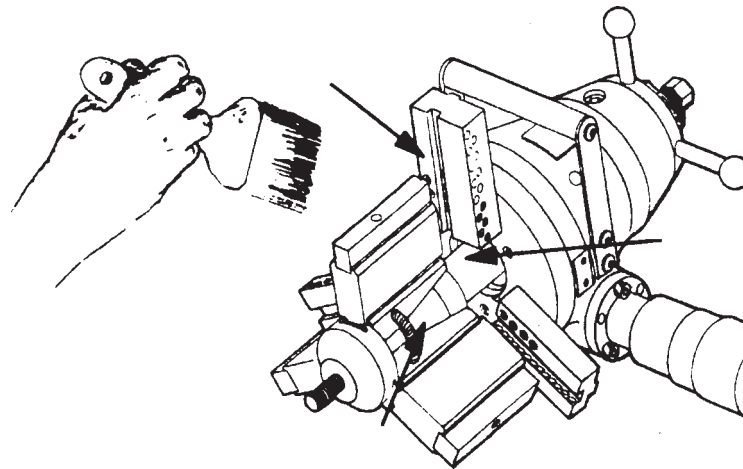
Release the trigger to stop the head rotation.

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.

After Machining Cleanup



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.

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
Cutting Speed (approximately)				

Use 200 surface inches per minute (5080 surface millimeters per minute) for:

Stainless steels in general when no coolant is allowed, all heavy-wall tube and some 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's 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.

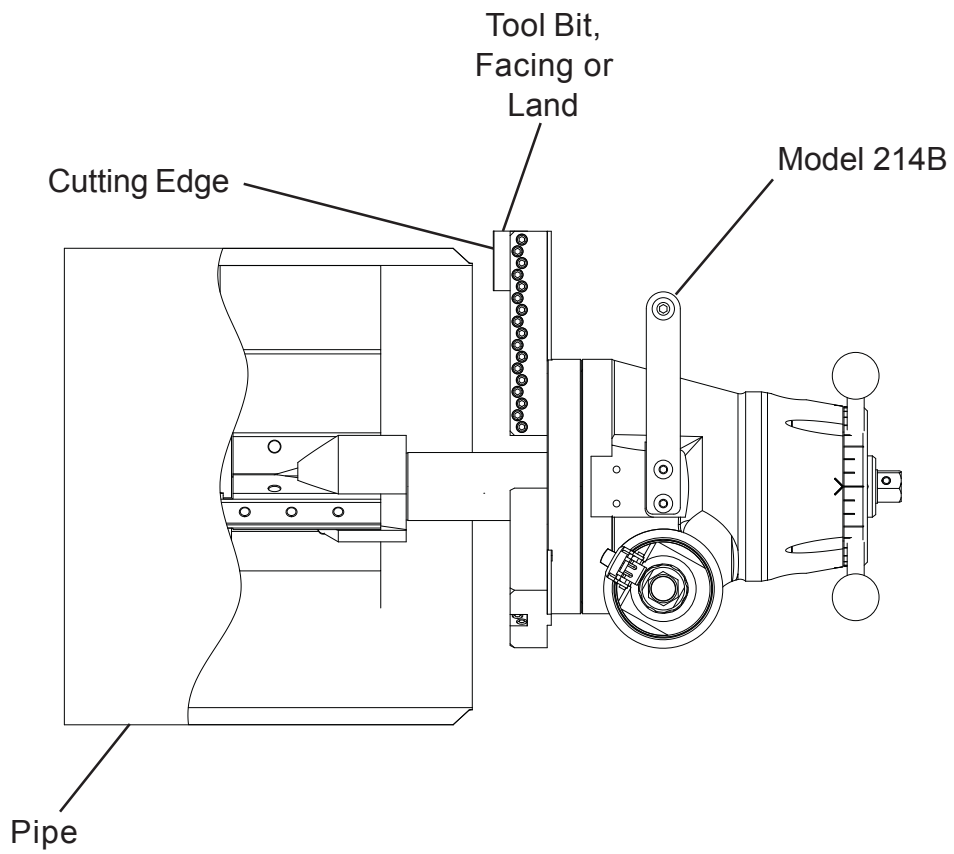
Use adequate feed, .003" (.08 mm) to .006" (.15 mm) per revolution thereafter, to establish a continuous chip cut.

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

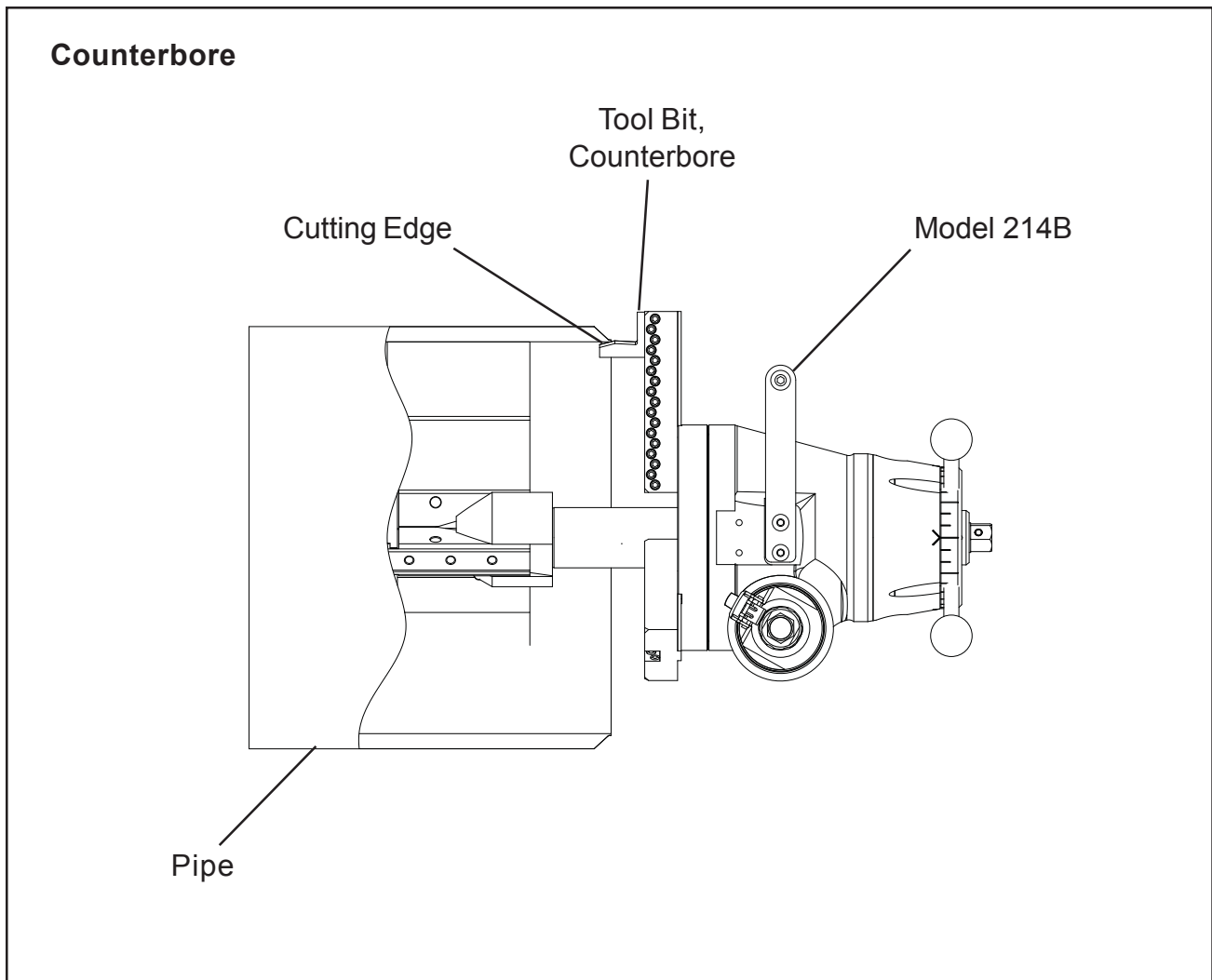
If the feed is too heavy, the drive will start to overload and the chip will start to have a rough or torn appearance.

TOOL BITS

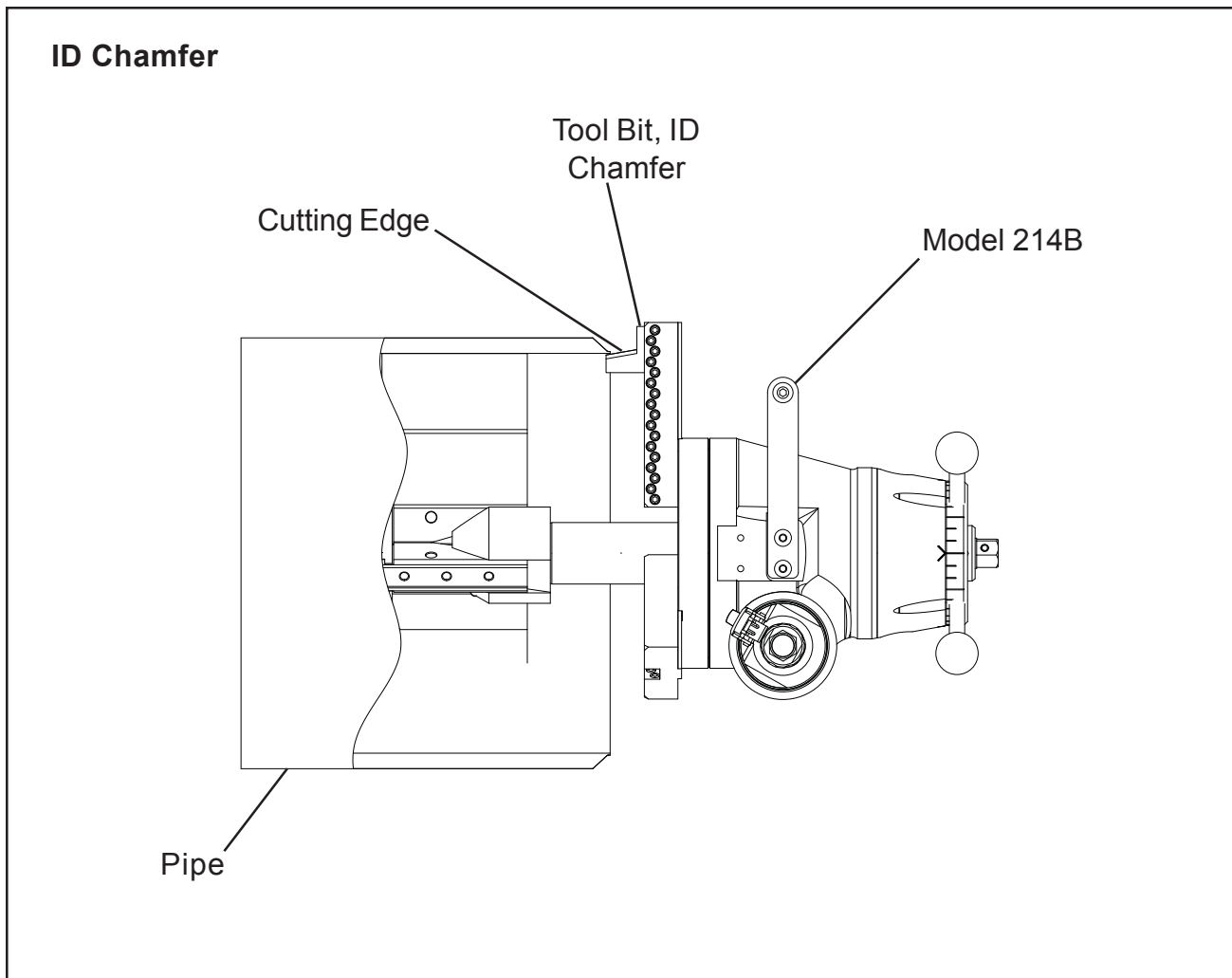
Facing



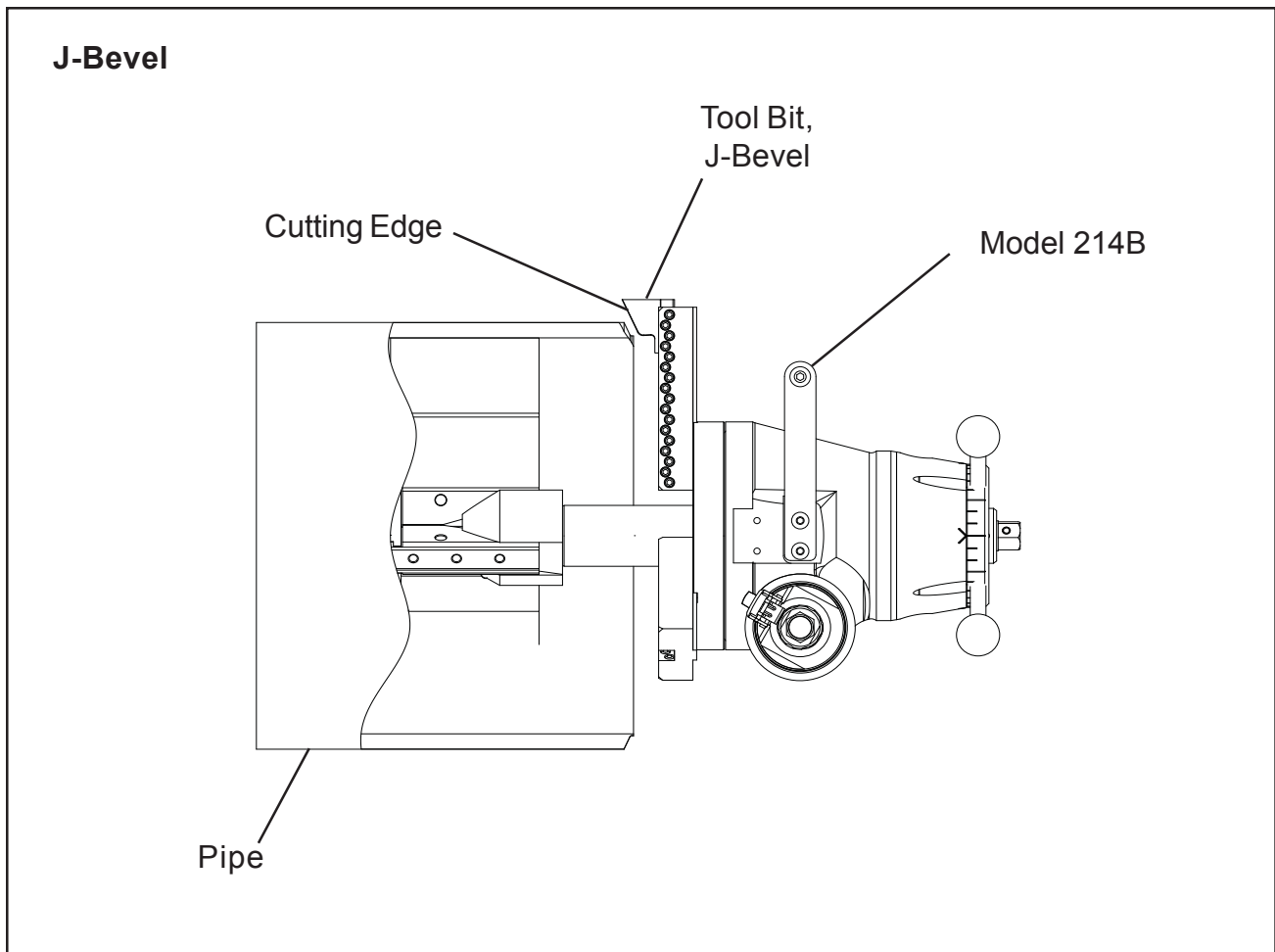
Face Range	Pipe or Tube Material	Facing Tool Bit P/N
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	CS	DURABIT4
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2917
3.312" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2979*
3.312" ID through 14.000" ID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



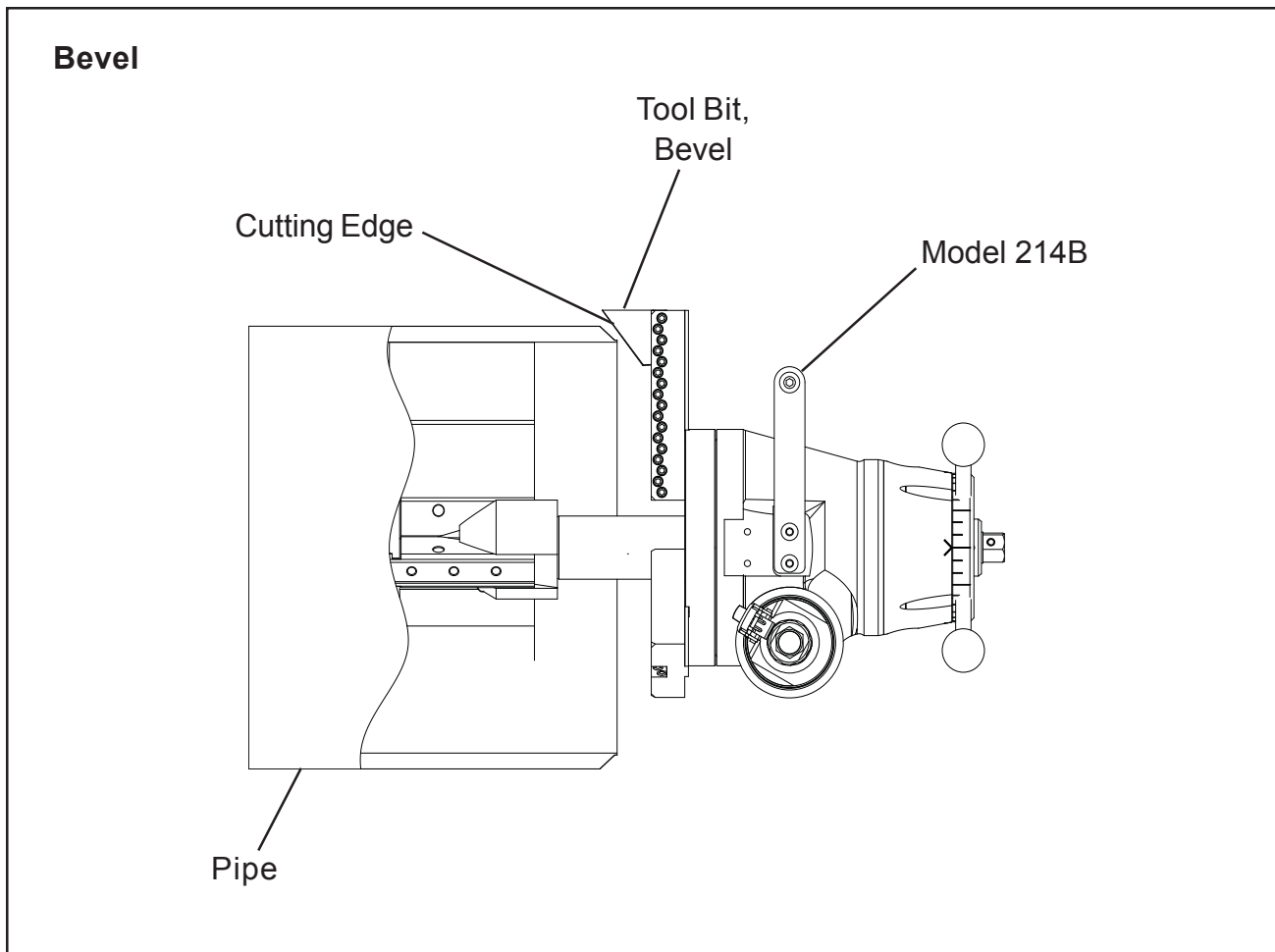
Counterbore Range	Pipe or Tube Material	14.5° C'Bore Tool Bit P/N	Facing Tool Bit P/N
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	CS	99-2908	DURABIT4
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 mm ID)	SS	99-2921	99-2917
3.328" ID through 14.000" ID (84.1 mm ID through 355.6 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 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	29-2912	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 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			

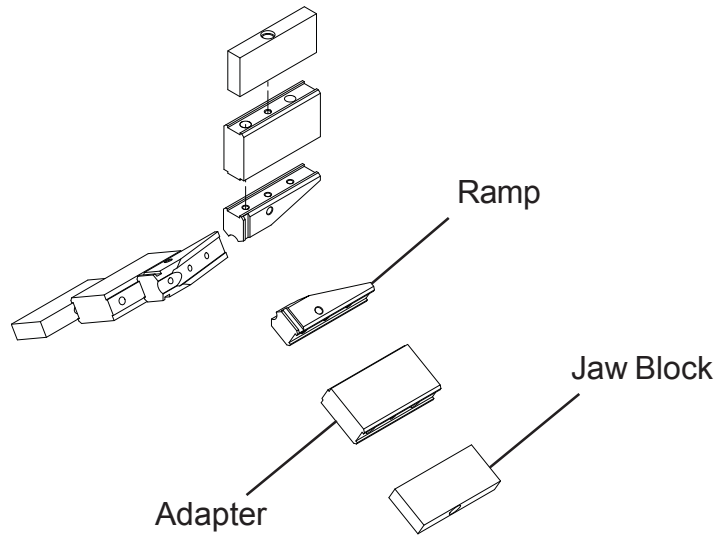


Bevel and Face Range	Pipe or Tube Material	37 1/2° Bevel Tool Bit P/N	Facing Tool Bit P/N
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	CS	99-3341	DURABIT4
3.312" ID through 13.375" ID (84.1 mm ID through 339.7 mm ID)	SS	99-3338	99-2917
3.312" ID through 13.375" ID (84.1 mm ID through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

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*
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			

JAW BLOCKS, RAMPS AND ADAPTERS

Jaw Blocks, Ramps and Adapters



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

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

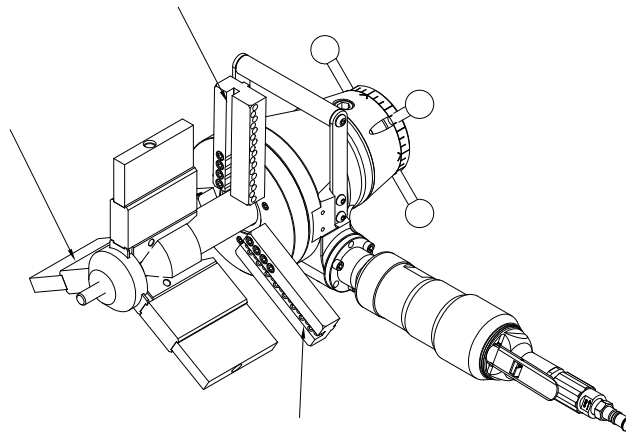
Air Supply for the Model 214B with an air motor requires an adequate filter/regulator/lubricator (FRL) to be used in the air supply line.

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.

Clean Off Areas

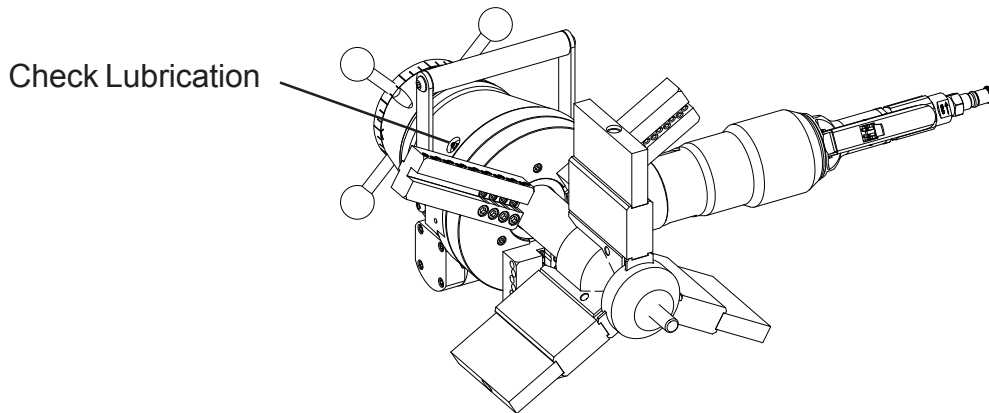


NOTE:

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).

Grease Location



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.

TROUBLESHOOTING

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 buildup on the cutting edge of the tool bit is creating a false cutting edge.
Cutting fluid is required.

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 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: The Tool Bit is Diving and the BEVELMASTER® is Stalling

The Tool Bit is dull, chipped, etc.
The Tool Holder Adjustment Slide is too loose.
The Parting Tool Bit is leading the Beveling Tool Bit by too much for proper chip clearance.
The Tool Bit is overextended.
The Tool Holder is overextended.
The Main Bearing pre-load is too loose.

Problem: The 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, swelling, or bumps are preventing full contact of the collet.
Dull Tool Bits are causing extra force in the axial and/or radial direction.

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: The Air Motor Will 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.
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.

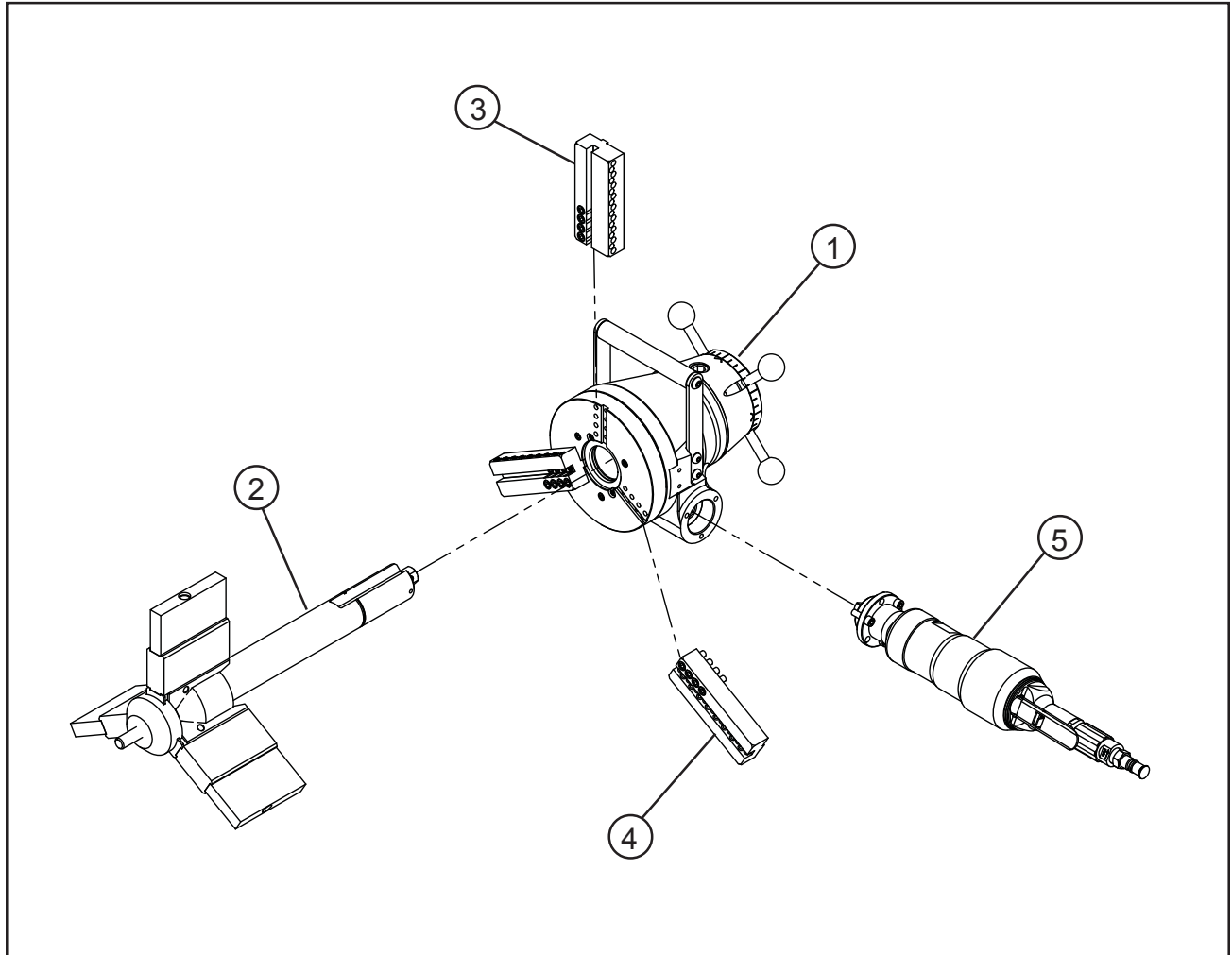
ACCESSORIES

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

1. Dial Indicator Kit
2. Elbow Mandrel Adjustable Pin Kit
3. Elbow Mandrel Assembly, Small
4. Elbow Mandrel Kit
5. Elbow Mandrel Pointer Kit
6. Elbow Mandrel Squaring Plate Kit
7. Flange Facer Kit
8. ID Tracking Module Kit
9. Miter Mandrel Kit
10. Portable Air Caddy
11. Single Point Kit
12. Sleeve Mandrel Kit, 4" - 12" pipe
13. Sleeve Mandrel Kit, 8" - 12" pipe

ILLUSTRATED PARTS BREAKDOWN

MODEL 214B BEVELMASTER® (P/N 01-1141)



TRI TOOL INC.

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

TRI TOOL INC.

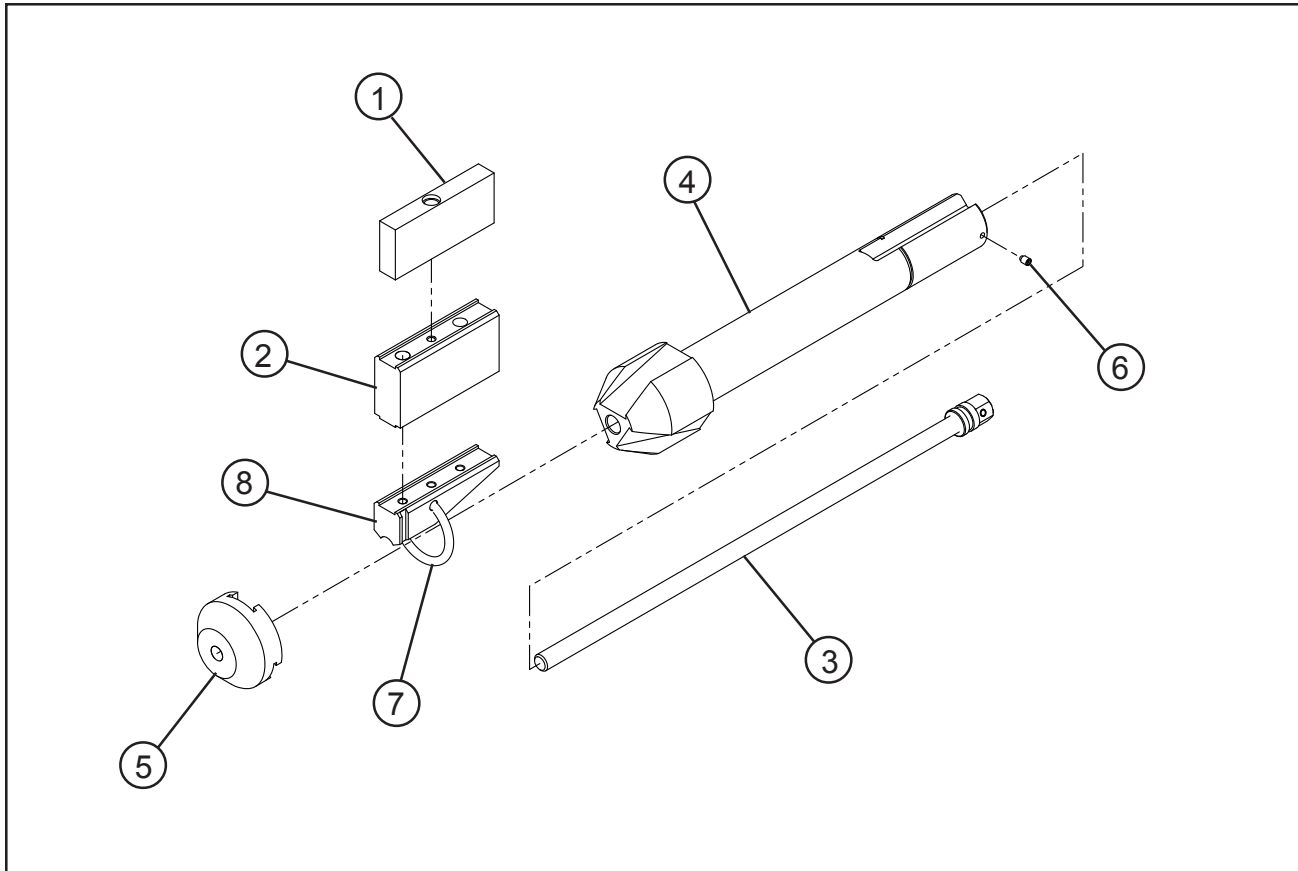
Parts List, Model 214B Sub-Assembly (P/N 02-2115)

Item No.	Part No.	Description	Qty
1.	19-0449	HOUSING, MAIN	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	SEAL, EXTRUDED, 3/16" X BULK	10.50" (27 CM)
9.	28-0176	SEAL, EXTRUDED, 3/16" X BULK	21.25" (54 CM)
10.	28-0177	O-RING	1
11.	29-0002	BEARING, BALL	1
12.	29-0216	BEARING, TAPERED CONE, 3" ID X 17/32"	1
13.	29-0226	BEARING, ROLLER	2
14.	29-0229	BEARING, TAPERED CONE, 4 1/2" ID X 27/32"	1
15.	29-0232	BEARING, TAPERED CONE, 1" ID X 9/16"	2
16.	30-0300	RING, RETAINING, INTERNAL	1
17.	31-0091	KEY, BRONZE	2
18.	31-0092	KEY, SQUARE	1
19.	33-0038	SCREW, CAP, 1/4-20 X .50"	2
20.	33-0042	SCREW, CAP, 1/4-20 X 1.00"	4
21.	33-0043	SCREW, CAP, 1/4-20 X 1.25"	4
22.	33-0047	SCREW, CAP, 1/4-20 X 2.25"	3
23.	33-0057	SCREW, CAP, 5/16-18 X 1.25"	4
24.	33-0284	SCREW, BUTTON HEAD, 1/4-20 X .38"	2
25.	33-0291	SCREW, BUTTON HEAD, 5/16-18 X .50"	4
26.	33-0300	SCREW, BUTTON HEAD, 3/8-16 X 1.00"	2
27.	33-0503	SCREW, SET, CUP POINT, 1/4-20 X .50"	2
28.	33-0903	SCREW, SET, HALF DOG, 1/4-20 X .31"	2
29.	33-1572	SCREW, SET, 1-12 X .75"	2
30.	34-0225	SHIM, BEARING	2
31.	34-0226	SHIM, BEARING	2

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

Item No.	Part No.	Description	Qty
32.	35-0284	NUT, FEED	1
33.	35-0285	NUT, LOCK	1
34.	39-0508	GEAR SET, MOD	1
35.	41-0076	HANDLE, FEED	4
36.	41-0080	HANDLE	1
37.	42-0017	KNOB, SPHERICAL	4
38.	43-0313	COVER, GEAR	1
39.	54-0375	FITTING, GREASE	1
40.	29-0215	BEARING, TAPERED CUP, 4 5/32" OD X 3/8"	1
41.	29-0230	BEARING, TAPERED CUP, 6" OD X 21/32"	1
42.	29-0233	BEARING, TAPERED CUP, 1 31/32" OD X 3/8"	2
43.	32-0304	PIN, LK	1
44.	33-0507	SCREW, SET, 1/4-20 X 1", CUP PT	1
NOT SHOWN			
	05-1270	SHIPPING KIT	1
	36-0007	WRENCH, L, 5/32" HEX	1
	36-0008	WRENCH, L, 3/16" HEX	1
	36-0010	WRENCH, L, 1/4" HEX	1
	36-0020	WRENCH, T, 5/32" HEX	1
	36-0021	WRENCH, T, 3/16" HEX	1
	36-0023	WRENCH, T, 1/4" HEX	1
	36-0042	WRENCH, COMBINATION, 7/8"	1
	36-0062	WRENCH, L, 9/16" HEX	1
	86-0133	CASE, CARRYING	1

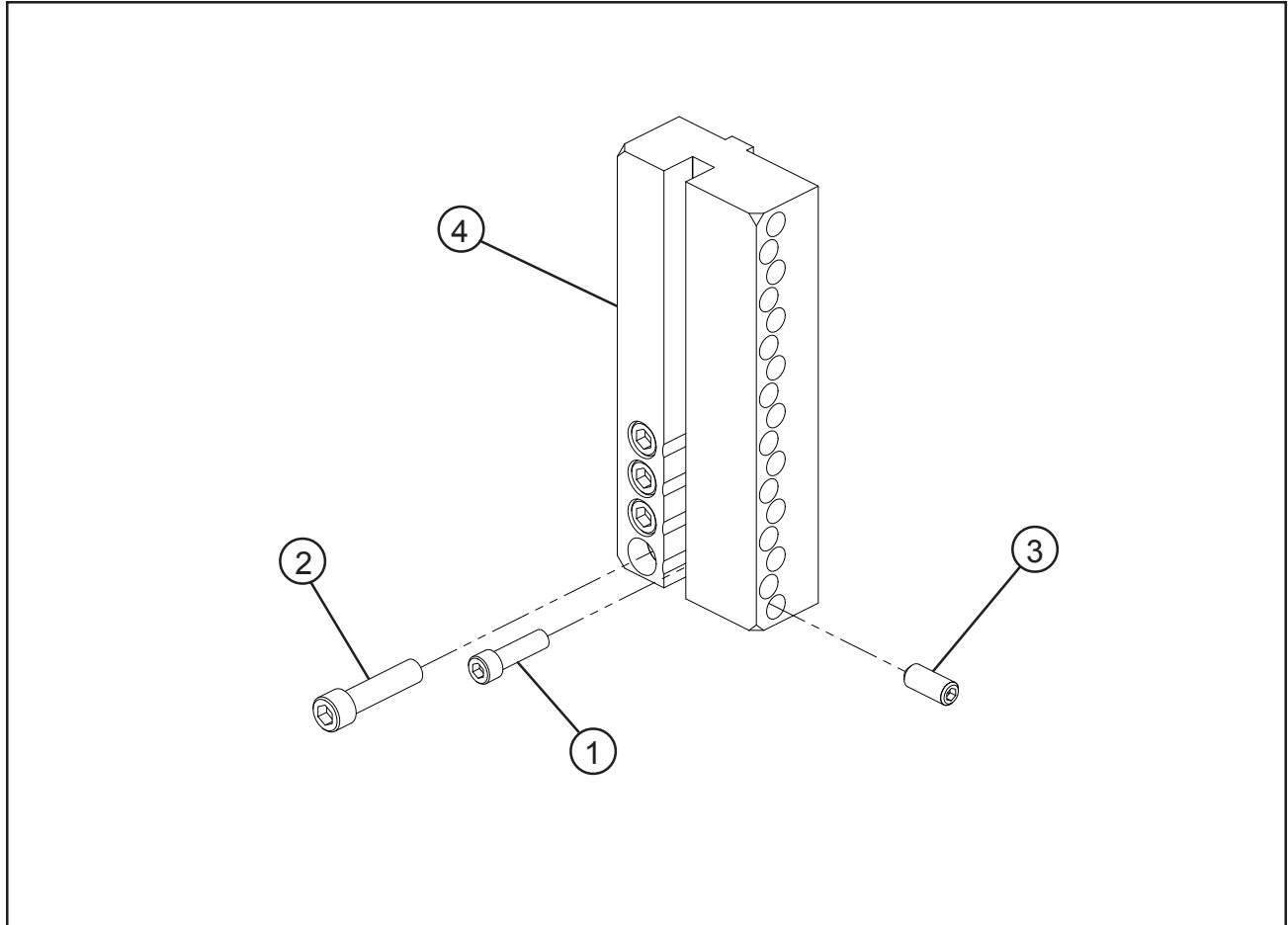
MANDREL ASSEMBLY (P/N 06-0528)



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

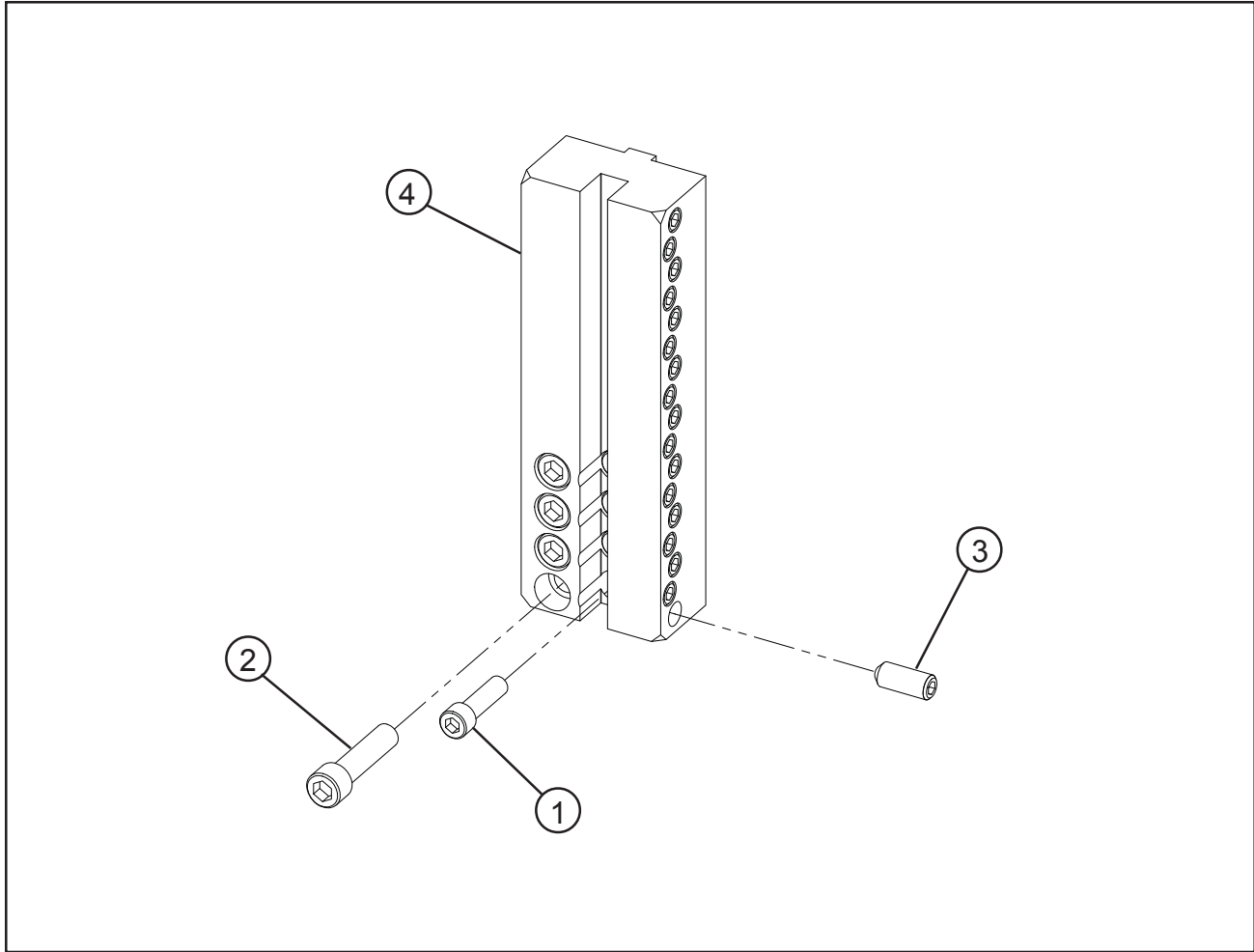
TOOL HOLDER ASSEMBLY, STEEL (P/N 49-0393)



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

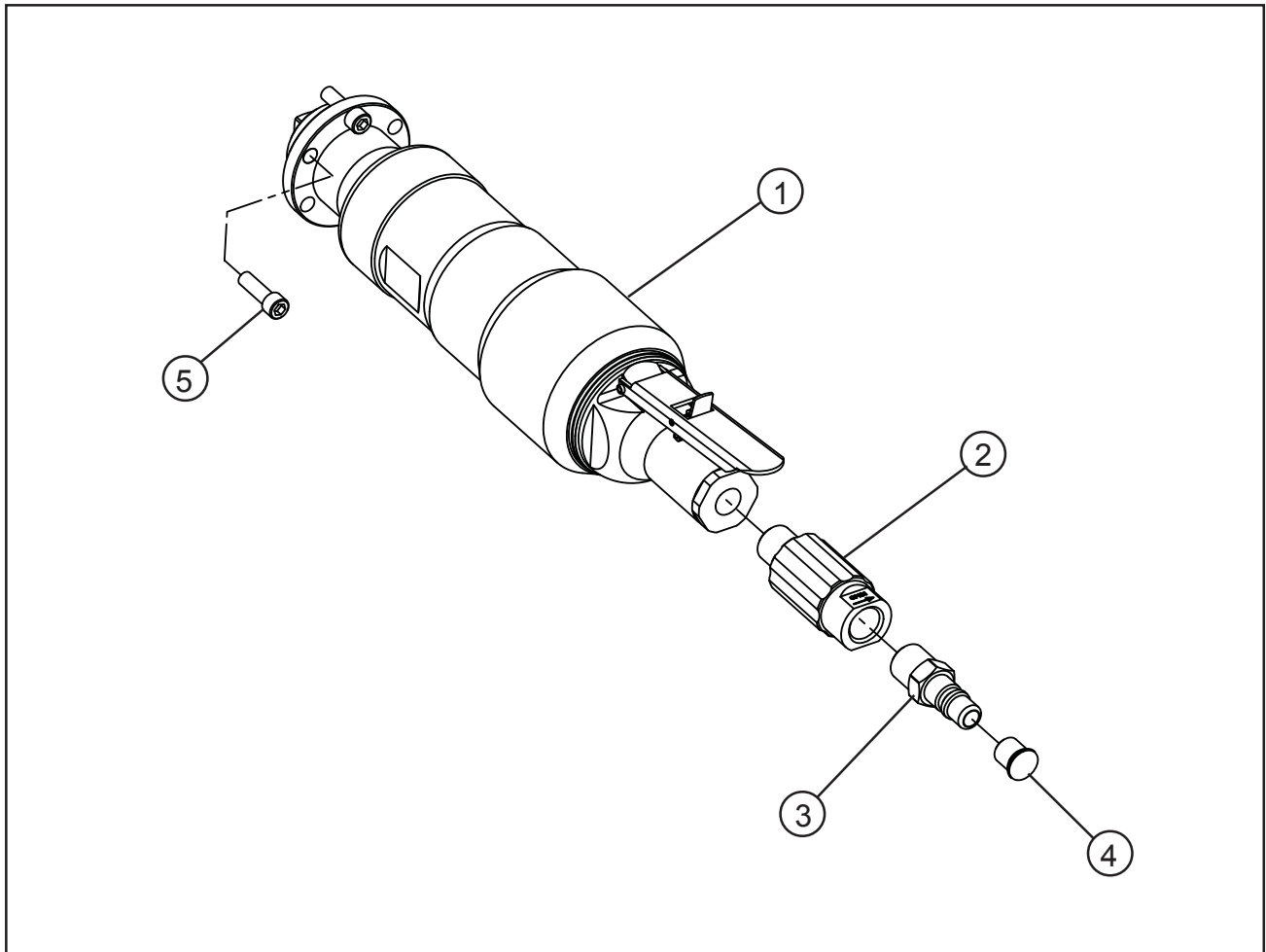
TOOL HOLDER ASSEMBLY, ALUMINUM (P/N 49-0995)



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

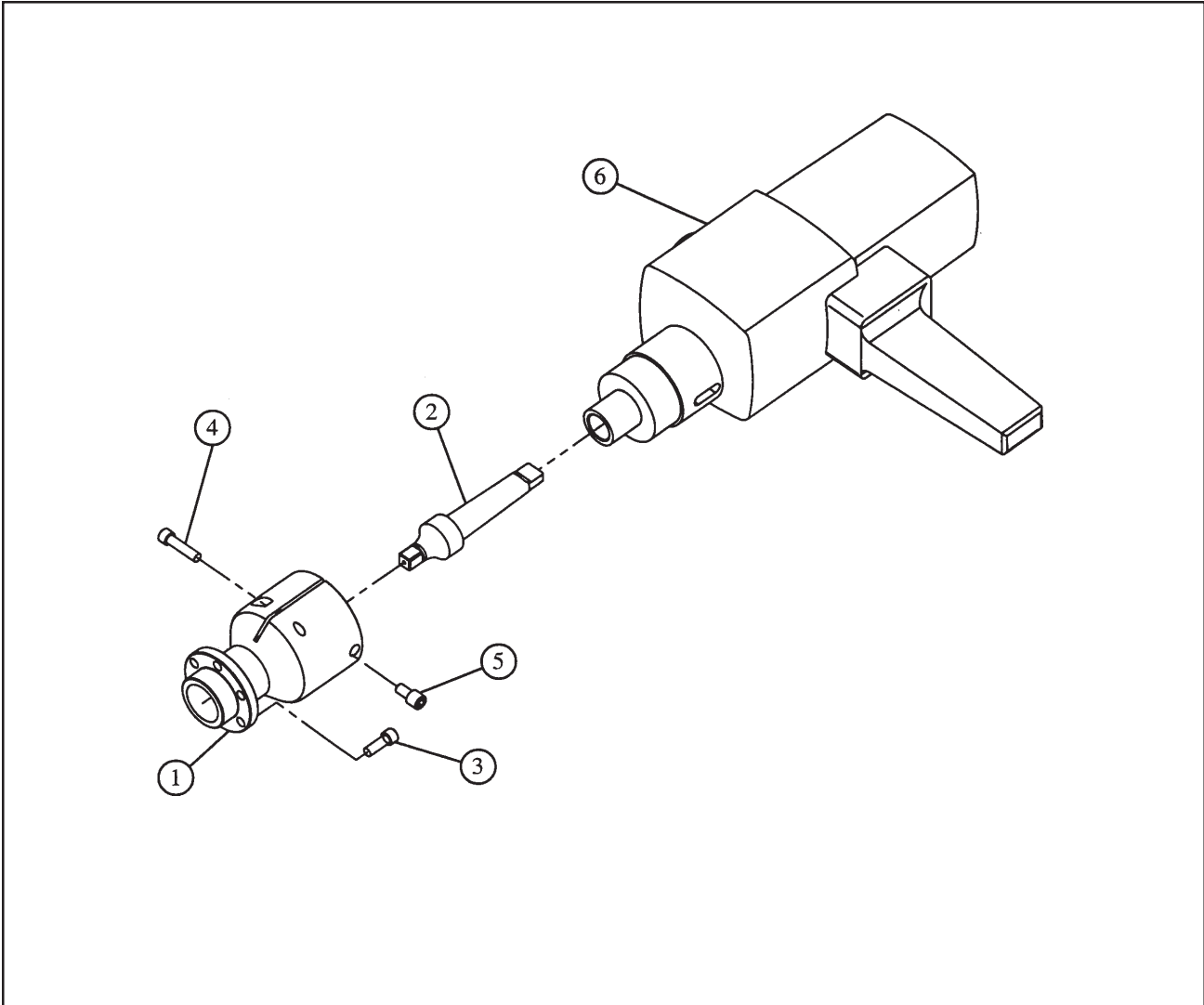
MOTOR ASSEMBLY, AIR, IN-LINE, 310 RPM (P/N 57-0168)



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

Item No.	Part No.	Description	Qty
1.	57-0161	AIR MOTOR, IN-LINE, 1/2" SQ, 310 RPM	1
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.	33-0056	SCREW, CAP, 5/16-18 X 1"	3

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



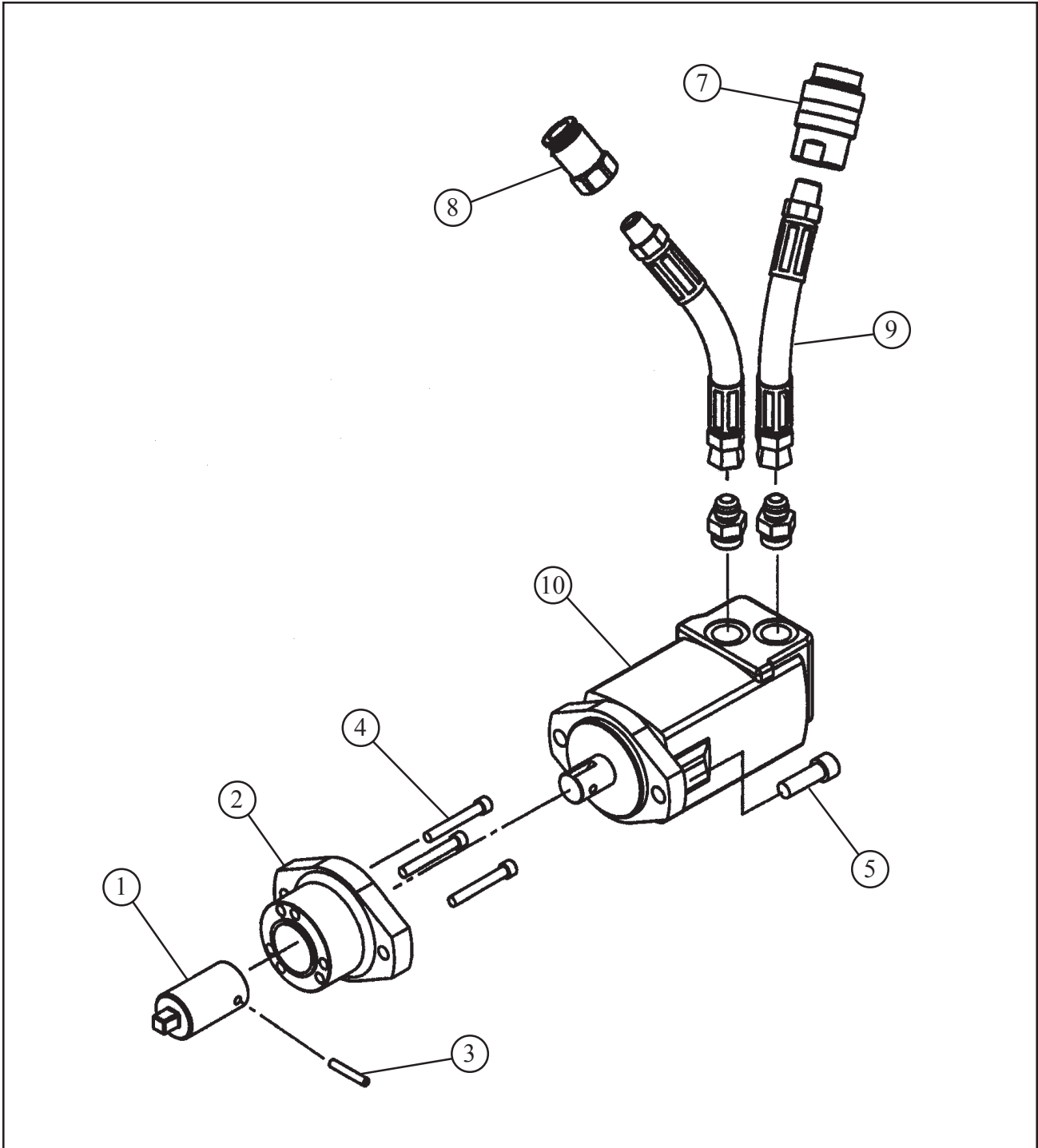
Parts List, Motor Assembly, Electric, HD, 115V (P/N 58-0167)

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