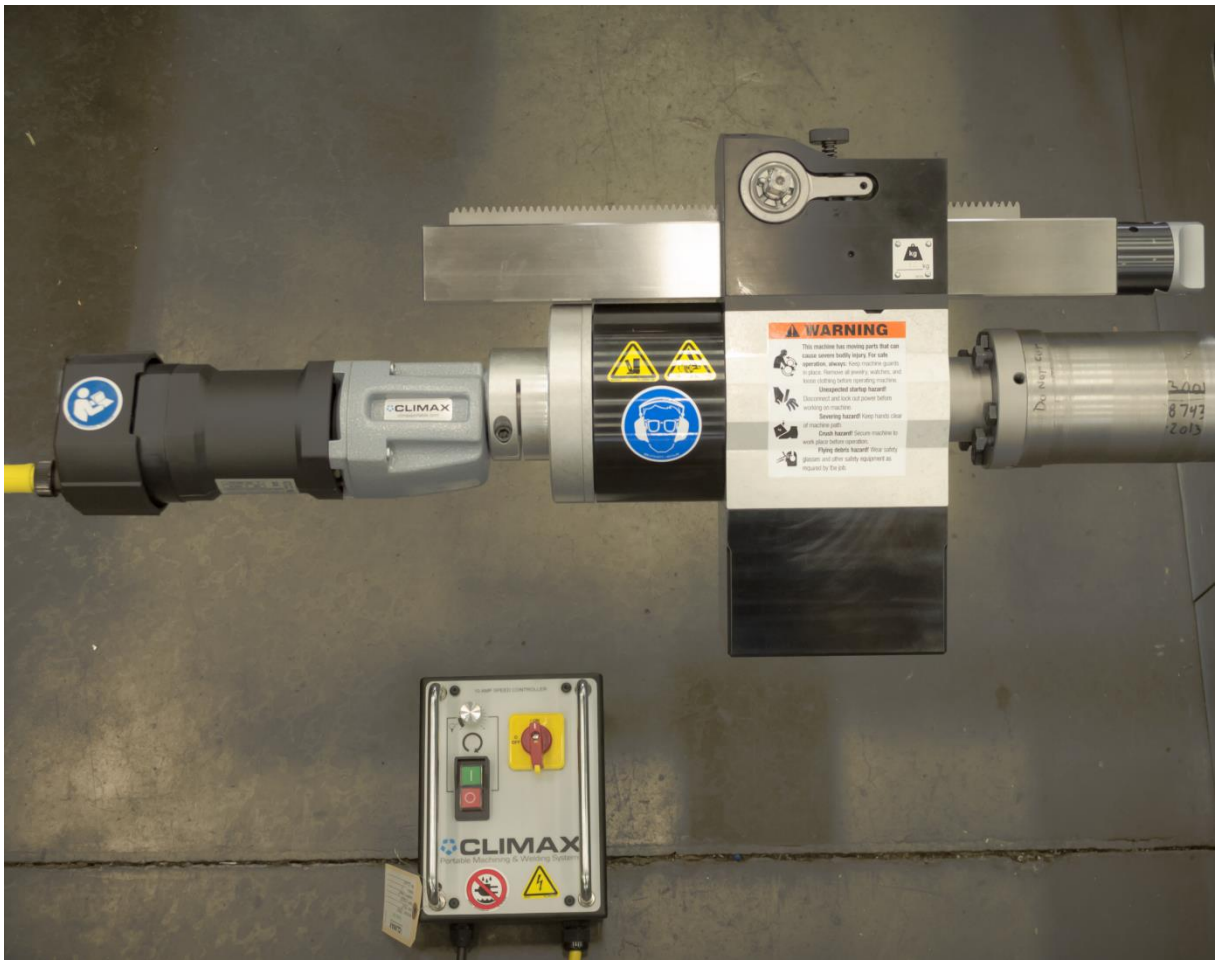
CE

PL2000

PORTABLE LATHE

OPERATING MANUAL



CLIMAX
Portable Machining & Welding Systems

P/N 30898 August 2019 Revision 7

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For comments or questions about CLIMAX products or services, please call CLIMAX or e-mail info@cpmt.com. For quick and accurate service, please provide your representative with the following:

- Your name
- Shipping address
- Telephone number
- Machine model
- Serial number (if applicable)
- Date of purchase

CLIMAX World Headquarters

2712 East 2nd Street Newberg, Oregon 97132
USA

Telephone (worldwide): +1-503-538-2815
Toll-free (North America): 1-800-333-8311
Fax: 503-538-7600

CLIMAX | H&S Tool (UK Headquarters)

Unit 7 Castlehill Industrial Estate Bredbury Industrial Park Horsfield Way

Stockport SK6 2SU, UK Telephone: +44 (0) 161-406-1720

CLIMAX | H&S Tool (Asia Pacific Headquarters)

316 Tanglin Road #02-01
Singapore 247978

Telephone: +65 9647-2289
Fax: +65 6801-0699

H&S Tool World Headquarters

715 Weber Dr.
Wadsworth, OH 44281 USA

Telephone: +1-330-336-4550
Fax: 1-330-336-9159
hstool.com

CLIMAX | H&S Tool (European Headquarters)

Am Langen
Graben 8 52353
Düren, Germany

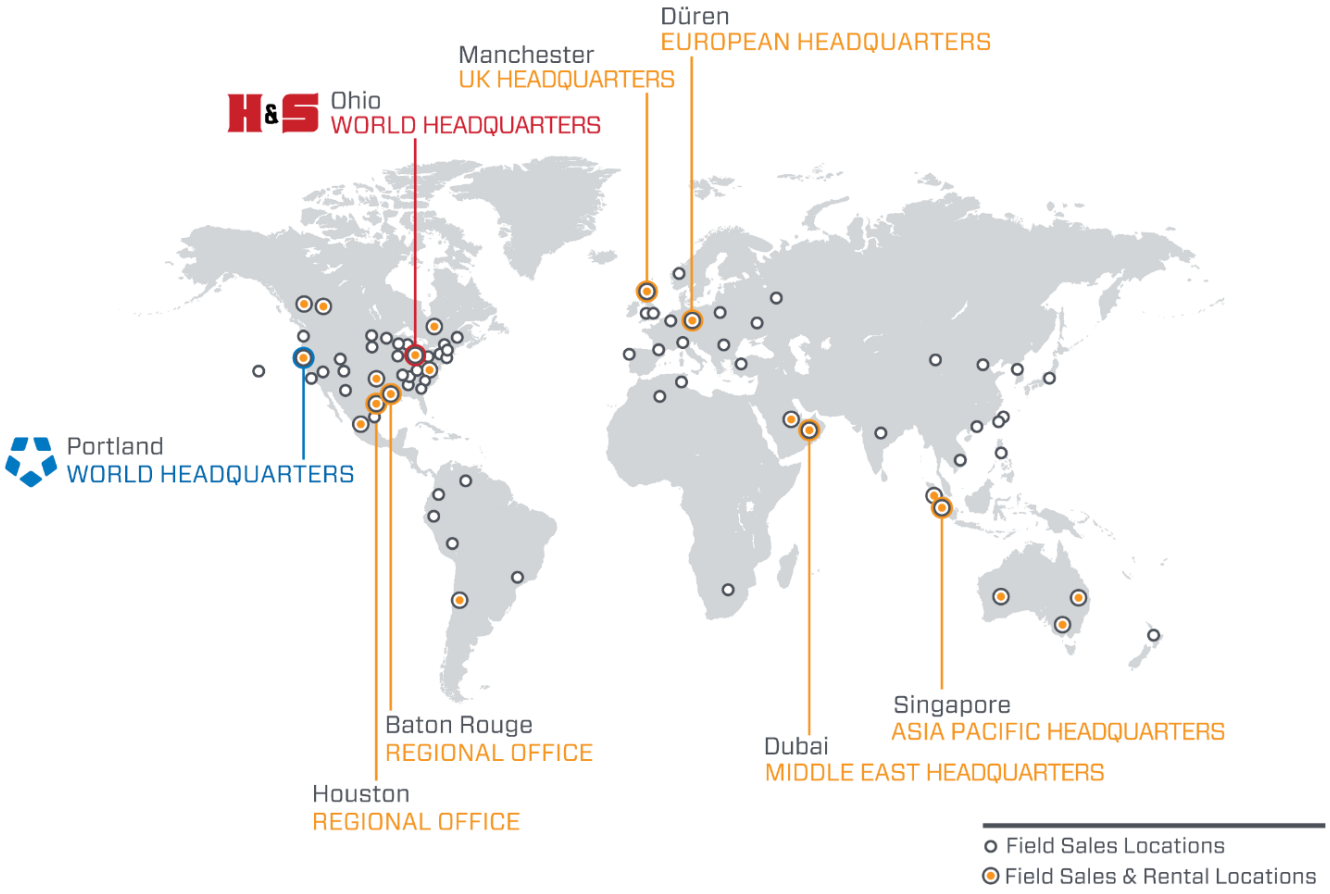
Telephone: +49 24-219-1770
E-mail: CLIMAXEurope@cpmt.com

CLIMAX | H&S Tool (Middle East Headquarters)

Warehouse #5, Plot:
369 272 Um Sequim
Road
Al Quoz 4
PO Box 414 084
Dubai, UAE

Telephone: +971 04-321-0328

CLIMAX WORLDWIDE LOCATIONS



LIMITED WARRANTY

CLIMAX Portable Machine Tools, Inc. (hereafter referred to as “CLIMAX”) warrants that all new machines are free from defects in materials and workmanship. This warranty is available to the original purchaser for a period of one year after delivery. If the original purchaser finds any defect in materials or workmanship within the warranty period, the original purchaser should contact its factory representative and return the entire machine, shipping prepaid, to the factory. CLIMAX will, at its option, either repair or replace the defective machine at no charge and will return the machine with shipping prepaid.

CLIMAX warrants that all parts are free from defects in materials and workmanship, and that all labor has been performed properly. This warranty is available to the customer purchasing parts or labor for a period of 90 days after delivery of the part or repaired machine or 180 days on used machines and components. If the customer purchasing parts or labor finds any defect in materials or workmanship within the warranty period, the purchaser should contact its factory representative and return the part or repaired machine, shipping pre-paid, to the factory. CLIMAX will, at its option, either repair or replace the defective part and/ or correct any defect in the labor performed, both at no charge, and return the part or repaired machine shipping prepaid.

These warranties do not apply to the following:

- Damage after the date of shipment not caused by defects in materials or workmanship
- Damage caused by improper or inadequate machine maintenance
- Damage caused by unauthorized machine modification or repair
- Damage caused by machine abuse
- Damage caused by using the machine beyond its rated capacity

All other warranties, express or implied, including without limitation the warranties of merchantability and fitness for a particular purpose are disclaimed and excluded.

Terms of sale

Be sure to review the terms of sale which appear on the reverse side of your invoice. These terms control and limit your rights with respect to the goods purchased from CLIMAX.

About this manual

CLIMAX provides the contents of this manual in good faith as a guideline to the operator. CLIMAX cannot guarantee that the information contained in this manual is correct for applications other than the application described in this manual. Product specifications are subject to change without notice.

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1 OVERVIEW

1.1 How to use this manual

1.1.1 Alerts

Pay careful attention to the alertsappearing in this manual. Alert types are defined in the following examples.

DANGER

concerns a condition, procedure, or practice that, if not avoided or strictly observed, **WILL** result in injury or loss of life.

WARNING

concerns a condition, procedure, or practice that, if not avoided or strictly observed, **COULD** result in injury or loss of life.

CAUTION

concerns a condition, procedure, or practice that, if not avoided or strictly observed, could result in minor or moderate injury.

NOTICE

concerns a condition, procedure, or practice worthy of special attention.

TIP:

A tip provides additional information that can aid in completion of a task.

1.2 Safety precautions

CLIMAX leads the way in promoting the safe use of portable machine tools. Safety is a joint effort. You, the machine operator, must do your part by being aware of your work environment and closely following the operating procedures and safety precautions contained in this manual, as well as your employer's safety guidelines.

Observe the following safety precautions when operating or working around the machine.

Training – Before operating this or any machine tool, you should receive instruction from a qualified trainer. Contact CLIMAX for machine-specific training information.

Intended use – Use this machine in accordance with the instructions and precautions in this manual. Do not use this machine for any purpose other than its intended use as described in this manual.

Personal protective equipment – Always wear the appropriate personal protective gear when operating this or any other machine tool. Eye and ear protection are required when operating or working around the machine. Flame-resistant clothing with long sleeves and legs is recommended when operating the machine, as hot flying chips from the workpiece may burn or cut bare skin.

Work area – Keep the work area around the machine clear of clutter. Keep all cords and hoses away from the work area when operating the machine.

Moving parts – Except for operating controls, avoid contact with moving parts by hands or tools during machine operation. Secure hair, clothing, jewelry, and pocket items to prevent them from becoming entangled in moving parts.

1.3 Risk assessment and hazard mitigation

Machine Tools are specifically designed to perform precise material-removal operations.

Stationary Machine Tools include lathes and milling machines and are typically found in a machine shop. They are mounted in a fixed location during operation and are considered to be a complete, self-contained machine. Stationary Machine Tools achieve the rigidity needed to accomplish material-removal operations from the structure that is an integral part of the machine tool.

In contrast, Portable Machine Tools are designed for on-site machining applications. They typically attach directly to the workpiece itself, or to an adjacent structure, and achieve their rigidity from the structure to which it is attached. The design intent is that the Portable Machine Tool and the structure attached to it become one complete machine during the material-removal process.

To achieve the intended results and to promote safety, the operator must understand and follow the design intent, set-up, and operation practices that are unique to Portable Machine Tools.

The operator must perform an overall review and on-site risk assessment of the intended application. Due to the unique nature of portable machining applications, identifying one or more hazards that must be addressed is typical.

When performing the on-site risk assessment, it is important to consider the Portable Machine Tool and the workpiece as a whole.

1.4 Risk assessment checklist

Use these checklists as part of your on-site risk assessment and include any additional considerations that may pertain to your specific application.

TABLE 1. RISK ASSESSMENT CHECKLIST BEFORE SET-UP

	Before Set-up
☐	I took note of all the warning labels on the machine.
☐	I removed or mitigated all identified risks (such as tripping, cutting, crushing, entanglement, shearing, or falling objects).
☐	I considered the need for personnel safety guarding and installed any necessary guards.
☐	I read the Machine Assembly instructions and took inventory of all the items required but not supplied.
☐	I created a lift plan, including identifying the proper rigging, for each of the setup lifts required during the setup of the support structure and machine.
☐	I located the fall paths involved in lifting and rigging operations. I have taken precautions to keep workers away from the identified fall path.
☐	I considered how this machine operates and the best placement for the controls, cabling, and the operator.
☐	I evaluated and mitigated any other potential risks specific to my work area.

TABLE 2. RISK ASSESSMENT CHECKLIST AFTER SET-UP

	After Set-up
☐	I checked that the machine is safely and the potential fall path is clear. If the machine is elevated, I checked that the machine is safeguarded against falling.
☐	I identified all possible pinch points, such as those caused by rotating parts, and informed the affected personnel.
☐	I planned for containment of any chips or swarf produced by the machine.
	I followed the Maintenance Intervals with the recommended lubricants.
☐	I checked that all affected personnel have the recommended personal protective equipment, as well as any equipment required by the site or other regulations.
☐	I checked that all affected personnel understand the danger zone and are clear of it.
☐	I evaluated and mitigated any other potential risks specific to my work area.

2 CE

Recommended air pressure: 90 psi (DO NOT EXCEED 120 psi)

Temperature maximum: 25.7° C (Electric)

2.1 Audible Noise Levels

Electric drive option:

- Declared Sound Power Level is 80 dBA
- Declared Operator Sound Pressure Level is 79 dBA
- Declared Bystander Sound Pressure Level is 74 dBA

P/N 59037

2.2 Warning labels

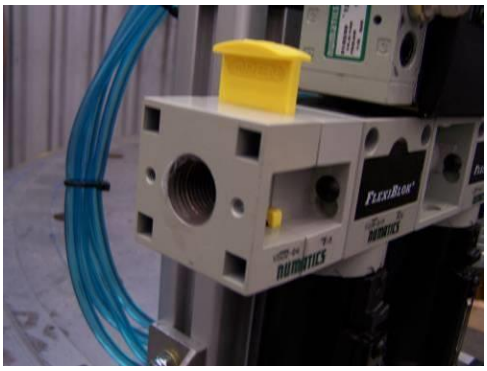
The following warning labels should be on your machine. If any are defaced or missing, contact CLIMAX immediately for replacements.

TABLE 3 – DESCRIPTION OF LABELS

	P/N 29154 CLIMAX serial number, year and model number plate.		
	P/N 29152 Label mass tag Weight =Approx. 100Kg		
	P/N 590440 Label safety warning cirlce read the manual		P/N78741 Label safety warning hand crush

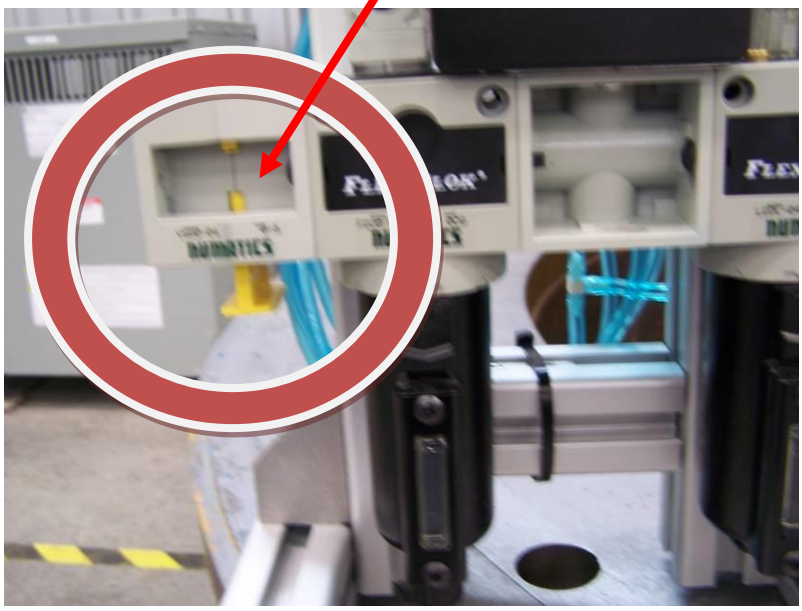
	P/N 78742 Label safety warning entanglement of hand, or rotating shaft warning		P/N 78748 Label safety warning eye protection
	P/N 78824 Label saftey warning do not expose to water		P/N 80510 label safety warning cutting of fingers, or rotating blade
	P/N 78593 Label safety warning electrical shock or electrocution		P/N 81008 label safety warning eye and ear protection required
	P/N 80207 lable safety warning entanglement rotating shaft		

2.3 Machine lock-out



Air shutoff in the operating position (UP)

To lockout the machine, Push down on the lockout and insert locks into the openings at the bottom of the air shutoff on the air intake side of the pneumatic conditioning unit.



Recommended air pressure: 90 psi (6.2 bar)

DO NOT EXCEED 120 psi (8.3 bar)

3 INTRODUCTION

3.1 About this manual

This manual describes how to use your Model PL2000 Portable Lathe.

CAUTION

To avoid severe personal injury, read and understand all instructions and warnings before operating this machine.

3.2 About the PL2000

The PL2000 Portable Lathe mounts to the end of the shaft. It is electrically or pneumatically powered. The compact design makes it an ideal on-site maintenance tool. The machine turns shafts 1.5–5" (38.1–127 mm) and up to 9" (228.6 mm) diameter with optional spacer assembly. The Model PL2000 has a reach of 12.5" (317.5 mm).

The PL2000 Porable Lathe machine consists of:

- Main body assembly
- Turning bar assembly
- Electric motor assembly (electric model only)
- Electric planetary housing assembly (electric model only)
- Air motor assembly (air model only)
- Pneumatic planetary housing assembly (air model only)
- Pneumatic conditioning unit (air model only)
- Tool kit including operating manual

Exploded-view drawings and parts lists are included with this manual.

NOTICE

The PL2000 Portable Lathe machine must be rotating counter-clockwise (as viewed from the back of the motor) while machining. Do not rotate the PL2000 clockwise.

3.3 Electric lathe

The electric PL2000 Portable Lathe has a 9 amp electric motor. The motor may be either 120 volt or 230 volt, and it provides 780 no-load rpm and 510 load rpm. Check the serial number plate on the motor to find the voltage. The motor operates on 50 or 60 cycles AC current. A control pendant adjusts the motor speed.

The control pendant runs the motor at 0–70% of the maximum rpm.

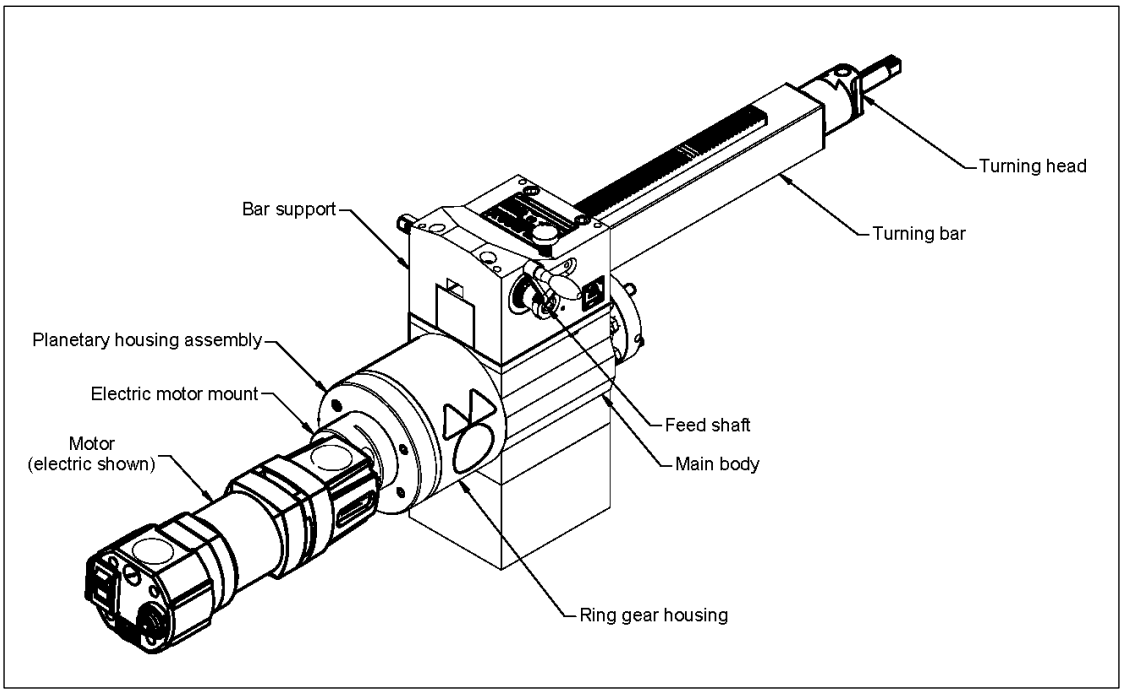


FIGURE 1 – ELECTRIC PORTABLE LATHE

CAUTION

The ON/OFF and reverse switches on the motor have been disabled for this machine; the motor is controlled from the control pendant. Any attempt to re-wire these cables might result in damage to the machine or the operator.

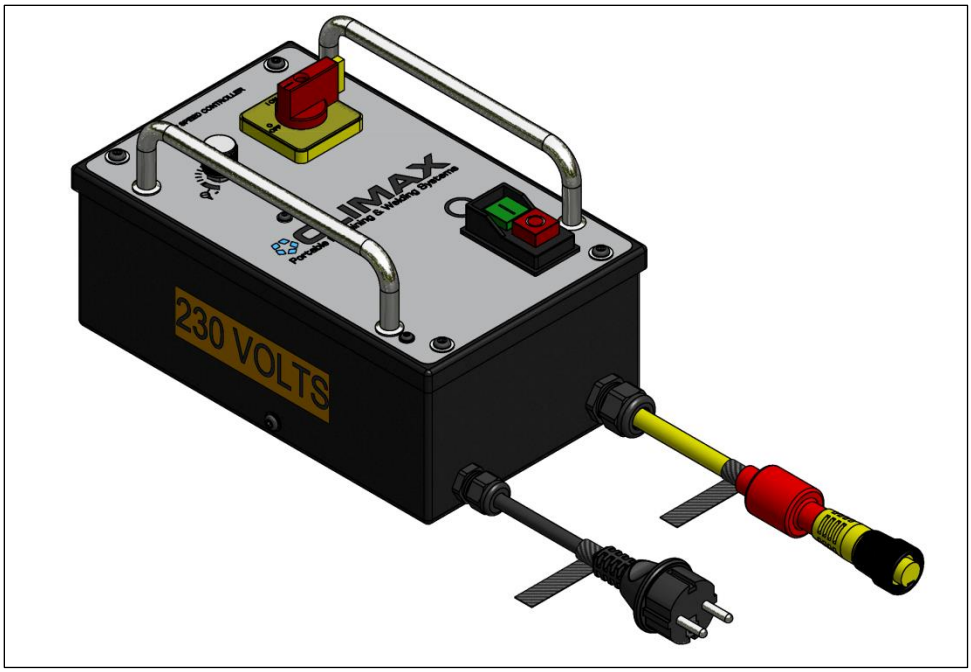


FIGURE 2 – CONTROLLER 10 AMP 230V 50/60 HZ P/N 79218

The coltrol pendant for this machine is hown in Figure 2.

3.4 Pneumatic lathe

The pneumatic PL2000 Portable Lathe has a 1.22 HP (0.91 kW) air motor. Use the needle valve to adjust the motor speed.

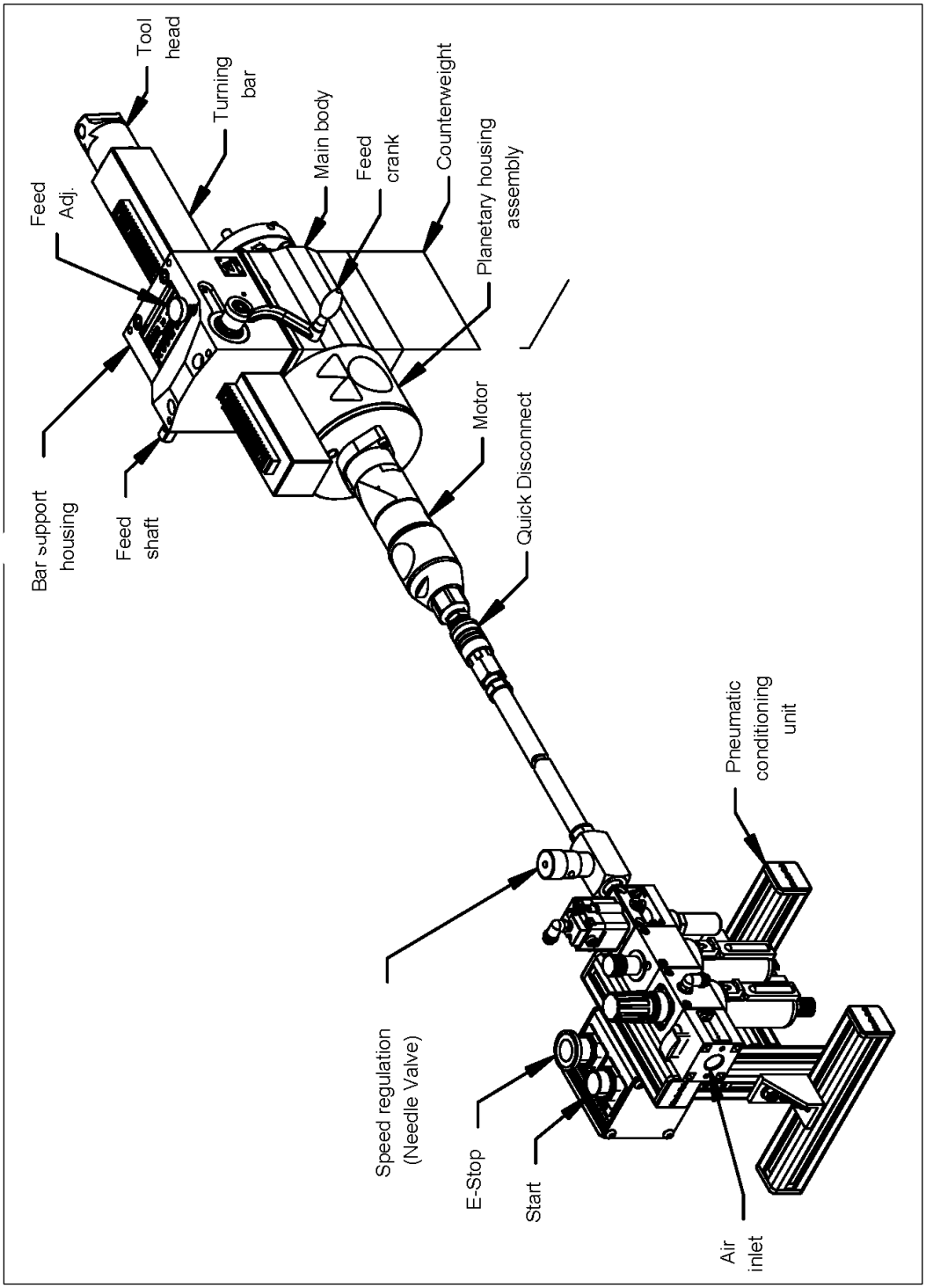


FIGURE 3 – PNEUMATIC PORTABLE LATHE (YOUR CONDITIONG UNIT MAY VARY FROM THE ILLUSTRATION).

CAUTION

Recommended operating pressure is 90 psi (6.2 bar). Do not exceed 120 psi (8.2 bar).

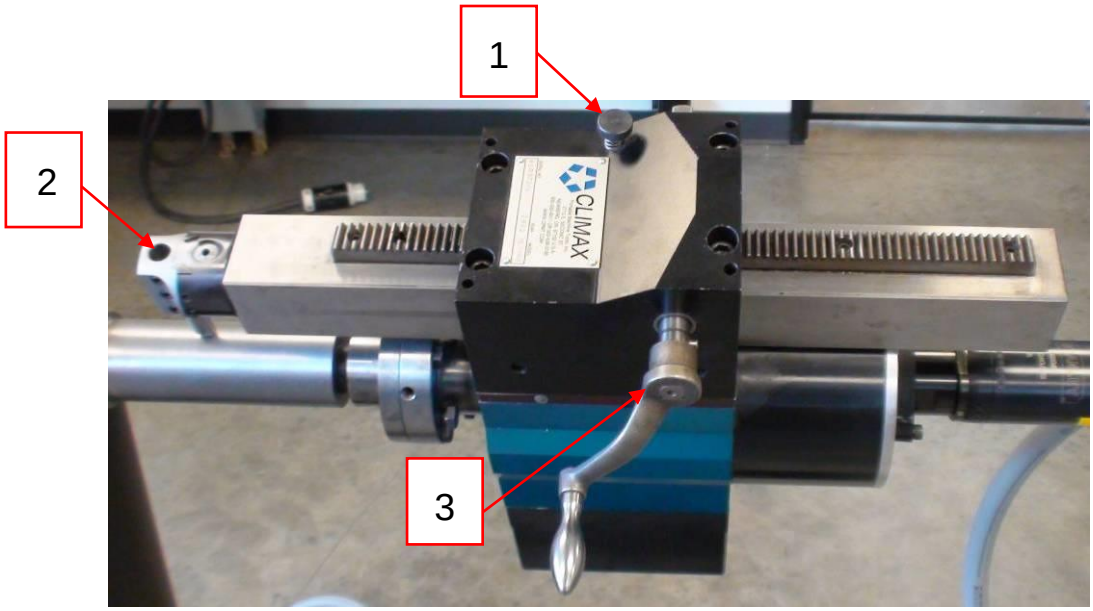


FIGURE 4 – (1) FEED RATE KNOB: CONTINUOUSLY VARIABLE FROM 0–0.025" (0–0.635 MM) PER REVOLUTION. (2) CRITERION STYLE TOOL HEAD: (3) FEED *ENGAGEMENT* SHAFT: USE WITH THE HAND CRANK FOR MANUAL POSITIONING

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4 SETUP

4.1 Receipt and Inspection

Your CLIMAX product was inspected and tested prior to shipment, and packaged for normal shipment conditions. CLIMAX does not guarantee the condition of your machine upon delivery. When you receive your CLIMAX product, perform the following receipt checks.

1. Inspect the shipping containers for damage.
2. Check the contents of the shipping containers against the included invoice to ensure that all components have been shipped.
3. Inspect all components for damage.

Contact CLIMAX immediately to report damaged or missing components.

CAUTION

To avoid bodily injury from moving machinery, turn off and disconnect all power cords before setting up the machine.

4.2 Preparing the mounting flange

The mounting flange of the PL2000 is 3.75" (95.25 mm) outside diameter and has four .40" (87.3 mm) diameter clearance holes for 3/8-24 mounting bolts. These holes are evenly spaced on a 3.03" (76.96 mm) diameter bolt circle. Between each of the clearance holes is a 3/8-24 tapped hole to accept jacking screws for leveling the machine.

1. Clean the end of the shaft and the face of the mounting flange.

NOTICE

Dirt, burrs, and grease on either the end of the work piece or the face of the flange will keep the flange from mounting properly.

2. Remove the motor, counterweights, turning bar, bar support and spacer assembly.
3. Loosely attach the machine flange to the end of the shaft.
4. Attach the turning bar, bar support, counterweights, and spacer assembly. Tighten the four bolts holding the bar support to the main body to 100 in/lbs.

4.3 Centering the machine

Do the following to center the machine:

1. Crank the turning bar in until the tool head is as close as possible to the main body of the machine.
2. Attach a dial indicator to the tool head. Indicate as close to the center of the turning arm as possible.
3. Manually rotate the machine around the shaft. Using a soft mallet, tap the machine mounting flange until it is centered.
4. Snug the flange mounting screws.
5. Crank the turning bar out until the tool head and dial indicator are as far as possible from the machine.
6. Manually rotate the machine around the shaft. Adjust the three 3/8-24 jacking screws to align the machine.
7. Repeat steps 3 through 6 until the machine is centered.
8. Tighten all mounting screws.

WARNING

To avoid serious personal injury, keep clear of the hoist and the machine during setup.

4.4 Motor mounting

NOTICE

The PL2000 Portable Lathe machine must be rotating counter-clockwise (as viewed from the back of the motor) while machining. Do not rotate the PL2000 clockwise.

4.4.1 Electric motor mounting

Do the following to mount the electric motor:

1. Insert the planetary housing assembly into the internal ring gear of the main body. Tighten the five 1/4-20 socket head cap screws to 150 in-lbs (17 Nm).
2. Mount the electric motor mount onto the planetary housing. Tighten the five mounting screws to 150 in-lb (17 Nm).
3. Insert the electric motor assembly into the planetary gear housing. The electric motor assembly may need to be rotated slightly so that the gears mesh. Tighten the motor mount screws to 300 in-lb (34 Nm).

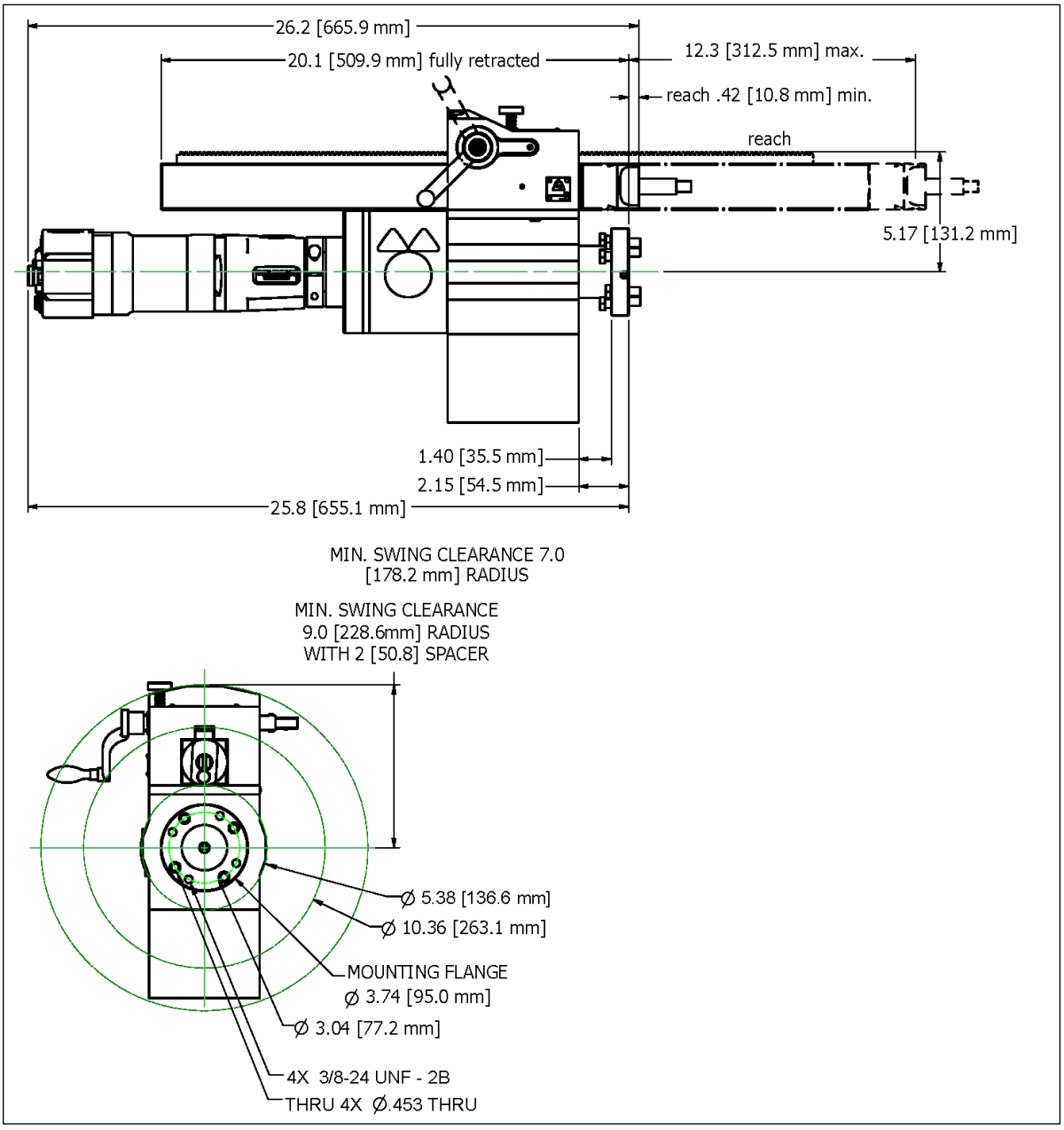

FIGURE 5 – ELECTRIC PORTABLE LATHE CLEARANCE DIMENSIONS (INCHES/MM)

4.4.2 Air motor mounting

CAUTION

To avoid serious personal injury from moving machinery, turn off and lock out the motor before connecting the air supply. Ensure that the needle valve is extended far enough from the machine for safe adjustment while in motion.

Do the following to mount the air motor:

1. Insert the planetary housing assembly into the internal ring gear. Tighten the five mounting screws to 150 in-lb (17 Nm).
2. Mount the air motor assembly to the planetary housing. Tighten the two mounting screws to 150 in-lb (17 Nm).

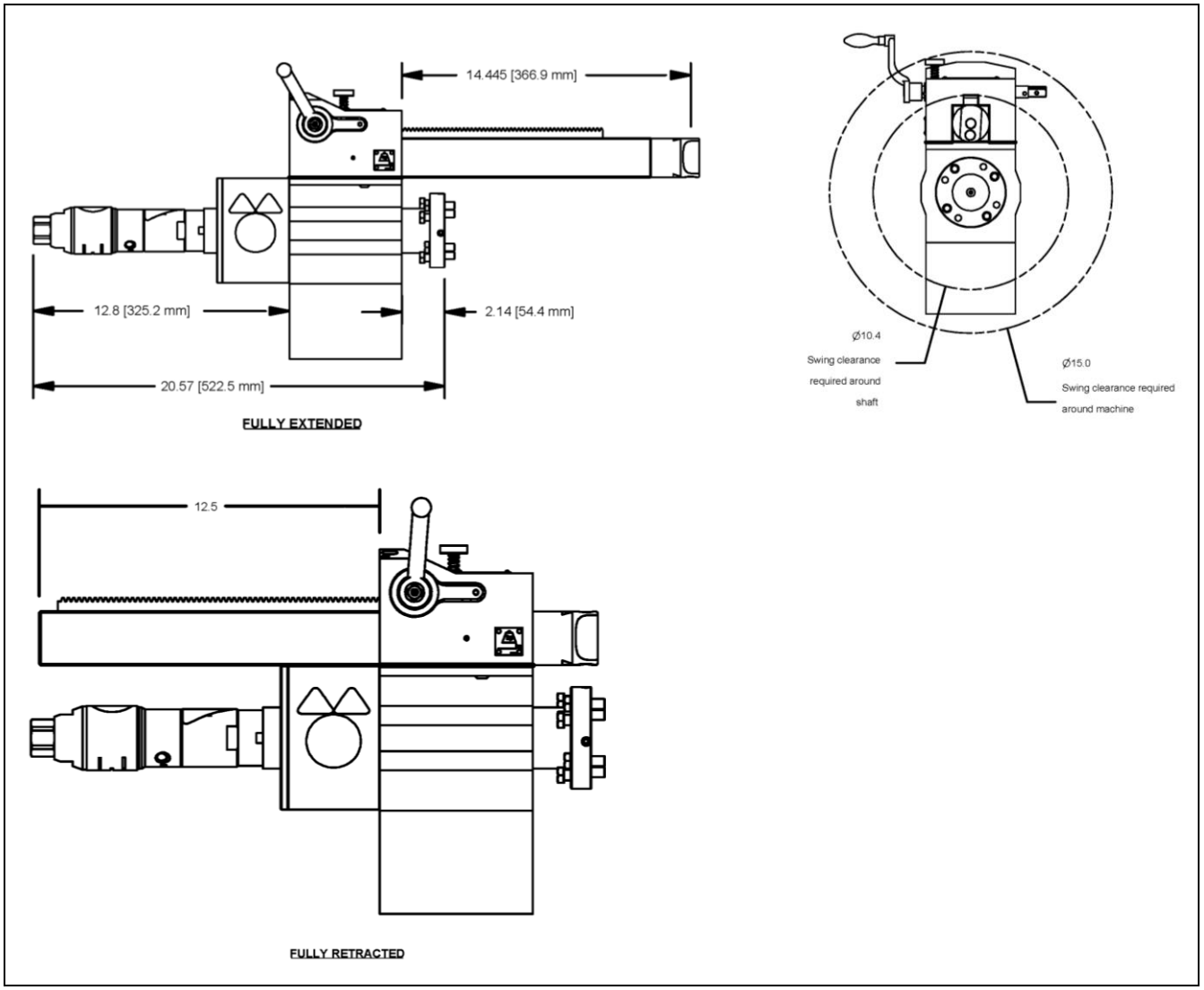

FIGURE 6 – PNEUMATIC PORTABLE LATHE CLEARANCE DIMENSIONS (INCHES/MM)

CAUTION

To avoid serious personal injury from moving machinery, turn off the motor BEFORE plugging it in.

3. Turn off the motor.
4. Turn the variable speed controller counterclockwise all the way.
5. Plug the machine into a properly grounded outlet.

CAUTION

To avoid injury by shock or explosion, do not operate electric motors in damp or explosive conditions.

4.5 Air power connection

CAUTION

To prevent serious injury from moving machinery during setup or adjustment, use quick disconnect fittings between the air supply line and the needle valve. Close and lock out all air valves before connecting the air supply line to the motor.

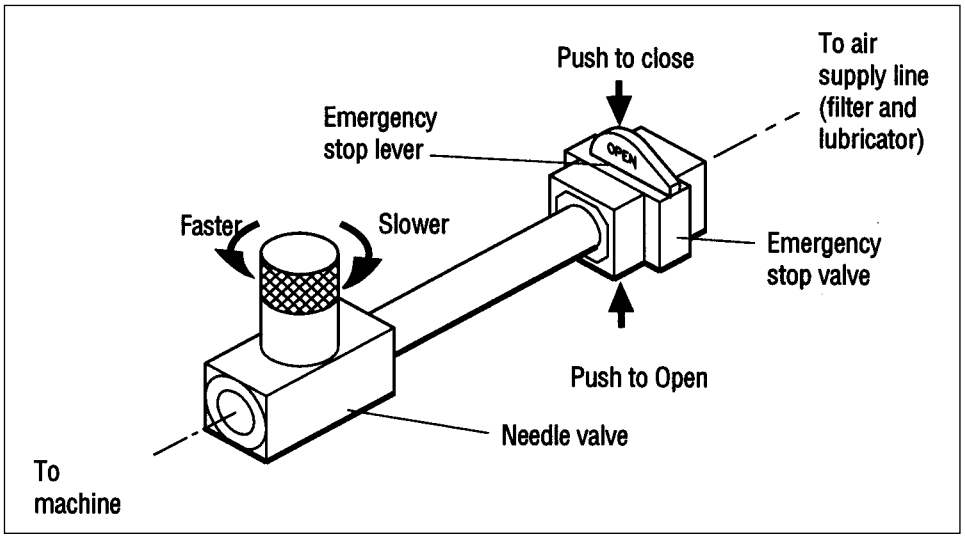

FIGURE 7- LOCKOUT VALVE

The PL2000 Portable Lathe has a 1.22 hp (0.91 kW) air motor. Adjust motor speed using the needle valve.

The air filter and lubricator (pneumatic conditioning unit) supplied with the machine must be used or the warranty is void. The lubricator should be set to deliver oil at a rate of 2-4 drops per minute.

CAUTION

To prevent damage to the machine, use the filter and lubricator provided.

The PL2000 Portable Lathe is equipped with a needle valve/lockout valve assembly.

NOTICE

Air line connections should be made with nonrestrictive air fittings of not less than 3/8" (10 mm) diameter.

4.5.1 Starting the machine

Do the following to start the machine:

1. Turn the needle valve clockwise all the way. No colored bands will be visible when the valve is completely closed.
2. Push the emergency stop lever down until the word CLOSED and the lockout can be seen from the bottom of the valve. Be sure the lever is pushed all the way.

CAUTION

To prevent serious injury from moving machinery, secure the machine to the work piece before connecting the air supply.

3. Push the emergency stop lever up until the word OPEN can be seen from the top of the valve. Be sure the lever is pushed all the way.
4. Slowly turn the needle valve counterclockwise until the machine is turning at the desired speed. The more colored bands you see, the faster the machine speed.

CAUTION

In case of emergency push the emergency stop lever closed.

4.5.2 Stopping the machine

Do the following to stop the machine:

1. Turn the needle valve clockwise all the way. No colored bands will be visible when the valve is completely closed.
2. Push the emergency stop lever down until the word CLOSED and the lockout can be seen from the bottom of the valve. Be sure the lever is pushed all the way. Lock out the machine with a padlock.

4.6 Tool bit preparation

Do the following to prepare the tool bit:

1. Grind a 1/2"(13 mm) round tool bit. See Figure 8 on page 20 for grinding information.

NOTICE

High-speed tool bits may perform better than carbide tools. Carbide bits tend to ride up or skid on the surface.

CAUTION

Correct tool bit geometry is critical to the performance of the machine. Never use tool bits without checking their geometry.

2. Check the geometry of the HSS tool bit against the tool geometry diagrams, next page. Tool bits with low clearance angles may reduce chatter and cut better. Exact tooling geometry also depends on the type of material being cut.
3. Center the tool head's moveable part with the stationary part.
4. Move the tool holder so that it is over the work piece.
5. Slide the tool bit into the tool head until the tool bit touches the work piece. Tighten the three set screws to secure the tool.

CAUTION

To prevent serious bodily injury from moving machinery, turn off and disconnect the power before inserting or adjusting the tool bit.

6. Reposition the tool by using the manual hand crank so the tool is off the end of the work piece.
7. Adjust the tool downward (clockwise) to the desired depth of cut. The dial is in 0.001" (0.025 mm) graduations on the diameter. Therefore, turning the dial 0.020" (0.508 mm) down will remove 0.020" (0.508 mm) off the diameter or be a 0.010" (0.254 mm) depth of cut.

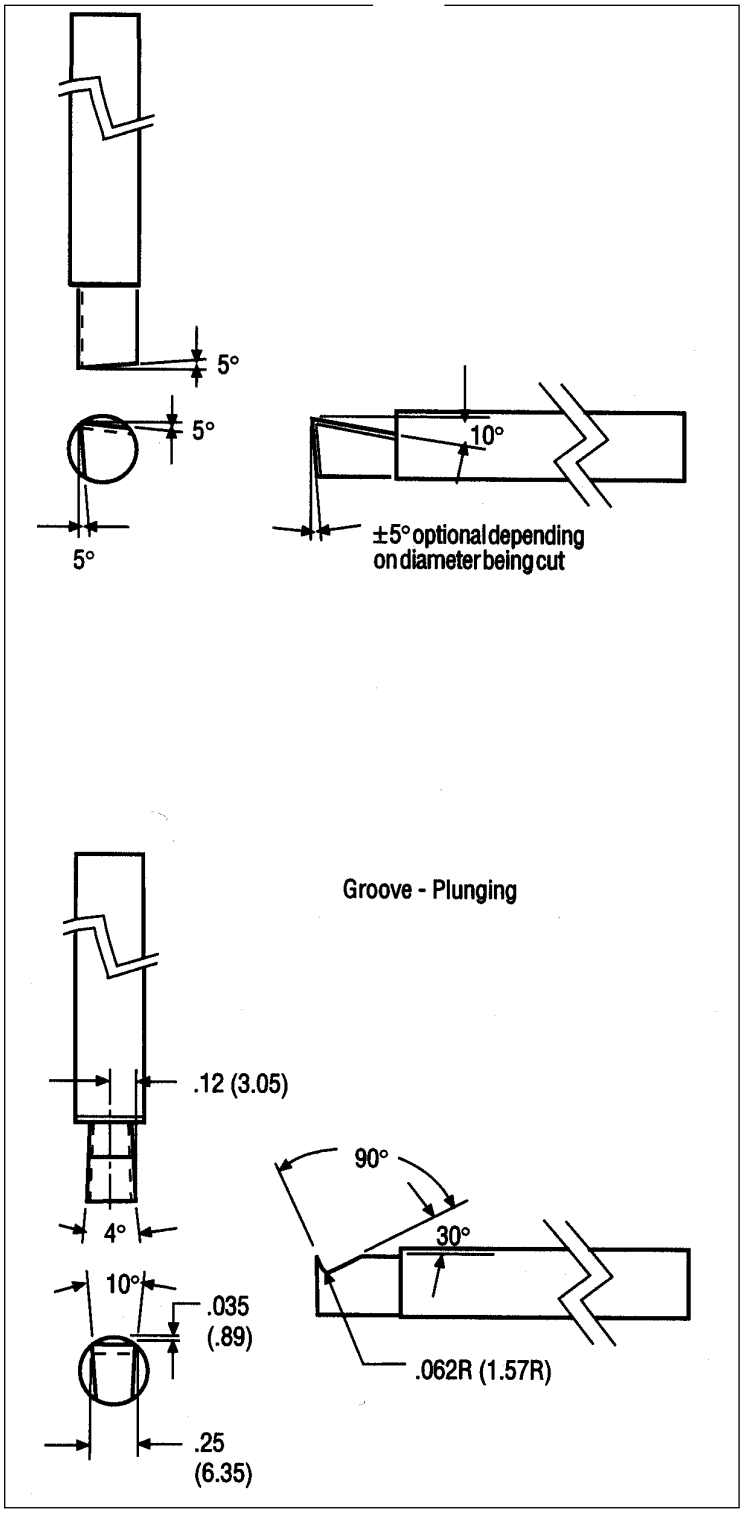

FIGURE 8 – TOOL BIT GEOMETRY - INCH (MM)

4.7 Manual axial feed

Do the following for the manual axial feed:

1. Using the crank handle, move the tool bit to the end of the work piece.
2. Engage the feed by pushing in the end of the pinion shaft until the pin engages with the slot.
3. Adjust the feed rate by turning the adjustment knob. Clockwise slows the feed rate and counter-clockwise increases the feed rate.

4.7.1 Setting rotational speed

CAUTION

To prevent serious bodily injury from moving machinery, turn off and disconnect the power before adjusting machine feeds.

Rotational speed rate is variable up to 95 rpm.

NOTICE

The PL2000 Portable Lathe machine must be rotating counter-clockwise (as viewed from the back of the motor) while machining. Do not rotate the PL2000 clockwise.

4.7.2 Electric speed adjustment

To adjust the speed on electric machines, slowly turn the speed control.

4.7.3 Pneumatic speed adjustment

To adjust the speed on pneumatic machines, slowly turn the needle valve.

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5 OPERATION

5.1 Pre-start checks

CAUTION

To prevent serious bodily injury from moving machinery, turn off and disconnect the machine before performing pre-start checks.

5.1.1 General pre-start checks

Do the following pre-start checks:

1. Check that the tool bits are sharp.
2. Check that all moving parts move freely.

5.1.2 Electric lathe pre-start checks

Do the following eletric lathe pre-start checks:

1. Inspect electrical parts for damage.
2. Be sure power is OFF before plugging in unit.
3. Plug the machine into a grounded outlet.

5.1.3 Pneumatic lathe pre-start checks

Do the following pneumatic lathe pre-start checks:

1. Fill the air lubricator with air oil. Use an air oil that has antioxidants and rust inhibitors such as Marvel Air Tool Oil. Set the lubricator to deliver oil at a rate of 2–4 drops per minute.
2. Drain the air filter.
3. Push the emergency stop lever down until the word CLOSED and the lockout can be seen from the bottom of the valve. Check that the lever is pushed all the way.
4. Turn the needle valve clockwise all the way. You will not be able to see any of the colored bands when the valve is completely closed.
5. Check that the in-line air pressure is 90 psi (6.2 bar). Check that the air lines are not restricted or damaged.

5.2 Operation

CAUTION

To protect yourself from flying chips and excessive noise, wear eye and ear protection while operating the machine.

NOTICE

The PL2000 Portable Lathe machine must be rotating counter-clockwise (as viewed from the back of the motor) while machining. Do not rotate the PL2000 clockwise.

Do the following to operate the machine:

1. Check the power is off.
2. Using the crank handle, retract the turning bar until the tool head is as close to the machine as possible.
3. Crank the turning bar out until the cutter is just over the shaft.

CAUTION

Because the feed moves the cutter away from the mounting flange, start the cut with the bar fully retracted.

4. Turn the depth adjustment knob clockwise until the cutter just touches the shaft.
5. Retract the turning bar until the cutter just clears the end of the shaft.
6. Turn the depth adjusting knob to set the tool bit to the desired depth. Turning the knob clockwise adjusts the tool downward. The dial is in 0.001" (0.025 mm) graduations on the diameter.
7. Set the axial feed lever to desired feed rate. Clockwise slows the feed rate down and counterclockwise speeds the feed rate up.
8. Engage the feed by pushing the end of the pinion shaft in until the pin in the shaft engages with the detente slot.
9. Remove the hand crank from the machine.
10. Start the machine.
    - To adjust the speed on electric machines, slowly turn the speed control.
    - To adjust the speed on pneumatic machines, slowly open or close the needle valve.
11. After the desired length of shaft has been turned, gradually turn the motor speed down until the machine stops rotating.
12. Using the hand crank, retract the cutter.
13. Repeat steps 1–12 until the shaft is turned to the desired size or finish.

TIP:

For finer finish cuts, set the tool bit for a shallower cut and run the machine at a slower feed rate.

14. Shaft polishing can also improve the finish and minimize taper. For more information, see Section 5.5 on page 25.

5.3 Taper adjustment

The PL2000 Portable Lathe is equipped with a feature for fine adjustment of the turning bar, and improve a taper condition in the work piece.

1. Perform a test cut on your work piece. Measure both ends of the test cut with a micrometer to check for taper.
2. Adjust taper with the four jacking screws accessible from the top of the turning bar support, and four mounting screws that hold the turning bar support to the main body of the machine.
3. Mount a dial indicator to the bar, with the stylus of the indicator against the test cut. Tighten either the two front or the two rear jacking screws, and slightly loosen the corresponding mounting bolts, to allow for bar movement. Observe the dial indicator movement for desired movement of the bar (indicator movement should be about half of test cut taper).

CAUTION

Do not over-tighten the turning bar support screws beyond 10 ft-lbs (13.5 Nm), or binding of the turning bar may occur, resulting in damage to the machine. For finer adjustment, sections of the shaft can be polished to more closely match diameters of other sections of the bar.

5.4 Single bolt mounting adapter

The single bolt mounting adapter secures the PL2000 on shafts under 3.75" (95.25 mm) diameter.

Drill and tap a 5/8-11 hole in the end of the work piece. Be sure that thread is at least 1" (25.4 mm) deep. Mount the adapter, then attach the machine mounting flange to the adapter as described in Section 4 on page 13.

5.5 Shaft polishing

With the abrasive belt holder (included with the machine) and an abrasive belt (user supplied), the PL2000 Portable Lathe can polish shafts.

CAUTION

To avoid serious personal injury from moving machinery, turn off and disconnect the power before setting up the abrasive belt.

5.6 Setting the abrasive belt holder

Do the following to set the abrasive belt holder:

1. Attach an abrasive belt holder to the end of the turning bar.
2. Wrap an abrasive belt around the shaft and through the slot into the holder.
3. Using a wrench, tighten the abrasive belt holder until the belt is snug against the work piece. Tighten the set screw.

5.7 Spot polishing

Do the following to spot polish the shaft:

1. Position the belt as desired on the shaft.
2. Start the machine.
3. Run the machine until the shaft has the desired finish. Spot polishing can also be used to minimize taper along the length of a shaft.

5.8 Polishing the entire shaft

Do the following to polish the entire shaft:

1. Position the belt on the end of the shaft.
2. Engage the feed system.
3. Start the machine. The machine will automatically feed the belt along the shaft.

6 DISASSEMBLY

CAUTION

To prevent serious bodily injury from moving machinery, turn off and lock out and disconnect the power supply before disconnecting the machine.

Do the following to disassemble the PL2000 Portable Lathe:

1. Turn off and disconnect the power supply.
2. Turn the depth adjustment knob counterclockwise to retract the cutter.
3. Remove the tool.
4. Remove the motor from the planetary housing.
5. Remove the bar support and turning bar.
6. Remove the counterweight.
7. Secure the machine with a hoist.
8. Remove the machine from the shaft.

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7 MAINTENANCE

7.1 Recommended lubricants

TABLE 4 – RECCOMENDED LUBRICANTS

LUBRICANT	BRAND	WHERE USED
Gear grease	Polytac EP #2	Planetary housing gears
Light oil	JET LUBE 500	Unpainted surfaces
Cutting oil	UNOCAL KOOLKUT	Tool bits, work piece
Lubricating oil	Unax AW 32	Lubricator oil cup (pneumatic model)

CAUTION

To prevent machine damage use recommended type lubricants.

7.2 Main body

Under normal conditions the main body is maintenance-free.

7.3 Mounting flange

Clean the flange before use. Spray unpainted surfaces with WD-40.

7.4 Turning bar assembly

Lightly oil the turning bar every time you use the lathe.

7.5 Electric motor

CAUTION

To avoid injury by shock or explosion do not operate electric motors in damp or explosive conditions.

Repack the gear case every 6 months or 500 hours with one ounce of gear grease. Remove the gear case, being careful not to dislodge the armature.

NOTICE

Do not disassemble the gears.

Periodically inspect the brushes:

1. Unscrew the brush retainer caps on the motor housing.
2. Pull out the retainer springs and brushes.

Replace brushes when they have worn down to 1/4" depth (6 mm). Always replace the brushes in sets.

7.6 Air motor and pneumatic conditioning unit

Do the following to maintain the air motor and PCU:

1. Route incoming air through the lubricator and air filter.
2. Use nonrestrictive air lines and fittings. Check periodically that air pressure is 90 psi (6.2 bar).
3. Adjust air motor torque by turning the needle valve.

NOTICE

Do not adjust the motor speed by changing the in-line air pressure from 90 psi (6.2 bar).

4. Fill the air lubricator oil cup with oil before using the machine. Use high-quality oil with rust inhibitors and emulsifiers such as Marvel Air Tool Oil. The lubricator should oil the air at a rate of 2-4 drops per minute.
5. Drain the air filter before and after using the machine.

CAUTION

To avoid machine damage, never operate the machine without the air filter and lubricator

7.7 Planetary housing

Do the following to maintain the planetary housing:

1. When necessary, repack the gears with gear grease.
2. Spray exposed housing surfaces with JET LUBE 500.

For further information on recommended lubricants see Section 7.1.

8 STORAGE

Do the following to store the PL2000 Portable Lathe to help prevent deterioration or damage:

1. Before storing the machine, clean it with solvent to remove grease, metal chips, and moisture.
2. Drain the air filter on pneumatic machines.
3. Spray the machine with a moisture-protective material (JET LUBE 500 for short storage, LPS3 for long storage) to prevent rusting.
4. Store the machine in the crate provided.
5. Place desiccant bags or vapor wrap around the machine to absorb moisture.

Call CLIMAX to replace a storage containter (P/N 16783).

APPENDIX A SPECIFICATIONS

SPECIFICATIONS

	US	Metric
Machine Performance Ranges		
Turning Reach	12.5 inches	317.5 mm
Shaft dia. maximum		
without optional spacer/counterweight assembly	5.0 inches	127.0 mm
with the optional spacer/counterweight assembly	9.0 inches	228.6 mm
Shaft dia. minimum		
without optional spacer/counterweight assembly	1.5 inches	38.1 mm
Shaft dia. minimum	5.0 inches 127.0 mm	
with the optional spacer/counterweight assembly		
Feed rate, automatic (infinitely variable)	0 - 0.035 inches/rev.	0 - 0.89 mm/rev
Cutter modified	1/2 inch (12.7 mm) HSS round lathe tool bit	
Power Options		
Power, electric		
120V, 60 Hz or 230V, 50Hz	0.75 Hp	0.55 kW
Torque: 43 ft-lbs (58 N•m). Bar speed: 14 - 115 rpm max.		
Motor Speed: 780 rpm no load, 510 rpm full load.		
Power, pneumatic	1.22 Hp	0.91 kW
(non-reversing, Hp rated at 200 rpm). Torque: 95 ft-lbs (127.6 N•m) at 55 rpm bar speed. Bar speed: 0 - 96 rpm max.		
Motor speed: 375 rpm no load, 200 rpm full load. Infinitely variable speed control with needle valve.		
Air flow required: 90 psi @ 30 ft3/min (620 kPa @ 0.85 m3/min).		
Measures		
Overall length, electric		
bar fully retracted	26.0 inches	666.4 mm
bar fully extended	39.0 inches	990.6 mm
Overall length, pneumatic		
bar fully retracted	32.0 inches	812.8 mm
bar fully extended	44.5 inches	1130.3 mm
Overall height	13.75 inches	349.3 mm
without optional spacer/counterweight assembly		
with optional spacer/counterweight assembly	17.75 inches	450.9 mm
Operating weight, electric motor		
without spacers or counterweights	99 lbs	44.9 kg
with spacers and counterweights	116 lbs	52.6 kg
Operating weight, pneumatic motor		
without spacers or counterweights	94 lbs	42.6 kg
with spacers and counterweights	111 lbs	52.3 kg
Shipping weight	190 lbs	86.2 kg
Shipping dimensions L x W x H	26 x 19 x 15 inches	660.4 x 482.6 x 381.0 mm

APPENDIX B EXPLODED VIEWS AND PARTS

NOTICE

The following diagrams and parts lists are for reference purposes only. The machine Limited Warranty is void if the machine has been tampered with by anyone who has not been authorized in writing by CLIMAX to perform service on the machine.

8.2 List of exploded views and parts

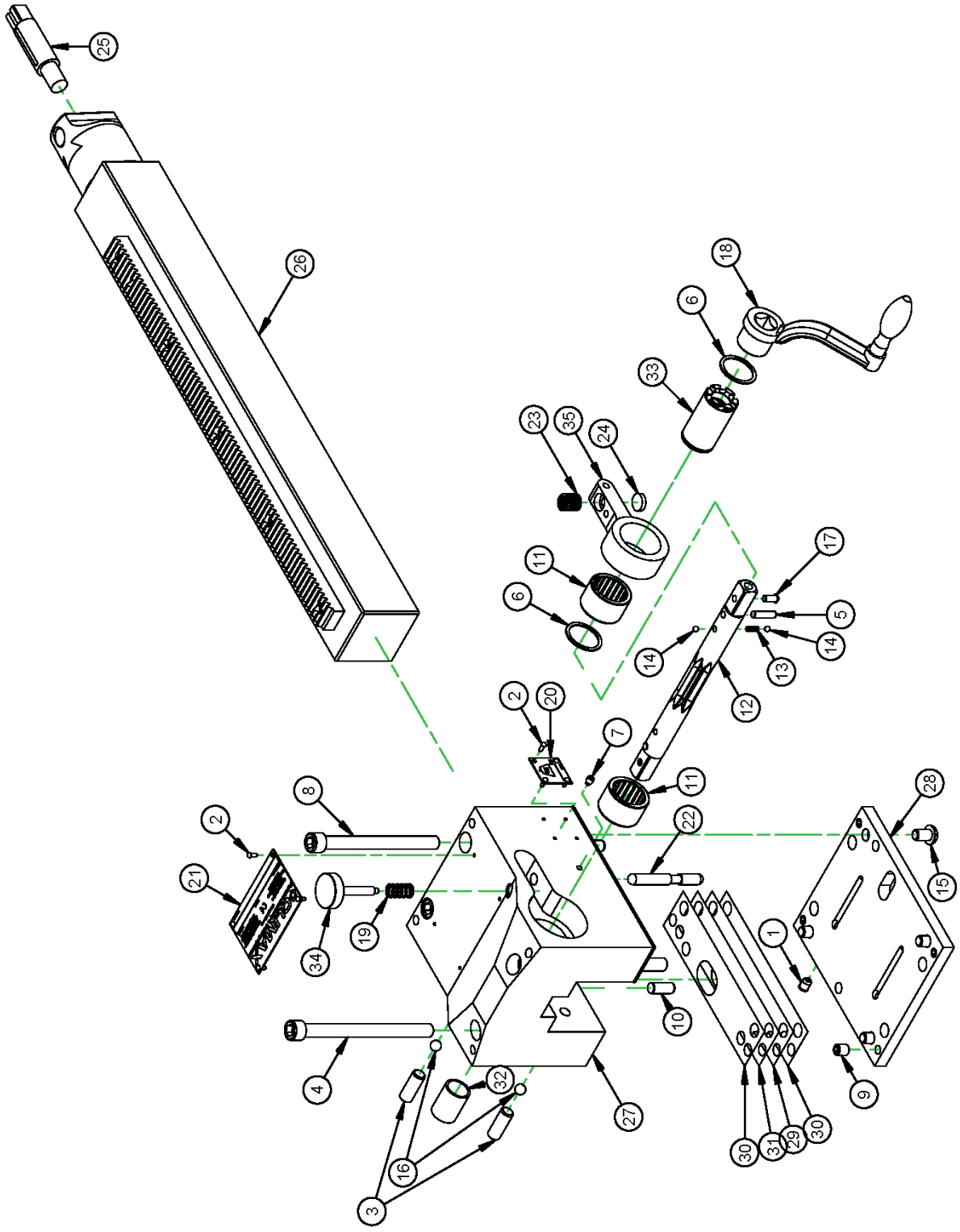
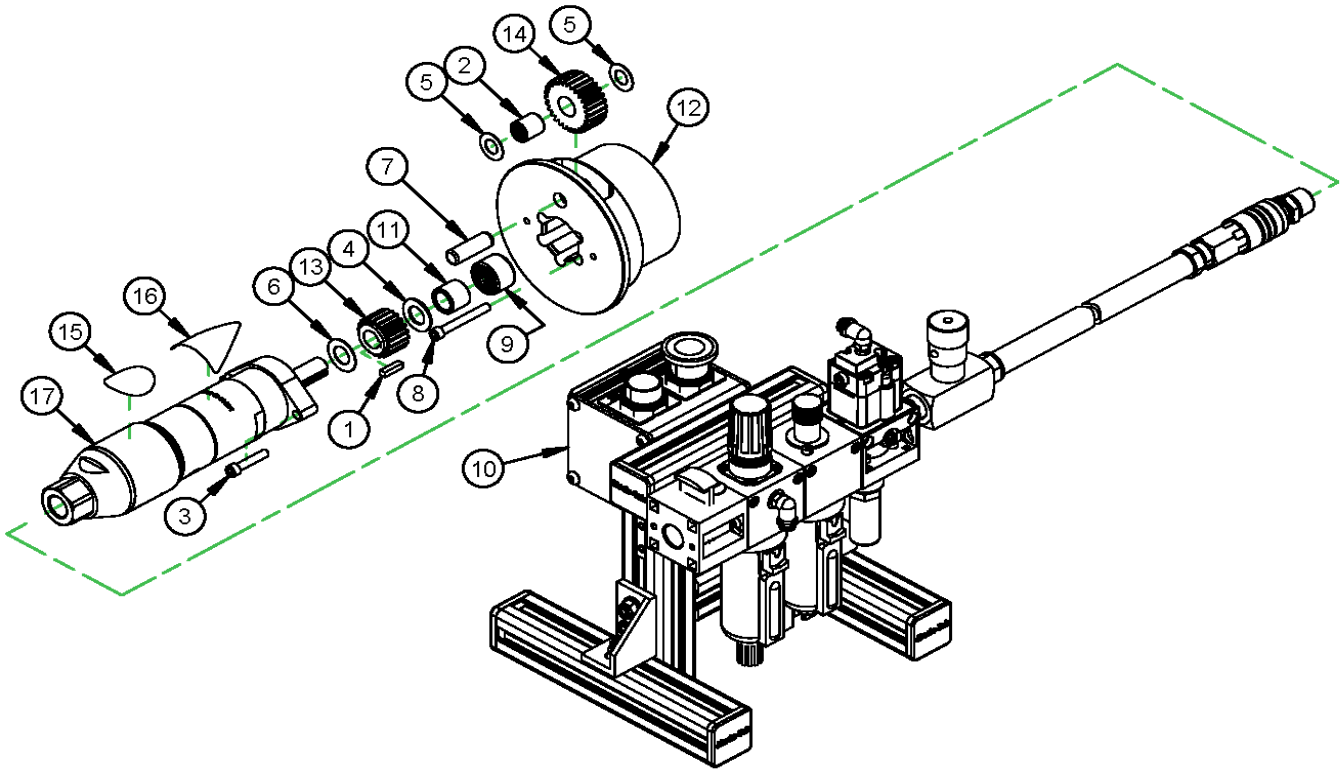


FIGURE 9 – P/N 31594 BAR TURNING SUPPORT FEED ASSY

PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	2	10139	OILER BALL VALVE DRIVE IN
2	8	10588	SCREW DRIVE #2 x 1/4 HOLE SIZE .089
3	2	10946	SCREW 3/8-16 X 1 SSSFP
4	2	11097	SCREW 3/8-16 X 4-1/2 SHCS
5	2	11763	PIN DOWEL 3/16 x 3/4
6	2	14241	RING SNAP 1 OD SPIRAL HEAVY DUTY
7	1	15395	SCREW 10-32 X 1/4 SSSHDP
8	2	15743	SCREW 3/8-16 X 4 SHCS
9	4	15744	SCREW 5/16-18 X 3/8 SSSFP
10	2	16540	PIN DOWEL 5/16 DIA X 3/4
11	2	19307	BRG ROLLER CLUTCH .984 ID 1.26 OD X .787
12	1	19344	SHAFT PINION AXIAL FEED BB3000 PL2000
13	1	19561	SPRING COMP .148 OD X .023 WIRE X .50 LONG STAINLESS
14	2	19562	BALL STEEL 5/32 DIA
15	4	21769	5/16-18 X 1/2 BHSCS
16	2	26506	BALL NYLON 5/16 DIA
17	2	26828	PLUNGER BALL PUSHFIT
18	1	26850	HANDLE CRANK MODIFIED
19	1	26922	SPRING .36 OD X .032 X 2.25 LONG
20	1	29152	PLATE MASS CE
21	1	29154	PLATE SERIAL YEAR MODEL CE 2.0 X 3.0
22	1	29991	ROD PUSH UPPER
23	1	30039	SPRING COMP .48 OD X .051 WIRE X .50 LONG
24	1	30056	PLUG FEED ARM
25	1	30389	HOLDER ABRASIVE BELT PL2000
26	1	31196	BAR TURNING ASSY PL2000
27	1	31556	SUPPORT BAR 2ND
28	1	31557	PLATE BAR RETENTION PL2000
29	A/R	31649	SHIM BAR SUPPORT .001
30	A/R	31650	SHIM BAR SUPPORT .002
31	A/R	31695	SHIM BAR SUPPORT .0005
32	1	41261	BRG RACE MODIFIED .6256 ID X .875 OD X 1
33	1	43219	BUSHING FEED DIRECTION BB FACING HEAD
34	1	43275	KNOB KNURLED 1.0 OD X 1/4-20 X 1-1/2
35	1	43276	LEVER FEED PL2000

FIGURE 10 – P/N 31594 BAR TURNING SUPPORT FEED ASSY PARTS LIST



PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	1	10217	KEY 3/16 SQ X .75 SQ BOTH ENDS
2	1	10434	BRG NEEDLE 1/2 ID X 11/16 OD X .750 OPEN
3	2	10671	SCREW 1/4-20 X 1-1/4 SHCS
4	1	11165	WASHER THRUST .625 ID X 1.125 OD X .060
5	2	11736	WASHER THRUST .500 ID X .937 OD X .030
6	1	11823	WASHER THRUST .625 ID X 1.125 OD X .030
7	1	11832	PIN DOWEL 1/2 DIA X 1-1/2
8	5	12444	SCREW 1/4-20 X 2 SHCS
9	1	15305	BRG NEEDLE 7/8 ID X 1-1/8 OD X 3/4 OPEN
10	1	29998	ASSY PNEUMATIC PL2000
11	1	30308	BRG RACE .625 ID X .875 OD X .76
12	1	30316	HOUSING PLANETARY AIR
13	1	30334	GEAR SPUR MODIFIED
14	1	30335	GEAR IDLER AIR
15	1	59044	LABEL WARNING - CONSULT OPERATOR'S MANUAL 1.5 DIA
16	1	80207	LABEL WARNING - ENTANGLEMENT/ROTATING SHAFT GRAPHIC 1.95 TALL TRIANGLE YELLOW
17	1	80902	MOTOR AIR 177 RPM AT MAX PWR 382 RPM FS CW

FIGURE 11 – P/N 30333 ASSY PNEUMATIC POWER MODULE PL2000

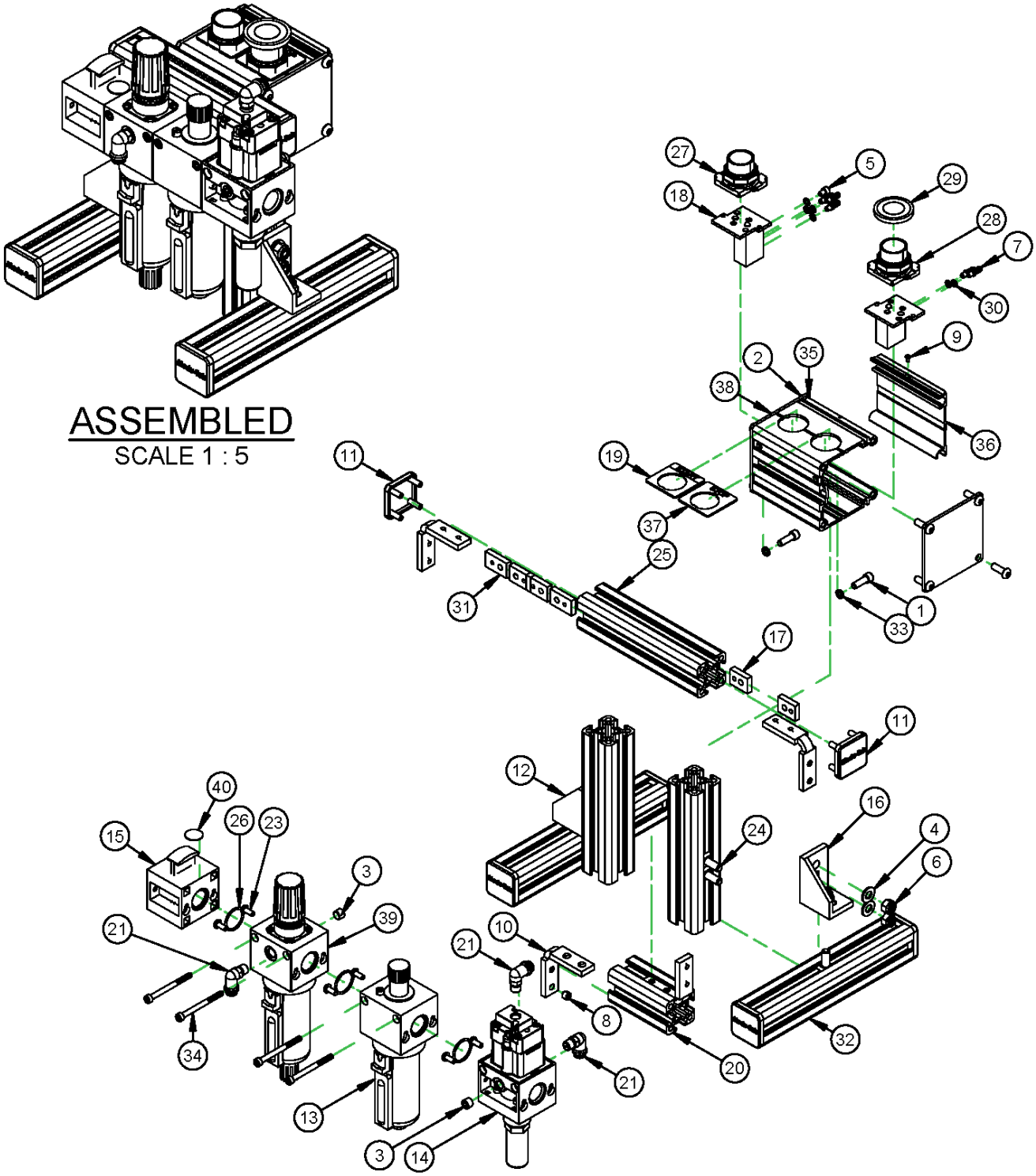


FIGURE 12 – P/N 78264 PNEUMATIC CONDITIONING UNIT 1/2 IN LOW PRES.

PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	2	10160	SCREW 1/4-20 X 3/4 SHCS
2	8	11365	SCREW 1/4-20 X 3/4 BHSCS
3	2	12616	FTG PLUG 1/8 NPTM SOCKET
4	6	13489	WASHER 5/16 FLTW SAE
5	1	14726	SCREW 10-32 X 1/4 SHCS
6	6	19729	NUT 5/16-18 NYLON INSERT LOCKNUT
7	5	22235	FTG BARB #10-32 X 1/8 HOSE
8	16	27895	SCREW 5/16-18 X 5/16 SSSFP
9	1	35857	SCREW 4-40 X 1/4 FHSCS
10	4	46761	BRACKET 90DEG JOINER MODU-TEK
11	6	46764	ENDCAP 1 X 1 FOR 1.63SQ MODU-TEK EXTRUSION
12	1	46765	BRACKET 1X2 SLOT HALF WEB LEFT MODU-TEK
13	1	46768	LUBRICATOR AIR 1/2 NPTF 3.8oz BOWL W/SIGHT
14	1	46769	VALVE EXHAUST QUICK PILOT 1/2NPTF MUFFLER
15	1	46777	VALVE SHUT OFF VS22 SERIES
16	1	46783	BRACKET 1X2 SLOT HALF WEB RIGHT MODU-TEK
17	2	46784	NUT SQUARE 5/16-18 AND 1/4-20
18	2	46785	VALVE PUSHBUTTON 5 PORT PNEUMATIC
19	1	46797	LEGEND PLATE START 10250 SERIES
20	1	46802	1.63 X 1.63 X 3.375L MODU-TEK EXTRUSION
21	3	48648	FTG ELBOW 1/8 NPTM X 1/4 TUBE PRESTOLOK
22	60	48650	TUBING 1/4 OD POLYURETHANE (INCH) (NOT SHOWN)
23	6	53617	SCREW M5 X 0.8 X 12MM BHCS BLACK FINISH
24	6	59436	SCREW 5/16-18 X 3/4 T-BOLT
25	3	59437	1.63 X 1.63 X 7.00L MODU-TEK EXTRUSION
26	3	59442	O-RING 2mm X 23mm ID X 25mm OD
27	1	59458	PUSHBUTTON GREEN FLUSH
28	1	59459	PUSH BUTTON PUSH PULL MAINTAINED (M-M)
29	1	59462	PUSH BUTTON OPERATOR RED 1-5/8
30	6	59480	WASHER #10 FLTW PLASTIC .32 OD .025 THICK
31	4	59705	NUT PLATE M5 X .08 AND 5/16-32 .75 X 1.25 X .25
32	2	59739	EXTRUSION 1.63 X 1.63 X 8.75 MODU-TEK
33	2	59745	WASHER 1/4 LOCW .37 OD .07 THICK
34	4	59754	SCREW M5 X 0.8 X 40MM SHCS
35	1	59820	ENCLOSURE PNEUMATIC CONTROL VALVE 3.38 X 3.435 X 3.9
36	1	59821	COVER PNEUMATIC CONTROL VALVE ENCLOSURE 3.38 X 3.435 X 3.9
37	1	59825	LEGEND PLATE STOP 10250SERIES YELLOW BACKGROUND
38	2	68644	PLATE COVER EXTRUDED WIREWAY
39	1	78054	FILTER/REGULATOR PARTICULATE 1/2NPTF METAL BOWL GLASS
40	1	81132	LABEL WARNING - INSERT SAFETY LOCK

FIGURE 13 – P/N78264 PNEUMATIC CONDITIONING UNIT 1/2 IN LOW PRES.PARTS LIST

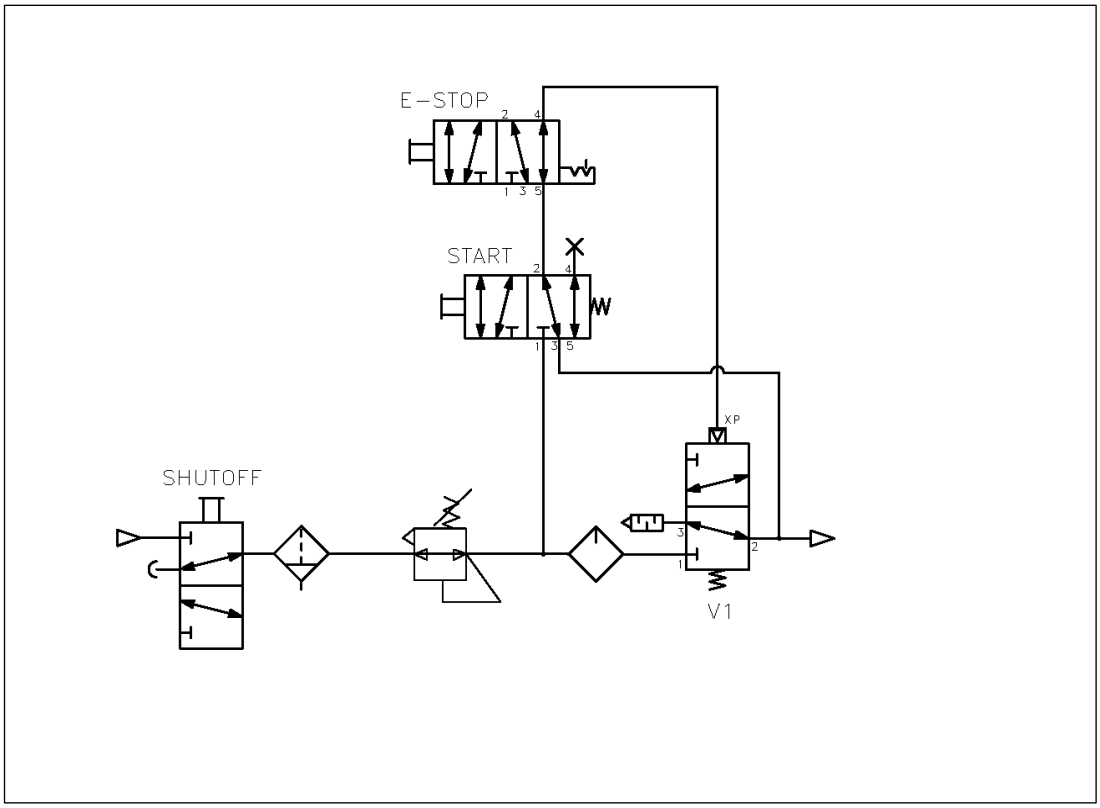
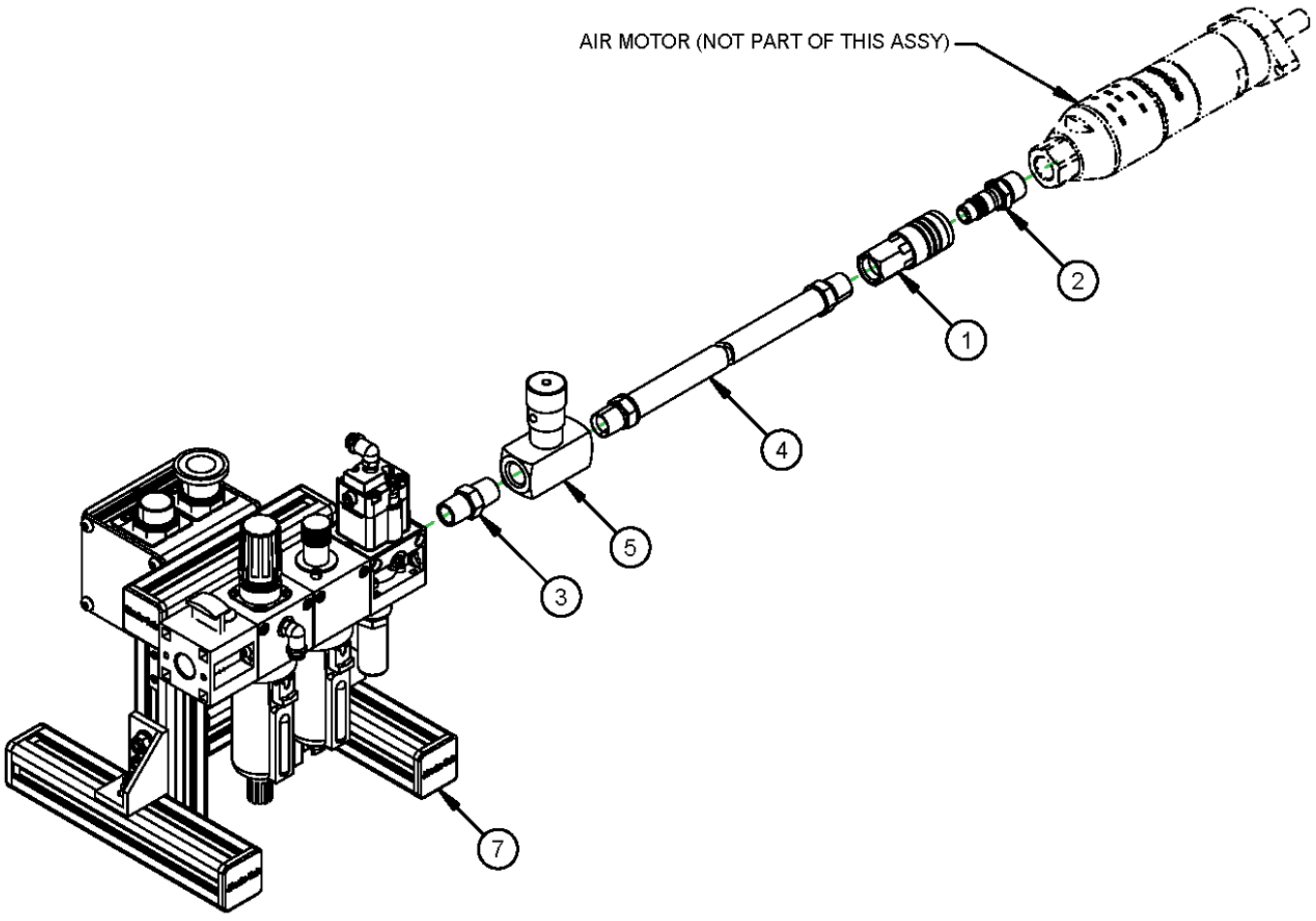
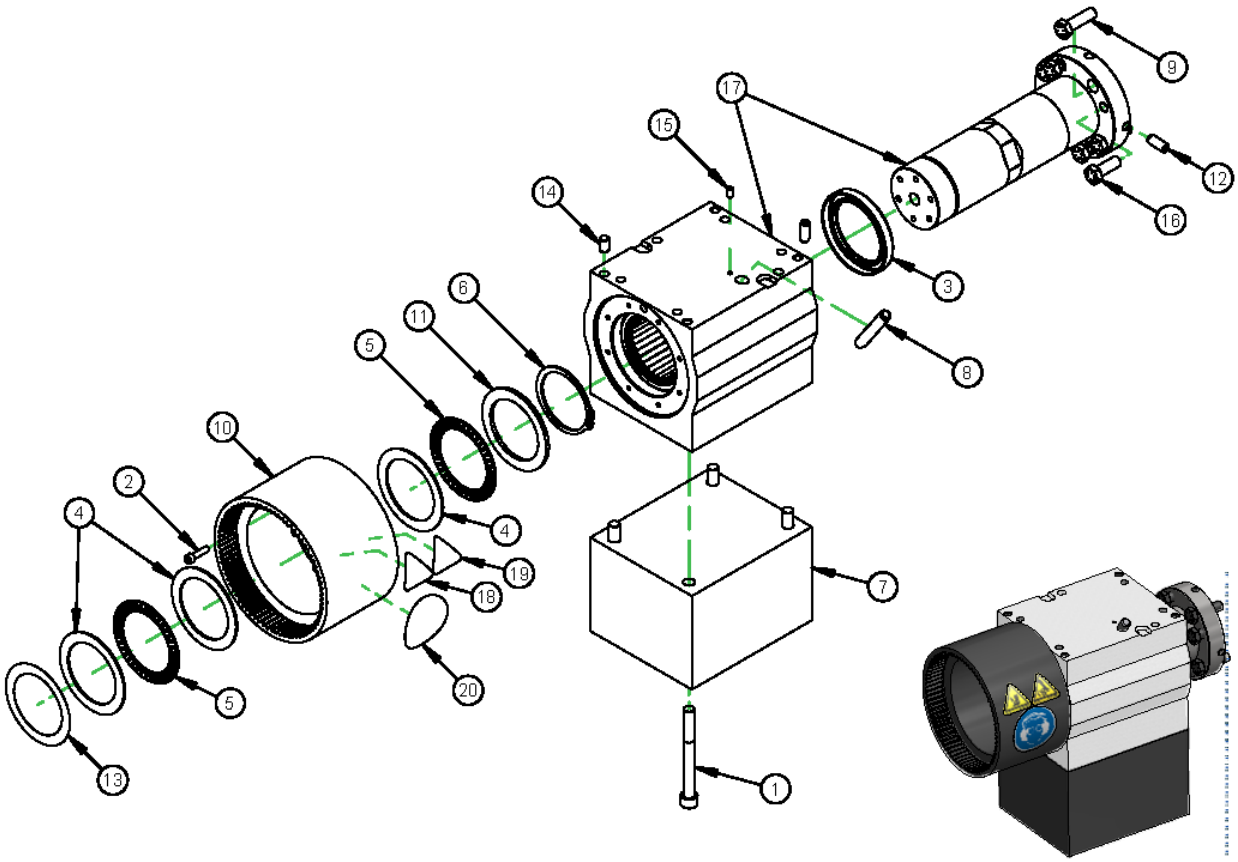


FIGURE 14 – P/N78264 PNEUMATIC CONDITIONING UNIT 1/2 IN LOW PRES. DROPOUT SCHEMATIC



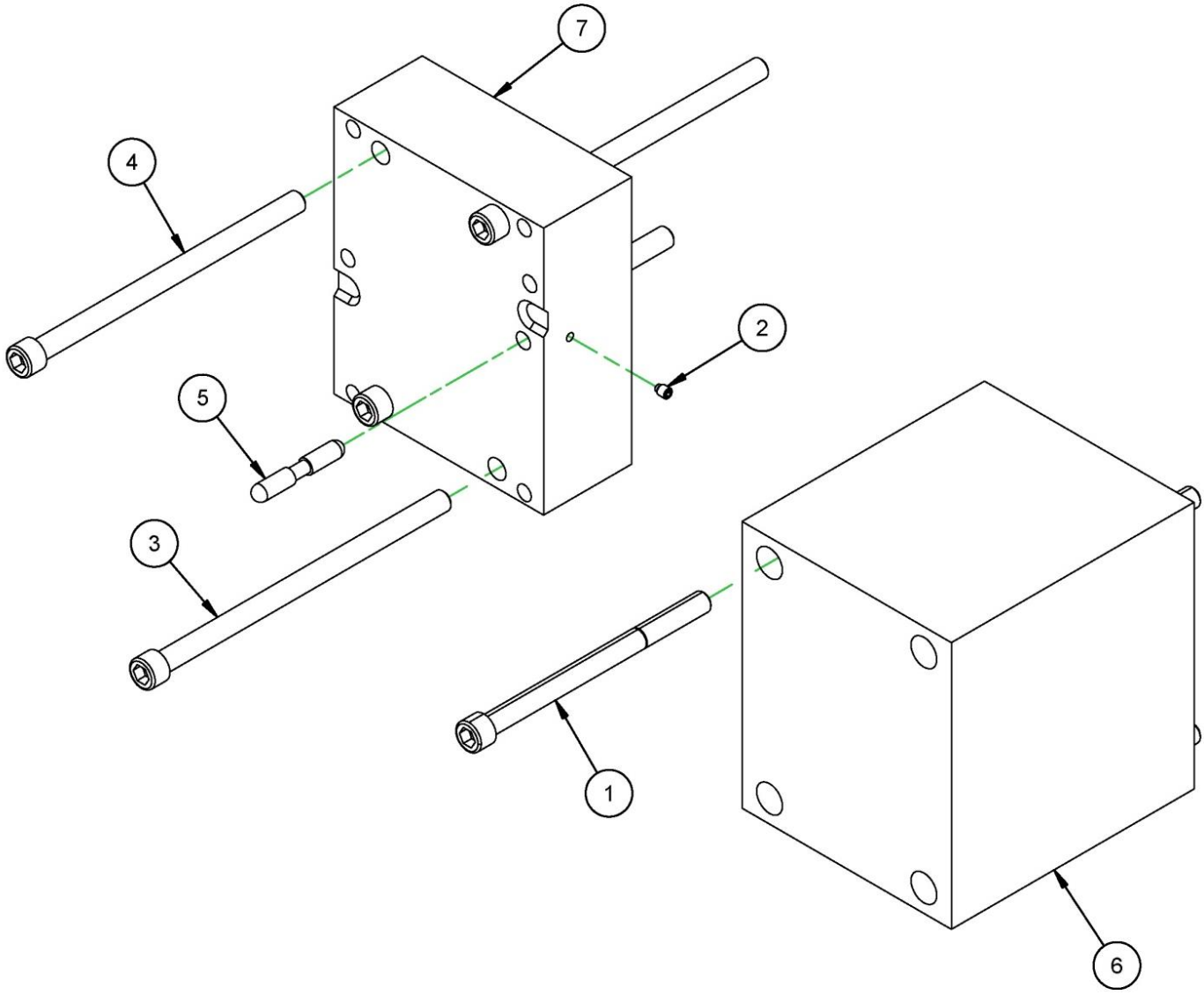
PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	1	13208	FTG QD COUPLER 1/2B 1/2 NPTF PNEUMATIC
2	1	13209	FTG QD NIPPLE 1/2B 1/2 NPTM PNEUMATIC
3	1	14704	FTG NIPPLE 1/2 NPTM X 1/2 NPTM
4	1	15915	HOSE ASSY 801 1/2 X 1/2 NPTMS X 1/2 NPTMS X 72
5	1	22229	VALVE NEEDLE 1/2 IN.
6	1	34866	(NOT SHOWN) OIL AIRTOOL COMPLETE
7	1	78264	PNEUMATIC CONDITIONING UNIT 1/2 IN LOW PRES. DROPOUT

FIGURE 15 – P/N 29998 ASSY PNEUMATIC PL2000



PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	4	11064	SCREW 3/8-16 X 3-1/2 SHCS
2	8	12648	SCREW 10-24 X 3/4 SHCS
3	1	16107	SEAL 2.250 ID X 3.000 OD X .375
4	3	16114	WASHER THRUST 2.250 ID X 3.000 OD X .060
5	2	16115	BRG THRUST 2.250 ID X 3.000 OD X .0781
6	1	16136	RING SNAP 2-1/4 OD X .078 TH
7	1	30006	COUNTERWEIGHT 28 LB PL2000
8	1	30007	ROD PUSH LOWER
9	4	30037	SCREW 3/8-24 X 1-1/4 HHCS GRADE 8
10	1	30281	GEAR RING PL2000
11	1	30307	WASHER THRUST 2.250 ID X 3.000 OD X .125
12	4	30596	SCREW 8-32 X 1/4 SSSFP BRASS TIP
13	A/R	30839	SHIM 2-1/4 ID X 3 OD X .002
		30840	SHIM 2-1/4 ID X 3 OD X .003
		30841	SHIM 2-1/4 ID X 3 OD X .010
14	4	31592	PIN DOWEL 5/16 x 1/2
15	1	32012	SCREW 10-32 X 3/8 SSSCP
16	4	33761	SCREW 3/8-24 X 1 HHCS GRADE 8
17	1	52173	ASSY SPINDLE AND HOUSING PL2000
18	1	78741	LABEL WARNING CRUSH FOOT
19	1	78742	LABEL WARNING ENTANGLEMENT OF HAND/ROTATING SHAFT GRAPHIC 1.13 TALL TRIANGLE YELLOW
20	1	81008	LABEL WEAR HEARING AND EYE PROTECTION 2 INCH ROUND

FIGURE 16 – P/N 31586 ASSY MAIN BODY 2ND PL2000



PARTS LIST			
ITEM	QTY	PART No.	DESCRIPTION
1	4	15213	SCREW 3/8-16 X 5 SHCS
2	1	15395	SCREW 10-32 X 1/4 SSSHDP
3	2	15541	SCREW 3/8-16 X 6-1/2 SHCS
4	2	15613	SCREW 3/8-16 X 6 SHCS
5	1	30055	ROD PUSH SPACER
6	1	30437	COUNTERWIGHT 41 LB
7	1	31580	SPACER 2 IN 2ND

FIGURE 17 – P/N 31590 SPACER ASSY 5-9 IN DIAMETER

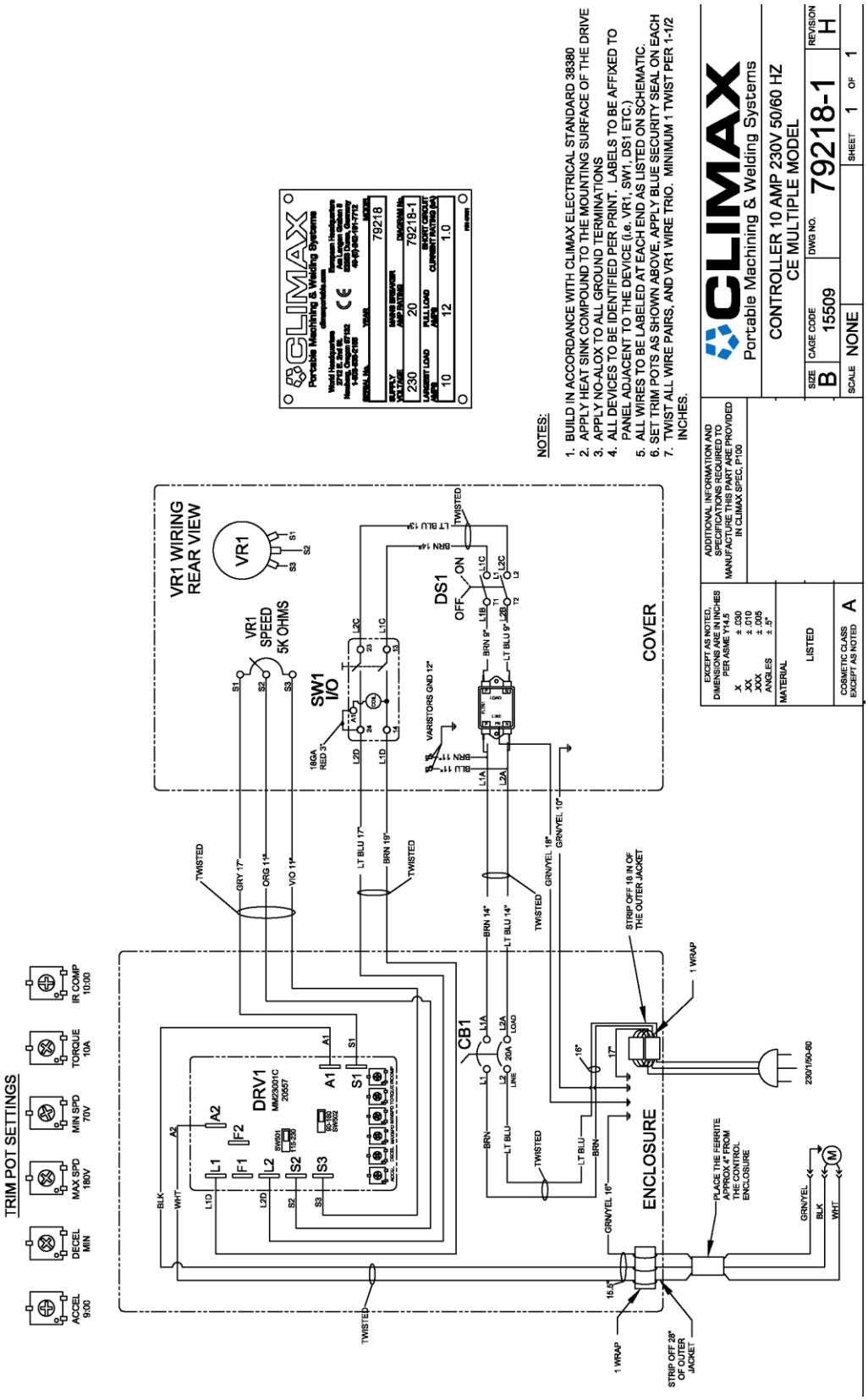


FIGURE 18 -- CONTROLLER SCHEMATIC 10 AMP 230 V 50/60 HZ CE 79218

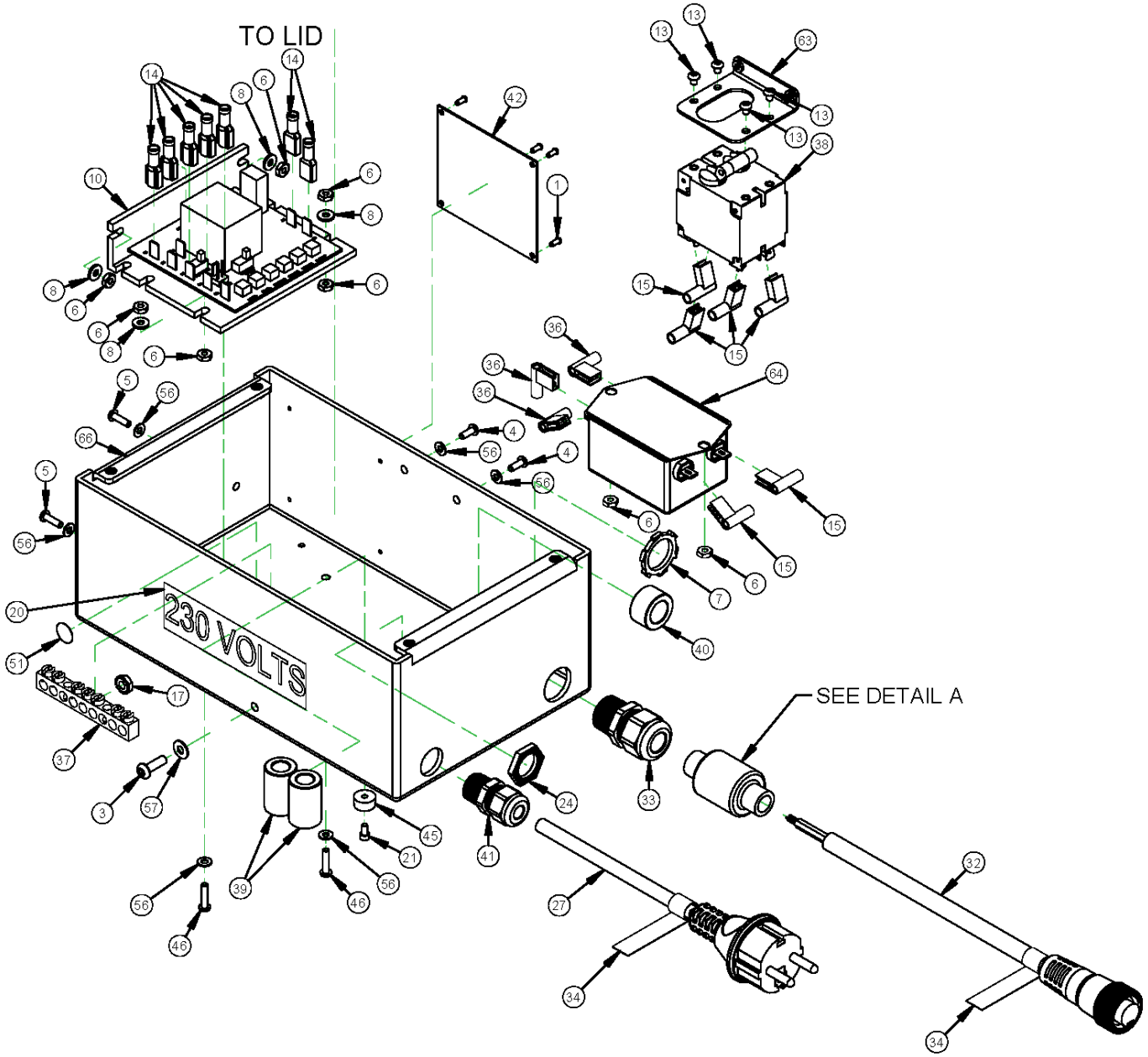


FIGURE 19 – P/N 79218 CONTROLLER 10 AMP 230 V 50/60 HZ CE

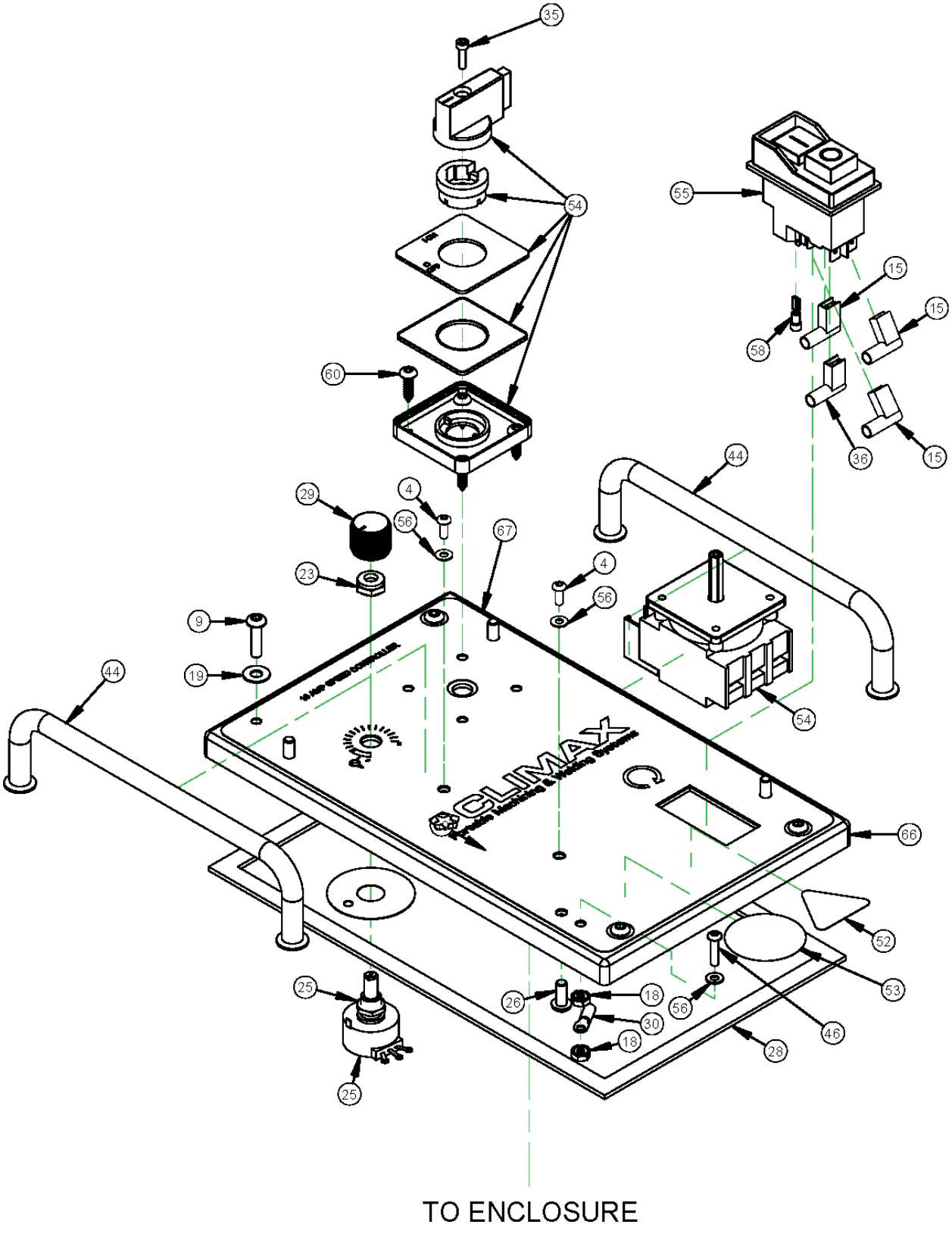
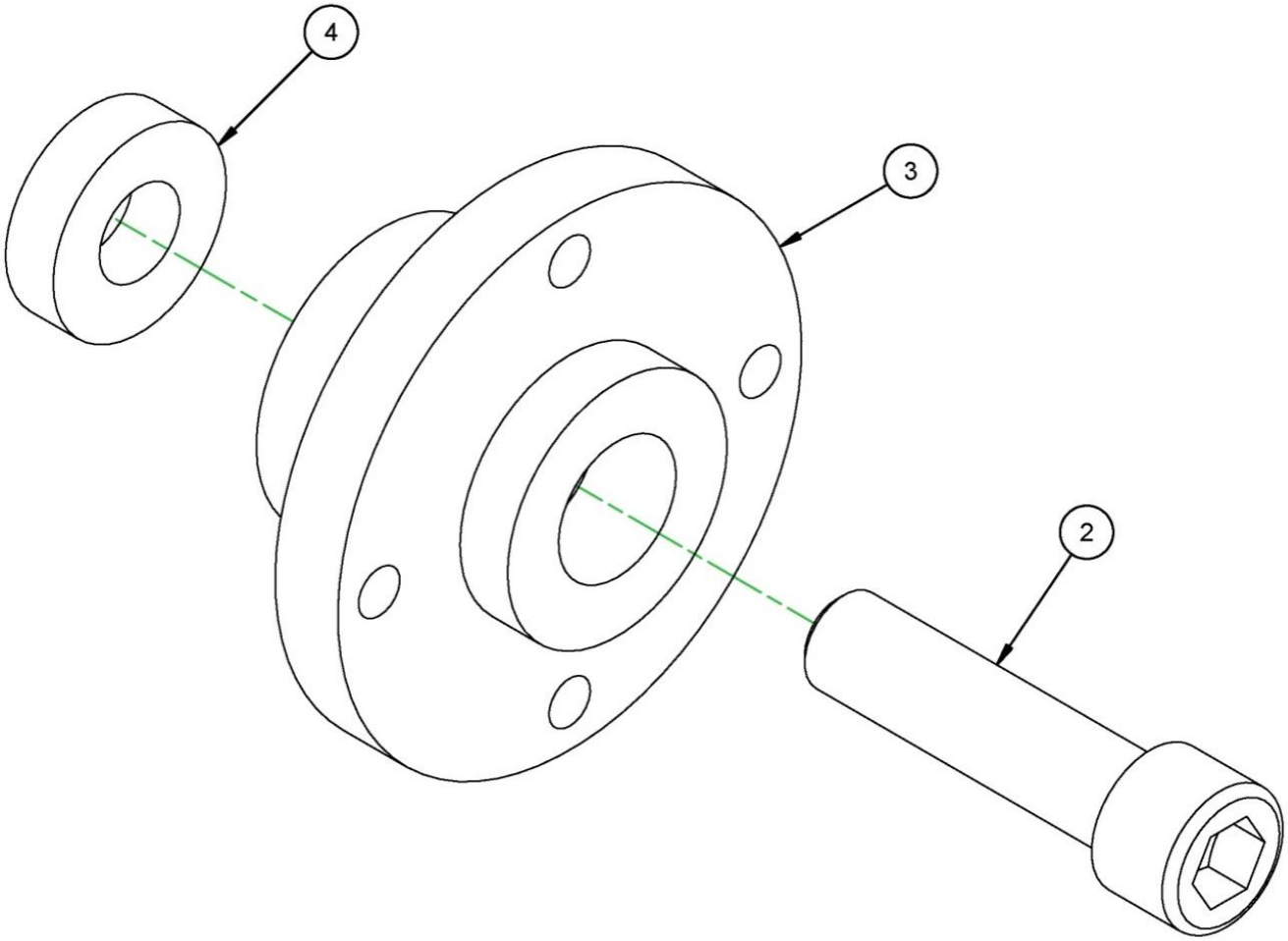


FIGURE 20 – P/N 79218 CONTROLLER 10 AMP 230 V 50/60 HZ CE MULTIPLE MODEL

PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	4	10588	SCREW DRIVE #2 x 1/4 HOLE SIZE .089
2	10	10673	(NOT SHOWN) WIRE TIE SMALL .09 X 3.5
3	1	11674	SCREW #10-32 x 5/8 BHSCS
4	4	11677	SCREW 6-32 X 3/8 BHSCS
5	2	11686	SCREW 6-32 X 1/2 BHSCS
6	8	11687	NUT 6-32 STDN ZINC PLATED
7	1	12574	CONDUIT NUT 1/2 NPT
8	4	12621	WASHER #6 FLTW SAE ZINC
9	4	18902	SCREW 10-32 X 3/4 BHSCS
10	1	20557	CONTROL SPEED SCR MM23001C
11	3	22351	(NOT SHOWN) WIRE 18 AWG 600V RED TYPE MTW
12	9	22800	(NOT SHOWN) TUBE SHRINK .125 DIA BLACK
13	4	26468	SCREW 6-32 X 3/16 BHSCS
14	7	26629	TERMINAL SPADE 16-14 AWG .250 X .032 FEMALE INSULATED
15	9	27377	TERMINAL SPADE 90DEG 16-14AWG .250 FM INSUL
16	29	27571	(NOT SHOWN) WIRE 16 AWG GRN/YEL TYPE MTW
17	1	28060	NUT, 10-32 UNF KEPS
18	2	29450	NUT 6-32 LOCKING STAR WASHER
19	4	29458	WASHER #10 FLTW NYLON .031 THICK
20	1	30081	LABEL VOLTAGE 230V (KB)
21	4	30828	SCREW 5-40 X 1/4 SHCS
22	4	32304	(NOT SHOWN) TERMINAL PIN 14-16 AWG
23	1	32926	SEAL POTENTIOMETER HEXNUT .25 SHAFT 3/8-32 TH
24	1	33099	NUT CONDUIT 3/8 STEEL
25	1	33182	POTENTIOMETER 10K LIN 1/4 SHAFT 3/8 BUSHING
26	4	34481	SCREW M5 X 0.8 X 12 mm BHSCS
27	1	34829	CORDSET CEE 7/7 STRAIGHT MOLDED PLUG 250V 16AMP 2.5M
28	34	35655	SEAL NEOPRENE SPONGE 3/8 X 5/32 ADHESIVE BACK
29	1	35766	KNOB POTENTIOMETER AL .75 DIA .25 SHAFT
30	1	35799	TERMINAL RING 22-16 #6/M3.5 STUD
31	17	36428	(NOT SHOWN) WIRE 16 AWG GRY TYPE MTW
32	1	36718	CORDSET 3-POLE 13A FEMALE CONNECTOR 144 IN
33	1	37739	CORD GRIP NONMETALLIC .17-.47 DIA X 1/2 NPT
34	2	37749	WIRE TIE VELCRO 11 LONG
35	1	37817	SCREW M3 X 0.5 X 12mm SHCS
36	4	38324	TERMINAL SPADE FEMALE 90 DEG 12-10 AWG

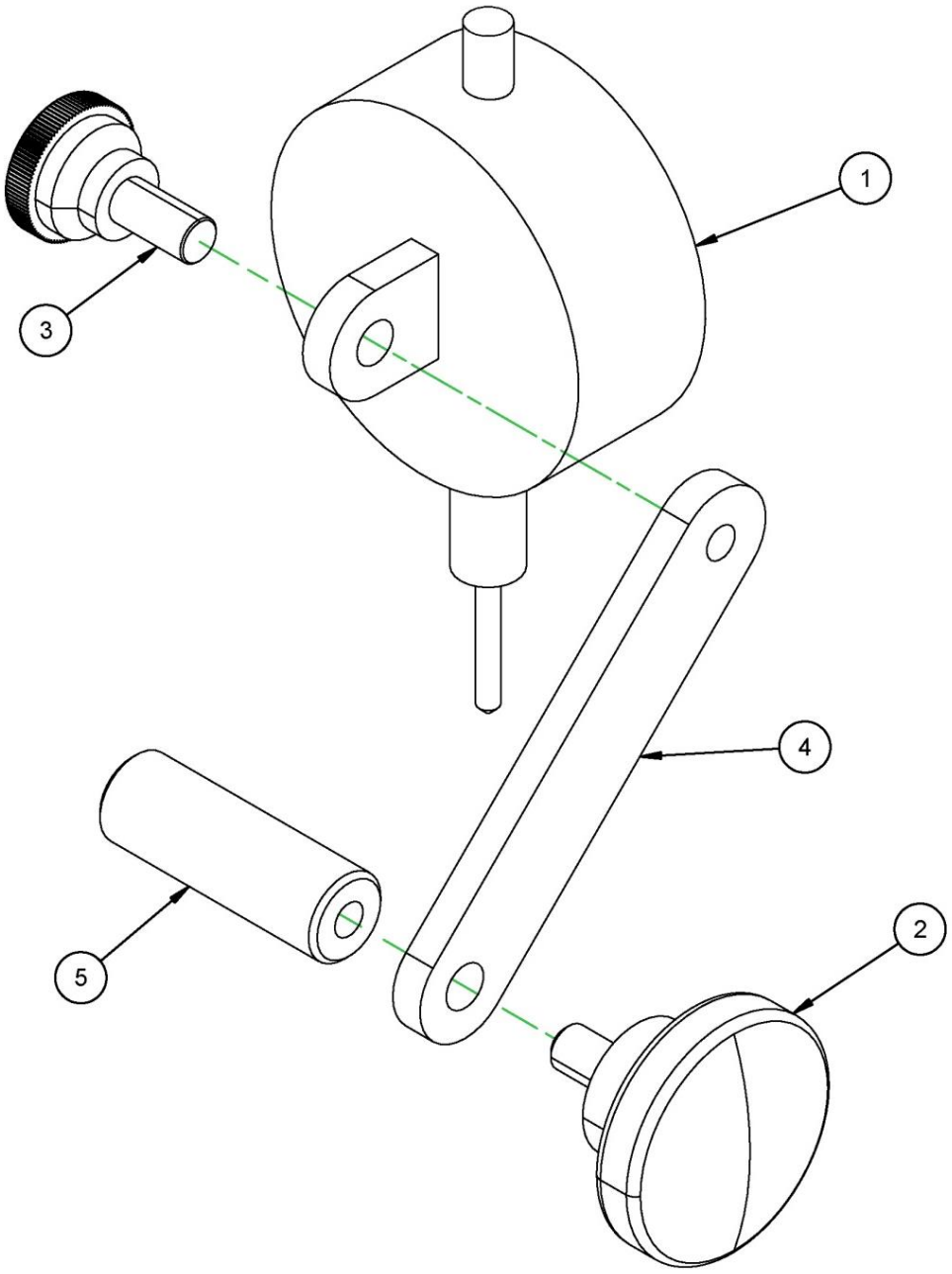
PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
37	1	38444	GROUND BUSS 7 POLE COPPER CE CERTIFIED
38	1	42798	CIRCUIT BREAKER 20 AMP DOUBLE POLE
39	2	45158	FERRITE BEAD TUBULAR .398 ID X .735 OD X 1.125 LG
40	1	45159	FERRITE BEAD TUBULAR .545 ID X .88 OD X .50
41	1	46383	CORD GRIP .105-.312 DIA 3/8 NPT
42	1	47981	NAMEPLATE ELECTRICAL CONTROL PANELS CE
43	1	48778	CHOKE FERRITE 1.02 OD X 0.505 ID X 1.125 125 OHM @25MHZ
44	2	52160	HANDLE 180MM X 43MM U-SHAPED CHROME
45	4	55771	BUMPER 1/2 OD X 1/4 TALL X 1/8 CENTER HOLE
46	3	62944	SCREW 6-32 X 5/8 BHSCS
47	3	70657	TUBING HEAT SHRINK .75 ID 2:1 SHRINK RATIO CLEAR 50 FT SPOOL
48	2	70901	TUBING HEAT SHRINK .19 ID 2:1 SHRINK RATIO
49	20	71021	(NOT SHOWN) WIRE 18 AWG BLUE TYPE MTW MIN. 600V 0.1 OD
50	2	73782	(NOT SHOWN) VARISTOR 420VAC RMS 560VDC 4.5KA PEAK CURRENT 14MM DIA
51	1	77568	LABEL PROTECTIVE EARTH 1/2" DIA
52	1	78593	LABEL WARNING - ELECTRICAL SHOCK/ELECTROCUTION 1.13" TRIANGLE
53	1	78824	LABEL WARNING - DO NOT EXPOSE TO WATER
54	1	78953	DISCONNECT SWITCH DOOR MOUNT IP55 16 AMP RED/YELLOW HANDLE
55	1	79231	SWITCH 230V LOW-VOLTAGE DROPOUT
56	9	79316	WASHER #6 NYLON .15 ID X .32 OD X .03 BLACK
57	1	79348	WASHER #10 NYLON .19 ID X .44 OD X .03 BLACK
58	1	79574	TERMINAL SPADE 22-18 AWG .110 X .032 FEMALE INSULATED RED
59	11	79605	(NOT SHOWN) HOLDER CABLE TIE 3/4 X 3/4 3/16 CABLE TIE
60	4	79643	SCREW #8 X 5/8 SHEET METAL #2 SQUARE DRIVE
61	84	79864	(NOT SHOWN) WIRE 14 AWG BRN TYPE MTW
62	81	79867	(NOT SHOWN) WIRE 14 AWG LT BLU TYPE MTW
63	1	80091	BRACKET CIRCUIT BREAKER CE SPEED CONTROLLER
64	1	80337	FILTER RFI/EMI 16AMP 120/250VAC 50/60HZ
65	2.5	81002	TUBING HEAT SHRINK 3:1 ADHESIVE 1.1 ID SHRINK TO .38 RED
66	1	82961	ENCLOSURE 230V BB3000 PL2000 CONTROLLER CE
67	1	82984	LEGEND PLATE BB3000 120/230V SPEED CONTROLLER

FIGURE 21 – P/N 79218 CONTROLLER 10 AMP 230 V 50/60 HZ CE MULTIPLE MODEL PARTS LIST



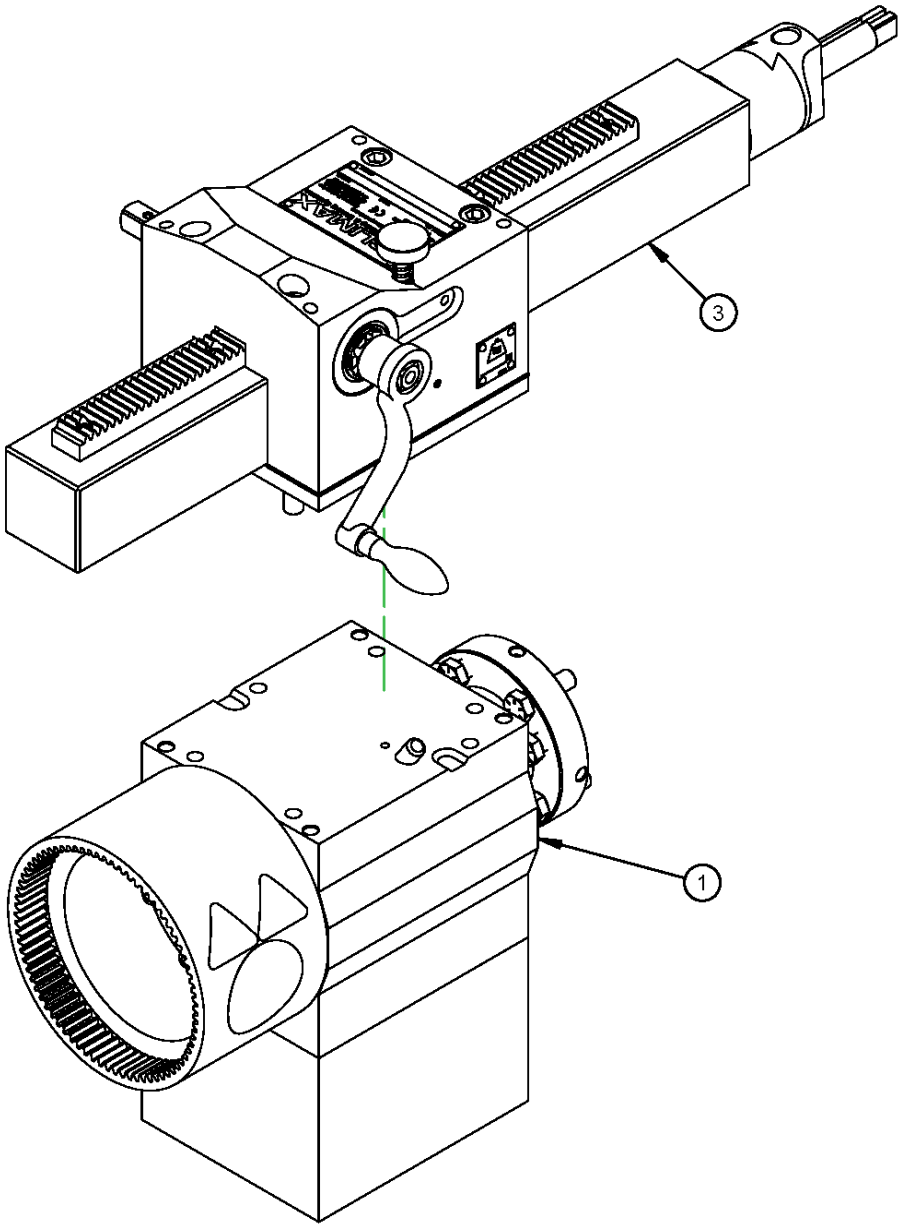
PARTS LIST			
ITEM	QTY	PART No.	DESCRIPTION
1	NS	11920	WRENCH HEX 1/2 SHORT ARM
2	1	13356	SCREW 5/8-11 X 2-1/2 SHCS
3	1	30571	ADAPTER SINGLE BOLT PL2000
4	1	31309	SPACER SINGLE BOLT ADAPTER

FIGURE 22 – P/N 30572 SINGLE BOLT ADAPTER ASSY



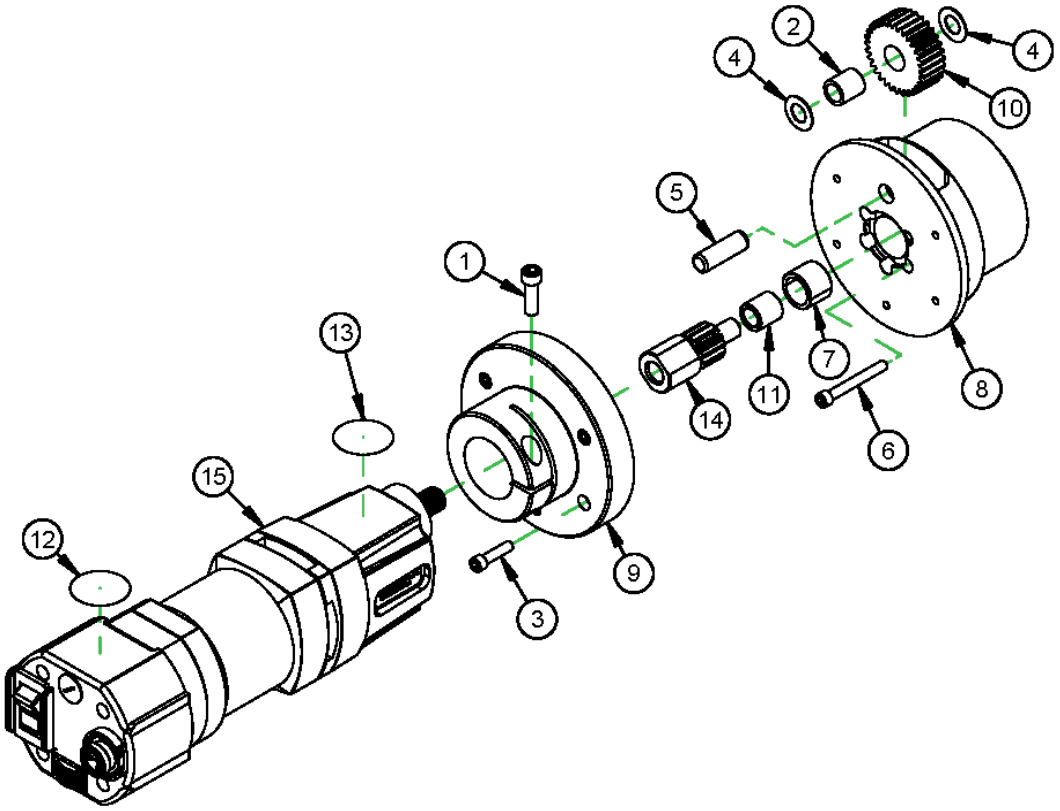
PARTS LIST			
ITEM	QTY	PART No.	DESCRIPTION
1	1	10580	INDICATOR DIAL .25 RANGE 0-50-0 .001 GRADUATION LUG MOUNT
2	1	10582	KNOB PLASTIC KNURLED
3	1	10583	KNOB PLASTIC KNURLED
4	1	10584	HOLDER DIAL INDICATOR
5	1	30621	STUD DIAL INDICATOR

FIGURE 23 – P/N 30407 INDICATOR ASSY PL2000



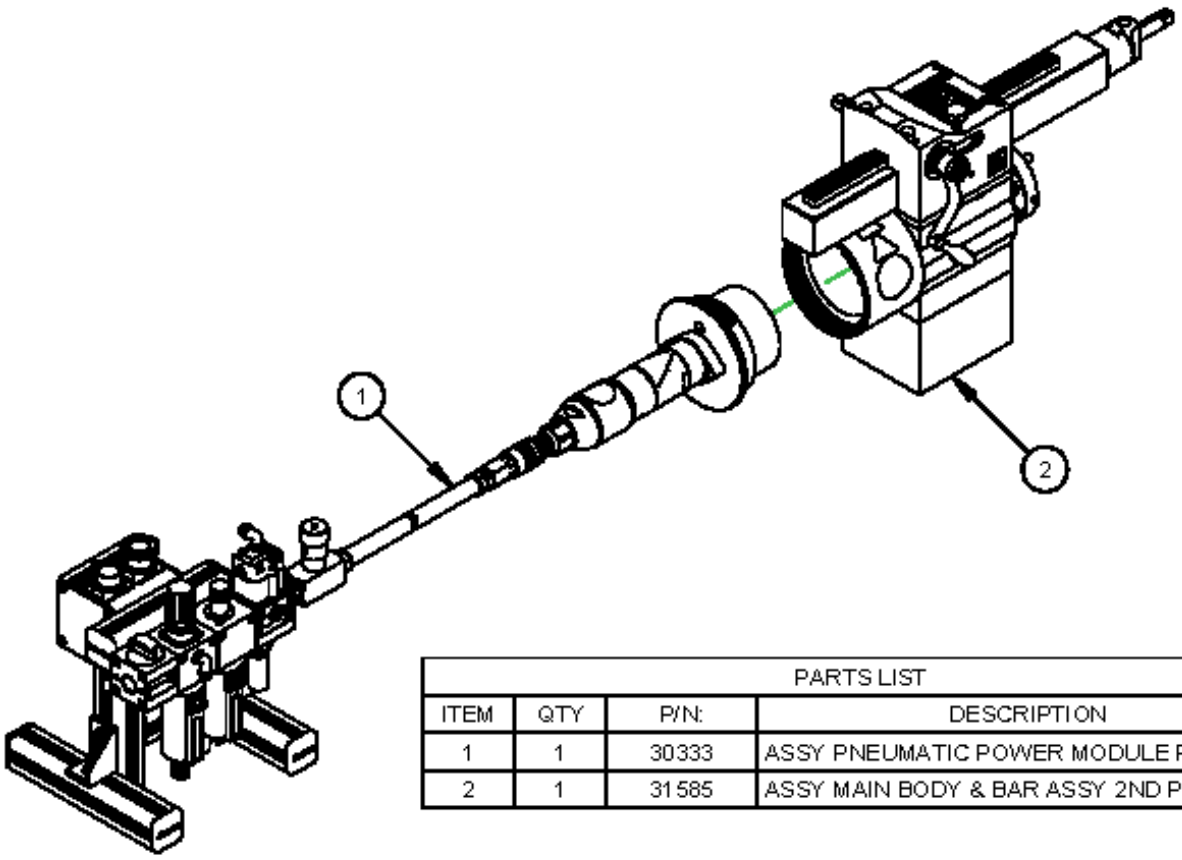
PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	1	31586	ASSY MAIN BODY 2ND PL2000
2	1	31587	KIT TOOL PL2000 2ND (NOT SHOWN)
3	1	31594	BAR TURNING SUPPORT FEED ASSY 2ND

FIGURE 24 – P/N 31585 ASSY MAIN BODY & BAR ASSY 2ND PL2000



PARTS LIST		
ITEM	PART No.	DESCRIPTION
1	10431	SCREW 5/16-18 X 1 SHCS
2	10434	BRG NEEDLE 1/2 ID X 11/16 OD X .75 OPEN
3	11118	SCREW 1/4-20 X 1 SHCS
4	11736	WASHER THRUST .500 ID X .937 OD X .030
5	11832	PIN DOWEL 1/2 DIA X 1-1/2
6	12444	SCREW 1/4-20 X 2 SHCS
7	14239	BRG NEEDLE 3/4 ID X 1 OD X .75 OPEN
8	30302	HOUSING PLANETARY ELECTRIC
9	30303	MOUNT MOTOR ELECTRIC
10	30305	GEAR IDLER ELECTRIC 16DP 31TEETH 20PA X .75
11	30408	BRG RACE .500 ID X .750 OD X .780
NS	36549	CONTROL SPEED ASSY KM3000 120V 4TH GEN DOM (NOT SHOWN)
	79218	CONTROLLER BB3000 230V 50/60 HZ CE (NOT SHOWN)
12	59044	LABEL WARNING - CONSULT OPERATOR'S MANUAL
13	78824	LABEL WARNING - DO NOT EXPOSE TO WATER
14	79809	GEAR PINION ELECTRIC PL2000
15	81584	MOTOR MODIFIED 230V 1050W X 780 RPM REVERSIBLE PL2000
	81585	MOTOR MODIFIED 120V 1050W X 780 RPM REVERSIBLE PL2000

FIGURE 25 – P/N 30309 DRIVE ROTATIONAL PL2000 ELECTRIC 120V AND P/N 30816 DRIVE ROTATIONAL PL2000 230V



PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	1	30333	ASSY PNEUMATIC POWER MODULE PL2000
2	1	31585	ASSY MAIN BODY & BAR ASSY 2ND PL2000

31584 - MODEL PL2000 PORTABLE LATHE AIR 2ND

FIGURE 26 – P/N 31584 MODEL PL2000 PORTABLE LATE AIR 2ND

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APPENDIX A MSDS

Contact CLIMAX for current safety data sheets.

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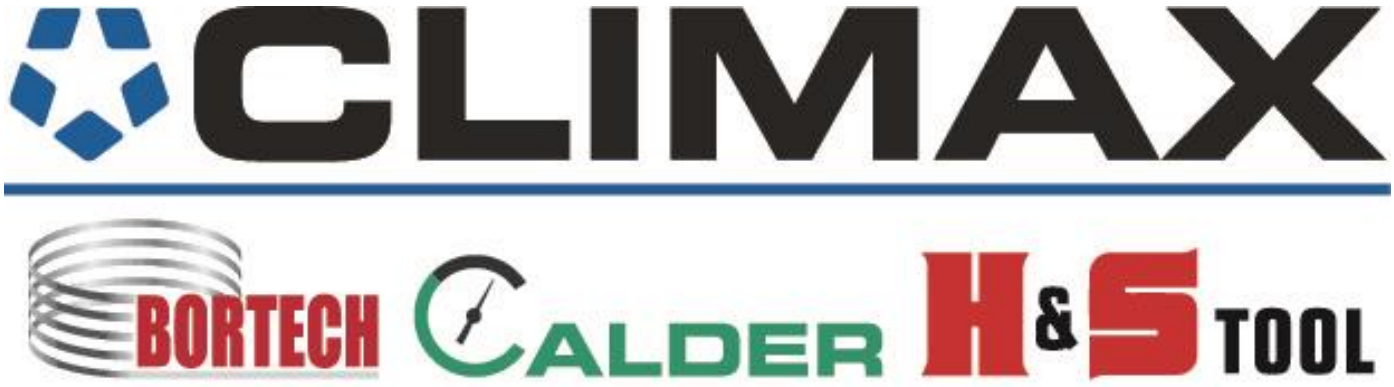
CLIMAX
BORTECH
CALDER
H&S TOOL