



Operating Instructions and Parts Manual

Variable Speed Drill Press

Model DP-1500VS



Baileigh Industrial
P.O. Box 531
Manitowoc, WI 54221-0531
Ph.: 920-684-4990
Fax: 920-684-3944
Baileigh-Sales@jpwindustries.com

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2.0 Safety Instructions

⚠ WARNING

Failure to follow these rules may result in serious personal injury

1. FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE. Learn the machine's application and limitations as well as the specific hazards.
2. Only trained and qualified personnel can operate this machine.
3. Make sure guards are in place and in proper working order before operating machinery.
4. Remove any adjusting tools. Before operating the machine, make sure any adjusting tools have been removed.
5. Keep work area clean. Cluttered areas invite injuries.
6. Overloading machine. By overloading the machine, you may cause injury from flying parts. DO NOT exceed the specified machine capacities.
7. Dressing material edges. Always chamfer and deburr all sharp edges.
8. Do not force tool. Your machine will do a better and safer job if used as intended. DO NOT use inappropriate attachments in an attempt to exceed the machine's rated capacity.
9. Use the right tool for the job. DO NOT attempt to force a small tool or attachment to do the work of a large industrial tool. DO NOT use a tool for a purpose for which it was not intended.
10. Dress appropriately. DO NOT wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
11. Use eye protection. Always wear ISO approved protective eye wear when operating machinery. Wear a full-face shield if you are producing metal filings. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specification. Use of eye wear which does not comply with ANSI Z87.1 specification could result in severe injury from breakage of eye protection.
12. Do not overreach. Maintain proper footing and balance at all times. DO NOT reach over or across a running machine.
13. Stay alert. Watch what you are doing and use common sense. DO NOT operate any tool or machine when you are tired.
14. Check for damaged parts. Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
15. Observe work area conditions. DO NOT use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted. DO NOT use electrically powered tools in the presence of flammable gases or liquids.
16. Keep children away. Children must never be allowed in the work area. DO NOT let them handle machines, tools, or extension cords.
17. Keep visitors a safe distance from the work area.
18. Store idle equipment. When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.
19. DO NOT operate machine if under the influence of alcohol or drugs. Read warning labels on prescriptions. If there is any doubt, DO NOT operate the machine.
20. Turn off power before checking, cleaning, or replacing any parts.
21. Be sure all equipment is properly installed and grounded according to national, state, and local codes.
22. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. Bare wiring can kill! DO NOT touch live electrical components or parts.
23. DO NOT bypass or defeat any safety interlock systems.

2.1 Additional Safety Precautions

- Turn off main power to the machine and wait for the drill bit, or cutting tool to stop turning before removing debris, removing or securing the piece part, or changing the position of the work table.
- Never expose your hands or limbs to the cutting area while the machine is operating.
- When the machine is NOT in use, the drill bit or tool should NOT be rotating.
- Never leave the machine running while unattended. Turn the power OFF. Do not leave the machine until the spindle comes to a complete stop.

- Hold the piece part firmly against the table. DO NOT attempt to drill a piece part that does not have a flat surface against the table, or that is not secured by a vise. Prevent the piece part from rotating by clamping it to the table or by securing it against the drill press column.
- Never start the machine before clearing the table of all objects (tools, scrap pieces, etc.)
- Properly lock the drill bit, cutting tool, or sanding drum in the chuck before operating the machine.
- Check safety equipment, such as safety covers, emergency stop buttons, safety mats, railings, light booms, ramps, and warning signs.
- Make sure electrical cables are well protected from damage. Check insulation periodically for wear.
- Never use the drill press without the swing-away safety guard.
- Make sure the actuator of the limit switch is seated in the detent of the round pad or the machine will not run.
- Do not remove any warning signs.



Figure 2-1

Familiarize yourself with the following safety notices used in this manual:

- CAUTION** This means that if precautions are not heeded, it may result in minor injury and/or machine damage.
- WARNING** This means that if precautions are not heeded, it may result in serious injury or death.
- DANGER** This means that if precautions are not heeded, it will result in serious or fatal, injury.

Save the Instructions

3.0 About This Manual

This manual is provided by Baileigh Industrial, covering the safe operation and maintenance procedures for a Baileigh Model DP-1500VS Variable Speed Drill Press. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. Your machine has been designed and constructed to provide consistent, long-term operation if used in accordance with the instructions as set forth in this document.

Technical Support handles questions on setup, operation, schematics, warranty issues, and individual parts needed. Our Technical Support department can be reached at 920-684-4990.

If there are questions or comments, please contact your local supplier or Baileigh Industrial. We can also be reached at our web site: www.baileigh.com.

Retain this manual for future reference. If the machine transfers ownership, the manual should accompany it.

WARNING

Read and understand the entire contents of this manual before attempting assembly or operation! Failure to comply may cause serious injury!

Register your product online -

<https://baileigh.com/product-registration>



4.0 Product Identification

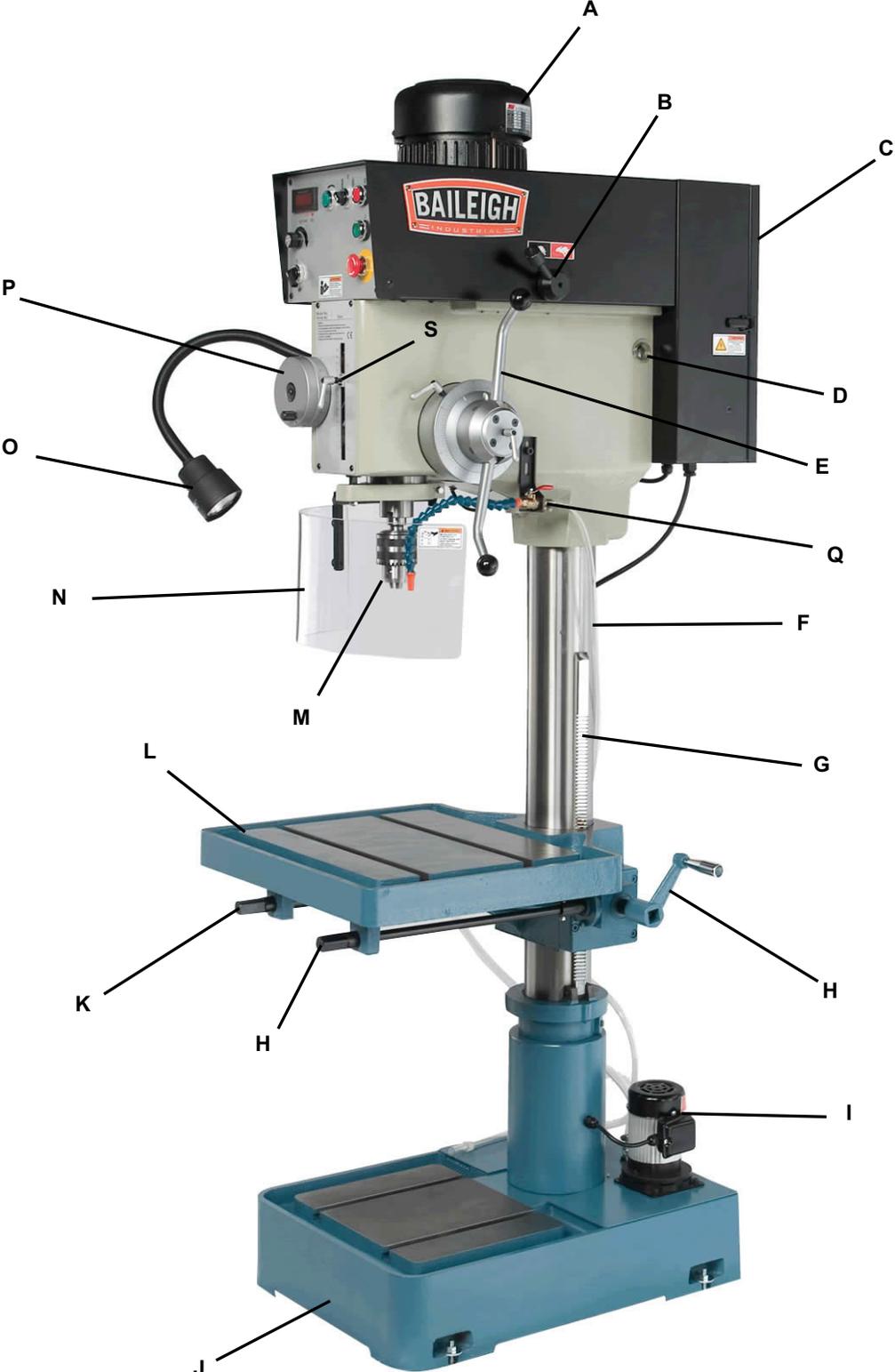


Figure 4-1

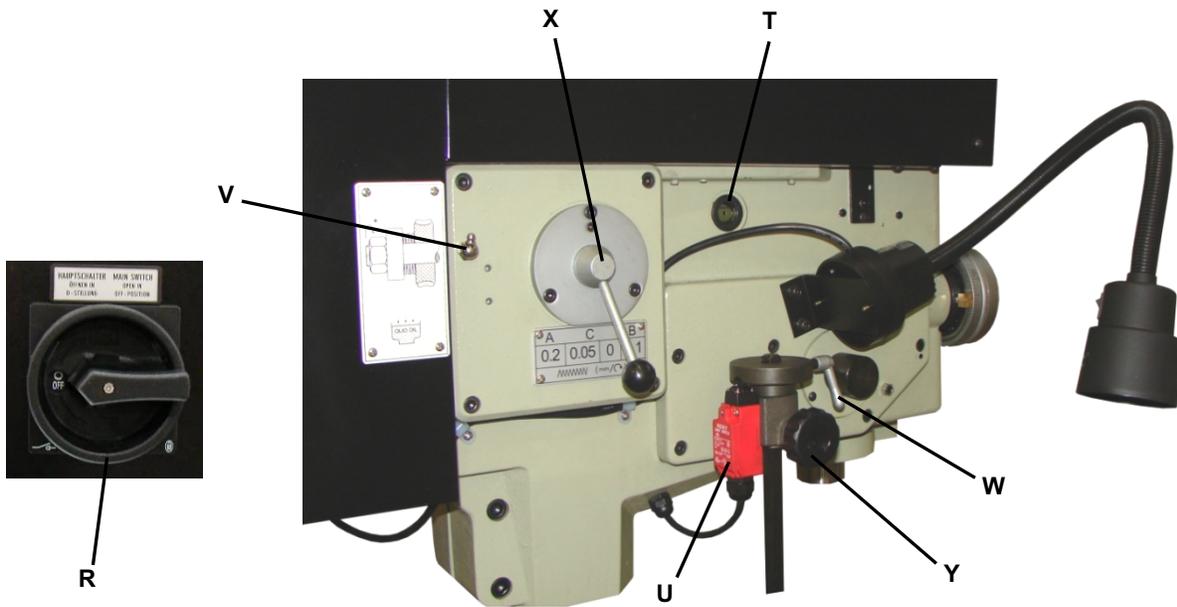


Figure 4-2

Tabel 4-1

Item	Description	Function
A	Motor	Provides power to the chuck.
B	2-Speed Hi-Lo	Changes spindle speed RPM. DO NOT change spindle RPM until the spindle has stopped completely.
C	Electrical Enclosure	Houses the electrical components.
D	View Port	Used to see that the rear worm shaft has grease.
E	Down-Feed Handle	Changes down-feed from Auto to Manual.
F	Column	Supports the table and head.
G	Gear Rack	Engages the table for height adjustment.
H	Handle	Table height adjustment at two locations.
I	Coolant Pump	Pumps coolant up to the chuck.
J	Base	Support for drill press and coolant reservoir.
K	Work Table Lock	Secures table when pivoting on column.
L	Work Table	Adjustable table with T-slots.
M	Chuck	Holds various tooling for drilling and tapping.
N	Safety Guard	Adjustable guard with limit switch shut-off.
O	Work Light	Provides adequate lighting for work area.
P	Micro-Feed Hand Wheel	Allows for precise movement of the drill tool.
Q	Coolant Shut-Off Valve	Controls volume of coolant.
R	Main Power Disconnect	Turns main power ON-OFF to the drill press.
S	Depth Scale	Use for setting the depth in manual mode.
T	Oil Level Gauge	Shows current level of gear oil.

Item	Description	Function
U	Limit Switch	Stops machine when guard is swung away.
V	Grease Fitting	Use to grease the rear worm shaft.
W	Guard Knob	Use to hold guard after pivoting sideways.
X	Automatic Down Feed	Select from 3 speeds for automatic down feed.
Y	Guard Adjustment Knob	Change guard height and lock with knob.

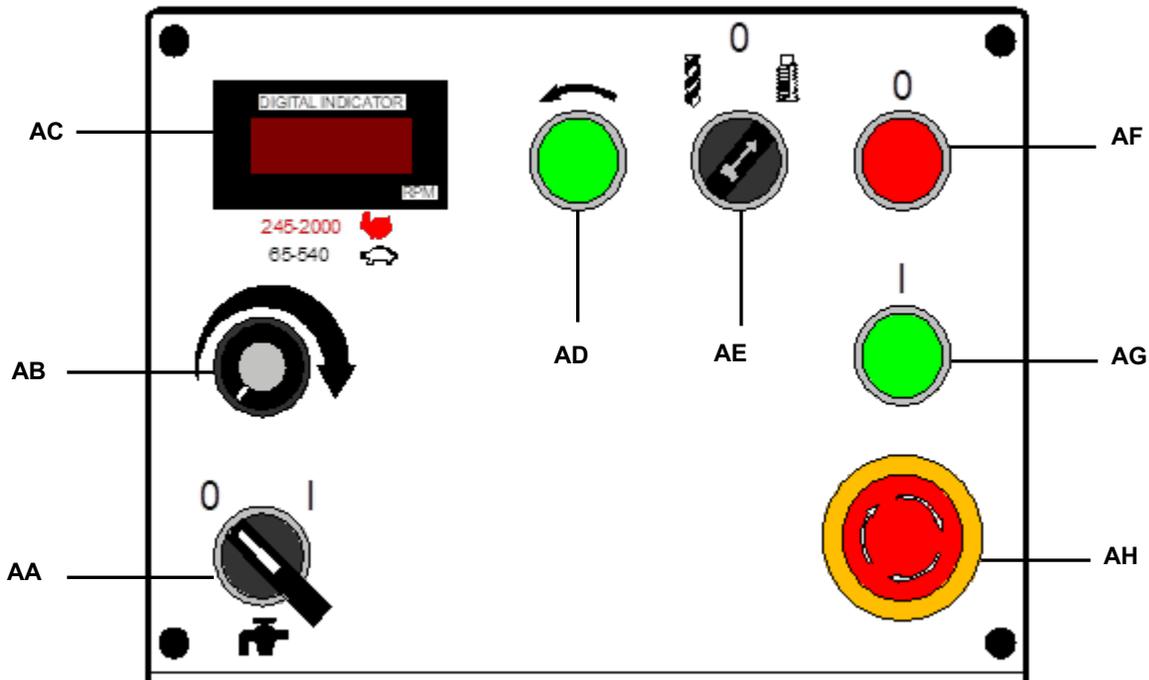


Figure 4-3

Table 4-2

Item	Description	Function
AA	Coolant Pump On/Off Switch	Starts the coolant flow for cutting.
AB	Spindle Speed Knob	Changes the speed of spindle rotation.
AC	Digital Indicator	Displays the rate of spindle rotation in RPM.
AD	Reverse Button	Reverses the spindle rotation for tapping only.
AE	Drilling / Tapping Selector Switch	Selects the mode of operation: drilling or tapping.
AF	Stop Button	Stops the spindle motor.
AG	Start Button	Starts the spindle motor. A 10 sec. wait is required before a machine restart or the machine will not start.
AH	Emergency Stop Button	Stops all machine functions. Turn the switch clockwise (cw) to reset the switch.

4.1 High / Low Gear Selector

A gear transmission lever that selects Hi or Low speeds.

IMPORTANT: Use only while the machine is stopped. Failure to do so will cause damage to the gear system.



Figure 4-4

4.2 Drill Head

The Drill Head attaches to the top of the column. It houses the motor, spindle, controls, and transfer mechanisms. Attached to it is the electrical enclosure, the protective guard, the work light, and the coolant valve with nozzle.



Figure 4-5

4.3 Worktable

The sturdy worktable can be positioned at varying heights and rotated 180° in either direction. It has T-slots to allow the use of 1/2" or M14 bolts. Below the worktable are three crankshafts. The two crankshafts (H) control the up /down motion of the table. Always unlock the table with crankshaft (K) before changing the height or rotating it. Then lock the worktable to secure in position. The one handle works for all three crankshafts.

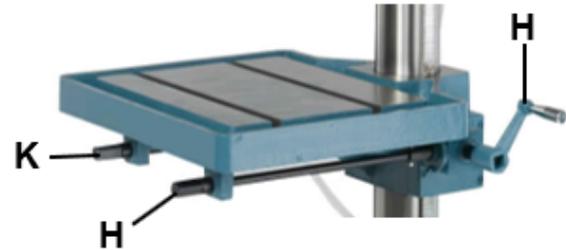


Figure 4-6

4.4 Machine Base

The machine base houses the coolant reservoir and supports the coolant pump (I). The coolant is pumped up to a nozzle where a valve controls the flow onto the tool. The coolant / lubricant enters the table drain and flows back to the reservoir.



Figure 4-7

4.5 Overall Dimension

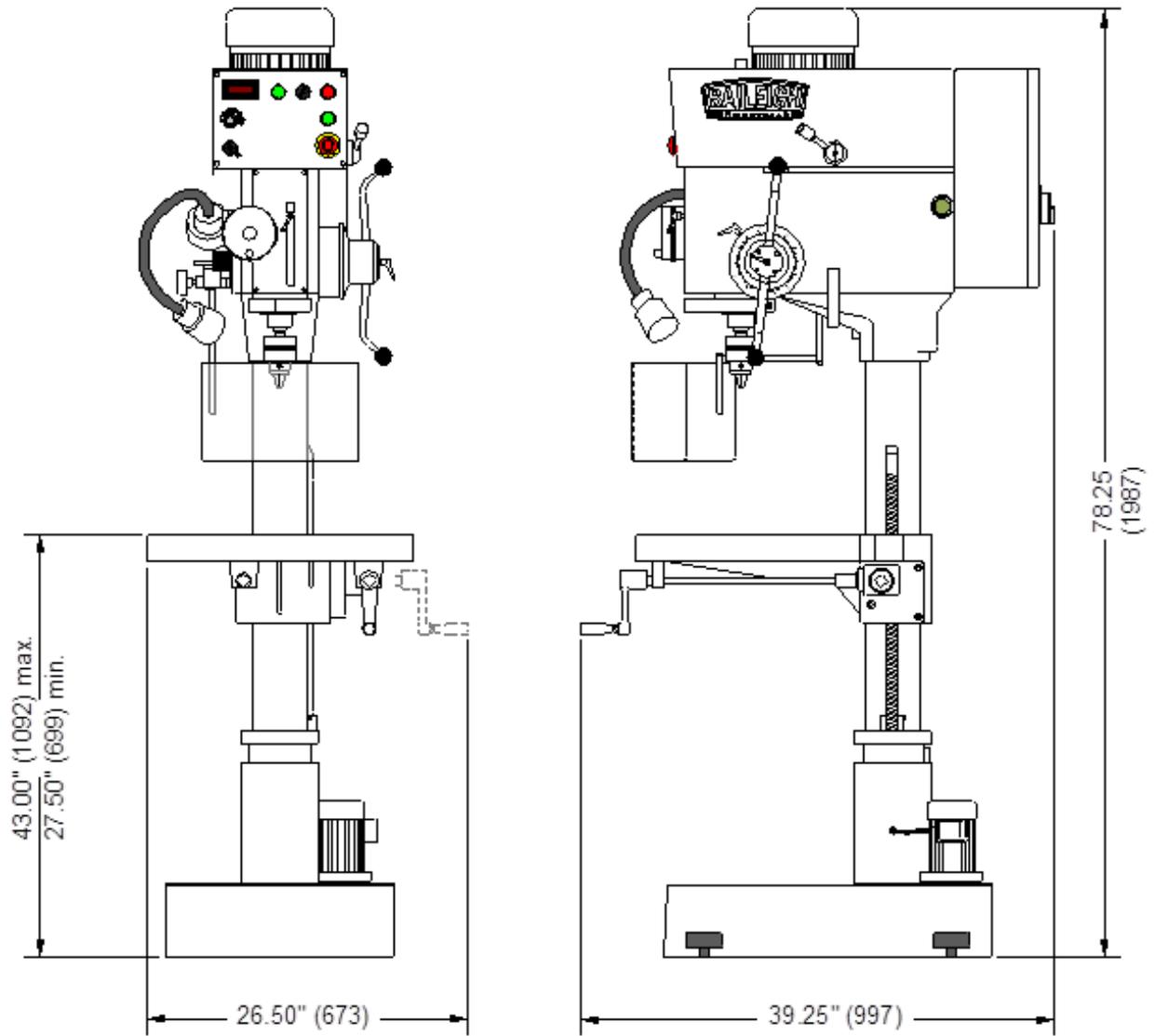


Figure 4-8

5.0 Specifications

Table 5-1

Model number	DP-1500VS
Stock Number	BA9-1002923
Motor and Electricals	
Power Input Requirements	220V, 1Ph, 60Hz
Motor Type	TEFC Induction
Motor Power	2HP (1.5kW), 220V, 3ph, 60Hz, 10A, 1720RPM
Inverter	M-Type
Power Cable	14awg, 6 Ft
Power Plug	Not included
Recommended Circuit and Fuse/Breaker Size	20A
Sound Emission Without Load	70db
Coolant Pump	1/8HP, 220V 1ph, 60Hz, 0.5A
Capacities	
Drilling Capacity, Cast Iron	1.5" (38.1mm)
Drilling Capacity, Mild Steel	1.25" (31.75mm)
Tapping Capacity, Cast Iron	.9375" (23.8mm)
Tapping Capacity, Mild Steel	.75" (19.05mm)
Spindle to Table Maximum Distance	22.75" (578mm)
Spindle to Base Maximum Distance	40.75" (1035mm)
Spindle to Column Maximum Distance	10.4375" (265.1mm)
Coolant Capacity	2.5 Gal. (9.5L)
Spindle	
Spindle Taper	MT-4
Spindle Speed, Low Range	Variable, 65 – 540 rpm
Spindle Speed, High Range	Variable, 245 – 2000 rpm
Spindle Travel	5.9" (150mm)
Quill Feed (3 speeds)	0.0078"/rpm, 0.004 rpm, 0.002"/rpm (0.198mm/rpm, 0.101mmrpm, 0.050mm/rpm)
Rotation	Fwd/Rev (Rev = Tapping Only)
Table and Column	
Table Size	22" x 18.75" (559 x 476mm)
Table Working Surface	18.125" x 14.25" (460 x 375mm)

Table Travel	
Without Rack Adjustment	15" (381mm)
Maximum Travel with Rack Adjustment	20" (508mm)
T-Slot Number	2
T-Slot Size	.625" [5/8"] (15.857mm)
T-Slot Centers	7.4375" (188.1mm)
Table Weight Capacity	154lbs (70kg)
Column Diameter	4.52" (115mm)
Base	
Base Size	27" x 19" (686 x 483mm)
Base Working Surface	14-3/4 X 11-13/16 In. (375 X 300mm)
T-Slot Number	2
T-Slot Size	.625" [5/8"] (15.857mm)
Main Materials	
Head	Cast Iron, Steel Cover
Table and Base	Cast Iron
Spindle and Quill	Steel
Column	Steel
Dimensions	
Assembled Machine Dimensions (L x W x H)	30.3" x 26.5" x 71.4" (973 x 673 x 1814mm)
Shipping Crate Dimensions (L x W x H)	60" x 44" x 82" (1524 x 1118 x 2083mm)
Weights	
Net Weight	686lbs (311kg)
Shipping Weight	847lbs (385kg)

⚠ WARNING

Read and understand the entire contents of this manual before attempting assembly or operation. Failure to comply may cause serious injury.

6.0 Setup and Assembly

6.1 Unpacking and Checking Contents

Your Baileigh machine is shipped complete. Separate all parts from the packing material and check each item carefully. Make certain all items are accounted for before discarding any packing material.

⚠ WARNING

SUFFOCATION HAZARD! Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.

⚠ WARNING

If any parts are missing, **DO NOT** place the machine into service until the missing parts are obtained and installed correctly.

6.2 Cleaning

⚠ WARNING

DO NOT USE gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

⚠ CAUTION

When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.

Your machine may be shipped with a rustproof waxy coating and/or grease on the exposed unpainted metal surfaces. Fully and completely remove this protective coating using a degreaser or solvent cleaner. Moving items will need to be moved along their travel path to allow for cleaning the entire surface. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.

Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.

IMPORTANT: This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.

6.3 Transporting and Lifting

NOTICE

Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.

Follow these guidelines when lifting with truck or trolley:

- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a forklift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- Remove the securing bolts that attach the machine to the pallet.
- Approaching the machine from the side, lift the machine on the frame taking care that there are no cables or pipes in the area of the forks.
- Move the machine to the required position and lower gently to the floor.
- Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.

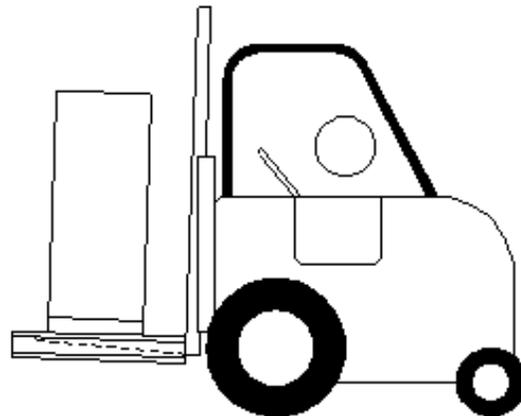


Figure 6-1

Follow these guidelines when lifting crane or hoist:

- Always lift and carry the machine with the lifting straps around the head of the machine.
- Take proper precautions for handling and lifting. Remove the coolant valve bracket from the head to avoid damaging it. **DO NOT** let the lift strap damage the guard limit switch or guard support bracket.

- Check to see that the machine head is secured to the column using a 10mm hex wrench on bolts (A).

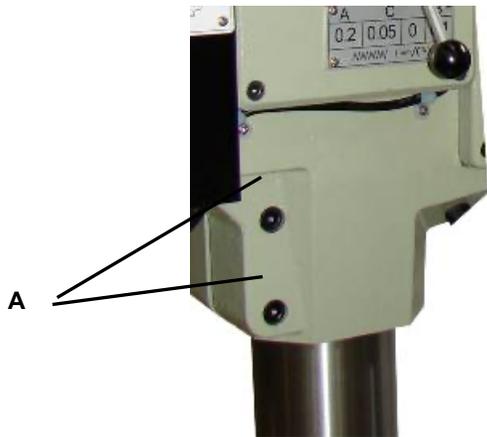


Figure 6-2

CAUTION

Failure to lock the machine head to the column may result in personal injury or machine damage.

- Use lift equipment such as straps, chains, capable of lifting 1.5 to 2 times the weight of the machine.
- Take proper precautions for handling and lifting.
- Check if the load is properly balanced by lifting it an inch or two.
- Lift the machine, avoiding sudden accelerations or quick changes of direction.
- Locate the machine where it is to be installed, and lower slowly until it touches the floor.

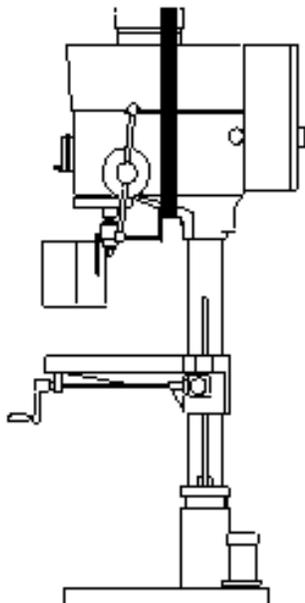


Figure 6-3

6.4 Installation

IMPORTANT:

Consider the following when looking for a suitable location to place the machine:

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.
- **LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor can support the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.
- **POWER SUPPLY PLACEMENT:** The power supply should be located close enough to the machine so that the power cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

6.4.1 Anchoring the Machine

- Once positioned, anchor the machine to the floor, as shown in the diagram, using bolts and expansion plugs or sunken tie rods that connect through holes in the base of the stand.

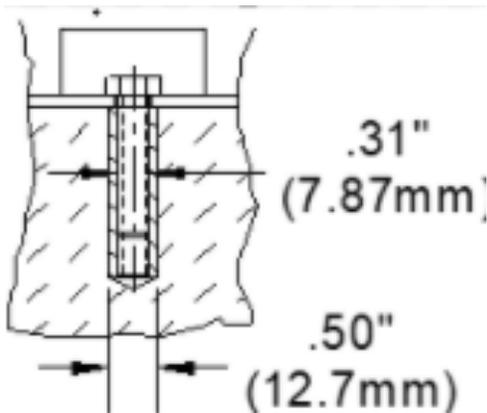


Figure 6-4

7.0 Electrical Connection

⚠ CAUTION

HAVE ELECTRICAL UTILITIES CONNECTED TO MACHINE BY A CERTIFIED ELECTRICIAN!

Check if the available power supply is the same as listed on the machine nameplate.

⚠ WARNING

Make sure the grounding wire (green) is properly connected to avoid electric shock. **DO NOT** switch the position of the green grounding wire if any electrical plug wires are switched during hookup.

7.1 Power Specifications

Your machine is wired for 220 volts, 60hz alternating current. Before connecting the machine to the power source, make sure the power source is OFF.

Before switching on the power, you must check the voltage and frequency of the power to see if they meet with the requirement, the allowed range for the voltage is $\pm 5\%$, and for the frequency is $\pm 1\%$.

7.2 Considerations

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with an amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your machines. Before connecting the motor to the power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as indicated on the machine.
- All line connections should make good contact. Running on low voltage will damage the motor.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric

shock. This machine is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ WARNING

In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the machine is properly grounded.
- Repair or replace damaged or worn cord immediately.

7.3 Extension Cord Safety

Extension cord should be in good condition and meet the minimum wire gauge requirements listed below:

Table 7-1

Amp Rating	Length		
	25ft	50ft	100ft
1-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No
Wire Gauge			

An undersized cord decreases line voltage, causing loss of power and overheating. All cords should use a ground wire and plug pin. Replace any damaged cords immediately.

7.4 Power Cord Connection

1. Turn the main disconnect switch on the control panel to the OFF position.

2. Unwrap the power cord and route the cord away from the machine toward the power supply.
 - a. Route the power cord so that it will NOT become entangled in the machine in any way.
 - b. Route the cord to the power supply in a way that does NOT create a trip hazard.
3. Connect the power cord to the power supply and check that the power cord has not been damaged during installation.
4. When the machine is clear of any obstruction. The main power switch may be turn ON to test the operation.
5. Turn the switch OFF when the machine is not in operation.

8.0 Adjustments

8.1 Adjusting the Machine Head Height

⚠ WARNING

Failure to lock the collar can result in personal injury or damage to the machine.

The machine head is lowered for shipping and must be raised before operating.

1. Unlock the table by turning crankshaft (K) counterclockwise (ccw).

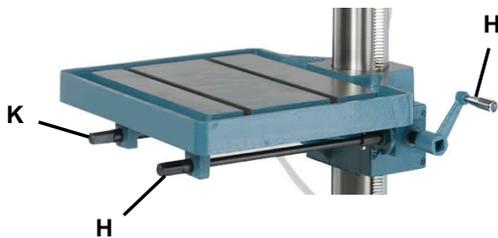


Figure 8-1

2. Place a piece of wood between the table and the machine head. (DO NOT place the wood under the collar (AJ)).
3. Raise the table just enough to hold the block of wood in place.
4. Loosen the two bolts (Z) on the machine head counterclockwise (ccw) with a socket wrench.
5. Turning either crankshaft (H) clockwise (cw) will raise the head.
6. STOP when the top of the machine head is flush with the top of the column. DO NOT allow the column to be below the top of the head.
7. Using the wrench, securely lock the two bolts (Z).

8. Now loosen the two setscrews on collar, slide the collar up to the machine head, and tighten the setscrews.
9. Once the machine head is safely secured, remove the block of wood.
10. To lower the head, reverse the above steps.

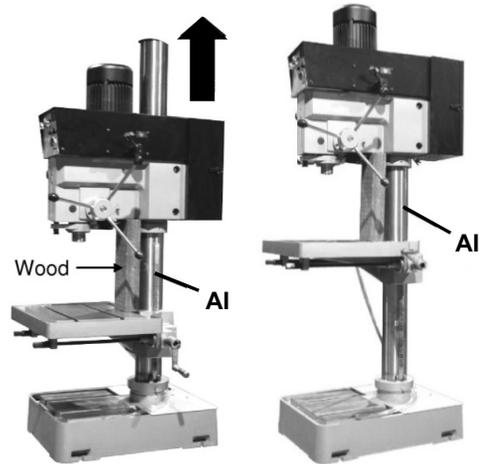


Figure 8-2



Figure 8-3

8.2 Adjusting the Gear Rack Height

⚠ WARNING

Failure to lock the collar can result in personal injury or damage to the machine.

To raise the table to an adequate working height requires raising of the column gear rack.

1. Lock the table by turning crankshaft (K) clockwise (cw).
2. Unlock column bearing (AK) by loosening the two setscrews.
3. Raise the gear rack (G) by turning crankshaft (H) counterclockwise (ccw).

4. Lock column bearing (AK) by tightening the two setscrews.
5. After unlocking, the table can now be raised or lowered for normal operation.

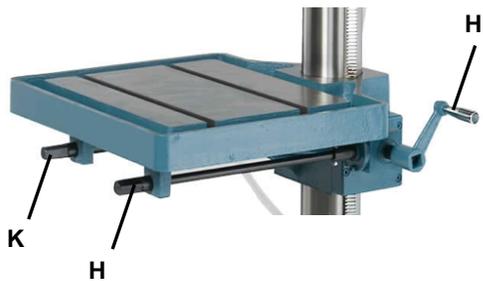


Figure 8-4

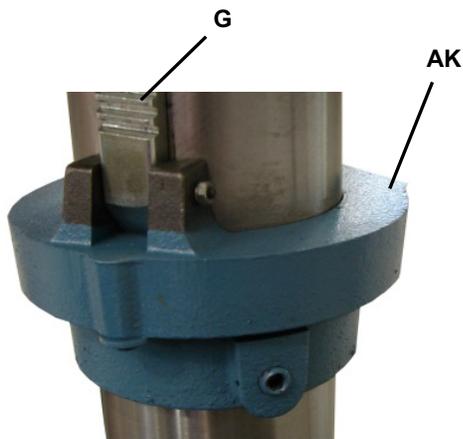


Figure 8-5

9.0 Operation Setup and Description

CAUTION

Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges.

9.1 Changing the Spindle Speed

1. Change speed ranges with the Hi/Low gear selector lever (B).

IMPORTANT: Use only while the machine is stopped. Failure to do so will cause damage to the gear system.



Figure 9-1

2. The spindle speed can now be adjusted to the proper drilling RPM by using the spindle speed knob (AB).
3. The spindle has two speed ranges: HI – (245 – 2000 rpm) and LOW – (65 – 540 rpm.)

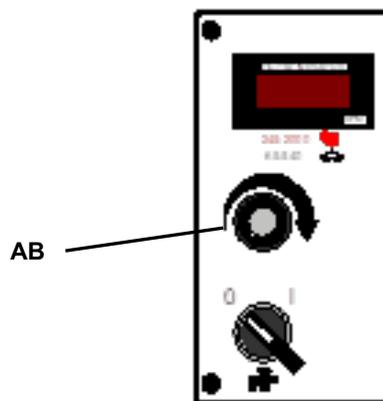


Figure 9-2

9.2 Speed Chart

When the diameter of the tool is more than .78" (20mm) and the material is hard, the recommendation is to choose low RPM and to slow down the spindle down-feed. This is for both operator safety and to extend machine life. If the diameter is below .78" (20mm) use the chart to select the required RPM and rate of feed.

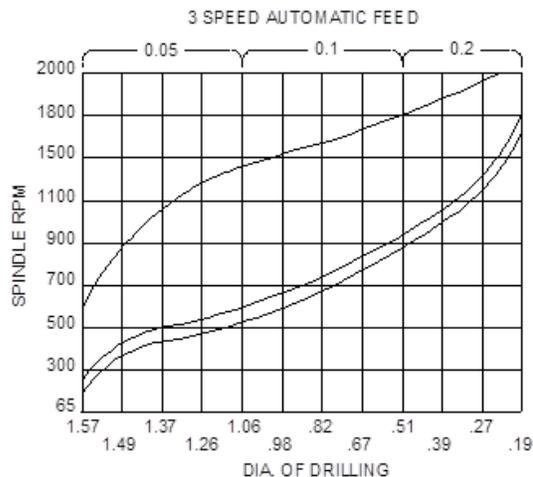


Figure 9-3

9.3 Setting the Depth Stop

This machine has some built-in control stops that activate when either the front depth scale or side depth scale ring reaches zero. Their functions include stop drilling, reverse tapping, or return the drill bit to the start height.

1. Start in manual down-feed mode.
2. Set the tool depth to zero position by lowering a drill bit or tapping tool to the surface of the piece part.
3. Hold in position. Manually hold the down feed handles (E) to keep the bit in position or change to automatic mode to hold the position. (To change from manual mode to auto mode, turn handle (AJ) counterclockwise (ccw) about 7 turns.)
4. Set the depth scale stop (S).



Figure 9-4

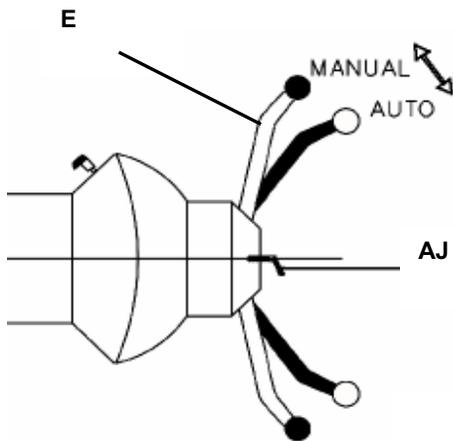


Figure 9-5

9.3.1 For Manual Operations Use the Front Depth Scale

1. Loosen the lock handle (S) and adjust the depth indicator.
2. Lock the handle (S) to set the depth scale stop.
3. Release the handle (AK).

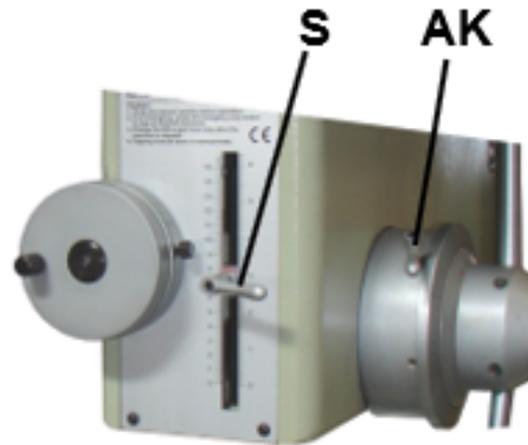


Figure 9-6

9.3.2 For Drilling in Auto Mode Use the Down-Feed Depth Scale

1. Loosen the handle (AK) and adjust the depth scale ring.
2. Lock the handle (AK) to set the depth stop.
3. Release the handle (S).

(Front depth scale is calibrated in both inches and millimeters.)

1" of spindle depth on the side depth scale ring will show as 1" (25.4mm) on the front depth scale.

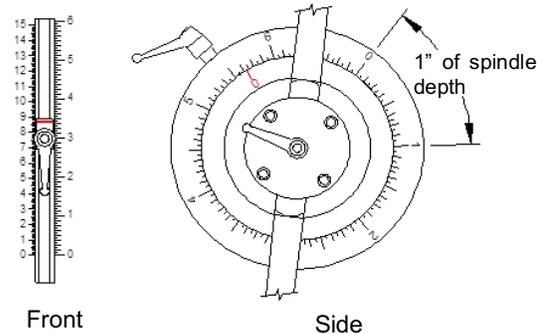


Figure 9-7

9.4 Manual Down-Feed

The down-feed rate changes can only be made while the motor is running and the selector switch (AE) is set to drilling mode.

1. Start machine by pressing start button (AG).

2. Set the down-feed rate to "0" using handle (X).
3. Set to manual down-feed operation. Turn handle (AJ) clockwise (cw) to lock the down-feed handles into manual mode.
4. Set the depth stop. Refer to Setting the Depth Stop.
5. Release the side ring scale depth stop by loosening handle (AK). This depth stop must be free to allow the front depth stop to work properly.
6. Use the down-feed handles (E) to lower the spindle for operation.

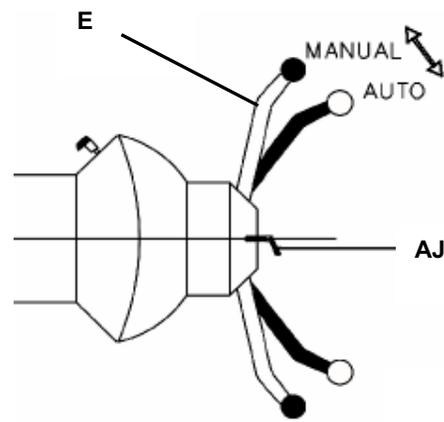


Figure 9-10

1. Start machine by pressing start button (AG).
2. Set the down-feed rate. Use the handle (X) to change the rates. Use the side ring depth stop to set the depth. Refer to Setting the Depth Stop. *Only the ring scale will disengage the automatic down-feed and return the drill to starting height.
3. Release the front side depth stop by loosening handle (S). This depth stop must be free to allow ring scale depth stop to work properly.
4. Release the down-feed lock handle (AJ) by turning counterclockwise (ccw) about 7 times.
5. Change to auto down-feed mode by pulling the handle (E) outward.

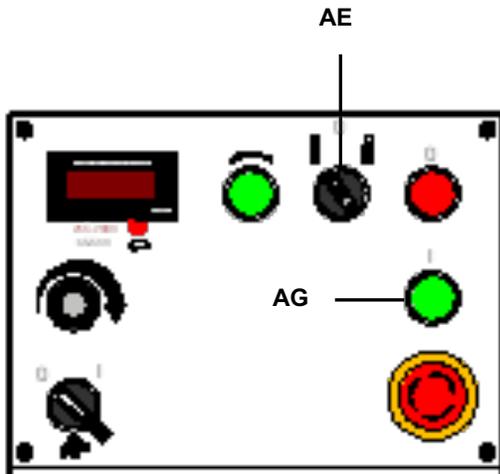


Figure 9-8

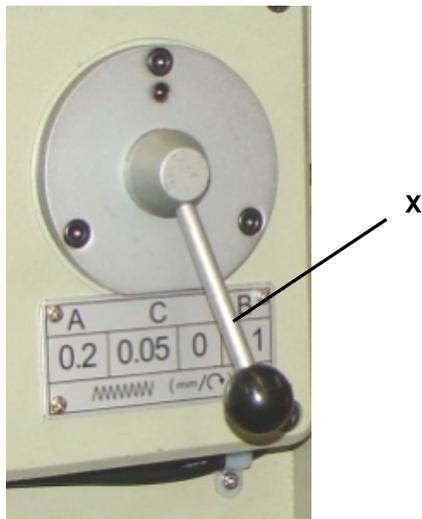


Figure 9-9

9.5 Automatic Down-Feed

Automatic down-feed is a feature to use only when drilling. The down-feed rate changes can only be made while the motor is running and the selector switch (AE) is set to drilling mode. Rate of the automatic spindle down-feed is A: 0.2, B: 0.1, & C: 0.05.

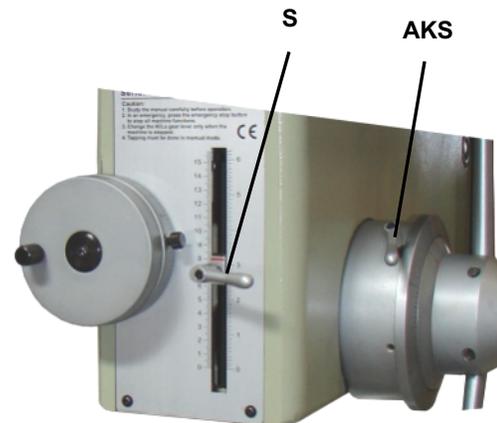


Figure 9-11

Note: If the bit has difficulty drilling or the spindle bounces during the drilling process, stop drilling immediately. Check to see that the drill bit is sharp and that the material is not too hard. When the machine is used for heavy drilling over a long period of time, it is recommended to check the loading capacity of automatic quill feeding on a regular basis. If such capacity decreases, remove the cover plate and follow the diagram on the plate to complete the feed clutch adjustment. "+" = clockwise (cw) and "-" = counterclockwise (ccw). DO NOT OVERTIGHTEN.

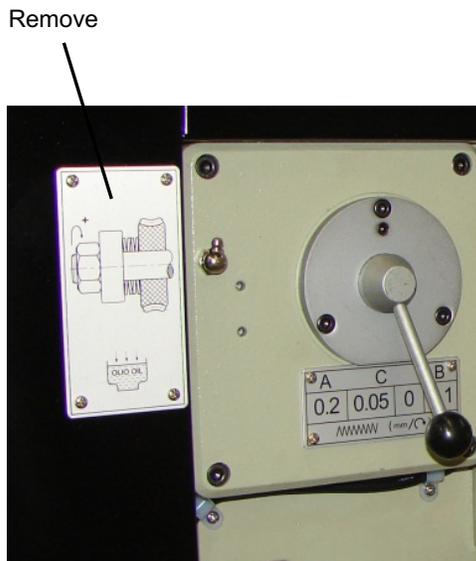


Figure 9-12

9.6 Micro-Feed Hand Wheel

The micro-feed handwheel allows for slow and accurate movement of the drilling tool. It also has an anti-spin feature when the hand wheel will not be used. Pull out the knob (AM) to disengage the micro-feed hand wheel during auto down-feed and non-use.

1. Adjust the rate of spindle down-feed to "0" using handle (X).

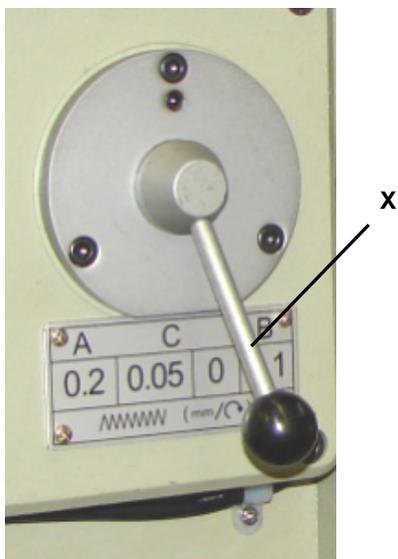


Figure 9-13

2. Set the tool depth to zero position by lowering the tip of the bit to the top of the piece part.
3. Adjust the down-feed handles (E) to automatic down-feed mode by turning handle (AJ) counterclockwise (ccw) about 7 times. This will hold the tool at zero position.
4. Push in the micro-feed handle (AM) to engage the hand wheel.

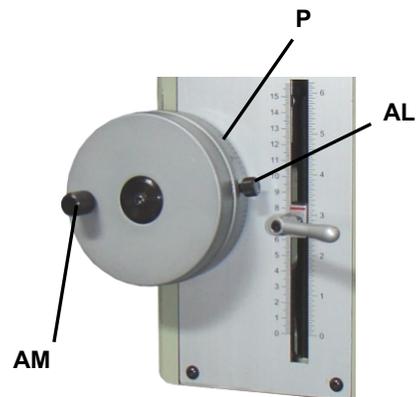


Figure 9-14

5. While holding the hand wheel to keep from turning, release the micro-feed hand wheels depth ring by loosening the thumbscrew (AL).
6. Set the scale to zero by rotating the depth ring (P).
7. Lock the depth ring by tightening the thumbscrew (AL).
8. Turn the micro-feed hand wheel (P) clockwise (cw) to lower the spindle. The depth ring is graduated so that from 0 – 1 the down travel of the spindle will be 1mm or .039”.

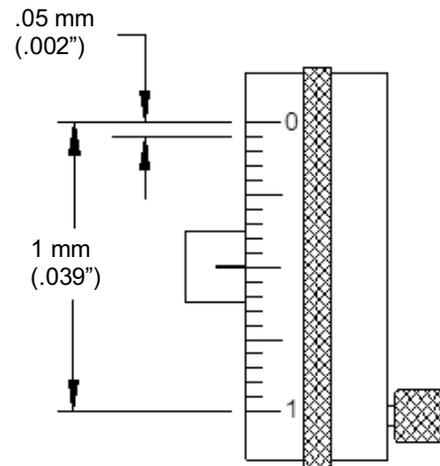


Figure 9-15

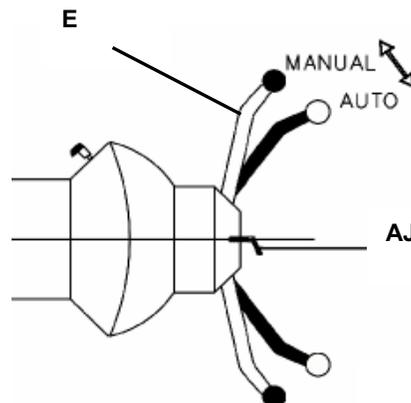


Figure 9-16

10.0 Operation

CAUTION

Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges.

1. Check that the head is secure to the column.
2. Secure the piece part to the table.
3. Adjust the table to the desired height using the front or side crankshaft.
4. Lock the table by turning the left front crankshaft clockwise (cw).
5. Set the transmission mode using the Hi/Low gear lever.
6. Select drilling mode with selector switch (AE).
7. Set to manual mode making sure the down-feed handles (E) (fig. 30) are pushed in.
8. Set the drilling depth stop. For manual drilling or tapping, set the front depth scale (S). For automatic drilling, set the down-feed side rings scale (AK). Refer to setting the depth stop.
9. Start the machine by pushing the start button (AG).
10. Select the spindle speed with knob (AB)

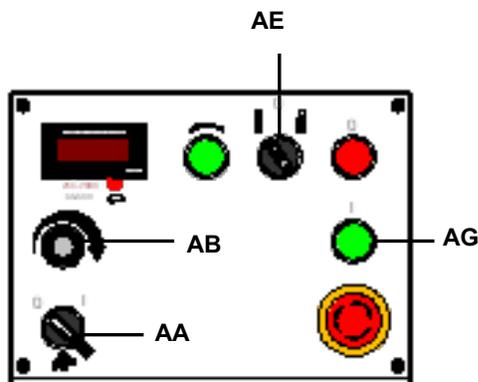


Figure 10-1

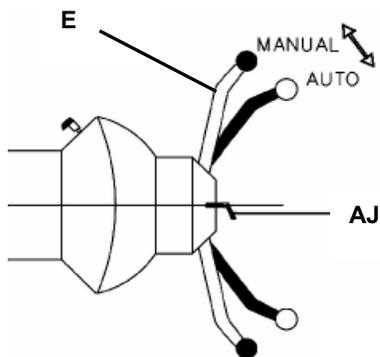


Figure 10-2

10.1 Drilling Mode

1. Lock in manual mode or select automatic mode and feed rate. Turn handle (AJ) or refer to automatic down-feed.
2. Turn on the coolant selector switch (AA).
3. Begin Drilling.

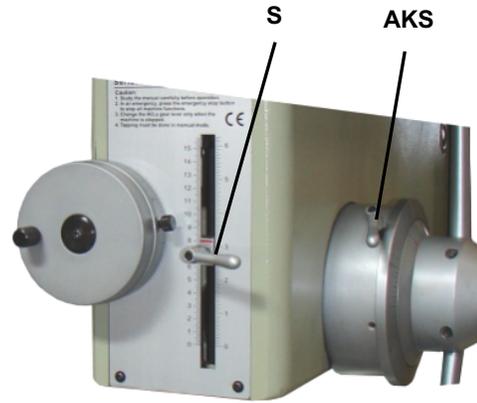


Figure 10-3

10.2 Tapping Mode

In general, speeds for tapping require low transmission mode with speeds lower than 150 RPM.

Note: All tapping must be done while in manual mode.

1. Set the down-feed rate to "0" using the down-feed handle (X). Refer to manual down-feed.
2. Select the tapping mode (AE) from the control panel in.
3. Lock the down-feed handles (E) in position for manual down-feed with handle (AJ). The down-feed must be locked to avoid accidentally changing to auto down-feed.
4. Release the unused depth stop by loosening handle (AK).
5. Start the machine by pushing button (AG).
6. Turn on the coolant selector switch (AA).
7. Begin tapping. Use the down-feed handles to enter the tapping bit into the piece part. Release hold of the handles. The bit will automatically reverse upon reaching the depth stop.

10.3 Removing Tooling from the Spindle

1. Disconnect machine from the power source.
2. Place a piece of wood on the table for protection.
3. Position the work table approximately 10" under the bit and lower the spindle about 6".

- Place the drift key (AN) into the slot (AO) of the quill and tap the end of the drift key with a hammer until the bit or chuck arbor falls out.

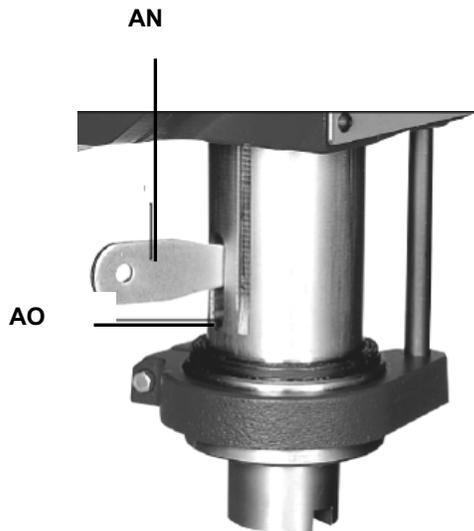


Figure 10-4

11.0 Drilling Recommendations

11.1 Drilling Speeds

The speed of a drill is usually measured in terms of the rate at which the outer periphery of the tool moves in relation to the work being drilled. The common term for this is Surface Feet per Minute (SFM).

The relationship of SFM is expressed in the following formulas:

- $SFM = 0.26 \times rpm \times \text{Drill Diameter (in inches)}$
- $RPM = 3.8 \times SFM \div \text{Drill diameter (in inches)}$

In general, the higher the speed the shorter the drill life. Operating at the low end of the speed range for a particular material will result in longer life.

The most efficient speed for drill operation depends upon many variables:

- Composition and hardness of material.
- Depth of hole.
- Efficiency of cutting fluid.
- Type and condition of drilling machine.
- Desired quality of hole.
- Difficulty of set-up.

11.2 Drilling Feed

The feed of a drill is governed by size of tool and the material drilled. Because feed rate partially determines rate of production and also is a factor in tool life, it should be chosen carefully for each job.

In general, the most effective feeds will be found in the following ranges:

Table 11-1

Diameter of Drill (inches)	Feed per Revolution (inches)
Under 1/8	0.001 to 0.002
1/8 to 1/4	0.002 to 0.004
1/4 to 1/2	0.004 to 0.007
1/2 to 5/8	0.007 to 0.015

11.3 Excessive Speed/Feed Indicators

- A drill that splits up the web is evidence of too much feed or insufficient tip clearance at the center because of improper grinding.
- The rapid wearing away of the extreme outer corners of cutting edges indicates that speed is too high.
- A drill chipping or breaking out at the cutting edges indicates that either feed is too heavy, or drill has been ground with too much tip clearance.

11.4 Speeds for High Speed Steel Drills

Table 11-2

Material	Speed (SFPM)
Alloy Steel — 300 to 400 Brinell	20-30
Stainless Steel	30-40
Automotive Steel Forgings	40-50
Tool Steel, 1.2C	50-60
Steel, .4C to .5C	70-80
Mild Machinery Steel, .2C to .3C	80-110
Hard Chilled Cast Iron	30-40
Medium Hard Cast Iron	70-100
Soft Cast Iron	100-150
Malleable Iron	80-90
High Nickel Steel or Monel	40-50
High Tensile Bronze	70-150
Ordinary Brass and Bronze	200-300
Aluminum and its Alloys	200-300
Magnesium and its Alloys	250-400
Slate, Marble, and Stone	15-25
Plastics and similar materials (Bakelite)	100-150
Wood	300-400

Material	Speed (SFPM)
Titanium Alloys	10-25
Titanium Alloy Sheet	50-60
Note: In cases where carbon steel drills are applicable, the drill should be run at speeds of 40 to 50 percent of those given above.	

12.0 Maintenance

⚠ WARNING

Make sure the electrical disconnect is OFF before working on the machine.

⚠ WARNING

Maintenance should be performed on a regular basis by qualified personnel.

⚠ WARNING

Always follow proper safety precautions when working on or around any machinery.

12.1 Daily Maintenance

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- Do a general cleaning by removing dust and metal chips from the machine.
- Top off the coolant reservoir. (80% of full tank capacity)
- Clean filter screen located on the machine base as often as necessary.
- Check that the guard and emergency stop are in good working order.

12.2 Weekly Maintenance

- Check the oil fill window. It is located on the side of the drill head and should be at least half full at all times.
- Thoroughly clean the machine including the coolant tank. See accessing and cleaning the cooling system.
- On a weekly basis clean the machine and the area around it.
- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Clean and grease the sliding surfaces.

12.3 Monthly Maintenance

- Check that all screws on the motor, the pump, and the guard are tight and secure.
- Check that the guard is operating properly.

- There is a grease fitting on the side of the drill head pivot for lubricating the gear shaft. Using a grease gun, inject grease through this fitting.

Note: Proper maintenance can increase the life expectancy of your machine.

12.4 Return Spring

The return spring does the raising of the spindle. It has been preset at the factory and no further adjustments should be attempted. If an adjustment becomes necessary, please contact a service representative at Baileigh Industrial. Ph: (920-684-4990)

The figure at right shows the spring cap which houses the spring.



Figure 12-1

12.5 Replacing Gearbox Oil

- 1st Time: After initial operation of 30 hours.
 - 2nd Time: After 1 month of operation
 - 3rd Time: Every 12 months of operation
1. To change the oil you need to remove the cover plate on the underside of the head.
 2. Remove the oil drain plug (AI) visible through the access hole. (Have a drain pan or container handy to collect the used oil). Be sure the gearbox is completely empty before putting the oil drain plug back in.

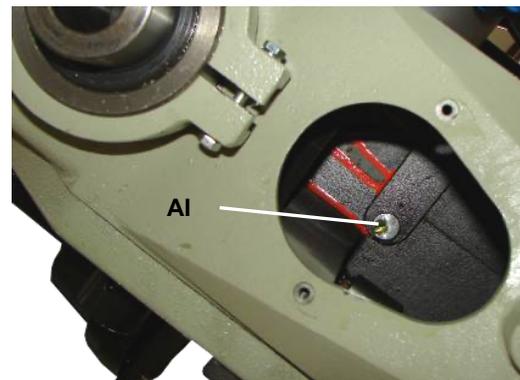


Figure 12-2

3. Remove the oil add cover plate (AJ) covering the oil fill tube and fill the gearbox with fresh SAE 80W-90 gear oil until it reaches the center of the oil sight window (T).

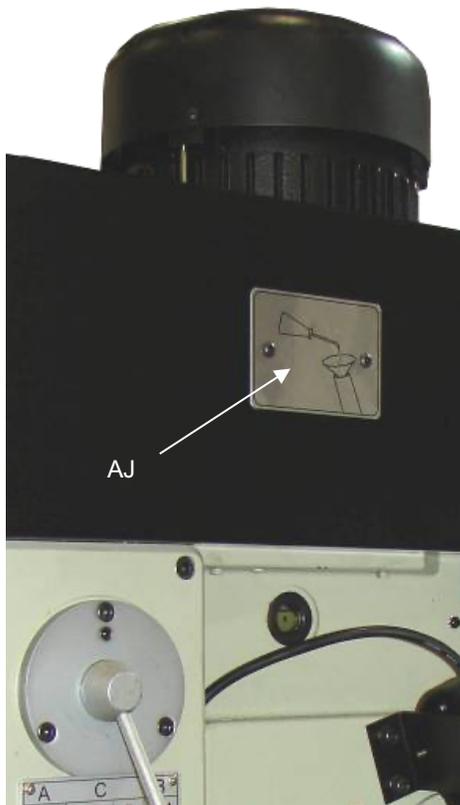


Figure 12-3



Figure 12-4

12.6 Oil Disposal

Used oil products must be disposed of in a proper manner following your local regulations.

12.7 Greasing the Machine

1. Keep gear shaft lubricated with grease fitting (V). (View the shaft through the portal on the opposite side of the drill head).
2. Grease the gear rack on the column to keep the table moving smoothly.
3. Lubricate the spline of the spindle and the teeth of the quill with a #2 grease.

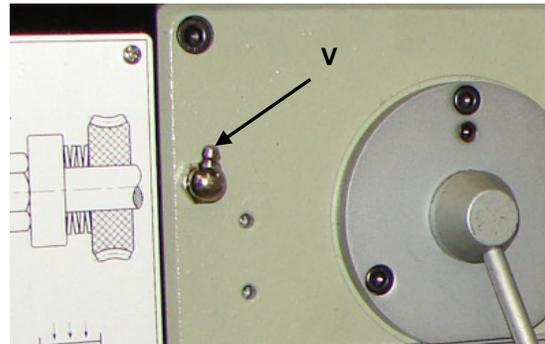


Figure 12-5

12.8 Accessing and Cleaning the Coolant System

1. Clean the drain screen.
2. Drain and wash out the dirt and debris from the reservoir
3. Replace coolant drain plug.
4. Thoroughly clean the pump and pump inlet
5. Re-fill tank with coolant solution.

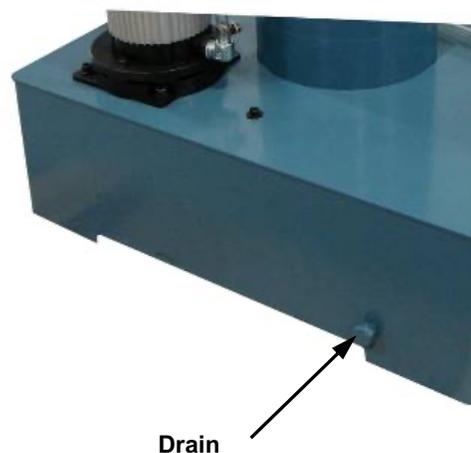


Figure 12-6

12.9 Accessing and Cleaning the Coolant System

- Clean the drain screens on the machine base and the drains on the ends of the table.
- Drain and wash out the dirt and debris from the reservoir.
- Thoroughly clean the pump and pump inlet.
- Re-fill tank with coolant solution.

12.10 Oils for Lubricating Coolant

Any 10:1 (water to coolant) solution will work, however we recommend Baileigh B-Cool 20:1 (water to coolant) biodegradable metal cutting fluid. It has excellent cooling and heat transfer characteristics, is non-flammable, and extends tool and machine life. Each gallon of concentrate makes 21 gallons of coolant.

12.11 Storing Machine for Extended Period of Time

If the drill press is to be inactive for a long period of time, prepare the machine as follows:

- Disconnect the electrical supply from the power panel.
- Empty and clean the coolant reservoir.
- Clean and grease the machine.
- Cover the machine.

12.12 Motor / Drive Belt Replacement

1. Disconnect machine from power source. Disconnect electrical power to drill press to avoid possibility of inadvertent operation and exposure to potentially lethal voltage levels.

Note: Refer to the parts diagram as needed to aid in disassembly and assembly.

2. Loosen set screw and remove high/low shift lever.
3. Remove screws and take off pulley cover.
4. Open the motor junction box cover and document / photograph the wiring connections.
5. Disconnect electrical wiring from motor junction box and remove motor.
6. Remove used belt.
7. Install replacement belt.
8. Install motor and connect electrical wiring (refer to removal notes and photos for wiring details).
9. Install pulley cover and secure with screws.
10. Set the drill press circuit breaker ON.
11. Operate drill press to verify correct operation.

13.0 Troubleshooting



WARNING

Make sure the electrical disconnect is OFF before working on the machine.

Table 13-1

Fault	Probable Cause	Remedy
Drill Press Does Not Run	Wrong voltage.	Make sure the machine voltage matches the nameplate.
	Emergency switch has been pressed.	Turn E-Stop switch clockwise (cw) to reset. Wait 10 sec. for the motor controller to reset. Push the start button.
	Electrical enclosure door malfunction.	Make sure door is closed properly and switched to ON (locked) position.
	Safety guard malfunction because of the limit switch.	Make sure limit switch actuator is in the center detent position.
	Limit switch faulty.	Replace limit switch.
	Stop button was pressed.	Wait 10 sec. for the motor controller to reset. Push the start button.
Excessive Vibration	Improper belt tension.	Adjust belt tension.
	Uneven belt wear. (hard spots).	Replace belt.
	Motor or spindle pulley out of balance.	Balance or replace problem pulley.
	Bad motor.	Replace motor.
Motor Stalls	Over feeding.	Reduce feed rate.
	Dull drill or tap.	Sharpen drill & keep sharp.
	Motor not building up to running speed.	Replace or repair motor.
	Bad motor.	Replace motor.
Noisy Operation	Noisy spline.	Lubricate spline.
	Noisy motor.	Check motor bearings or loose fan motor.
Drill or Tool Heats up or Burns Work	Excessive speed.	Reduce speed.
	Chips not clearing.	Use pecking operation to clear chips.
	Dull tool.	Sharpen tool or replace.
	Feed rate too slow.	Increase feed enough to clear chips.
	Failure to use cutting oil or coolant. (on steel.)	Use cutting oil or coolant on steel.
Drill Leads Off	No drill spot.	Center punch or center drill work piece.
	Cutting lips on drill off center.	Reground drill.
	Quill loose in head.	Tighten quill.
	Bearing play.	Check bearings and reseal or replace if necessary.
Excessive Drill Runout or Wobble.	Bent drill bit or tool.	Replace drill bit or tool. (Do Not attempt to straighten.)
	Bearing play.	Replace or reseal bearings.
	Drill not seated properly in chuck.	Loosen, reseal, and tighten chuck.
Work or Fixture Comes Loose or Spins	Failure to clamp piece part or work holding device to table.	Clamp piece part or work holding device to table surface.

13.1 Troubleshooting the Inverter

Prior to operating or adjusting any electronic component, Qualified personnel must take the following aspects into consideration:

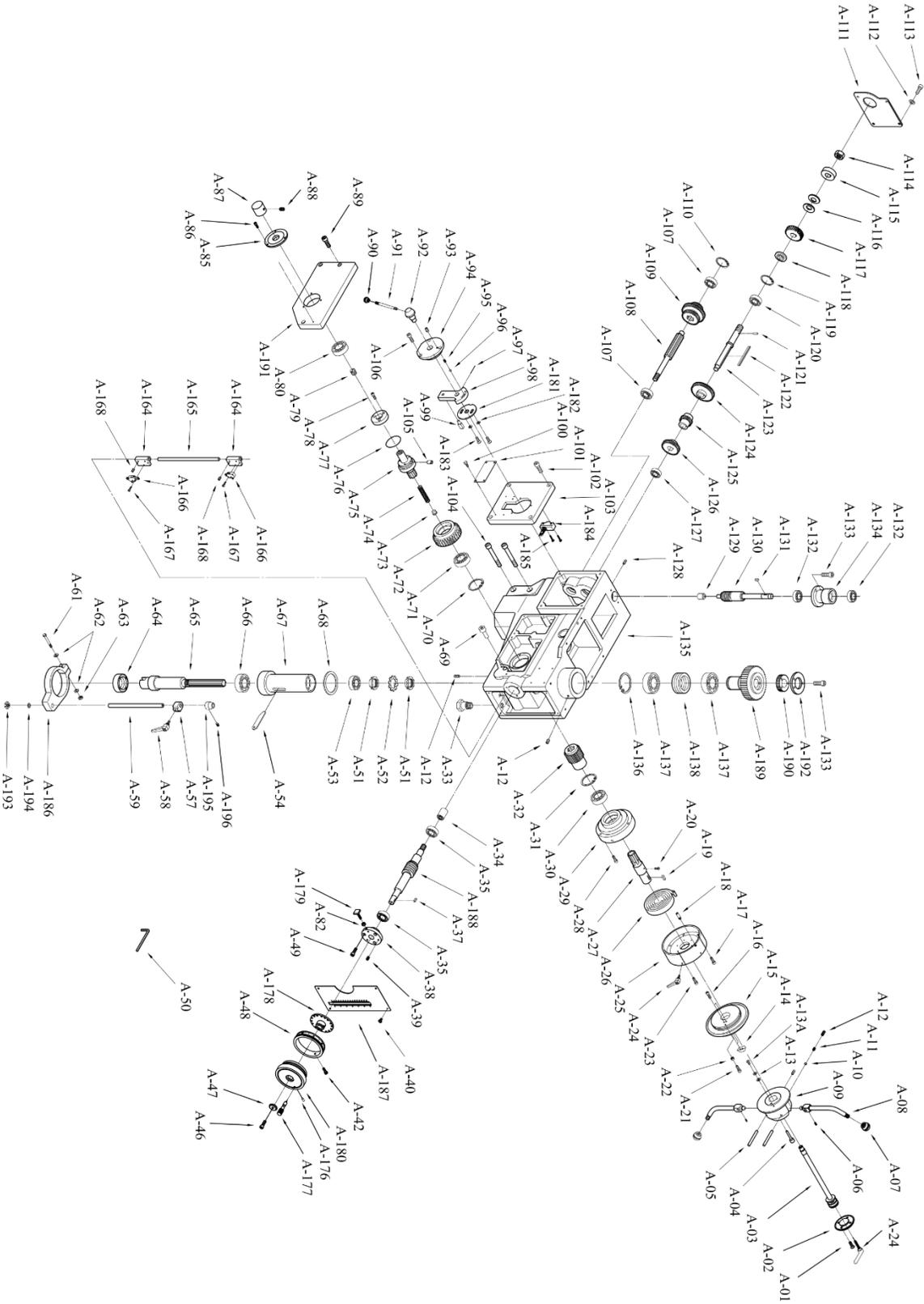
- Disconnect machine from the power supply.
- DO NOT use bare hands or metal tools to remove or install sensitive electronic parts.
- As residual voltage still exists in the capacitor after the voltage has been turned off, wait until the light disappears from the lighted display before proceeding with any work.
- Visually inspect the electronic circuit board for any defects.
- NEVER connect the alternating current directly to the output connector (U/V/W) of the speed controller.
- The electronic self-diagnosis program can notify you of situations like motor overloading, voltage fluctuations, etc. When the program detects an error, the machine will stop immediately, and the error will be displayed on the inverter's digital display. Follow the solutions to correct any errors.

Table 13-2

Code	Error Description	Solution
O.C.	* The voltage inverter detects that the output current exceeds the normal value.	* Check if motor voltage matches that of the voltage inverter. * Check connection between the motor and the voltage inverter. * Check if the motor is overloaded.
O.U.	* The voltage inverter of the motor is detected with a D.C. high voltage lateral pressure value that exceeds the acceptable range.	* Check if the circuit input voltage matches that of the voltage inverter. * Frequent on/off and forward/reverse directions result in high voltage self-protection.
O.H.	* The touch pole cooling device of the motor voltage inverter indicates an overheat condition.	* Check if the circuit input voltage matches that of the voltage inverter. * Make sure the cooling device is free from dirt and foreign objects.
O.L.	* The frequency converter detected an output exceeding 150% above normal for 1 minute.	* Check if the motor is overloaded. Tooling may be dull. Check for proper sized tooling, gear speed, and feed rate.
o.c.A o.c.d o.c.n	* Electric current is too large during acceleration. * Electric current is too large during deceleration. * Electric current is too large during normal operation.	* Check if the output connection of the motor adjuster is insulated improperly.
G.F.F	* Grounding or safety wire issues.	* Check if grounding is adequate. * Replace safety fuses. * When the display continues to show the same code, contact Baileigh Industrial at (920)684-4990
C.F1~3 or others	* Internal EEPROM cannot be read or programmed. * Current sensor error. * U-phase error. * W-phase error	* Return to Baileigh Industrial.

14.0 Replacement Parts

14.1.1 Head/Spindle Assembly – Exploded View A



14.1.2 Head/Spindle Assembly – Parts List A

Index No.	Part No.	Description	Size	Qty.
A-01	CM9-TS-1503041	Socket Head Flat Screw	M6x16	4
A-02	BA9-1022172	Cover		1
A-03	BA9-1002924	Feed Clutch Rod		1
	BA9-1227509	DP925GAC-A03 Feed Clutch ROD-2MM Longer		
A-04	BA9-1017659	Pin		1
A-05	BA9-1231555	Roll Pin		2
A-06	JT9-TS-2235061	Socket Set Screw	M5x6	2
A-07	BA9-1002925	Grip		2
A-08	BA9-1012937	Feed Handle		2
A-09	BA9-1013463	Feed Handle Body		1
A-10	BA9-1002926	Steel Ball	1/4"	1
A-11	BA9-1002928	Spring		1
A-12	BA9-1020549	Set Screw	M8x8	4
A-13	BA9-1020550	Lock Washer	M5	2
A-13A	JT9-TS-1502021	Socket Head Cap Screw	M5x10	1
A-14	BA9-1017660	Scale Guider		1
A-15	BA9-1015676	Scale Plate		1
A-16	CM9-TS-1501041	Socket Head Cap Screw	M4x12	2
A-17	CM9-TS-1503061	Socket Head Cap Screw	M6x25	3
A-18	BA1-1304	Pin		1
A-19	BA9-1014609	Key	6x20	1
A-20	**	Flat Head Screw	M5x8	1
A-21	JT9-TS-1502021	Socket Head Cap Screw	M5x10	1
A-22	JT9-TS-1541011	Hex Nut	M5	1
A-23	JT9-TS-1501021	Socket Head Cap Screw	M4x8	1
A-24	BA9-1002929	Swivel Handle		1
A-25	BA9-1232650	Spring Cap		1
A-26	BA9-1002930	Spring		1
A-27	BA9-1014610	Support Shaft		1
A-28	JT9-TS-1503071	Socket Head Cap Screw	M6x30	3
A-29	BA9-1022173	Ball Support		1
A-30	**	Ball Bearing	6006ZZ	1
A-31	**	C-Clip	S-30	1
A-32	BA9-1022714	Feed Shaft		1
A-33	**	Screw Bushing		1
A-34	**	Sleeve		1
A-35	**	Ball Bearing	6004ZZ	2
A-37	**	Key	5x15	1
A-38	BA1-2391	Worm Shaft Support		1
A-39	**	Set Screw	M6x12	3
A-40	**	Socket Head Button Screw	M5x6	4
A-42	BA1-9372	Set Knob		1
A-46	CM9-TS-1503031	Socket Head Cap Screw	M6x12	1
A-47	**	Special Washer		1
A-48	**	Scale Ring		1
A-49	CM9-TS-1503041	Socket Head Cap Screw	M6x16	3
A-50	**	Allen Wrench		1
A-51	**	Lock Nut		2
A-52	**	Star Washer		1
A-53	**	Taper Roller Bearing	30206	1
A-54	**	Drill Shifter		1
A-55	BA9-1016306	Socket Head Cap Screw (not shown)	M6x16	1
A-56	BA9-1016307	Lock Washer (not shown)	M6	1
A-57	BA9-1008867	Depth Scale Bracket		1
	BA9-1022078	Brass Pin for Depth Scale Bracket		1
A-58	BA9-1008868	Swivel Handle		1
A-59	BA9-1008869	Depth Rod		1
A-60	JT1-1396	Socket Set Screw (not shown)	M6x8	1
A-61	BA9-1016308	Hex Cap Screw	1/4"x2"	1

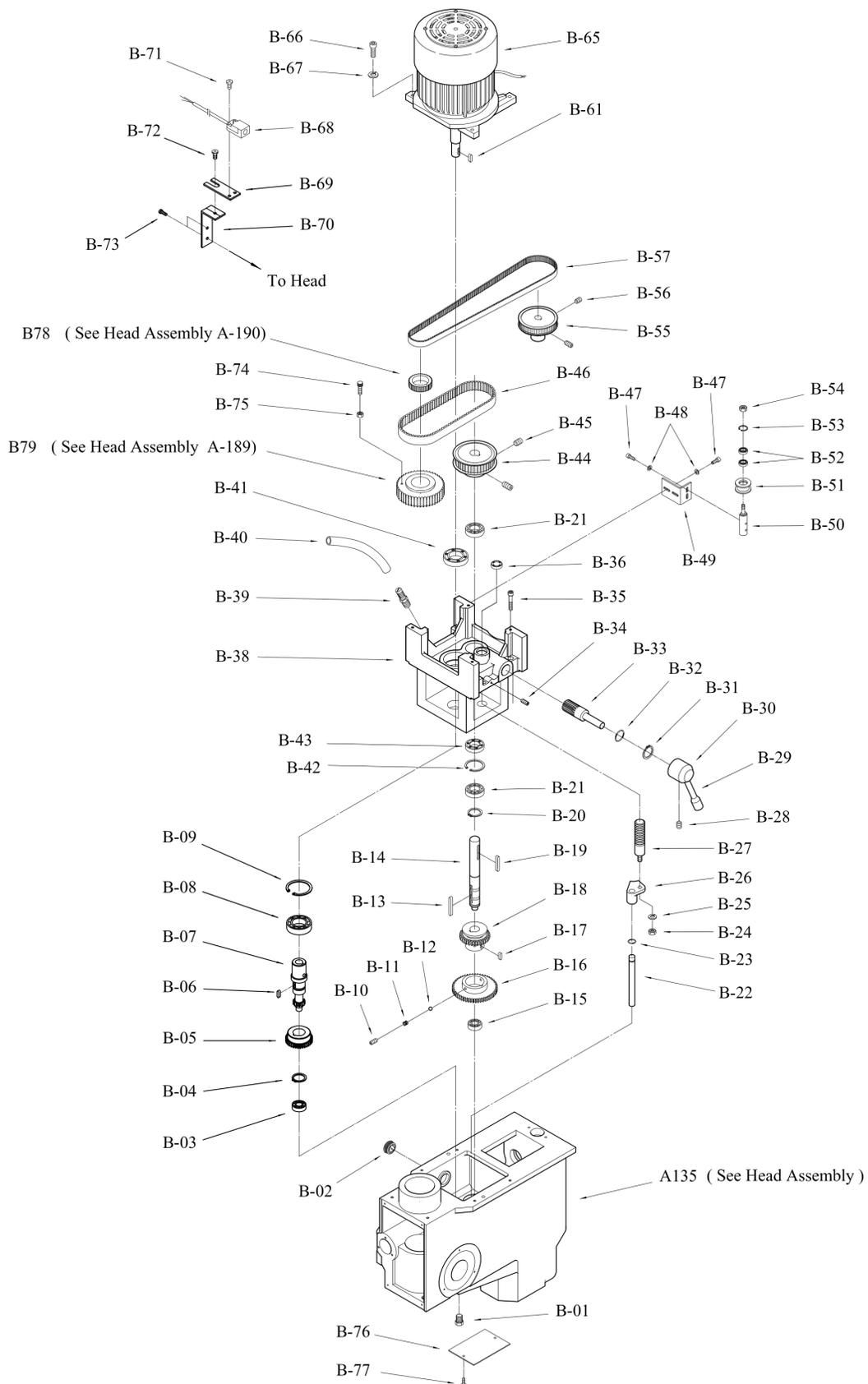
Index No.	Part No.	Description	Size	Qty.
A-62	BA9-1016309	Spring Washer	1/4"	2
A-63	**	Hex Nut	1/4"	1
A-64	**	Oil Seal	72x45x8	1
A-65	**	Spindle		1
A-66	BA9-1013768	Taper Roller Bearing	30207	1
A-67	**	Quill		1
A-68	BA9-1017661	Rubber Washer		1
A51-A68	BA9-1009752	Spindle Assembly A61~A68		1
A-69	**	Quill Support Pin		1
A-70	BA9-1231709	C-Clip	S-30	1
A-71	**	Ball Bearing	6206ZZ	1
A-72	BA9-1002931	Worm		1
A-73	BA9-1002932	Guide Plate		1
A-74	BA9-1002933	Spring		1
A-75	BA9-1002934	Jaw Clutch		1
A-76	BA9-1002935	Special Spring		1
A-77	BA9-1002936	Jaw Clutch Cover		1
A-78	BA9-1002937	Flat Head Screw	M6x16	3
A-79	BA9-1002938	Adjustable Screw		1
A-80	**	Ball Bearing	6305ZZ	1
A-81	**	Feed Cover (not shown)		1
A-82	JT9-TS-1541011	Hex. Nut	M5	1
A-85	**	Cover		1
A-86	**	Set Screw	M5x12	3
A-87	**	Cap		1
A-88	CM9-TS-1524011	Socket Set Screw	M8x8	1
A-89	JT9-TS-1504051	Socket Head Cap Screw	M8x25	3
A-90	BA9-1002939	Grip		1
A-91	BA9-1002940	Speed Change Lever		1
A-92	BA9-1012379	Change Lever Body		1
A-93	CM9-TS-1524011	Socket Set Screw	M8x8	1
A-94	**	Speed Change Bracket		1
A-95	**	Spring	M6x8	1
A-96	**	Steel Ball	M8	1
A-97	**	Spring Pin		1
A-98	**	Speed Change Support		1
A-99	**	Speed Change Pin		1
A-100	JT9-TS-2284061	Machining Screw	M4x6	4
A-101	**	Operating Lever Plate		1
A-102	JT9-TS-1504051	Socket Head Cap Screw	M8x25	4
A-103	**	Speed Change Cover		1
A-104	JT9-TS-1506131	Socket Head Cap Screw	M12x80	2
A-105	BA9-1002927	Jaw		3
A-106	CM9-TS-1503041	Socket Head Cap Screw	M6x16	3
A-107	**	Ball Bearing	6003ZZ	2
A-108	**	Sliding Shaft		1
A-109	**	Speed Change Gear		1
A-110	**	C-Clip	R-35	1
A-111	**	Cover Plate		1
A-112	**	Spring Washer	M6	4
A-113	CM9-TS-1503041	Socket Head Cap Screw	M6x16	4
A-114	**	Hex Nut	M20	1
A-115	**	Spacer		1
A-116	**	Belleville Spring Washer		2
A-117	BA9-1228434	Worm		1
A-118	**	Spacer		1
A-119	**	C-Clip	R-42	1
A-120	**	Ball Bearing	6004ZZ	1
A-121	BA9-1228435	Roll Pin		1
A-122	BA9-1228436	Key	6x95	1
A-123	BA9-1228437	Shaft	M6x8	1

Index No.	Part No.	Description	Size	Qty.
A-124	**	Gear (L)		1
A-125	**	Intermediate Gear		1
A-126	**	Gear (S)		1
A-127	**	Ball Bearing	6202ZZ	1
A-128	JT1-1396	Socket Set Screw	M6x8	1
A-129	**	Bush		1
A-130	**	Rear Worm Gear		1
A-131	**	Key	6x20	1
A-132	**	Ball Bearing	6003ZZ	2
A-133	JT9-TS-1504051	Socket Head Cap Screw	M8x25	2
A-134	**	Rear Worm Gear Bracket		1
A-135	BA9-1018319	Hand Body		1
A-136	BA9-1022735	C-Clip	S-45	1
A-137	BA9-1022737	Ball Bearing	6009ZZ	2
A-138	BA9-1022736	Bearing Spacer		1
A-164	**	Micro Switch Bracket		2
A-165	**	Micro Switch Support Rod		1
A-166	BA9-1012235	QS2, QS3, Micro Switch		2
A-167	**	Machining Screw	M3x16	2
A-168	**	Socket Set Screw	1/4"x1/4"	2
A-176	BA9-1014548	Pin		1
A-177	**	Hand wheel Handle		1
A-178	**	Pin Hole Plate		1
A-179	BA9-1012464	Pointer		1
A-180	**	Handle Wheel		1
A-181	**	Actuator Plate		1
A-182	**	Washer	M5	2
A-183	**	Machine Screw	3/16"x1/2"	2
A-184	**	Limit Switch		1
A-185	JT9-TS-2284201	Machining Screw	M4x20	2
A-186	BA9-1009705	Feed Base		1
A-187	BA9-1017514	Depth Plate		1
A-188	BA1-2392	Worm Shaft		1
A-189	**	Drive Spindle Pulley	M=8, T=64	1
A-190	**	Rear Spindle Pulley	M=5, T=38	1
A-191	**	Feed Cover		1
A-192	**	Pully Guard		1
A-193	**	Nut		1
A-194	CM9-TS-2361061	Lock Washer	M6	1
A-195	**	Block		1
A-196	JT9-TS-1521021	Socket Set Screw	M4x6	1

** These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

14.1.3 Motor/Pulley Assembly – Exploded View B

Top Head Assembly



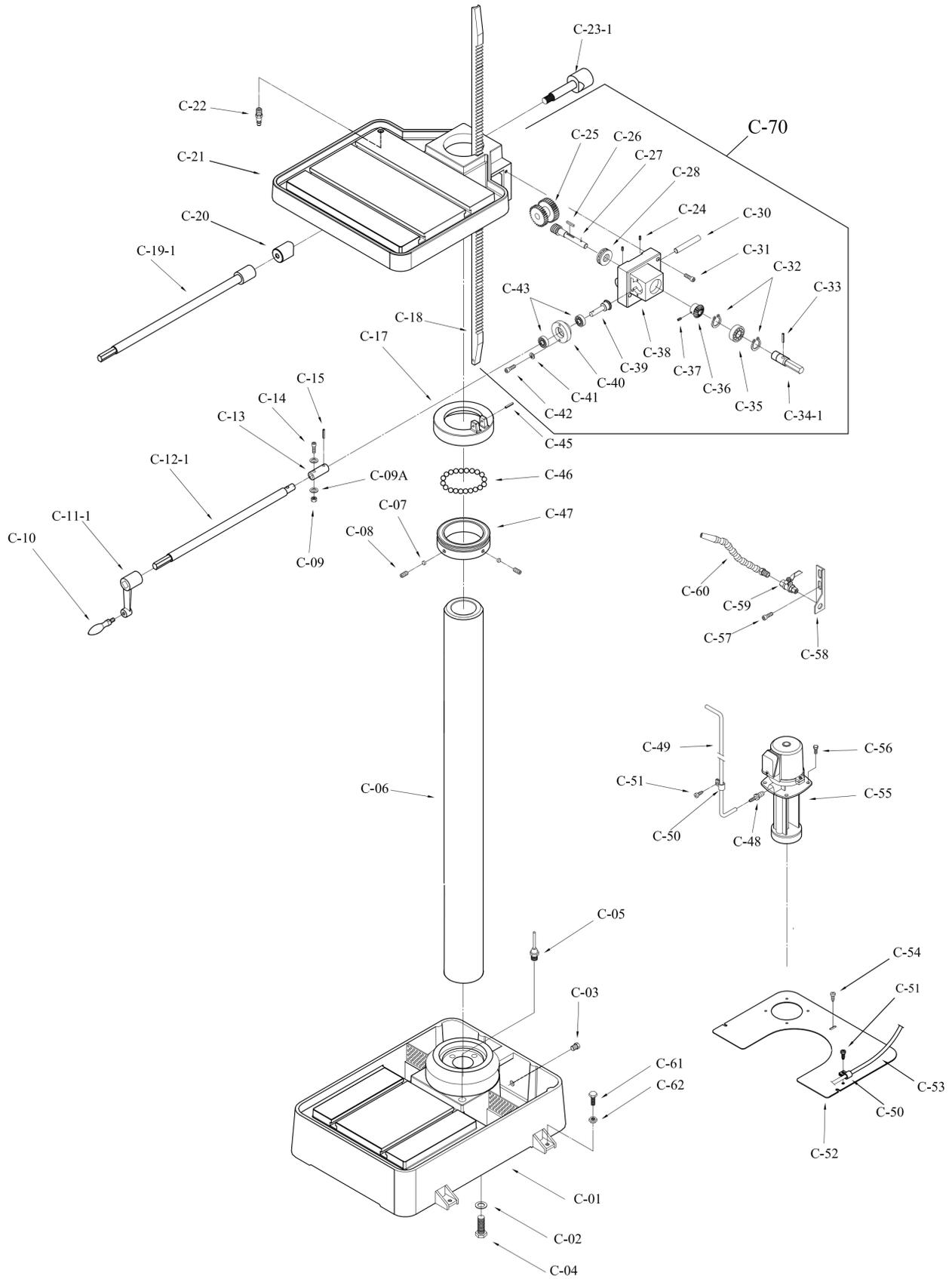
14.1.4 Motor/Pulley Assembly – Parts List B

Index No.	Part No.	Description	Size	Qty.
B-01	**	Hex Hand Plugs	3/8"	1
B-02	BA9-1002941	Sight Glass		1
B-03	**	Ball Bearing	6202ZZ	1
B-04	**	C-Clip	S-31	1
B-05	**	Gear	M=2, T=32	1
B-06	**	Key	6x20mm	1
B-07	**	Drive Shaft	M=2, T=13	1
B-08	**	Ball Bearing	6007Z	1
B-09	**	C-Clip	R-62	1
B-10	**	Set Screw	M10x10	2
B-11	**	Spring		2
B-12	**	Steel Ball	M8	2
B-13	**	Key	7x55mm	1
B-14	**	Shaft		1
B-15	**	Ball Bearing	6002Z	1
B-16	**	Gear	M=2, T=56	1
B-17	**	Key	6x20mm	1
B-18	**	Gear	M=2, T=36	1
B-19	**	Key	7x35mm	1
B-20	**	C-Clip	S-25	2
B-21	**	Ball Bearing	6005ZZ	1
B-22	**	Rod		1
B-23	**	Oil Ring	P-11	1
B-24	**	Hex Nut	M10	1
B-25	**	Lock Washer	M10	1
B-26	**	Speed Change Block		1
B-27	**	Screw Bar		1
B-28	JT9-TS-0271032	Socket Set Screw	3/8"-x3/8"	1
B-29	BA9-1002942	Handle		1
B-30	**	Speed Lever		1
B-31	BA9-1227426	C-Clip	R-30	1
B-32	BA9-1227427	Oil Ring	30x17x7mm	1
B-33	BA9-1227428	Gear Shaft		1
B-34	JT1-1396	Socket Set Screw	M6x8	1
B-35	JT9-TS-1504071	Socket Head Cap Screw	M8x35	4
B-36	BA9-1022177	Oil Seal	25x5mm	1
B-38	**	Gear Box		1
B-39	**	Oil Filter	3/8"x3/8"	1
B-40	**	Tube		1
B-41	BA9-1022175	Oil Seal	62x35x10mm	1
B-42	**	C-Clip	R-47	1
B-43	BA9-1022176	Oil Seal	47x25x8mm	1
B-44	**	Drive Pulley		1
B-45	CM9-TS-1524011	Socket Set Screw	M8x8	2
B-46	BA9-1002943	Drive Belt		1
B-47	CM9-TS-1503041	Socket Head Cap Screw	M6x16	4
B-48	**	Washer	M6	4
B-49	**	Bracket		1
B-50	**	Shaft		1
B-51	**	Ball Housing		1
B-52	**	Ball Bearing	608	2
B-53	**	C-CLIP	R22	1
B-54	**	Hex Nut	M8	1
B-55	**	Rear Pulley		1
B-56	JT9-TS-0273041	Socket Set Screw	M6x6	2
B-57	BA9-1002944	Follow Belt	M5x1100x14	1
	JT9-TS-1502031	Socket Head Cap Screw	M5x12	2
B-59	**	Lock Washer (not shown)	M5	2

Index No.	Part No.	Description	Size	Qty.
B-60	**	Ball Bracket (not shown)		1
B-61	**	Key	6x20mm	1
B-62	**	Ball Bearing	6202ZZ	1
B-63	**	Bearing Support (not shown)		1
	JT9-TS-1502031	Socket Head Flat Screw	5x12	2
B-65	BA9-1012227	M1, Motor		1
	BA9-1014615	Cooling Fan (for main motor)		1
	BA9-1014616	Motor Fan Cover		
B-66	**	Hex Socket Cap Screw	M8x25	4
B-67	**	Spring Washer	M8	4
B-68	BA9-1002945	Spindle Speed Sensor		1
B-69	**	Sensor Support		1
B-70	**	Sensor Bracket		1
B-71	**	Screw	M4x20	2
B-72	**	Screw	M4x6	1
B-73	JT9-TS-1502021	Socket Head Cap Screw	M5x10	2
B-74	**	Socket Head Cap Screw	3/16"x3/4"	1
B-75	**	Hex Nut	3/16"	1
B-76	**	Cover		1
B-77	**	Socket Head Button Screw	M5x6	2
B-78	**	Rear Spindle Pulley	M=5, T=38	1
B-79	**	Drive Spindle Pulley	M=8, T=64	1

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14.1.5 Column/Table/Base Assembly – Exploded View C



14.1.6 Column/Table/Base Assembly – Parts List C

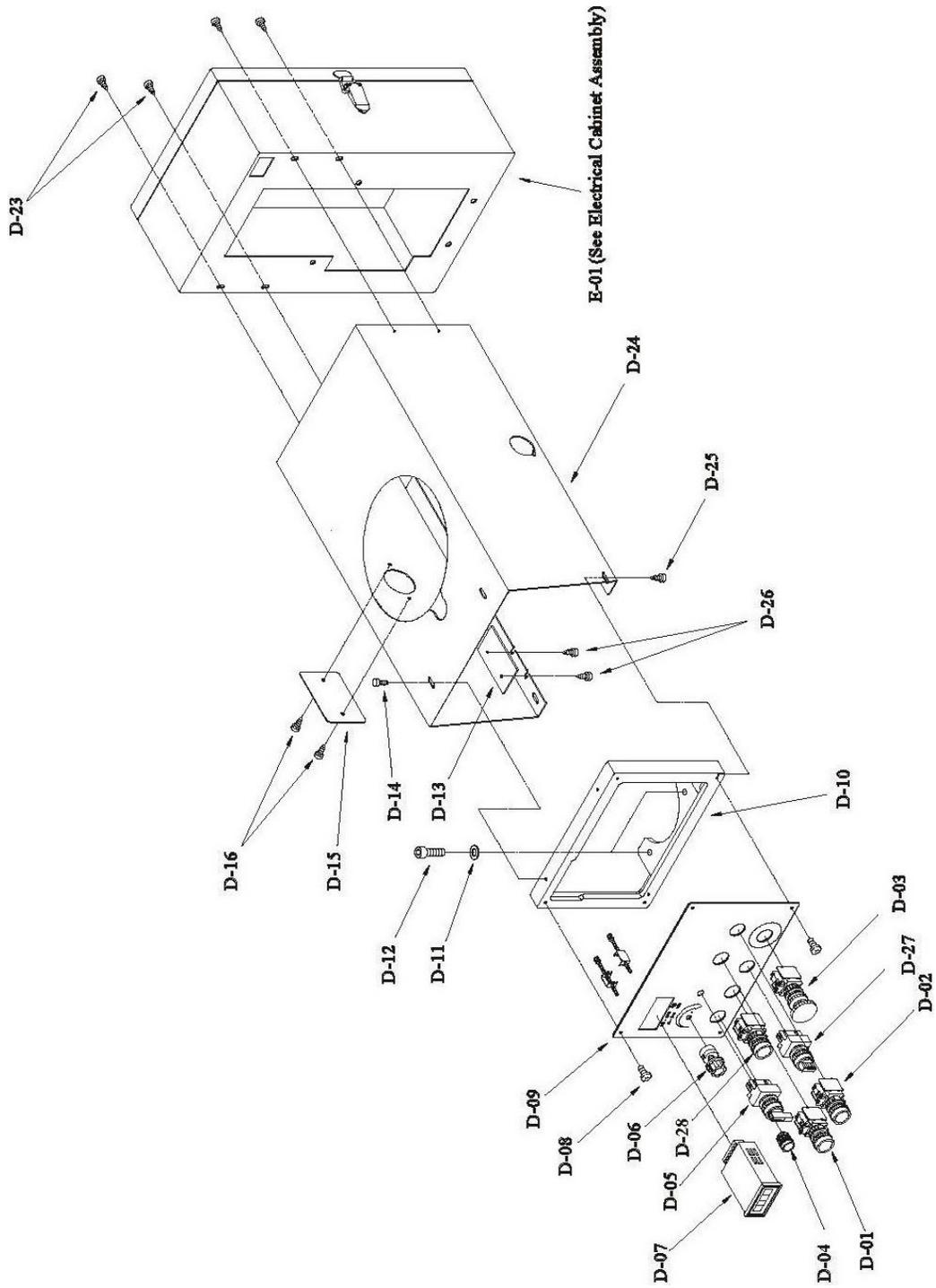
Index No.	Part No.	Description	Size	Qty.
C-01	**	Coolant Base		1
C-02	**	Spring Washer	1/2	4
C-03	**	Hex Head Plugs	3/8"	1
C-04	JT9-TS-1492061	Head Cap Screw	M12x60	4
C-05	**	Cable Relief for Pume Cable		1
C-06	**	Column		1
C-07	**	Brass Block	3/8"	2
C-08	**	Socket Set Screw	3/8"x5/16"	2
C-09	**	Hex Nut	1/4"	1
C-09A	**	Washer		
C-10	BA9-1002947	Handle		1
	BA9-1002948	Lift Handle Crank		1
C-11-1	**	Lift Handle Crank		1
	BA9-1002949	Crank Shaft Assembly		1
C-12-1	**	Crank Shaft Assembly		1
C-13	**	Sleeve		1
C-14	JT9-TS-0207081	Socket Head Cap Screw	1/4"x1-1/2"	1
C-15	**	Spring Pin	4x25mm	1
C-16	JT9-TS-0273041	Socket Set Screw (not shown)	1/2"x3/4"	2
C-17	BA9-1002950	Column Bearing Collar		1
	BA9-1231636	Collar Assembly		1
C-18	BA9-1013371	Rack		1
C-19-1	**	Connecting Rod (Thread)		1
C-20	BA9-1002951	Lock Sleeve		1
Not Shown	BA9-1002952	Compression Spring		1
C-21	BA9-1009485	Table		1
C-22	**	Connector	3/8"	1
C-23-1	BA9-1002953	Lock Sleeve (Thread)		1
C-24	JT9-TS-0273041	Socket Set Screw	M6x6	1
C-25	**	Gear		1
C-26	BA9-1021820	Key	5x5x20mm	1
C-27	BA9-1021821	Worm Shaft		1
C-28	BA9-1010927	Thrust Bearing	51102	1
C-29	BA9-1002954	Key (not shown)	5x5x60mm	1
C-30	BA9-1002955	Shaft		1
C-31	JT9-TS-1504071	Socket Head Cap Screw	M8x35	3
C-32	**	C-Clip	S-25	2
C-33	**	Spring Pin	4x25	1
C-34-1	**	Crank Shaft		1
C-35	**	Ball Bearing	6005Z	1
C-36	BA9-1002956	Bevel Gear		1
C-37	JT9-TS-0267041	Socket Set Screw	1/4"x3/8"	1
C-38	BA9-1002957	Gear Bracket		1
C-39	BA9-1002958	Small Bevel Gear		1
C-40	**	Flange		1
C-41	**	Spring Washer	M6	2
C-42	CM9-TS-1503061	Socket Head Cap Screw	M6x25	2
C-43	**	Ball Bearing	6206	2
C-44	**	Worm Gear (not shown)		1
C-45	BA9-1013372	Spring Pin	4x50	1
C-46	**	Steel Ball	3/8"	40
C-47	**	Support Bearing Collar		1
C-48	BA9-1012463	Connector		1
C-49	BA9-1012462	Tube	1.5M	1
C-50	BA9-1012461	Clamping		2
C-51	BA9-1012460	Cross Cap Screw	3/16"x3/8"	2
C-52	**	Cover		1

Index No.	Part No.	Description	Size	Qty.
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C-53	**	Tube	1
C-54	**	Socket Head Cap Screw	3/16"x1/2" 3
C-55	BA9-1002959	M2, Coolant Pump	1
C-56	JT9-TS-0050011	Hex Cap Screw	1/4"x1/2" 4
C-57	**	Socket Head Cap Screw	M8x20 2
C-58	**	Support Plate	1
C-59	BA9-1002960	ON/OFF Valve	1
C-60	BA9-1002961	Nozzle	1
C-61	**	Hex Cap Screw	M10x40 4
C-62	**	Nut	M10 4
C-70	**	Table Lifting Assembly	1

** These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

14.1.7 Electrical Control Panel Assembly – Exploded View D

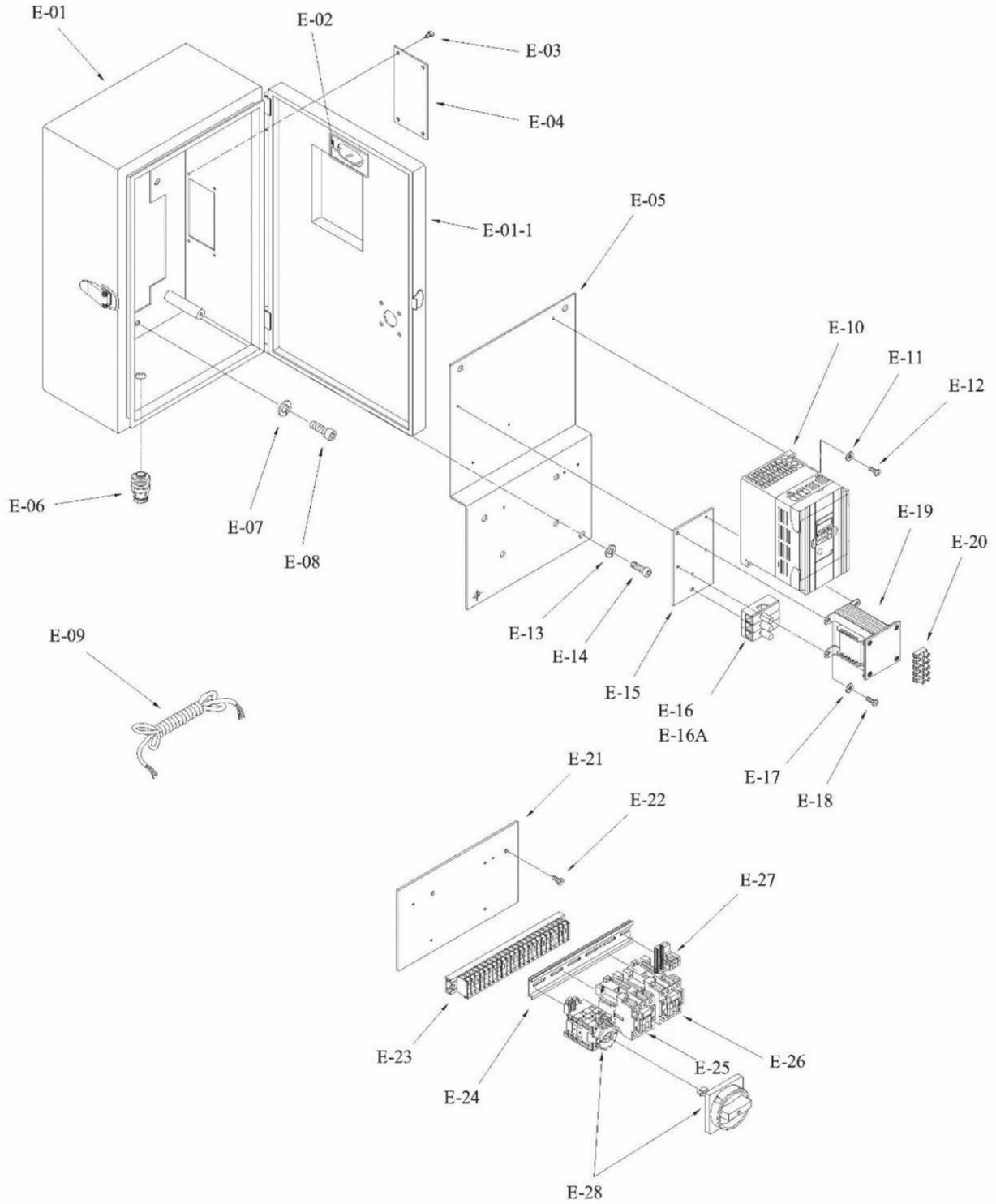


14.1.8 Electrical Control Panel Assembly – Parts List D

Index No.	Part No.	Description	Size	Qty.
D-01	BA9-1002521	SB3, Start Switch		1
D-02	BA9-1002963	SB2, Stop Switch		1
D-03	BA9-1002964	SB1, Emergency Stop Switch		1
D-04	**	Indicator Light		1
D-05	BA9-1002965	SB6, Coolant Pump Switch		1
D-06	BA9-1002966	VR, Speed Control w/Knob		1
D-07	BA9-1002967	Speed Controller Display (DRO)		1
	**	Holder Screw (for DRO)		2
D-08	BA1-75	Screw		4
D-09	**	Control Panel LD		1
D-10	BA9-1002968	Plate Bracket		1
D-11	**	Washer	M8	2
D-12	JT9-TS-1504041	Socket Head Cap Screw	M8x20	2
D-13	**	Dust Plate		2
D-14	**	Socket Head Button Screw	M5x8	2
D-15	**	Oil Filer Cover		1
D-16	**	Socket Head Button Screw	M5x6	2
	BA9-1002969	Top Cover		1
D-23	**	Cross Head Screw	M6x1 6	4
D-24	**	Cross Head Screw	M6x1 6	1
D-25	JT9-TS-2245102	Socket Head Button Screw	M5x10	2
D-26	JT9-TS-2245102	Socket Head Button Screw	M5X10	4
D-27	BA9-1002970	SB4, Drilling / Tapping Switch		1
D-28	BA9-1002971	SB5, Reverse Switch		1
D-29	BA9-1002972	Control Panel LD (not shown)		1
	BA9-1002969	Pulley Cover		1

** These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

14.1.9 Electrical Enclosure Assembly – Exploded View E

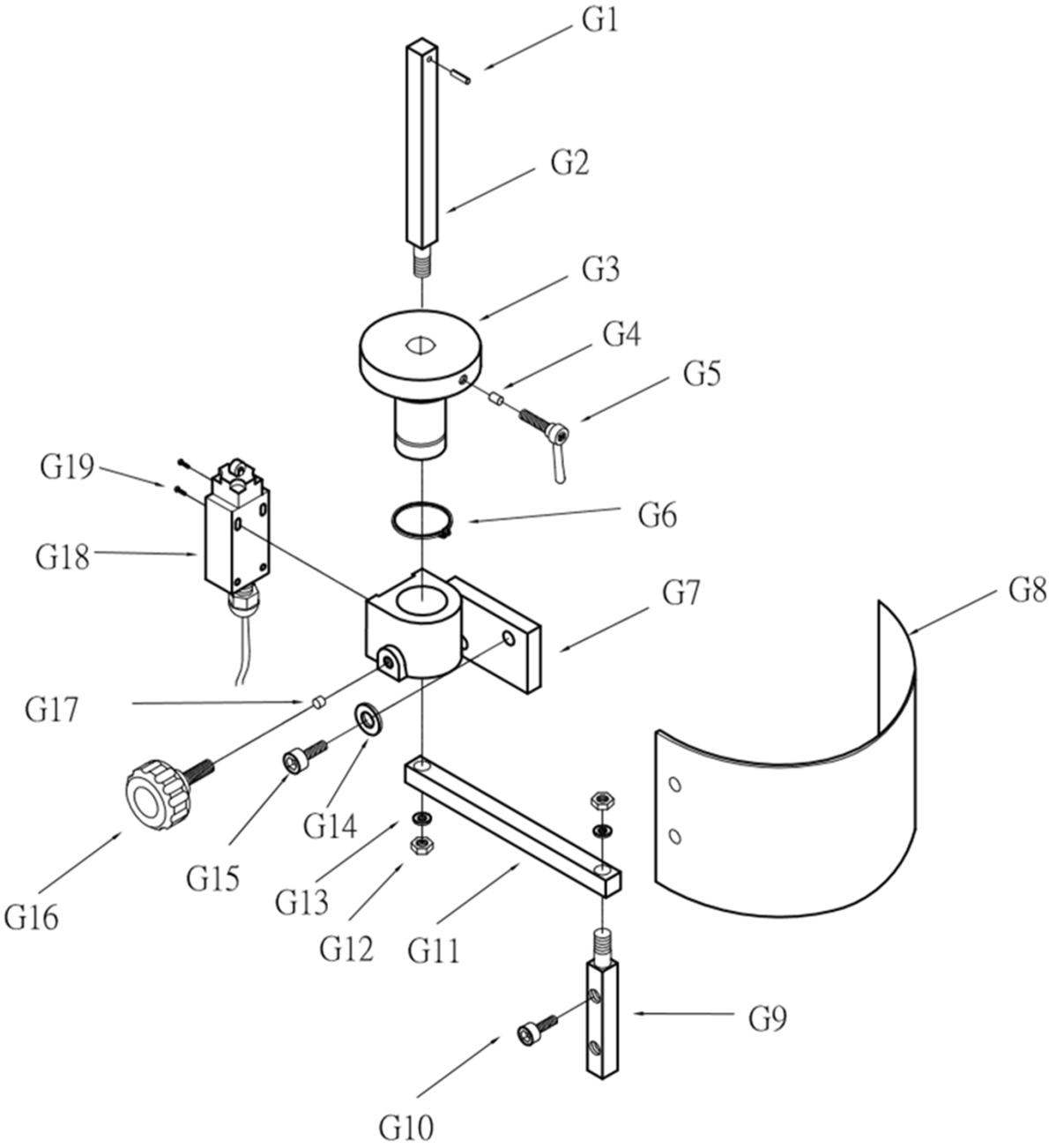


14.1.10 Electrical Enclosure Assembly – Parts List E

Index No.	Part No.	Description	Size	Qty.
E-01	BA9-1002974	Electric Control Box w/Door and Latch		1
E-02	**	Plastic Plate		1
E-03	JT9-TS-2284061	Machining Screw	M4x6	4
E-04	BA9-1227429	Cover		1
E-05	BA9-1002975	Electric Base Plate		1
E-06	**	Cable Relief		1
E-07	**	Washer	M8	4
E-08	JT9-TS-1504021	Socket Head Cap Screw	M8x12	4
E-09	**	Electric Cable		1
E-10	BA9-1002976	VFD-M Variable Speed AC Motor Driver		1
E-10	**	MS-300		
E-10N	BA9-1232433	MS-300+Door (not shown)		
E-11	**	Washer	M4	2
E-12	**	Screw	M4x20	2
E-13	**	Washer	M6	1
E-14	CM9-TS-1503041	Socket Head Cap Screw	M6x16	1
E-15	**	Insulation Board	140x78x3mm	1
E-16	BA9-1011741	FU1, FU2 Fuse (0.5A)		2
E-16A	**	FU3 Fuse (3A)		1
	BA9-1020613	Two .5A Fuse, 3A Fuse, and Holder		
E-17	**	Washer	M4	4
E-18	JT9-TS-2284201	Machining Screw	M4x20	4
E-19	BA9-1002977	TR, Transformer 400V, 24V, 52VA (1.2A)		1
E-20	**	Terminal Plate		1
E-21	**	Connecting Board	230x1 30x3mm	1
E-22	JT9-TS-2284081	Machining Screw	M4x8	5
E-23	**	Terminal Plate 23P/600V/10A		1
E-24	**	Aluminum Rail Plate		1
E-25	BA9-1002978	KM2, Contactor D12/24V/12A		1
E-25A	**	KM1, Contactor D12/24 V/12A (not shown)		1
E-26	BA9-1002979	Q1, Main Disconnect Switch Assembly		1
E-27	BA9-1002980	KR, Relay		1
E-28	**	Safety Switch Assembly		1

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14.1.11 Chuck Guard Assembly – Exploded View



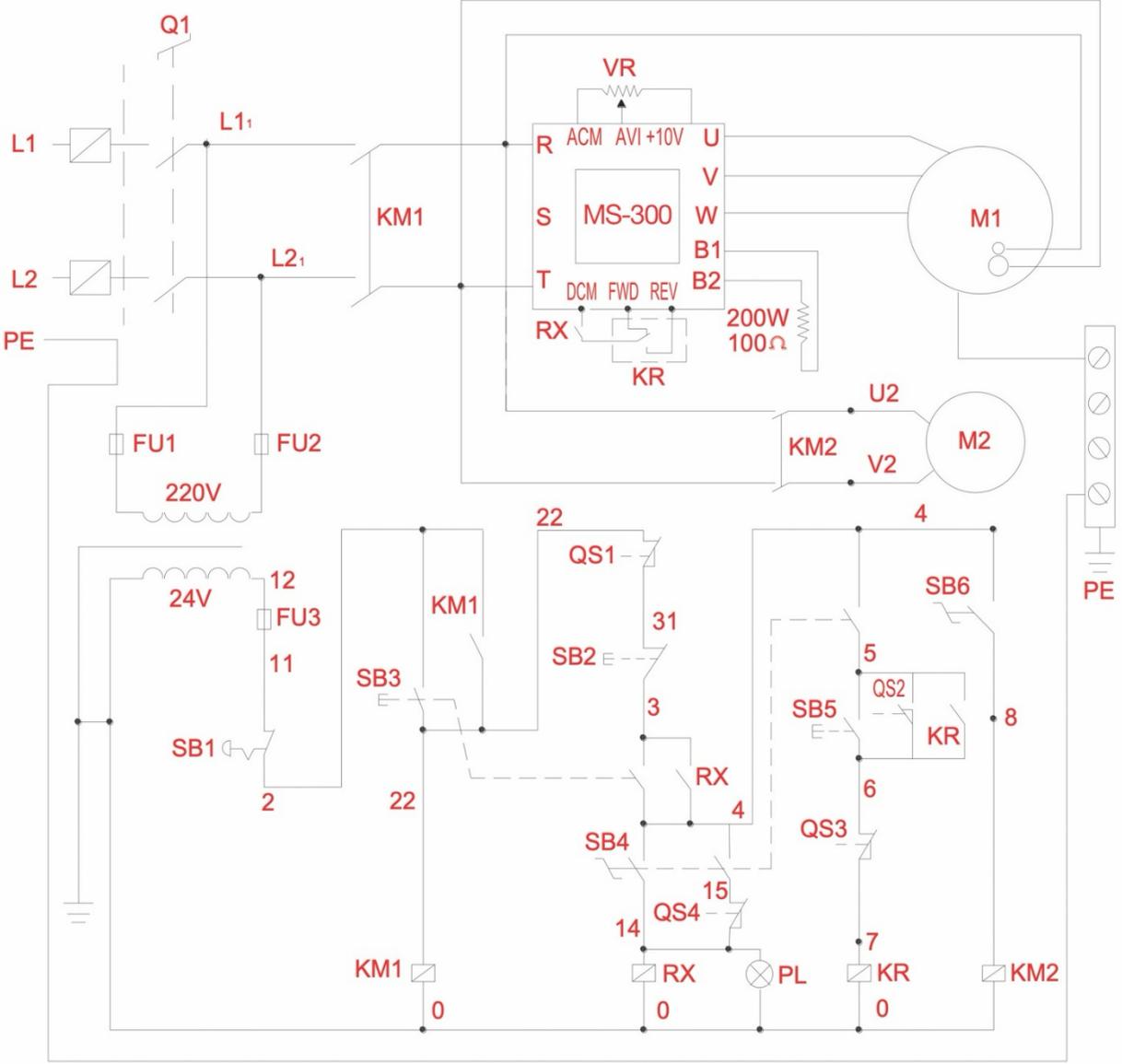
14.1.12 Chuck Guard Assembly – Parts List

Index No.	Part No.	Description	Size	Qty.
G1	**	Spring Pin	3x16mm	1
G2	**	Support Bracket Bar		1
G3	**	Bushing		1
G4	**	Spacer		1
G5	**	Ratchet Lock Handle	M6x20	1
G6	**	C-Clip	S30	1
G7	BA9-1232158	Bracket		1
G8	BA9-1002982	Safety Shield, Lexan	410x210mm	1
G9	**	Lower Bracket Bar		1
G10	**	Hex Socket Head Cap Screw	M8x12	2
G11	**	Support Arm		1
G12	**	Hex Nut	3/8"	2
G13	**	Spring Washer	3/8	2
G14	**	Spacer		2
G15	**	Socket Head Cap Screw	M8x20	2
G16	**	Lock Bolt with Knob	M8x18	1
G17	**	Spacer		1
G18	BA9-DP15VSF-G18	QS1, Micro Switch (Highly, ED-4-3-32)		1
G19	JT9-TS-2284201	Machining Screw	M4x20	2

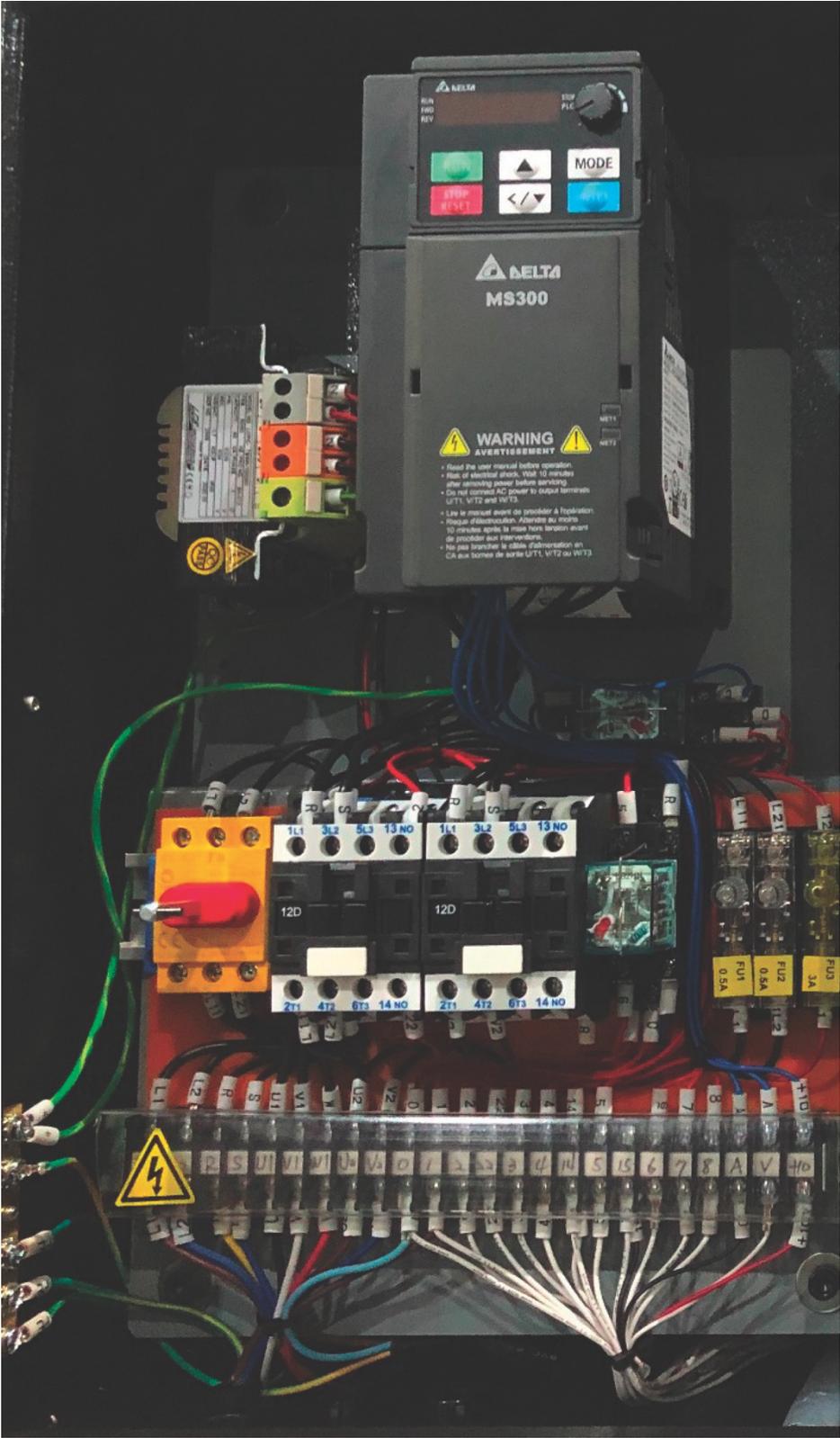
** These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

15.0 Wiring Diagram

15.1 Electrical Schematic



15.2 Electrical Enclosure Components



15.3 Electrical Component Parts List

Index No.	Part No.	Description	Size	Qty.
Q1	**	Main Disconnect Switch		1
FU1	**	Fuses		1
FU2	**	Fuses		1
FU3	**	Fuses		1
KM1	**	Contactors		1
KM2	**	Contactors		1
FR	**	Over Relay		1
KR	**	Relay, Reversing		1
TR	**	Transformer		1
VFD-M	**	Variable Speed AC Motor Driver		1
MS-300	**	Variable Speed AC Motor Driver		1
BR	**	Braking Resistors		1
VR	**	Adjust-Speed Switch		1
SB2	**	Push Button, Stop		1
SB3	**	Push Button, Start		1
SB1	**	Emergency Stop		1
SB4	**	Drilling / Tapping Switch		1
SB5	**	Push Button, Reverse		1
SB6	**	Pump Switch, Coolant		1
XB	**	Terminal Block		1
QS1	**	Limit Switch, Chuck Guard		1
QS2	**	Micro Switch, Reverse		1
QS3	**	Micro Switch, Forward		1
QS4	**	Limit Switch, Chuck Guard		1
M1	**	Motor, Drilling/Tapping		1
M2	**	Motor, Coolant		1
	BA9-1228877	DP1500VS-BULB		1
	BA9-1002981	Feed Clutch Assembly		1
	BA9-1009301	Table Gearbox		1
	BA9-1002985	Safety Guard G1~G19		1

16.0 Warranty and Service

Thank you for your purchase of a machine from Baileigh Industrial. We hope that you find it productive and useful to you for a long time to come.

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the Goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any Goods to Seller. Goods returned without an RGA will be refused. Seller will not be responsible for any freight costs, damages to Goods, or any other costs or liabilities pertaining to Goods returned without an RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special-order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

Specifications. Seller may, at its option, make changes in the designs, **specifications**, or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain an RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without an RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 10 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (f) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

EXCLUSION OF OTHER WARRANTIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY, OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.

Force Majeure. Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightning, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

Installation. If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

Work By Others; Safety Devices. Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation, or provision of Goods. Buyer is solely responsible for furnishing and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

Remedies. Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

Attorney's Fees. In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorney fees and costs.

Governing Law/Venue. This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the U.S. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

Summary of Return Policy:

- 10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
- You must obtain a Baileigh Industrial issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh Industrial in new condition and in original packaging.
- Altered items are not eligible for return.
- Buyer is responsible for all shipping charges.
- A 30% re-stocking fee applies to all returns.

Baileigh Industrial makes every effort to ensure that our posted specifications, images, pricing, and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

For Customer Service & Technical Support:

Please contact one of our knowledgeable Sales and Service team members at:
(920) 684-4990 or e-mail us at Baileigh-Service@jpwindustries.com



BAILEIGH INDUSTRIAL

1625 DUFEK DRIVE MANITOWOC, WI 54220

PHONE: 920.684.4990 FAX: 920.684.3944

www.baileigh.com