



Operating Instructions and Parts Manual

Manual Cold Saw

Model CS-350EU



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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 machines 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 appropriate. 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 and ear protection. Always wear ISO approved impact safety goggles. Wear a full-face shield if you are producing metal filings.
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. Blade adjustments and maintenance. Always keep blades sharp and properly adjusted for optimum performance.
17. Keep visitors a safe distance from the work area.
18. Keep children away. Children must never be allowed in the work area. DO NOT let them handle machines, tools, or extension cords.
19. 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.
20. 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.
21. Do not cut where the atmosphere might contain flammable dust, gas, or liquid vapors such as from gasoline.
22. DO NOT touch live electrical components or parts.
23. Turn off power before checking, cleaning, or replacing any parts.
24. Be sure all equipment is properly installed and grounded according to national, state, and local codes.
25. Keep all cords dry, free from grease and oil, and protected from sparks and hot metal.
26. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. Bare wiring can kill!
27. DO NOT bypass or defeat any safety interlock systems.
28. Always check that the work piece is securely clamped and that long pieces are properly supported.
29. DO NOT use a saw blade size that is outside the limits of the machine specifications.
30. Immediately release the start / run trigger button if the saw blade should get stuck in a cut. Press the red power off switch and remove the yellow lock key before raising the machine head. Then open the vise and remove the work piece. Check the blade teeth for damage. If any of the teeth are broken or missing replace the saw blade.
31. The operator should stand in front of the machine using a single hand to grip the feed handle.
32. A proper break-in period for the cold saw is recommended. Intervals of 30 minutes to be repeated two or three times, after which the cold saw may be used continuously.

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, or fatal, injury.

⚠ 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 CS-350EU Manual Cold Saw. 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

4.1 Saw Blade Head Assembly

The section of the machine composed of the saw motor, gear case, blade and blade guard, and feed handle and trigger switch.

4.1.1 Feed Handle

A long-angled tube with a grip for raising and lowering the disk head and a trigger switch to start and stop the saw motor.

4.1.2 Gear Case

The central part of the assembly, housing the gear system. The motor mounts to the back and the output to the blade is to the left side.

4.1.3 Blade Guard

The Blade guard has a stationary cover which mounts to the left side of the gear case and a movable part which has linkage connect to it to cause the guard to open and expose the lower part of the blade as the feed handle is pulled downward.

4.1.4 Saw Blade

The saw blade is mounted onto the end of the arbor shaft and positioned to be centered within the guard assembly.



Figure 4-1

4.2 Electrical Box

The electrical box is mounted to the right of the saw blade head assembly and house the electrical control system except for the trigger switch. The function of the switches will be discussed later.

4.3 Machine Base

A heavy cast iron structure that supports the miter system, vise system, head assembly, and holds the coolant system.

4.4 Vise

A clamping system that provides the basic support and grip for the work material. A handwheel opens and closes the vise jaws.

From the operators position in front of the saw, the left side of the vise has the jaws to clamp the material. The right-side bar provides support to reduce and prevent the material from kicking out at the end of the cut.



Figure 4-2

4.5 Material Stop

The material stop to the right side of the vise may be used to set the cut length of the material. This is especially useful for multiple cuts of the same length.

4.6 Support Roller

The support roller to the left or infeed side of the vise will assist in holding the material on plane with the vise table as well as assist in feeding the material through the vise.



Figure 4-3

4.7 Stand

Support structure for the machine head assembly, machine base, vise system, and coolant pump system.



Figure 4-4

4.8 Coolant Pump

Located in the back of the machine stand, the self contained coolant system includes a tank, coolant pump, filter, and hoses.



Figure 4-5

4.9 Overall Dimensions

Machine Dimensions
(when assembled)

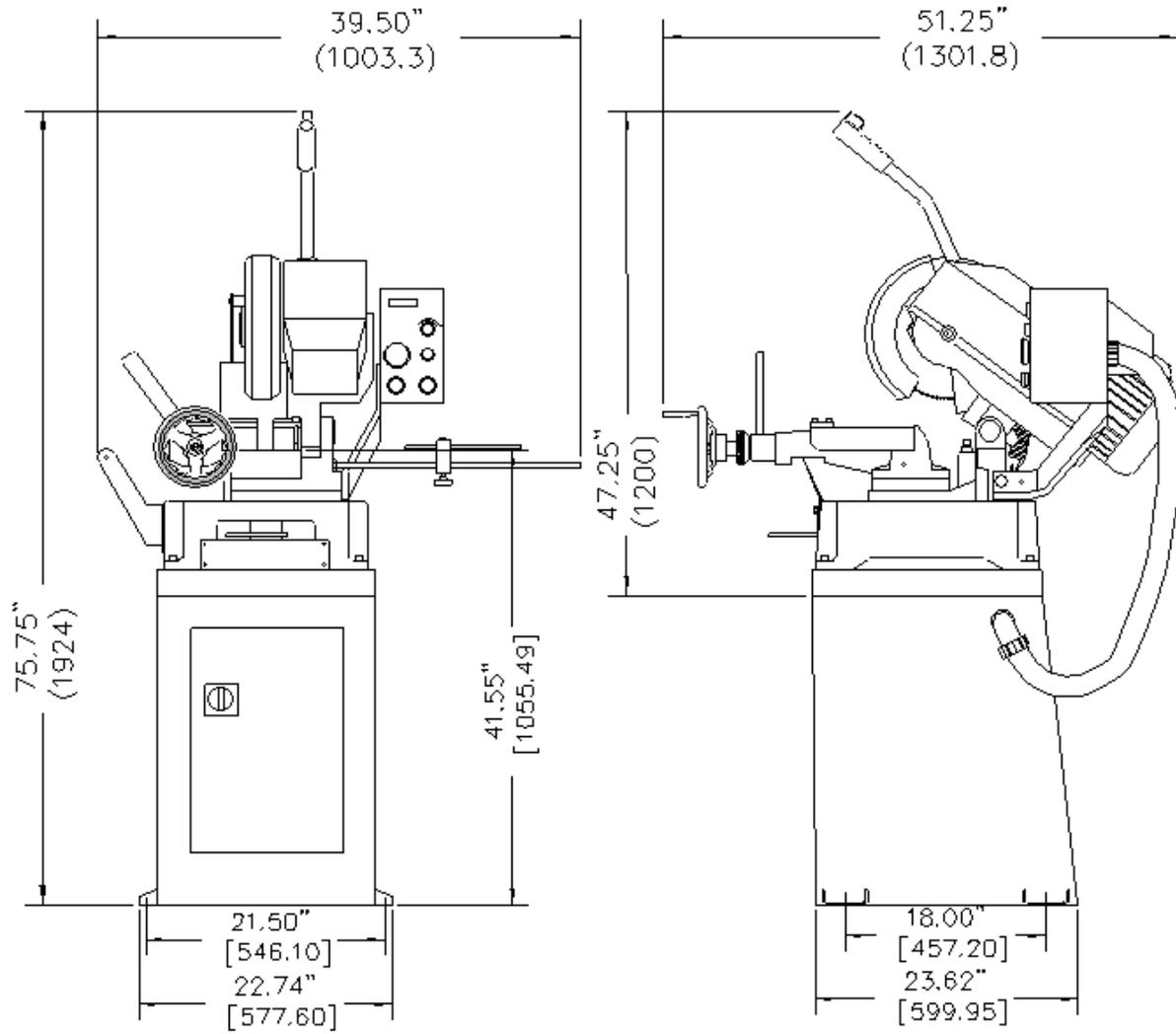


Figure 4-6

5.0 Specifications

Table 5-1

Model number	CS-350EU
Stock number	BA9-1002535
Motor and Electrical	
Main Motor	3hp (1.86kw), 220V, 3ph, 4P, 60hz, 10A
Power	220V, 1ph, 60hz
Coolant Pump	1/8hp (93w), 220, 1ph, 50/60hz, 0.5A, L140
General Specifications	
Operation	Manual
Head Style	Pivot
Blade Size (Customer Supplied, must match work material)	Ø14" (355mm) x T0.10" (2.5mm)
Arbor Size	1.26" (32mm)
Blade Speed	Variable, 24 - 120rpm
Vice Style	Single Action with Cam Lock
Head Miter	45° Left / 45° Right
Maximum Vice Opening	4.72" (120mm)
Slotting Ability	No
Material Stop Length	27.25" (762mm)
Vise Table Height from Floor	41.55" (1055mm)
Coolant Tank	1.5gal (5.7L)
Weights and Dimensions	
Net Weight with Stand	600lbs (272kg)
Shipping Weight	720lbs (327kg)
Overall Dimensions (LxWxH)	51.25" x 39.5" x 75.75" (1302 x 1003 x 1924mm)
Base Footprint	22.74" x 23.62" (578 x 600mm)
Shipping Dimensions (LxWxH)	60" x 44" x 62" (1524 x 1118 x 1575mm)

5.1 Cutting Capacities:

Table 5-2

Angle	Solid Bars			Tubing		
						
90°	3.5" (90mm)	4" x 4" (100x100mm)	6.3" x 3.5" (160x90mm)	4.7" (120mm)	4" x 4" (100x100mm)	6.3" x 3.5" (160x90mm)
45°	3" (75mm)	3.5" x 3.5" (90x90mm)	3.5" x 2.8" (90x70mm)	4" (100mm)	3.5" x 3.5" (90x90mm)	3.5" x 2.8" (90x70mm)

⚠ 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

⚠ 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.

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

6.2 Cleanup

⚠ 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.



Two Person Lift. Use an assistant or lifting device (preferred) to support the weight of the saw body. Do not lift alone.



Head and Stand Assembly



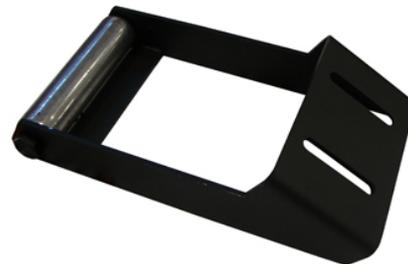
Material Stop



Hardware



Feed Handle



Support Roller

Figure 6-1

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 6-2

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, worktables, 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 machine distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting 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

This saw can be operated as free standing if; all of the installation points are followed and the saw is solid and will not tip, rock, or move, with or without material loaded or during operation.

If it does not meet these criteria, then the saw should be anchored as follows.

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

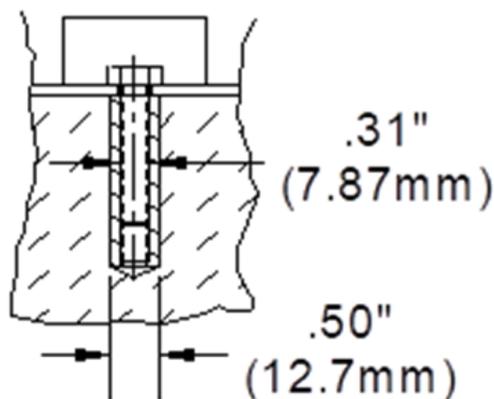


Figure 6-4

- This machine requires a solid floor such as concrete at a minimum of 4" (102mm) thick. 6" (153mm) minimum is preferred.

6.5 Assembly

⚠ WARNING

For your own safety, DO NOT connect the machine to the power source until the machine is completely assembled and you read and understand the entire instruction manual.

Take out the accessories box (A) and the feed handle (B) from inside of the stand and set aside for later use.

Lift off the stand and place into the intended working location.

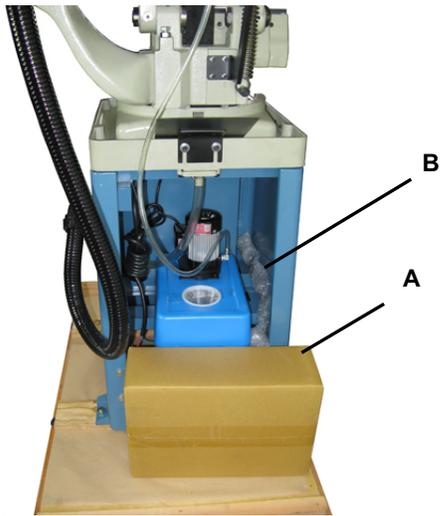


Figure 6-5

6.5.1 Prepare the Machine for Hoisting

- Using a sling (C), carefully wrap it around the collar of the moveable jaw and motor mount. Use care not to pinch wires.

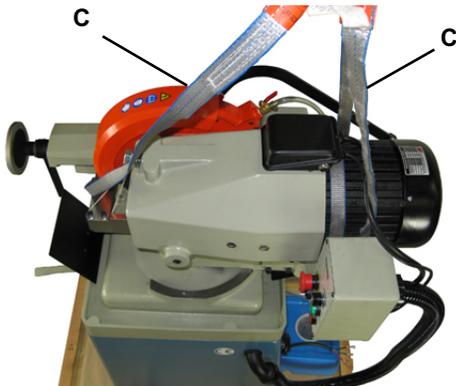


Figure 6-6

6.5.2 Remove the Oil Fill Transport Plug from Gear Transfer Case

- Use a wrench to unscrew an M20x40 hex screw from the oil fill hole (D).



Figure 6-7

6.5.3 Attach the Feed Handle to the Head Assembly

- Insert the threaded end of the feed handle (E) into the gear oil fill hole (F).
- Turn the handle clockwise (cw) until tight so that the trigger switch (G) points up.
- Tighten jam nut clockwise (cw).

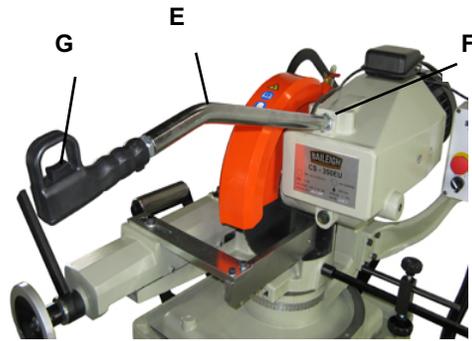


Figure 6-8

6.5.4 Connect Feed Handle Cable to Motor Box

- Route the feed handle cable over the transfer case to the electrical box on the motor.
- Plug the feed handle cable connector (H) into the open socket.
- Tighten the connector nut.



Figure 6-9

6.5.5 Attach the Support Roller to the Left Side of the Base

- Place the support roller (I) up to the machine base and align the 2 slots (J) with the screw holes in the base.
- Using (2) M10 washers and (2) M10x25 hex bolts, attach the support roller to the base.
- (DO NOT Tighten).
- Place a level across the mouth of the vise and the top of the roller. Raise or lower roller (I) until level, then secure by tightening bolts.

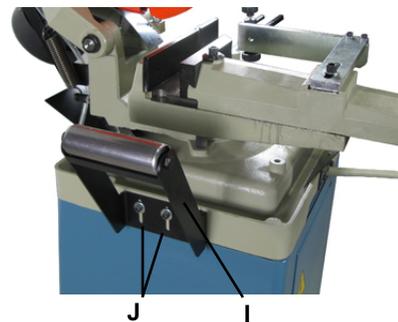


Figure 6-10

6.5.6 Attach the Bar Stop to the Vise

- Verify set screw (K) is loose enough not to interfere with the mounting hole on the side of the vise.
- Insert the collar on the long rod (L) into the side of the vise until snug making sure graduated scale can be easily read.
- Tighten the set screw (K) to secure the bar stop.

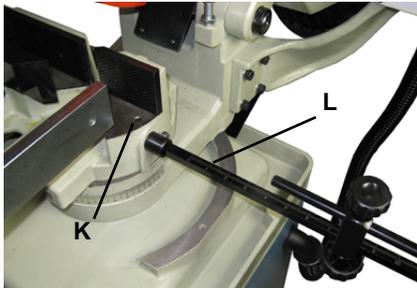


Figure 6-11

6.5.7 Verify Coolant Tank Installation

- Place the coolant pump (M) towards the rear opening of the machine stand.
- Place the coolant tank (N) onto the coolant platform (O). The trough of the tank fits over the vertical lip of the platform.
- Insert one end of the 0.50" drain hose (P) onto the hose connector (Q) on the underside of the machine base.
- Place the other end into the strainer cup (R) of the coolant tank.

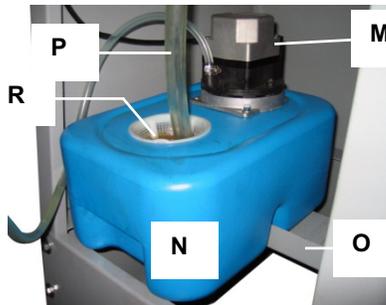


Figure 6-12

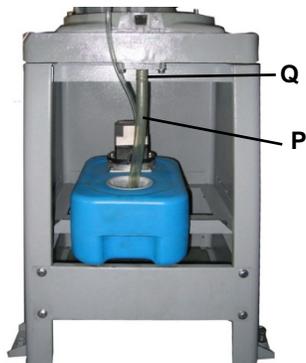


Figure 6-13

6.5.8 Install the Splash Plate

- Insert the splash plate (S) onto the front sidewall of machine base.
- Align the 2 slots (T) and attach plate with (2) M8 washers and (2) M8x20 hex screws.
- Adjust the plate to its proper position and tighten bolts.

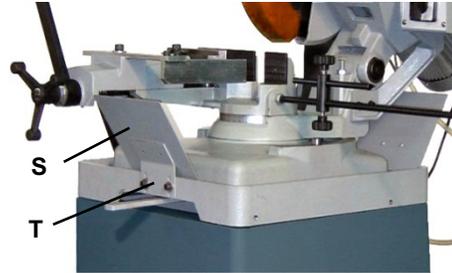


Figure 6-14

7.0 Electrical Connections

⚠ 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 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 table toward the power supply.
 - a. Route the power cord so that it will NOT become entangled in the saw, saw blade, or counterbalance assembly 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 saw blade is clear of any obstruction and raised to the up position, the saw turned ON to test operation.
5. Turn the saw OFF and press the E-Stop button when the saw is not in operation.

8.0 Adjustments

⚠ WARNING

Before performing the following operations, the electric power supply and the power cable must be completely disconnected.

8.1 Adjusting the Mitering Lock Lever

1. The lock lever may require adjustment when the lever contacts the machine base and fails to lock the machine head at required angle. To re-adjust lever:
2. Loosen bolt (A).
3. Support the bushing (B) so that it does not drop.
4. Pivot lever (C) to unlock side (D) to allow more range of motion.
5. Re-tighten bolt (A).

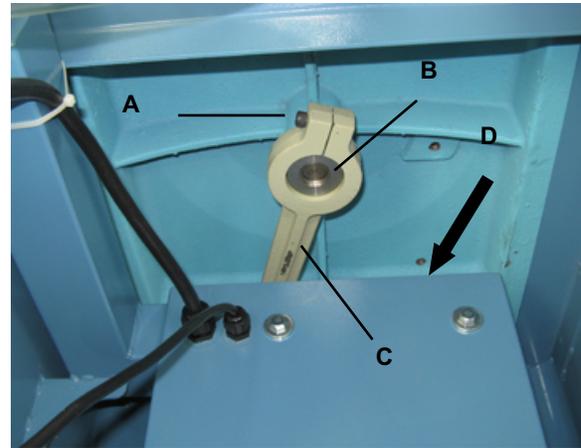


Figure 8-1

8.2 Adjustment of Saw Blade Head

If excessive axial play is found on the pivot hinge, it will be necessary to tighten the screws.

Note: Do not overtighten.

To adjust the saw blade head:

- Loosen the 3 set screws on each hinge nut (A).
- Tighten the nut to remove the axial play without causing the pivot to bind.
- Tighten the 3 set screws on each hinge nut (A).

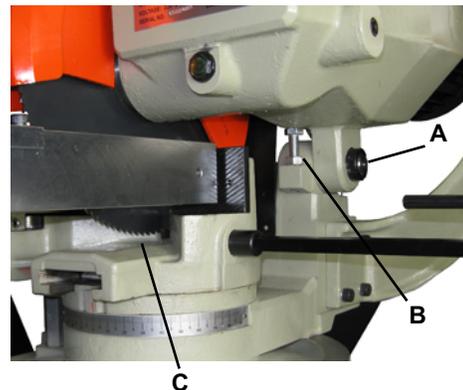


Figure 8-2

8.3 Setting Saw Blade Head Stop

To adjust the saw blade head stop:

- Loosen the jam nut (B).

- Turn the stop bolt up or down as desired to set the stop position of the blade. DO NOT allow the blade to be lowered to contact the vise (C).
- Hold the stop bolt in position and tighten the jam nut

8.4 Blade Tracking Adjustment

The head pivot shaft is supported by eccentric bushings. If blade tracks off center resulting in crooked cuts, adjust as follows.

1. Loosen two set screw (A) from rear of head pivot with 4mm hex wrench.

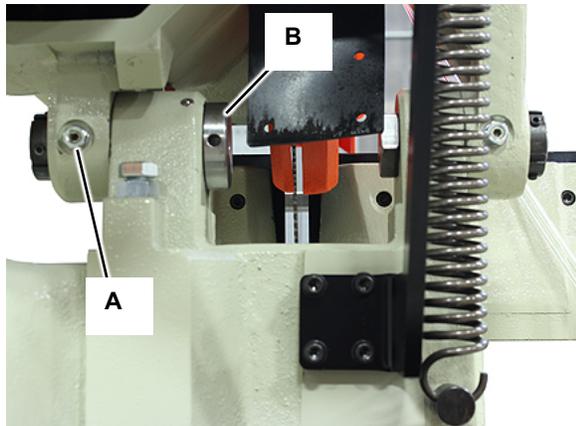


Figure 8-3

2. If blade tracks to right side (viewed from front of machine), rotate right socket screw (under the electrical box) clockwise with 5mm hex wrench.
3. If blade tracks to left side, rotate left socket screw counterclockwise.
4. Tighten set screws(A) and operate saw to verify correctness of adjustment.

8.5 Changing the Saw Blade

1. To change the saw blade:
2. Release and pivot the mobile guard (A) by removing the hex socket screw (B).
3. Place a block of wood into the vise.
4. Lower the machine head to rest the saw blade on the block of wood.
5. Using a hex wrench, remove the lock bolt (C) in a clockwise (cw) direction. (It has a left handed thread).
6. Remove the blade (D) and blade washer (E) from the spindle.
7. Remove the blade washer from the saw blade (D).
8. Place washer (E) onto the replacement blade and follow above procedure in reverse.
9. Check for proper blade rotation.

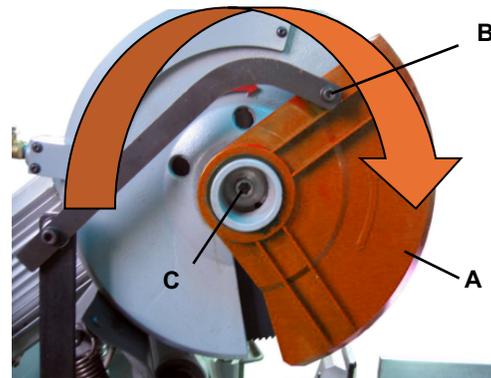


Figure 8-4

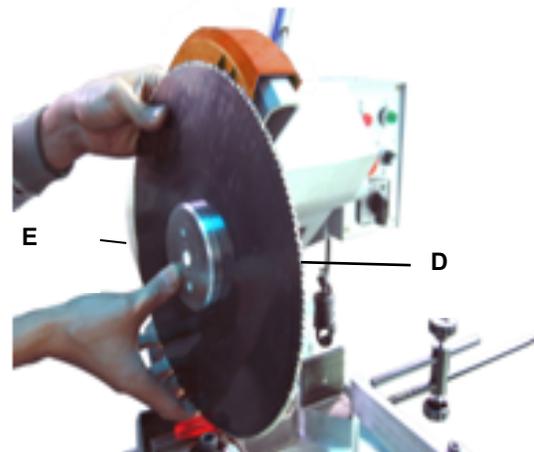


Figure 8-5

9.0 Operation

9.1 Miter Angle

CAUTION

Check that the cutting blade clears all parts of the vise assembly before cutting. The blade can strike parts of the assembly (especially during miter cuts) if not properly adjusted.

1. Push the miter lock lever (A) to the left to release the disk head assembly.
2. Rotate the disk head assembly to the desired miter angle.
3. Use the indicator scale (B) to set the desired cut angle. (Fine tune the angle as needed to get the exact angle.)



Figure 9-1

4. Slide the vise assembly forward or aft as needed to provide clearance for the cutting blade.
5. Adjust the vise clamping jaw (C) to allow for the blade to clear the vise without contacting the jaw.
6. Loosen the clamping bolt (D) and slide the jaw left or right as needed to clear the saw blade. The jaw should be between 0.25" and 0.5" (6 – 13mm) with out contacting the saw blade.
7. Adjust the clamping support to the right side of the blade by loosening and the mounting bolt and sliding the support within the slots (E) or when needed, changing the slots. If necessary, the clamping support may be removed.
8. Pull the miter lock lever (A) back to the right to lock in the angle. ALWAYS LOCK THE LEVER BEFORE CUTTING.

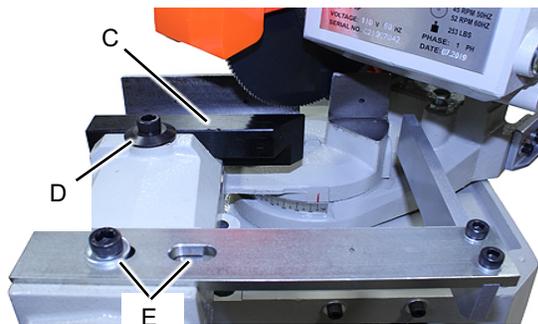


Figure 9-2

9.2 Vise Operation

1. Use the hand wheel (A) to open and close the vise jaw (B) for pieces that vary in width.
 - a. Counter clockwise (ccw) to open jaws
 - b. Clockwise (cw) to close jaws
2. Use the vise release lever (Z) to quickly clamp and unclamp pieces of the same width. The release lever is a 1/2 turn lever, from straight up (loosen) to straight down (clamped).
 - a. Clockwise (cw) to clamp the piece
 - b. Counter clockwise (ccw) to unclamp the piece

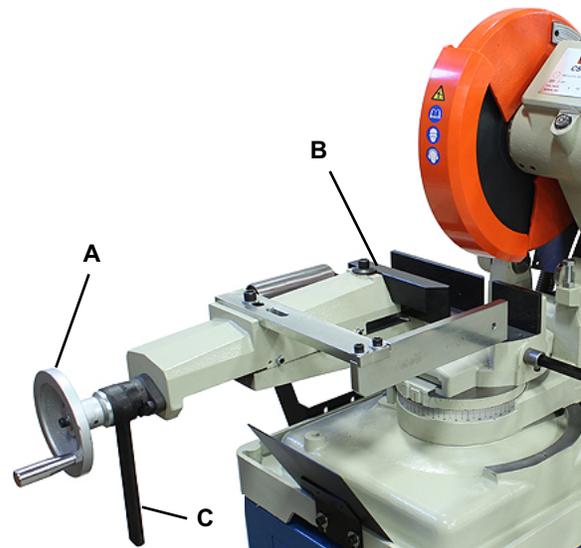


Figure 9-3

9.3 Loading the Piece Part

1. Use the vise hand-wheel to open the jaws wider than the width of the piece.
2. Measure and mark off the length of material to be cut.
3. Place the piece on the flat surface in between the vise jaws.
4. Slide the piece through the jaws so the scribed length mark lines up with the blade or disk.
5. Push the piece up against the back vise jaw.
6. Turn the hand-wheel clockwise (cw) to clamp the piece.

If repetitive cuts are required for material of the same width:

1. Turn the vise hand-wheel clockwise (**cw**) to approach the piece part, leaving approximately 3/16" (5mm) gap between front jaw and the piece part.
2. Then use the vise lock lever to clamp and unclamp the piece.

9.4 Setting Cut Length

Setting the cut length eliminates measuring duplicate pieces.

1. Measure and mark the length of material to be cut off.
2. Load the piece part.
3. Line up the cut.
4. Clamp the piece part.
5. Loosen the hex nut at the base of the bar riser (A).
6. Slide the bar riser (A) along the long rod (B) so that the tip of stop bar (C) touches the end of the piece part.

- Tighten the hex nut at the base of the bar riser (A).

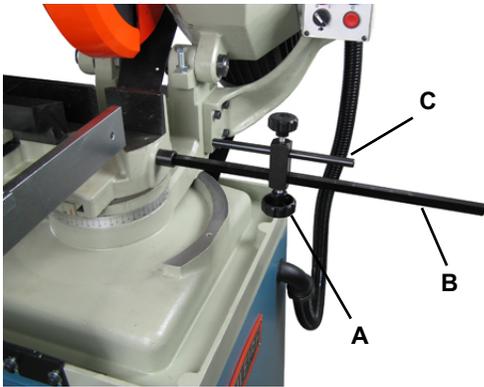


Figure 9-4

9.5 Using the Stop Bar

- Cut off the first length from the clamped piece part.
- Unclamp the piece part.
- Slide the piece part forward until it reaches the tip of the stop bar (C).
- Clamp the piece part.
- Proceed with the cutting cycle.

9.6 Cutting Operation Cycle

- Set the miter cut angle.
- Open the vise jaws.
- Load and clamp the piece part.
- Adjust the bar stop for cutting length.

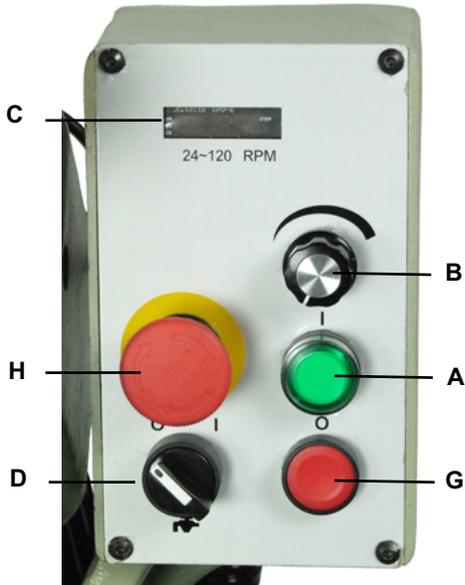


Figure 9-5

- Press button (A) to turn power on to the saw. (Green light will be lit).
- Set the coolant switch (B) to on.
- Grasp the feed handle (C).

- Press the trigger switch (D) to start blade motor.
- Pull down the feed handle (C) applying a steady and constant pressure.
- After cut-off, raise feed handle slowly.
- Release the trigger switch (D) to stop the blade motor.
- Use vise lever to open the jaws.
- Remove or advance the piece part forward for next cut.
- To turn off machine power press the stop button (E)
- To stop machine in an emergency situation, press the **EMERGENCY STOP** button (F).
- Before restarting machine, emergency stop button must be reset with a clockwise (cw) twist.

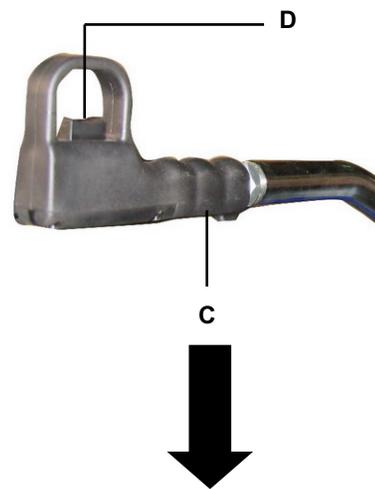


Figure 9-6

NOTICE

Do not allow the saw to slam back up to the start position. Doing so will cause damage to the pivot block and the weight of the motor will cause damage to the gear case adaptor over time.

9.7 Metal Chip Indicators

Chips are the best indicator of correct material feed force. Monitor chip information and adjust feed accordingly.

- Thin or Powdered Chips – increase feed rate or reduce saw speed.
- Burned Chips – reduce feed rate and / or saw speed.
- Curly Silvery and Warm Chips – optimum feed rate and saw speed.

The Baileigh cold saw is now ready to start work. For quality cutting and machine performance always use the correct type of blade or disk and recommended cutting speeds. To extend the life of a new blade or disk, the first two or three cuts must

be made while exerting a slight pressure on the piece part. This will double the normal cutting time.

10.0 Choosing a Saw Blade

Note: The saw blade included with this cold saw is a general-purpose blade. It is considered a starter blade and is intended to allow for the saw to make cut as soon as it is safely set up and ready for operation.

While this blade will cut many material profiles, the best cutting results will be achieved using a blade which is chosen to match the material to be cut.

To achieve a quality, economical, and efficient saw cut, the following points must be taken into consideration:

- Type of material being cut (ferrous or non-ferrous)
- Material hardness and physical dimensions
- Blade descent rate
- Rotational speed of blade
- Blade tooth profile

Choose a tooth pitch that is suitable for the workpiece. Thin-walled profiles, including tubes and pipes require close toothing. At least 3-6 teeth should be in contact with the material while cutting. Large solid or transverse sections require widely spaced toothing to allow for greater volume of chips and better tooth penetration. Soft materials such as plastics, light alloys, mild bronze, Teflon, wood, etc., require widely spaced toothing to avoid clogging.

10.1.1 General Characteristics

Fine Tooth Pitch – used for thin wall materials such as sheet steel, tubes and profiles.

Coarse Tooth Pitch – used for large cross-sections, and for soft materials (aluminum alloys and soft alloys in general).

10.1.2 Determining Proper Tooth Pitch

Proper tooth pitch depends on:

The size of the section.

The hardness of the material.

Wall thickness.

Solid sections call for blades with a coarse tooth pitch, while small cross-sections require blades with finer teeth.

When cutting walls of small cross-section 0.039” – 0.275” (1–7mm) profiles, it is important that the number of teeth actually making the cut should be at least 3 teeth. Otherwise, the effect obtained will be one of tearing rather than of chip removal, leading to a large increase in shearing stress.

When cutting thick materials or solid sections using an excessively fine-tooth pitch, the chip collects as a spiral inside the gullet, and since fine tooth pitches have small gullets, the accumulated chip will exceed the gullet capacity and press against the walls of the workpieces, resulting in poor cutting (same situation

with soft materials), greater shearing stress and hence breakage of the blade.

A larger pitch should be chosen when the shape of the piece to be cut has a cross-section at any given point which exceeds the average cross-section.



Figure 10-1

Choice of tooth pitch T as a function of cross-section to be cut for light alloy solid pieces and profiles			
 S		 S  sp	
S in mm.	Pitch T	S and sp in mm.	Pitch T
10	6	10 sp=0.5	3-4
30	8	30 sp=1.5	4-5
50	10	50 sp=2.5	6-7
70	12	70 sp=3.5	8-9
90	14	90 sp=4.5	8-9
130	18	130 sp=6.5	10

KEY:

s = diameter or width of the solid piece to be cut in mm.

sp = thickness of the wall to be cut in mm.

T = tooth pitch in mm.

Figure 10-2

10.1.3 Cutting and Feeding Speed

The cutting speed and the head feeding speed are limited by the amount of heat generated near to the points of the teeth. If the head feeding speed is too high, the cut will not be straight in either the vertical or the horizontal plane.

The cutting speed depends on the strength (kg/mm²) and hardness (HRC) of the material and the dimensions of the thickest section.

The feeding speed depends on the cross-section of the material. Solid or thick-walled materials (thickness > 5mm) can therefore be cut at high-speed providing there is sufficient swarf removal by the blade, while thin-walled materials such as tubes or thin profiles must be cut with a low feeding speed.

10.1.4 Breaking in a Saw Blade

IMPORTANT: A new blade requires a break-in period, during which time about half the normal feeding speed should be used.

Sharp cutting edges with extremely small edge radii are required for high cutting capacity. To achieve the optimal tool life, we recommend breaking-in the

blade accordingly. The correct cutting speed is determined by the material being cut and its dimensions. It is very important that the new blade is first used with only 50% of the determined feed rate. This will avoid micro-breakages of the blade because of too large chip thicknesses. New saw blades may tend toward vibrations and vibration sounds. In this case a slight reduction of the cutting speed (feed rate if the saw is a single rpm machine) is helpful. With small workpiece dimensions approximately 300cm² of the material should be cut for breaking-in. If large work piece dimensions are to be cut, we recommend a breaking-in period of about 15 minutes. After breaking-in you may slowly increase the feed rate up to the determined value.

10.1.5 Coolant

The cooling fluid ensures that the blade teeth and material in the area of the cut do not overheat. The fluid must be an excellent lubricant to prevent abrasion of the teeth and welding of the chips to the teeth (seizing).

10.1.6 Blade Structure

For non-ferrous metals, it is common to use circular saws with a brazed hard metal HM cutting edge, consisting of a disc made of alloy tool steel (71Cr1) on which the shape of the teeth and the seats for the cutting edges are made of Widia K10. These saws have shown excellent wear resistance but low resistance to impact, which is in any case a minor problem with non-ferrous materials.

CHEMICAL COMPOSITION:

Blade body	C	Cr	Mn	Mo	V	Co	HRC
steel type	0,71	0,20	0,40	-	-	-	43+/-1
71Cr1	0,78	0,30	0,70	-	-	-	

KEY:

C = Carbon Co = Cobalt Cr = Chromium
 Mo = Molybdenum Mn = Manganese V = Vanadium
 The numbers in the columns indicate the % of the element present in the steel.

Figure 10-3

10.1.7 Types of Blades

In addition to the size and pitch of the teeth, the blades also have different geometric characteristics in accordance with their particular use:

tooth cutting angle – may be negative or positive

tooth sharpening – may be BW with an alternate raked tooth or C with a roughing tooth raked on both sides and a non-raked finishing tooth

tooth pitch – the distance between the crest of one tooth and the crest of the next tooth (tooth pitch = T)

10.1.8 Teeth Shape

“C” Type Sharpening (HZ)

Coarse toothing with roughing tooth raked on both sides and non-raked finishing tooth. The roughing tooth is about 0.3 mm higher.

Coarse toothing with roughing tooth and finishing tooth. Used in saws with pitch greater than or equal to 5 mm for cutting ferrous and non-ferrous materials with solid or solid-profiled sections.

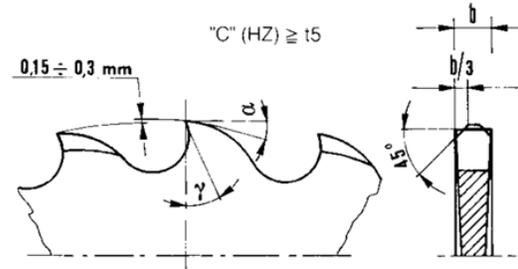


Figure 10-4

“BW” Type Sharpening DIN 1838--UNI 4014

Coarse toothing with teeth alternately raked to the right and left.

Toothing generally used on cut-off machines for cutting ferrous and alloy materials with tubular and profiled sections.

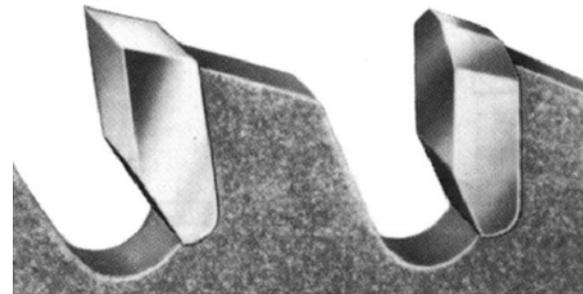
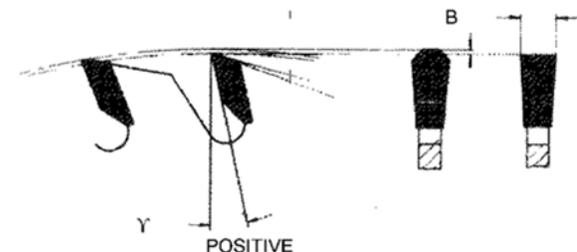


Figure 10-5

10.1.9 Positive and Negative Cutting Angles

The cutting angle may vary from positive to negative depending on the cutting speed, the profile and the type of material to be cut.

A positive angle determines better penetration of the tool and hence lower shear stress and greater ease of sliding for the swarf over the cutting edge. On the other hand, the cutting edge has lower mechanical resistance, so that as the breaking load of the material to be cut increases, the cutting angle decreases from positive until it becomes negative, thus offering a cutting edge with a larger resistant section.



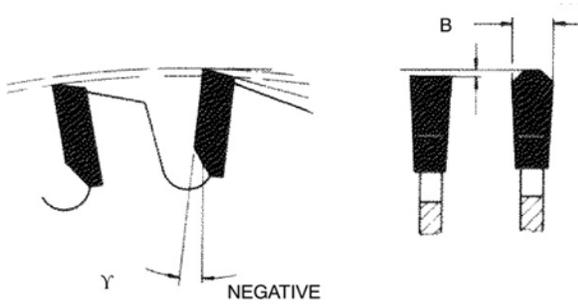


Figure 10-6

Short swarf material such as brass, bronze, aluminum and hard cast iron require smaller cutting angles because the swarf becomes crushed immediately and the rake angle has little effect during the cutting stage.

The cold saws use discs with positive cutting angles for cutting solid materials and with negative cutting angles for cutting hollow profiles. This is because, as a result of the high cutting speeds, even with non-ferrous materials the tool “strikes” against the wall of the profile to be cut several times, thus requiring a cutting edge with a larger resistant section.

Circular saws can also be characterized by other parameters such as the whine reduction feature, which cuts down noise at high speeds, or expansion, which compensates for the pushing of chips inside the cutting edge, thus reducing the thrust on the walls of the material to be cut.

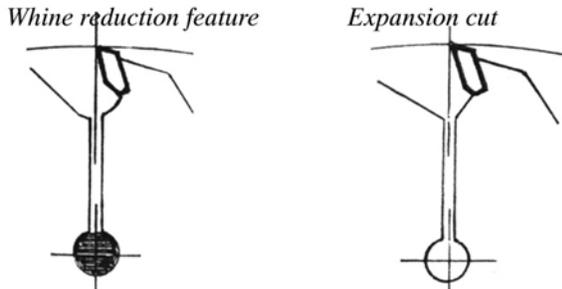


Figure 10-7

Use the chart on the following page to help select the saw blade suitable for your application.

Baileigh Industrial offers a wide selection of tooth styles for various cutting applications. Please phone Baileigh Industrial at (920.684.4990) to have one of our technicians assist you in selecting the proper cold saw blades for your cutting applications.

11.0 Blade Selection Chart

Tube Diameter	Wall Thickness	Blade Diameter- Metric (Normal Inch)						
		225 (9")	250 (10")	275 (10-3/4")	300 (12")	315 (12-1/2")	350 (14")	401.0 (16")
1/2"	.030"-.090"	220BW	240BW	280BW	300BW	300BW	320BW	340BW
1/2"	.090"-.150"	200BW	220BW	240BW	280BW	280BW	300BW	320BW
1"	.030"-.060"	220BW	240BW	280BW	300BW	300BW	320BW	340BW
1"	.060"-.090"	220BW	220BW	240BW	280BW	280BW	300BW	320BW
1"	.090"-.150"	180BW	220BW	220BW	240BW	240BW	280BW	300BW
1-1/2"	.030"-.060"	220BW	240BW	260BW	300BW	300BW	320BW	340BW
1-1/2"	.060"-.090"	200BW	220BW	240BW	280BW	280BW	300BW	320BW
1-1/2"	.090"-.150"	180BW	200BW	220BW	240BW	240BW	280BW	300BW
1-1/2"	.150"-.250"	140C	160C	180C	200C	220C	220C	240BW
2"	.030"-.060"	240BW	260BW	280BW	300BW	300BW	320BW	340BW
2"	.060"-.090"	180BW	200BW	220BW	240BW	240BW	280BW	320BW
2"	.090"-.180"	140C	160C	180C	220C	220C	220C	300BW
2"	.180"-.300"	120C	140C	160C	180C	180C	200C	240BW
2"	.300"-.500"	100C	110C	120C	140C	140C	160C	180C
2-1/2"	.030"-.060"	240BW	260BW	280BW	300BW	300BW	320BW	340BW
2-1/2"	.060"-.090"	200BW	220BW	240BW	260BW	260BW	280BW	300BW
2-1/2"	.090"-.150"	180BW	180C	180C	200C	200C	220C	240BW
2-1/2"	.150"-.250"	120C	140C	160C	180C	180C	200C	220C
2-1/2"	.250"-.400"	100C	110C	120C	140C	140C	160C	180C
2-1/2"	.400"-.500"	90C	100C	110C	120C	120C	140C	160C
3"	.030"-.060"			280BW	300BW	300BW	320BW	340BW
3"	.060"-.090"			240BW	260BW	260BW	280BW	300BW
3"	.090"-.150"			180C	200C	200C	220C	240BW
3"	.150"-.250"			160C	180C	180C	200C	220C
3"	.150"-.250"			120C	140C	140C	160C	180C
3"	.250"-.400"			100C	120C	120C	140C	160C
3-1/2"	.030"-.060"				300BW	300BW	320BW	340BW
3-1/2"	.060"-.090"				260BW	260BW	280BW	300BW
3-1/2"	.090"-.150"				200C	200C	220C	240BW
3-1/2"	.150"-.250"				180C	180C	200C	220C
3-1/2"	.150"-.250"				140C	140C	160C	180C
3-1/2"	.250"-.400"				120C	120C	140C	160C

For Stainless Steel: Recommended Teeth X 1.2 approx.

For Non-Ferrous Materials: Recommended Teeth X .75 Approx

SOLID Diameter	Blade Diameter- Metric (Normal Inch)						
	225 (9")	250 (10")	275 (10-3/4")	300 (12")	315 (12-1/2")	350 (14")	401.0 (16")
1/4"-3/4"	180BW	180C	200C	220BW	220BW	280BW	320BW
3/4"-1-1/4"	120C	120C	140C	180C	180C	220BW	240BW
1-1/4"-1-3/4"	100C	100C	120C	140C	140C	180C	200C
1-3/4"-2-1/4"	80C	80C	100C	120C	120C	120C	140C
2-1/4"-2-3/4"	60C	60C	70C	80C	80C	80C	90C
2-3/4"-3-1/2"				60C	60C	60C	80C

Figure 11-1

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 tank. (80% of full tank capacity).
- Inspect the disk/saw blade for wear.
- Check that the blade guard, shields, and emergency stops are in good working order.
- When through using machine, raise the head to reduce stress on the return spring.

12.2 Weekly Maintenance

- Clean the machine including the coolant tank and the area around it.
- Lubricate threaded components and sliding devices.
- Clean and grease the vise screw and sliding surfaces.
- Clean the guard housing for the disk/saw blade.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Sharpen the saw teeth.

12.3 Monthly Maintenance

- Thoroughly clean the machine including the coolant tank.
- Check that all screws on the motor, the pump, the vise jaws, and the guard are tight and secure.
- Check that the saw guard is operating properly.
- Use an EP90 or similar oil to lubricate the saw head pivot (A) and the saw miter pivot.

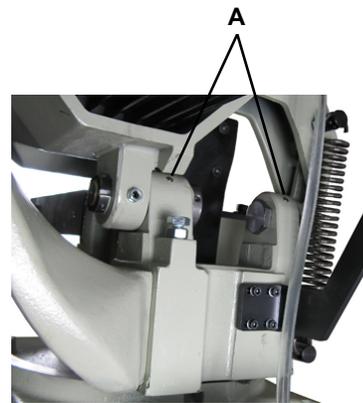


Figure 12-1

12.4 Yearly Maintenance

- Change the oil in the gear case as follows:
- Position the saw head in the horizontal position.
- Remove the connecting plug (A) from the electrical box socket and unscrew the feed handle (B).
- Place a container under the drain hole (C) and remove the drain plug.
- Drain off the old oil.
- Install the drain plug.
- Raise the head to the up position, add 1.58 qt. (1.5L) oil through the feed handle mounting hole.
- Install and connect the feed handle.

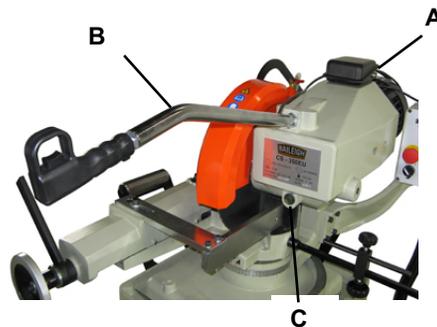


Figure 12-2

12.5 Oil Disposal

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

12.6 Accessing and Cleaning the Coolant System

1. Remove the drain hose from the return screen.
2. Lift the tank and pump assembly off of the retaining tray and slide the assembly out of the stand.
3. Remove and clean the filter (A). Replace if needed.
4. Pour out the coolant from the tray.

5. Wash out the dirt and debris.
6. Replace the filter and install the pump and tank assembly so that the V-notch is over the retaining flange.
7. Fill the tank with coolant solution by pouring coolant through the chip strainer (A).



Figure 12-3

12.7 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 blade and machine life. Each gallon of concentrate makes 21 gallons of coolant.

12.8 Storing Machine for Extended Period of Time

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

- Detach the plug from the electrical supply panel.
- Release the head return spring.
- Empty and clean the coolant tank.
- Clean and grease the machine.
- Cover the machine

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

12.9 Cleaning Coolant Path

Once a year or if the coolant flow is reduced, remove the channel covers and clean the coolant flow paths.

1. Disconnect power to the saw.
2. To change the saw blade:
3. Release and pivot the mobile guard (A) by removing the hex socket screw (B).
4. Remove the screws, covers, and gaskets from each side of the saw guard.
5. Clean the coolant path (C) to remove all debris.

6. Install the gasket and cover and secure with the screws. If the gasket has been damage, an RTV type seal may be used, however do not allow sealant to get into the coolant flow path.
7. When complete, connect the mobile guard pivot arm.

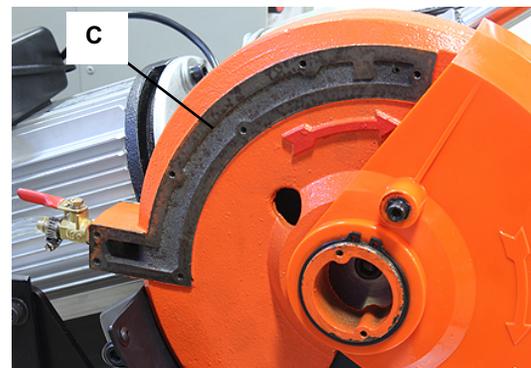
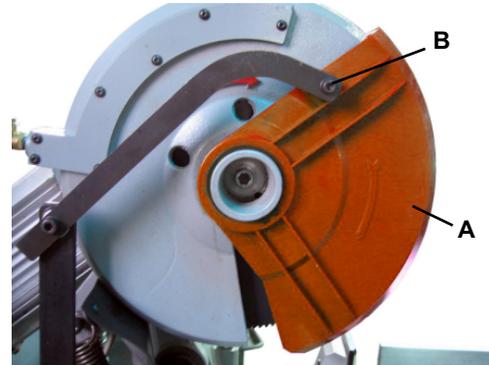


Figure 12-4

13.0 Lubrication Oil Table 1

Above 82°F (Select from the products listed below)

Table 13-1

Brand	Hydraulic Tank Oil	Gear Oil	Slideway Oil
Mobil	DTE XL 68, DTE 16M	Mobilgear 634, SHC 460	Mobil Vactra Oil No. 4
Shell	Shell Tellus Oil 68	Shell Omala Oil 460	Shell Tonna Oil T220
Exxon	Nuto H 68	Spartan EP 460	Febis K220

Table 13-2

Brand	Hydraulic Cylinder Oil	Air Lube System	Grease Fittings
Mobil	DTE 21	DTE 21	Mobil UX2 EPO
Shell	Shell Carnea Oil 10	Shell Carnea Oil 10	Aluania Greaser 1
Exxon	Spinesso 10	Spinesso 10	Ronex MP Beacon 2

14.0 Lubrication Oil Table 2

Below 82°F (Select from the products listed below)

Table 14-1

Brand	Hydraulic Tank Oil	Gear Oil	Slideway Oil
Mobil	DTE XL 46, SHC 525	Mobilgear 630, SHC 220	Mobil Vactra Oil No. 4
Shell	Shell Tellus Oil 46	Shell Omala Oil 220	Shell Tonna Oil T220
Exxon	Nuto H 46	Spartan EP 220	Febis K220

Table 14-2

Brand	Hydraulic Cylinder Oil	Air Lube System	Grease Fittings
Mobil	DTE 21	DTE 21	Mobil UX2 EPO
Shell	Shell Carnea Oil 10	Shell Carnea Oil 10	Aluania Greaser 1
Exxon	Spinesso 10	Spinesso 10	Ronex MP Beacon 2

15.0 Troubleshooting

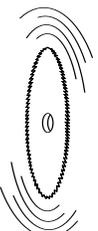
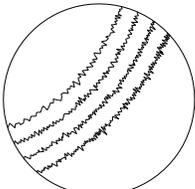
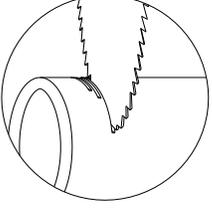


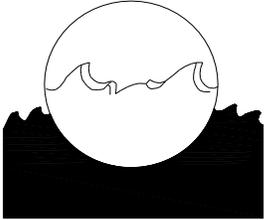
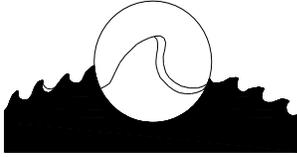
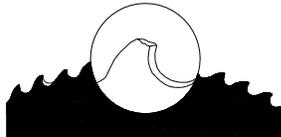
WARNING

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

15.1 Blade and Cut Diagnosis

Table 15-1

Fault	Possible Cause	Remedy
DISK VIBRATION 	Wrong tooth pitch.	Choose a suitable disk.
	Unsuitable tooth profile.	Choose a suitable disk.
	Ineffective gripping of the part in the vise.	Check the gripping of the part.
	Dimensions of the solid section too large with respect to the maximum admissible cutting dimensions.	Abide by the instructions.
	Disk diameter incorrect and/or too large.	Decrease the disk diameter, adapting it to the dimensions of the part to be cut.
RIDGES ON THE CUTTING SURFACE 	Ineffective gripping of the part in the vise.	Check the gripping of the part.
	Too fast advance.	Decrease advance, exerting less cutting pressure.
	Disk teeth are worn.	Sharpen the tool.
	Insufficient lubricating coolant.	Check the level of the liquid in the tank. Increase the flow of lubricating coolant, checking that the hole and the liquid outlet pipe are not blocked
	Teeth do not unload shavings well.	Choose a blade with a larger tooth pitch that allows better unloading of shavings and that holds more lubricating coolant.
CUT OFF THE STRAIGHT 	Too fast advance.	Decrease advance, exerting less cutting pressure.
	Ineffective gripping of the part in the vise.	Check the gripping of the part which may be moving sideways.
	Disk head off the straight.	Adjust the head.
	Disk sides differently sharpened.	Choose proper tool quality, type, and construction characteristics.
	Dirt on the gripping device.	Carefully clean the laying and contact surfaces.
BLADE STICKS IN THE CUT 	Too fast advance.	Decrease advance, exerting less cutting pressure.
	Low cutting speed.	Increase speed.
	Wrong tooth pitch.	Choose a suitable disk.
	Sticky accumulation of material on the disk.	Check the blend of lubricating coolant and choose a better-quality disk.
TOOTH BREAKAGE	Insufficient lubricating refrigerant.	Check the level of the liquid in the tank. Increase the flow of lubricating coolant, checking that the hole and the liquid outlet pipe are not blocked.
	Too fast advance.	Decrease advance, exerting less cutting pressure.
	Wrong cutting speed.	Change disk speed and/or diameter.
	Wrong tooth pitch.	Choose a suitable disk.

Fault	Possible Cause	Remedy
	Low quality disk.	Use a better-quality disk.
	Ineffective gripping of the part in the vise.	Check the gripping of the part.
	Previously broken tooth left in the cut.	Accurately remove all the parts left in.
	Cutting resumed on a groove made previously.	Make the cut elsewhere, turning the part.
	Insufficient lubricating coolant or wrong coolant.	Check the level of the liquid in the tank. Increase the flow of lubricating coolant, checking that the hole and the liquid outlet pipe are not blocked.
	Sticky accumulation of material on the disk.	Check the blend of lubricating coolant and choose a better-quality disk.
<p>PREMATURE DISK WEAR</p> 	Wrong running in of the disk.	When cutting for the first time run in the tool, making a series of cuts at a low advance speed, spraying the cutting area with lubricating coolant.
	Wrong cutting speed.	Change disk speed and / or diameter.
	Unsuitable tooth profile.	Choose a suitable disk.
	Wrong tooth pitch.	Choose a suitable disk.
	Low quality disk.	Use a better-quality disk.
	Insufficient lubricating refrigerant.	Check the level of the liquid in the tank. Increase the flow of lubricating coolant, checking that the hole and the liquid outlet pipe are not blocked.
<p>CHIPPED DISK</p> 	Hardness, shape or flaws in the material	Reduce the cutting pressure and/or the advance.
	Wrong cutting speed.	Change disk speed and/or diameter.
	Wrong tooth pitch.	Choose a suitable disk.
	Vibrations.	Check gripping of the part.
	Disk incorrectly sharpened.	Replace the disk with one that is more suitable and correctly sharpened.
	Low quality disk.	Use a better-quality disk.
	Incorrect emulsion of the lubricating coolant.	Check the percentage of water and oil in the emulsion.

15.2 Inverter Troubleshooting



Figure 15-1

Make the following before operating all electronic components.

Note: Only qualified personnel can perform the electronic settings.

- Disconnect and lock out the machine from the power supply.
- Electronic parts are extremely sensitive, use care to avoid static electrical charges or tools that could cause a short circuit or crush the components.

- To avoid electrical shock from charged capacitors, wait until the lighted display is completely dark before starting any repair work.
- Pay special attention to the electronic circuit board, so it is still in good working order.
- Never connect the AC power directly to the output connector (U / V / W) of the drive controller. The electronic self-diagnostic program will keep you aware of situations such as motor overload, voltage too low or too high, etc.. The machine stops immediately when the program detects an error. The error will be displayed on the inverter's digital display in the control panel. Follow the instructions for correcting errors.
- Wait 5 seconds after a fault has been cleared before proceeding with reset using the keypad.

Table 15-2

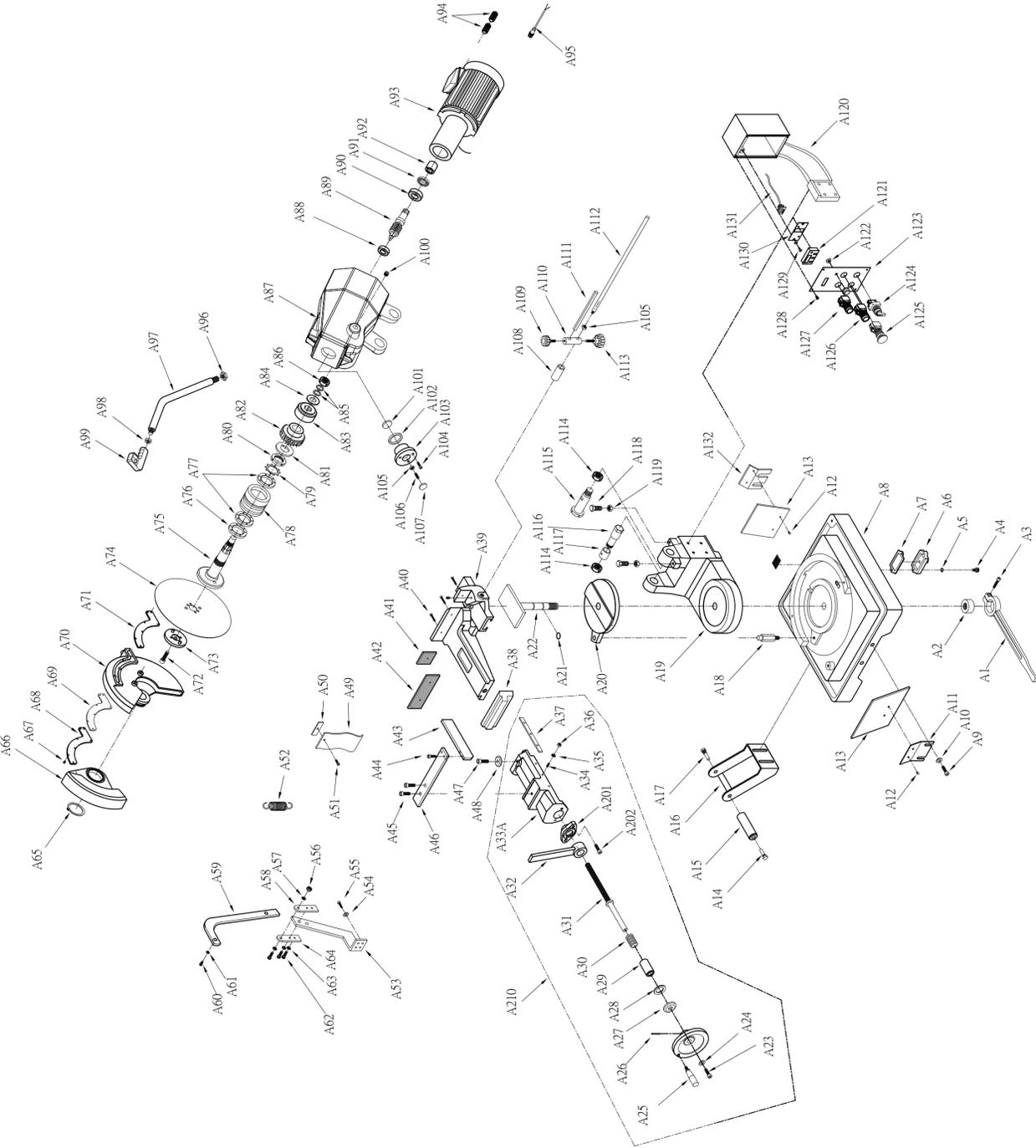
Fault	Probable Cause	Remedy
oc	Over Current Abnormal increase in current.	Check the engine's power is the output of the frequency speed. Check the connections to U/T1, and V1T2 W/T3 for a possible short circuit. Check the connections between the drive and engine for a possible short circuit, and also the ground. Check for loose contacts between the drive and motor. Increase the acceleration time. Check the motor overload conditions. If, after you repair a short circuit and verified the items listed above, the anomalies continue the drive, the machine should be returned to the manufacturer.
OU	Over Voltage The DC bus voltage has exceeded the maximum threshold.	Check if the input voltage is at the limit of the inverter. Verify the presence of transients. The regeneration of the engine could be cause excess DC bus voltage. In this case, the solution would be to increase the deceleration time, or add a braking resistor (and a brake unit) available. Check whether the required braking power is located within the specified limits.
oH1 oH2	Overheating Heat Sink Temperature too high.	Make sure the room temperature located at the specified temperature limit. Make sure the vent holes are not blocked. Remove all foreign objects of heat sinks and check the status of clean the fins. Check and clean the fan. Observe the clearances to ensure adequate ventilation.
Lu	Low Voltage The drive detects that the DC bus voltage is fallen below its minimum value.	Check if the input voltage is at the limited to that of the drive. Check the motor load fault. Check the wiring of the input terminals of Power R-S-T (for three-phase) is correct without loss of phase.
oL	Overload The drive detects excessive output current. Note: The drive is likely to withstand Overload 150% of rated current for a maximum of 60 seconds.	Check if the motor is overloaded. Reduce the configuration of the compensation torque in Pr.07.02. Use a less powerful drive.
oL1	Overload 1 Internal circuit electronic overload	Check the motor overload. Check the configuration of overload electronic and thermal. Use a higher power engine. Reduce the current level so that the output current of the inverter does not exceed the value set by the rated engine, namely Pr.07.00.
oL2	Overload 2 Motor overload.	Reduce the motor load. Configure the sensor to a torque boost appropriate level (to PL06.03 PL06.05).
HPF1	CC (clamp ammeter)	Consult factory.

Fault	Probable Cause	Remedy
HPF2	OV Hardware Error Back to the factory.	Consult factory.
HPF3	GFF Hardware Error	Consult factory.
HPF4	OC Hardware Error	Consult factory.
bb	Block external database. (Refer to Pr.08.07)	The inverter output will be disabled when external input terminal (B.B) is active. Disable the external input terminal (B.B) to activate the drive.
ocA	Excess current during acceleration	Short circuit at the output of the engine: Check isolation of the output line. Torque boost too high: Reduce the torque compensation in Pr.07.02. Acceleration time too short: Increase the acceleration time. The power output of the inverter is too Low: Opt for a less powerful drive.
ocd	Excess current during deceleration	Short circuit at the output of the engine: Check isolation of the output line. Deceleration time too short: Increase The power output of the inverter is too Low: Opt for a less powerful drive.
ocn	Excess current during operation at constant speed	Short circuit at the output of the engine: Check isolation of the output line. Sudden increase in engine load: Check the overload of the motor. The power output of the inverter is too Low: Opt for a less powerful drive.
EF	External Fault	When multi-function input terminals (MI3-MI9) are set to default external the drive stops output U, V and W. Restore the settings after Reset the fault.
cF1.0	Internal EEPROM can not be programmed.	Consult factory.
cF1.1	Internal EEPROM can not be programmed.	Consult factory.
cF2.0	Reading the EEPROM Internal impossible.	Press the RESET button to restore all factory settings. Consult factory.
cF2.1	Reading the EEPROM Internal impossible.	Press the RESET button to restore all factory settings. Consult factory.
cF3.0	U-phase error	Consult factory.
cF3.1	V-phase error	Consult factory.
cF3.2	W-phase error	Consult factory.
cF3.3	OV and LV	Consult factory.
cF3.4 cF3.5	Error Sensor temperature	Consult factory.
GFF	Grounding problem	When one or more terminals output is / are set (s) to land, the current short-circuit current is greater than 50% of rated output current of the inverter, the power module of the inverter can be damaged. Note: Protection against short circuit is designed to protect the drive and not the user. Check the power module IGBT is damaged. Check the insulation of the output line.
cFA	Auto Acceleration / Deceleration fault	Check if the engine is designed for use with dimmers speed. Check if the power of regeneration is too large. It may be that the load has changed suddenly.
cE--	Communication error	Check that the RS485 connection between the master controller and RS485 are not loose and the pins are correct. Verify that the protocol communication, address, speed transmission, etc. are properly parameterized. Use a good checksum calculation.

Fault	Probable Cause	Remedy
codE	Error protection software	Consult factory.
AErr	Analog signal error	Check wiring of the ACI
FbE	Error feedback signal of PID controller	Check the settings (Pr.1 0.01) and wiring AVI / ACI. Make sure there is no error between the System response time and detection time of the return signal PID controller (Pr.1 0.08)
PHL	Phase loss	Check the wiring of the input phase to avoid loose contacts.
AUE	Automatic error	Check the wiring between the drive and the engine. Retest.
CP10	Communication time-out error on the control board or power board.	Press the RESET button to restore all factory settings. Consult factory.
PtC1 PtC2	Protection against overheating engine	Make sure the engine is overheating. Check the settings in Pr.07. to 12 Pr.07.17.
PGEr	Error signal PG	Check the wiring of the card left. Try a working PG card.
CGUd CHbt	CANopen protection time-out (only for VFDxxxExxC) CANopen pulse time-out (only for VFDxxxExxC)	Reconnect the CAN bus and reset. Reconnect the CAN bus and reset.
CSYc	CANopen SYNC time-out (only for VFDxxxExxC)	Check synchronous message
Csdo	CANopen SDO time-out (only for VFDxxxExxC)	Check that the control channels are full.
CSbF	CANopen SDO Buffer overflow (only for VFDxxxExxC)	Too short time between commands. Please check the message SDO sent by the master. Reset CAN bus.
CbSF	CAN bus will not power up (only for VFDxxxExxC)	Check if connected to the resistance terminus. Check if the signal is abnormal. Check if the master is connected.
CbtU	CAN Boot up fault (Only for VFDxxxExxC)	Check whether the master is connected. Reset CAN bus.
CPTo	CANopen communication protocol error (Only for VFDxxxExxC)	Verify that the protocol Communication is correct.
dEb	It will be displayed at the deceleration when Pr.08-24 is not set and when power off unexpected occurs, such as power loss momentary.	Pr.08-24 set to 0. Check if the input power is stable.
AcL	Communication loop abnormally.	Check that the wiring Communication is correct. Consult factory.

16.0 Replacement Parts

16.1.1 Manual Cold Saw Assembly – Exploded View A



16.1.2 Manual Cold Saw Assembly – Parts List A

Index No.	Part No.	Description	Size	Qty.
A1	BA1-4852	Lock Handle		1
A2	BA1-4853	Lock Nut		1
A3	BA1-4854	Hex Socket Cap Screw		1
A4	BA1-4855	Hex Socket Cap Screw		2
A5	BA1-4856	Washer		2
A6	BA1-4857	Drainage		1
A7	BA1-4858	Rubber		1
A8	BA1-4859	Base		1
A9	BA1-4860	Hex Socket Cap Screw		2
A10	BA1-4861	Washer		2
A11	BA1-4862	Support Plate		1
A12	BA1-4863	Screw		2
A13	BA9-1226560	Anti-Spray Plate		2
A14	BA9-1012685	Hex Head Screw		2
A15	BA9-1012686	Roller		1
A16	BA9-1012687	Roller Bracket		1
A17	BA9-1010410A	Handle Wheel Screw		1
A18	BA9-1016362	Support Rod		1
A19	BA1-4864	Swing Arm (Base)		1
	BA9-1225417	Scale (Not shown)		
A20	BA9-1016363	Slide Base		1
A21	BA9-1012332	C-Clip		1
A22	BA9-1012333	Center Shaft		1
A23	BA1-4865	Hex Socket Cap Screw		1
A24	BA1-4866	Washer		1
A25	BA9-1009918	Grip		1
A26	BA1-4867	Set Screw		1
A27	BA9-1015773	Bearing Cover		1
A28	BA9-1014436	Bearing		1
A29	BA9-1015774	Bushing		1
A30	BA9-1015775	Spring		1
A31	BA9-1010409	Leading Screw		1
A32	BA9-1226561	Lock Handle		1
A33A	BA9-1013024	Slide Vise		1
A34	BA9-1013025	Set Screw		3
A35	BA9-1013026	Washer		3
A36	BA9-1013027	Nut		3
A37	BA9-1013028	Gib		1
A38	BA1-4868	Vise Clamp		1
A39	BA9-1227296	Vise Bench		1
A40	BA9-1230785	Hex Socket Cap Screw		3
A41	BA9-1230786	Small Grooved Jaw		1
A42	BA9-1019985	Grooved Jaw		1
A43	BA9-1229620	Stopper		1
A44	BA9-1019987	Hex Socket Cap Screw		2
A45	BA1-4869	Hex Socket Cap Screw		2
A46	BA9-1016364	Plate (Vise)		1
A47	BA9-1013029	Hex Socket Cap Screw		1
	BA9-1014229	Complete Vise Assembly(A23-A47)		
A48	BA9-1013030	Washer		1
A49	BA1-4870	Anti-Dust Plate		1
A50	BA1-4871	Holder Plate		1
A51	BA1-4872	Screw		1
A52	BA9-1002544	Spring		1
A53	BA9-1226562	Lower Switching Plate		1
A54	BA1-4873	Washer		2
A55	BA1-4874	Hex Socket Cap Screw		2
A56	BA1-4875	Nut		1
A57	BA1-4876	Washer		1

Index No.	Part No.	Description	Size	Qty.
A58	BA9-1019988	Joint Plate W/Thread		1
A59	BA9-1009037	Swing Handle		1
A60	BA1-4877	Hex Socket Cap Screw		1
A61	BA1-4878	Washer		1
A62	BA1-4879	Hex Socket Cap Screw		3
A63	BA1-4880	Washer		2
A64	BA1-4881	Joint Plate		1
A65	BA9-1020666	C-Clip		1
A66	BA9-1020667	Blade Shield		1
A67	BA9-1020668	Screw		7
A68	BA9-1020669	Plate (Cover)		1
A69	BA9-1020670	Rubber		2
A70	BA9-1020671	Blade Cover (Casting)		1
A71	BA9-1020672	Plate (Cover)		1
	BA9-1008978	Blade Guard Assembly(A65-A71)		
	BA9-1010363	Spindle Shaft Assembly (A72 - A86)		
A72	BA1-4882	Hex Socket Cap Screw		1
A73	BA9-1013557	Fixing Flange		1
A74	Multipletpi/ Sku'soffered	Saw Blade		1
A75	BA9-1002546	Spindle Shaft		1
A76	BA9-1002547	Oil Seal		1
A77	BA9-1002548	Taper Roller		2
A78	BA9-1002549	Spindle Sleeve		1
A79	BA9-1002550	Star Washer		1
A80	BA9-1002551	Locking Nut		1
A81	BA9-1002552	Spacer		1
A82	BA9-1002553	Worm Gear		1
A83	BA9-1002554	Bushing		1
A84	BA9-1002555	Plate, Stopper		1
A85	BA9-1002556	Disc Spring Washer		2
A86	BA9-1002557	Locking Nut		1
A87	BA9-1230486	Machine Head		1
A88	BA9-1002558	Ball Bearing		1
A89	BA9-1002559	Worm Shaft		1
A90	BA9-1002560	Ball Bearing		1
A91	BA9-1002561	Oil Seal		1
A92	BA9-1017516	Coupling		1
A93	BA9-1002562	M1 Motor		1
A94	BA1-4883	Wire Relief		2
A95	**	Control Wire		1
A96	**	Nut		1
A97	**	Control Handle Rod		1
A98	**	Nut		1
A99	**	Handle with SB4 Trigger Switch		1
	BA9-1012331	Trigger Handle Assembly(A95-A99)		
A100	BA9-1002536	Oil Pilot		1
A101	BA9-1002537	Gasket		1
A102	BA9-1002538	Oil Ring		2
A103	BA9-1017517	Casting Plug		1
A104	BA9-1017518	Hex Socket Cap Screw		3
A105	BA9-1002539	Nut		1
A106	BA9-1002540	Set Screw		1
A107	BA9-1002541	Oil Seal		1
A108	BA9-1015078	Bushing		1
A109	BA9-1015079	Lock Bolt with Knob		1
A110	BA9-1002542	Bracket, Length Setting		1
A111	BA9-1002543	Upper Length Setting Rod		1
A112	BA9-1015080	Lower Length Setting Rod		1
A113	BA9-1015081	Lock Bolt with Knob		1
A114	BA9-1230979	Locking Nut		2

Index No.	Part No.	Description	Size	Qty.
A115	BA9-1230980	Shaft (Right)		1
A116	BA9-1230981	Shaft (Left)		1
A117	BA9-1230982	Bushing		1
A118	BA9-1019989	Hex Head Screw		2
A119	BA9-1019989	Nut		2
A120	BA9-1010389	Control Arm		1
A121	BA9-1018320	A1 Digital Display		1
A122	BA9-1013406	VR Speed Control Potentiometer		1
A123	BA9-1012900	Control Panel		1
A124	BA9-1018321	SA2 Pump Selection Switch, On/Off		1
A125	BA9-1018322	SB1 Emergency Switch		1
A126	BA9-1018323	SB3 Start Button, Illuminated		1
A127	BA9-1012899	SB2 Stop Button		1
A128	BA1-514	Screw		4
A129	BA1-515	Hex Socket Cap Screw		2
A130	BA1-516	Support Plate		1
A131	BA9-1018324	Transmission Wire		1
	BA9-1010681	Complete Control Box Assembly w/ Arm (A120-A131)		1
A132	BA1-517	Support Plate, Rear		1
A210	**	Sliding Vise Assembly		

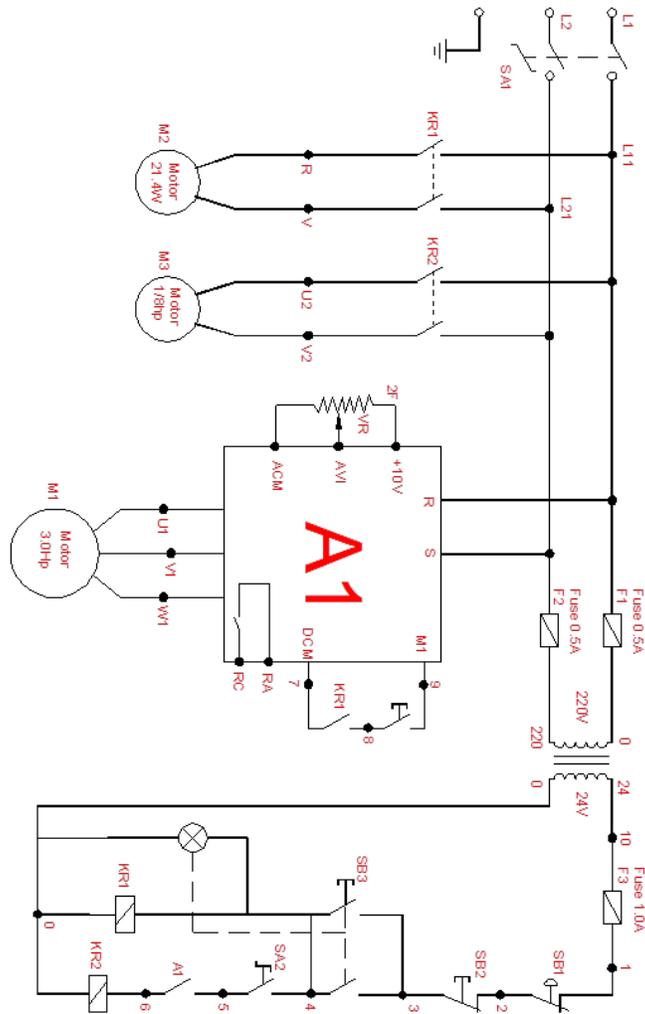
** These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

16.1.4 Manual Cold Saw Assembly – Parts List B

Index No.	Part No.	Description	Size	Qty.
B1	BA1-513	Stand		1
B2	BA1-4884	Nut		4
B3	BA1-4885	Washer		4
B4	BA1-4886	Support Plate		1
B5	BA1-4887	Washer		4
B6	BA1-4888	Hex Cap Screw		4
B7	BA1-4889	Coolant Tank		1
B8	BA1-4890	Hose		1
B9	BA1-4891	Hose Clamp		1
B10	BA1-4892	Washer		2
B11	BA1-4893	Hex Socket Cap Screw		2
B12	BA9-1002526	M3 Coolant Pump		1
B13	BA1-4895	Hose Connector		1
B14	BA1-4896	Hose Clamp		1
B15	BA1-4897	Hose		1
B16	BA1-4898	Hose Clamp		1
B17	BA1-4899	Valve		1
B18	BA1-4900	Pump Wire		1
B19	BA1-4901	Hex Cap Screw		4
B20	BA1-4902	Washer		4
B21	BA1-4903	Hex Cap Screw		2
B22	BA1-4904	Washer		2
B23	BA1-4905	Support Plate for Tank		1
B24	BA1-4906	Protector, Plate		1
B25	BA9-1002563	Gooseneck Tube		1
B26	BA1-4907	Hex Cap Screw		4
B27	BA1-4908	Washer		4
B28	BA1-4909	Nut		4
B29	BA1-4910	Electrical Box		1
B30	BA1-1196	Power Cord		1
B31	BA9-1002564	A1 Inverter		1
B32	BA9-1228717	SA1 Safety Door Switch		1
B33	BA1-4911	Hex Socket Cap Screw		2
B33	BA1-4911	Washer		2
B35	BA1-4913	TC Transformer		1
B36	BA1-4914	Fuse Base		3
	**	Fuse (20A)		2
	**	Fuse (2A)		1
B37	BA1-4915	Relay, KR1, KR2		2
B38	BA1-4916	Terminal Strip		1
B39	BA1-4917	Mounting Panel		1
B40	BA1-4918	Wire Relief		2
B41	BA9-1230787	Plate, Cover		2
B42	BA9-1230788	Screw		1
B43	BA1-4919	Plate, Supporter		1
B44	BA9-1002565	Collar		1

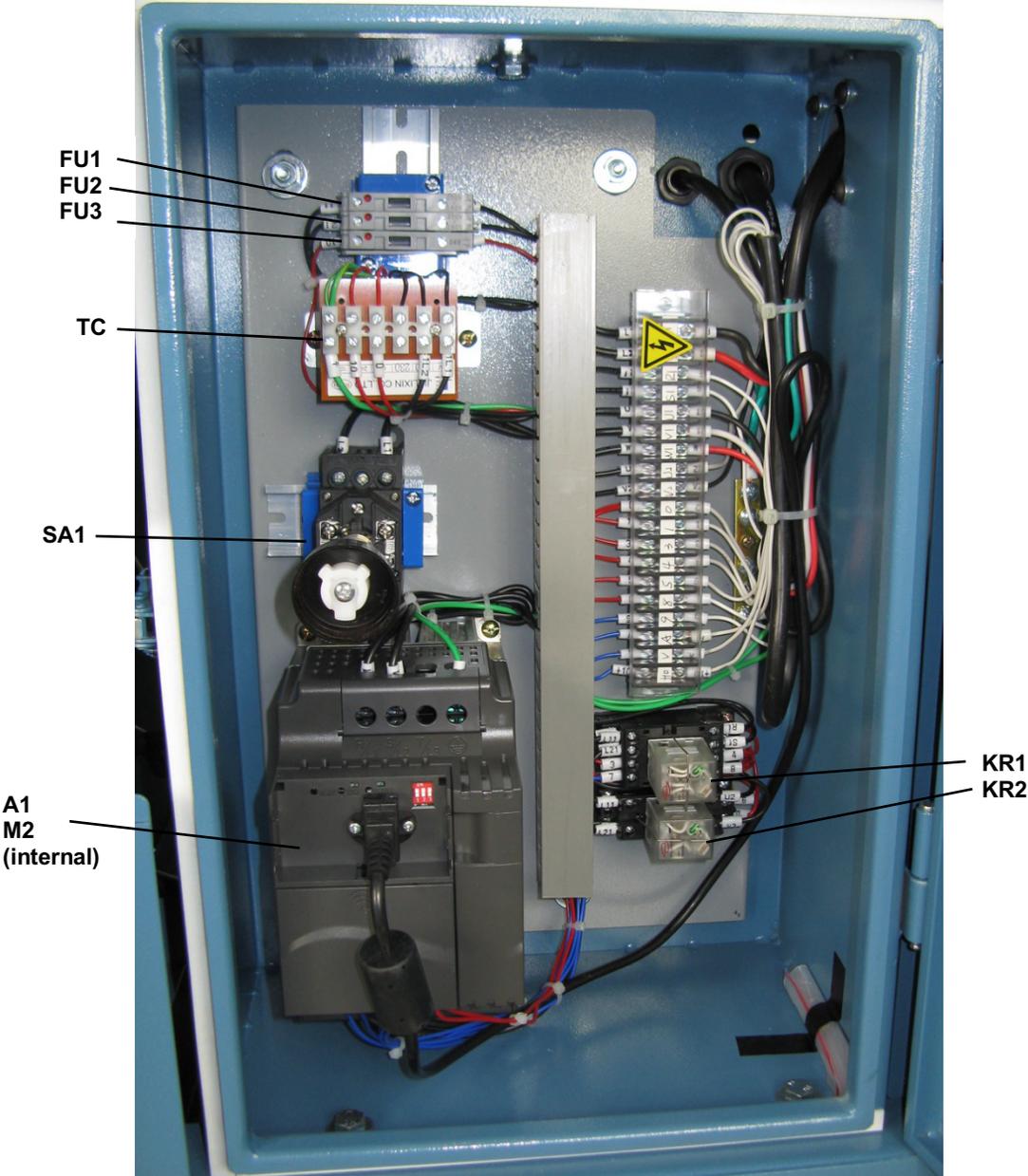
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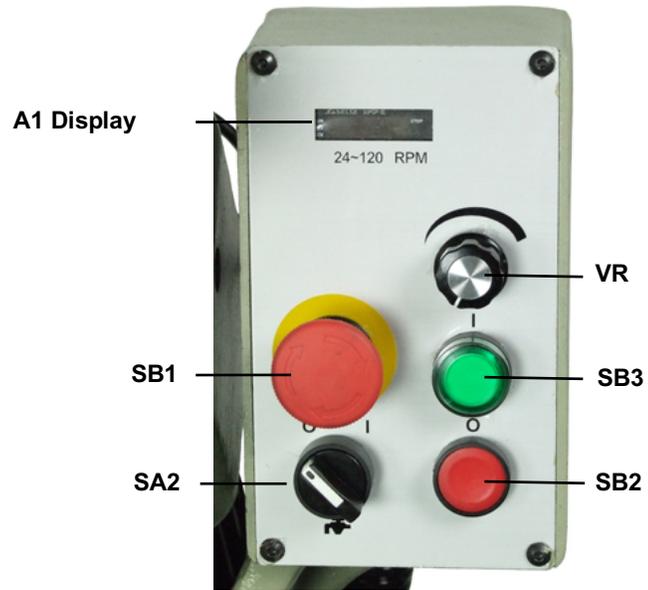
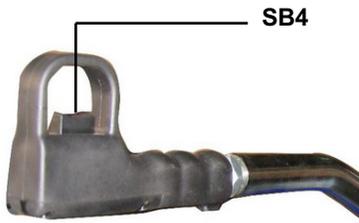
17.0 Wiring Diagram



- KR1 Relay (Fan)
- KR2 Relay (Pump)
- SA1 Main Switch
- SA2 Pump Switch
- SB1 Emergency Stop Button
- SB2 Stop Button
- SB3 Start Button/Lamp
- VR Speed Controller
- A1 Inverter
- M1 Motor
- M2 Fan Motor
- M3 Coolant Pump

17.1 Electrical Parts





17.2 Wiring Parts List

Index No.	Part No.	Description	Size	Qty.
.....	BA9-1010682	Motor Junction Box+Plug.....		
.....	BA9-1002566	Motor Fan		
.....	BA9-1002567	Motor Fan Cover for CS-350EU		
.....	BA9-1009454	Screen Coolant Filter		
.....	BA9-1013038	Transformer - 230V to 24V		

18.0 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



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