



OPERATOR'S MANUAL

Metal Working



Book 1 of 2

HYDRAULIC BOX AND PAN BRAKE MODEL: BB-12010H-NC

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THANK YOU & WARRANTY

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 a 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 a 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 a 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 a 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, (e) 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, lightening, 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 issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh 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 sales@baileigh.com



INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However, if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Setup and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any modifications.



Note: *This symbol refers to useful information throughout the manual.*



IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.



SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**



Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol. **NOTICE**, which is not related to personal injury, is used without a symbol.

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

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

CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Indicates a situation which, if not avoided, could result in property damage.

DANGER

WARNING

CAUTION

NOTICE

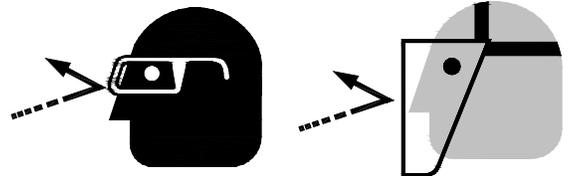


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



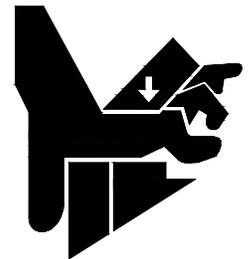
PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.



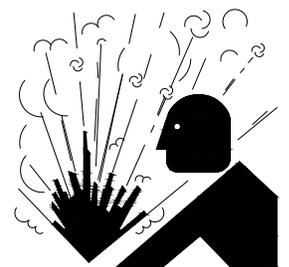
BEWARE OF CRUSH HAZARD

Closing upper beam and brake bed will result in loss of fingers or limbs if placed in machine. **NEVER** place your hand or any part of your body in this machine.



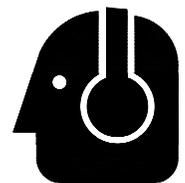
HYDRAULIC HOSE FAILURE

Exercise **CAUTION** around hydraulic hoses in case of a hose or fitting failure.



PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.



HIGH VOLTAGE

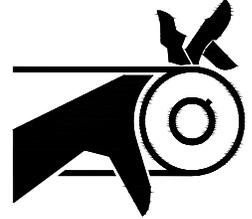
USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
FOLLOW PROPER LOCKOUT PROCEDURES.





MOVING BELTS CAN CRUSH AND DISMEMBER

DO NOT allow fingers to get pinched between belt and belt rollers. This may pull the operator's hand into the machine causing serious personal injury. **DO NOT** operate without guards in place.



KEEP CLEAR OF MOVING OBJECTS

Always be aware of the position of the moving objects such as material, bending leaf, clamp handle and the counterweight. They are heavy and can swing back suddenly causing serious body or head injuries.



EMERGENCY STOP BUTTON

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-STOP** button. Twist the emergency stop button clockwise (cw) to reset. Note: Resetting the E-Stop will not start the machine.





SAFETY PRECAUTIONS



Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard will not make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.

REMEMBER: Your personal safety is your responsibility.



WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

Dear Valued Customer:

- All Baileigh machines should be used only for their intended use.
- Baileigh does not recommend or endorse making any modifications or alterations to a Baileigh machine. Modifications or alterations to a machine may pose a substantial risk of injury to the operator or others and may do substantial damage to the machine.
- Any modifications or alterations to a Baileigh machine will invalidate the machine's warranty.

PLEASE ENJOY YOUR BAILEIGH MACHINE!PLEASE ENJOY IT SAFELY!

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 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. **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. Keep **all** cords dry, free from grease and oil, and protected from sparks and hot metal.
23. 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.
24. **DO NOT** bypass or defeat any safety interlock systems.



TECHNICAL SPECIFICATIONS

Bend Length	120" (3048mm)
Bend Material Thickness	10ga. (3.41mm) mild steel* 12ga. (2.65mm) stainless steel**
Bend Angle	0 – 135 degrees
Beam Adjustment	1" (25.4mm)
Minimum Reverse Bend	.984" (25mm)
Box Depth	6" (152mm)
Finger Size	6 @ 3" (76mm) 3 @ 4" (102mm) 10 @ 5" (127mm) 7 @ 6" (152mm)
Back Gauge	31.5" (800mm) Motorized
Hydraulic System Motor	5hp (3.72kw)
Power Requirements	220V, 3 Phase
Hydraulic Reservoir	18 gallons (68.13liters)
Shipping Dimensions (L x W x H)	153" x 46" x 71" (3886 x 1168 x 1803mm)
Shipping Weight	7700 lbs. (3500 kg)
Based on a material tensile strength of	*64000 PSI – mild steel **100000 PSI – stainless steel

TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990, and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: sales@baileigh.com, Phone: 920.684.4990, or Fax: 920.684.3944.



Note: *The photos and illustrations used in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.*



Note: *The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*



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

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.





TRANSPORTING AND LIFTING

⚠ CAUTION: 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. Choose a location that will keep the machine free from vibration and dust from other machinery. Keep in mind that having a large clearance area around the machine is important for safe and efficient working conditions.

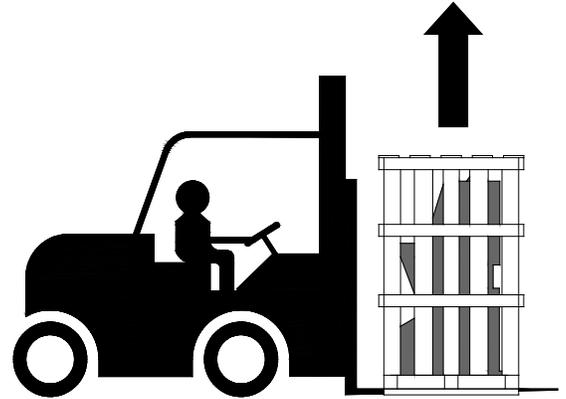
Follow these guidelines when lifting:

- Always lift and carry the machine with the lifting holes provided at the top of the machine.
- 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.





- 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 fork lift 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.



INSTALLATION

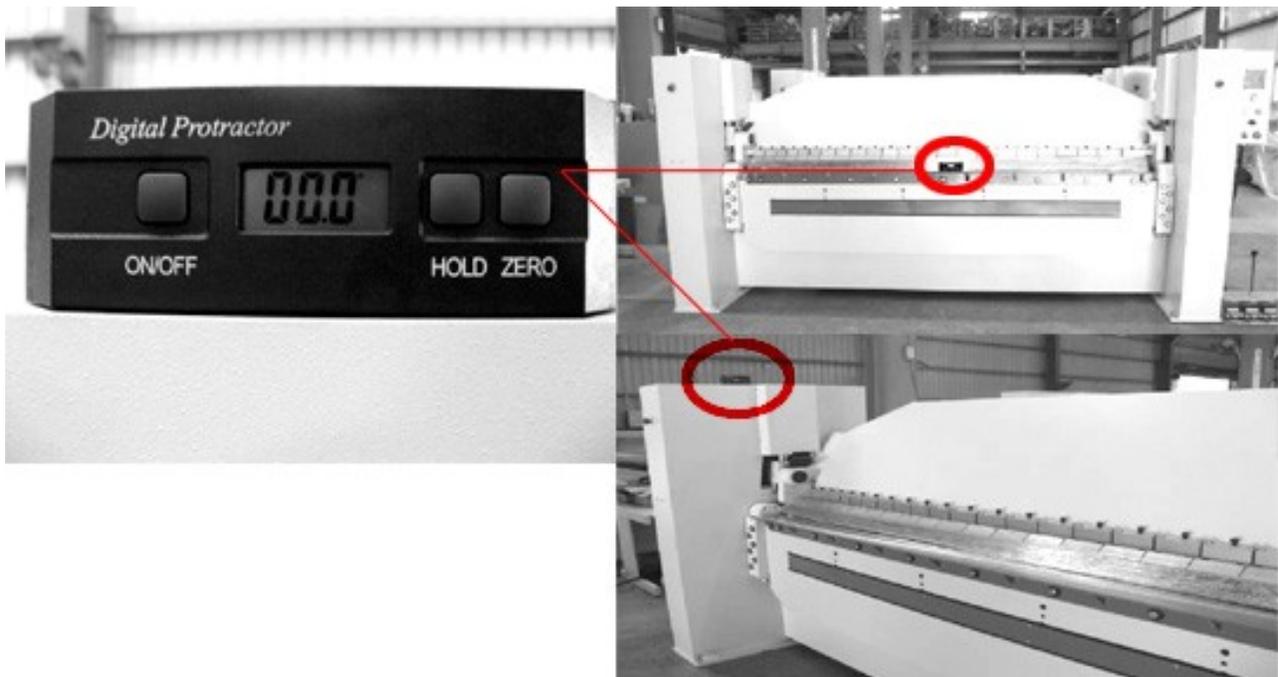
IMPORTANT:

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.



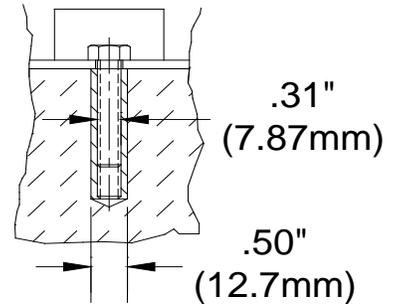
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using 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.
- **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. Install the machine according to the followings:
 1. Lower the machine on the prepared foundation.
 2. Place the machine on the leveling plates.
 3. Adjust the level using Jack Bolts.
 4. Put Anchor Bolt and mortar into pits, and fasten the nuts only when the mortar is thoroughly cured and hard.
 5. When you adjust the machine level, you should use a level gauge so that the machine has the accuracy with 0.1 mm / 1000 mm.
 6. Adjust the level in the front to rear direction at both sides of the table, and in the right-left direction, check at the center of the table.





Anchoring the Machine

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



Tank Filling

The hydraulic oil is the primary medium for transmitting pressure and also must lubricate the running parts of the pump.

After installation of the machine and before machine startup, bring the oil level up to 90% of capacity. Refer to any labels or marking affixed to the outside of the machine, If none exist, use SHELL BRAND #46 or #68 hydraulic oil or an equivalent with similar specifications. (Based upon location temperature and availability.)

Verify that any cylinder rams are in the retracted position to prevent overfilling of the tank. Recheck the oil level after the first few hours of operation and again after the first full week of operation.

A shortage of hydraulic oil can cause hydraulic system breakdown and damage to major mechanical parts due to overheating.



ELECTRICAL

 **WARNING:** Baileigh Industrial is not responsible for any damage caused by wiring up to an alternative 3-phase power source other than direct 3-phase. If you are using an alternate power source, consult a certified electrician or contact Baileigh Industrial prior to energizing the machine.

 **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.

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 $\pm 1\%$.

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.

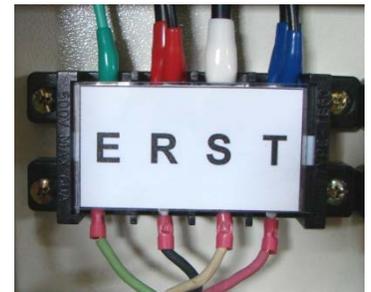


⚠ WARNING: In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

- 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 a 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.

Power cord connection:

1. Unlock and open the electrical enclosure door.
2. Insert a cord / cable fitting into an open hole in the electrical enclosure to grip the power cord (supplied by customer).
3. Route the power cord through the newly installed fitting and into the electrical enclosure.
 - 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.
4. Connect the three power wires to terminals **R, S, & T**. Connect the ground wire (typically green) to the “**E**” (Safety Ground) terminal.
5. Check for correct rotation of motor and pump.
6. Check that the power cord has not been damaged during installation.



Check for correct rotation of the motor

7. Close the electrical enclosure door.
8. With power connected and the main disconnect turned ON, the power light on the control panel will be lit.
9. Verify that both “E”-STOP buttons are in the released / up position.
10. With power connected and disconnect switch turned “ON”, the power light will be lit.
11. Turn the cutting mode selector switch to (**SIN**).



12. Press the green pump start button and briefly step on the footswitch. The shear blade should come down. If not, disconnect power to the machine, and switch the R & T wires. **DO NOT** move the ground wire **E**. **Improper rotation can severely damage the hydraulic pump.**



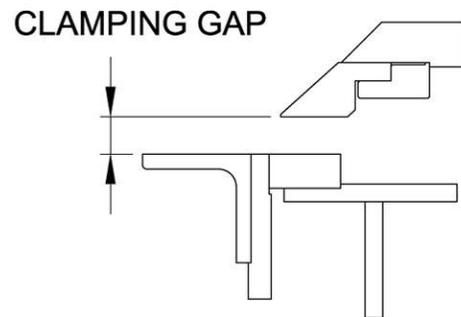
SETUP AND ADJUSTMENTS

⚠ CAUTION: Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. When handling large heavy material make sure they are properly supported.

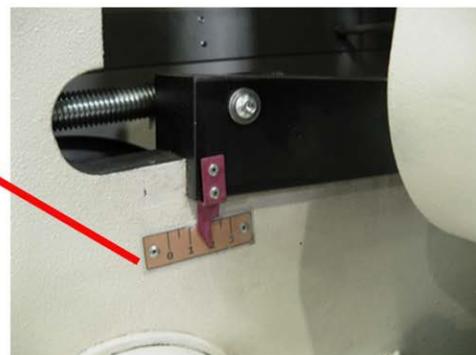
Clamping Gap Adjustment

Adjust the clamping pressure based upon the thickness of the material.

1. Open the top beam.
2. Rotate the front hand wheel according to the material thickness. Assume the workpiece thickness is 3mm, and then point the guideline to 3.



CLAMPING GAP ADJUST
HAND WHEEL



CLAMPING GAP (THICK) INDICATOR



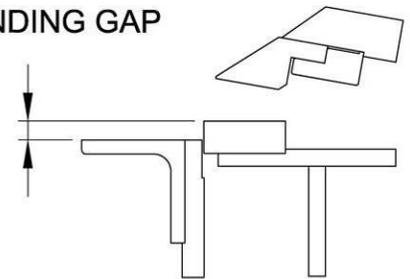
Bending Gap Adjustment

Adjust the bend gap according to the difference of the thickness of workpiece.

3. Open the top beam.
4. Use the hook wrench to adjust the two sides of bending leaf indicator as shown below. (Based upon the material thickness) Assume the thickness of workpiece is 3mm, then the guideline will point to 2.5~3. (Adjust the circle arc according to the R workpiece.)



BENDING GAP



BENDING GAP INDICATOR



Table Crowning Compensation



IMPORTANT: The bending leaf and the bend table adjustments were made at the factory based upon full capacity (length and thickness) mild steel. Additional adjustments are generally not needed. Different materials and material strength and hardness variation may require adjusting the leaf to obtain a satisfactory bend.



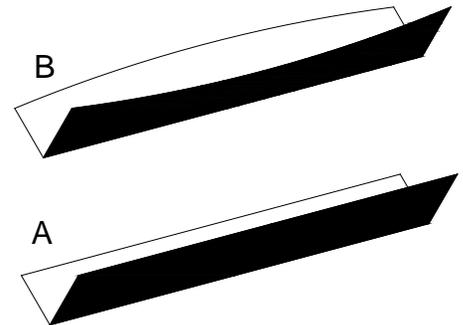
Note: The brake needs to be leveled and secured to the floor to provide consistent accurate results.

Normal bending should provide a consistent bend angle (A) over the entire length of the material.

If the angle remains open (B) in the middle of the material, the leaf may need to be adjusted to reduce bend angle variation.



IMPORTANT: The bending leaf and bend table must be adjusted as a set to match surfaces and provide consistent accurate results.

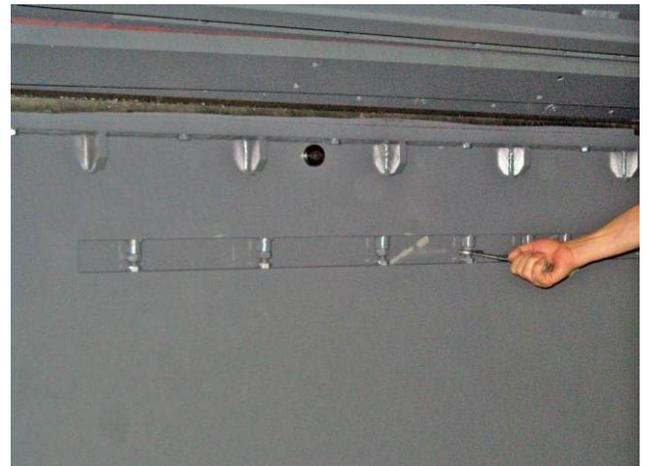
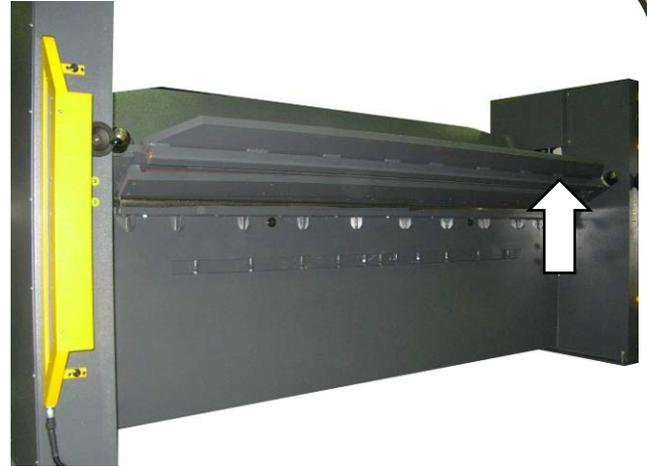


1. Remove the cover of bending leaf.
2. Adjust the crowning bolts (Usually not more than 1 full turn at a time) working from the middle toward both sides based upon the results of the workpiece.
 - a. If the middle of the bend is open (B), add additional crowning to the middle of the bending leaf.
 - b. If the ends of the workpiece are open, remove some crowning from the middle of the bending leaf.
3. Keep track of how much adjustment has been placed into each bolt at each position. This will need to be matched for each bolt on the table.





4. Open the bending leaf to access the table adjustment bolts.
5. Adjust the table bolts to match the adjustments made to the bending leaf.
6. Test the bend on a sample piece of material.
7. When the results are satisfactory, replace the bending leaf cover.



Clamping Pressure

If your machine has clamping beam pressure adjustment, adjust the pressure according to the material.

If the pressure is too high, it might damage the surface of the material. If the pressure is too low, it will allow the material to move or slip and not produce the desired bend.

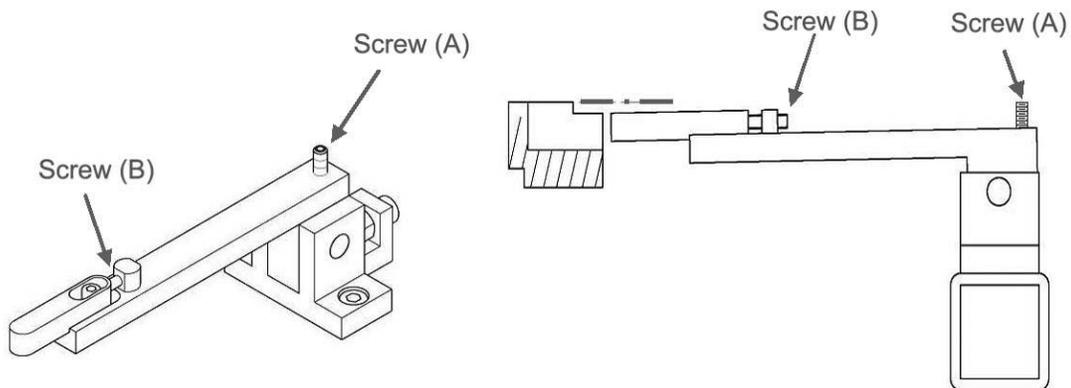
CLAMP FORCE					
Pressure (kg/cm ²)	50	70	90	110	130
Thickness	0.5	1	1.5	2	3





Power Back Gauge

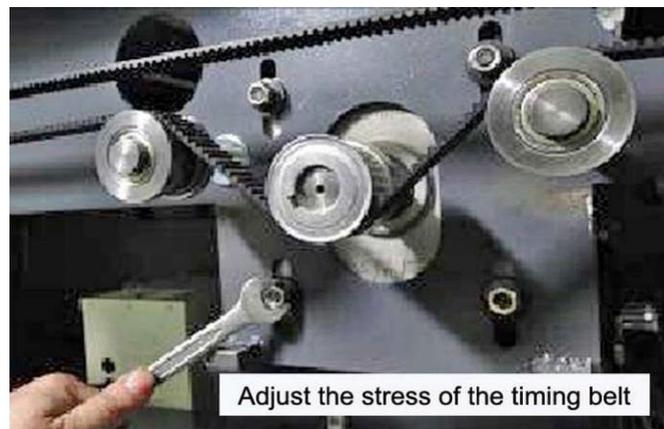
1. Select two sets of stopper in accordance with the material's length.
2. Tighten screw (A) on all the other stoppers. Make sure that the stoppers are lower than the surface of bottom die.
3. Adjust the screw (B) on the two selected stopper, set size.



Timing Belt

The accuracy of back gauge will be affected when the timing belt is too tight or too loose.

1. Loosen the nuts on the back gauge motor.
2. Adjust the tension of the timing belt making sure that the back gauge can still operate smoothly.
3. Hold the motor in position and tighten the motor nuts.





SAFETY BARRIERS

The safety barriers has detection eye device in the back and front.

Front Side Barriers

If the front detection eye is blocked before bend:

The machine will not complete the bend. The top beam will lower to clamp the material.
Once the blockage is removed, the machine can start to bend the workpiece.

If the front detection eye is blocked when during the bend:

The machine shall automatic stop immediately.

To remove the stop and reset the bend;

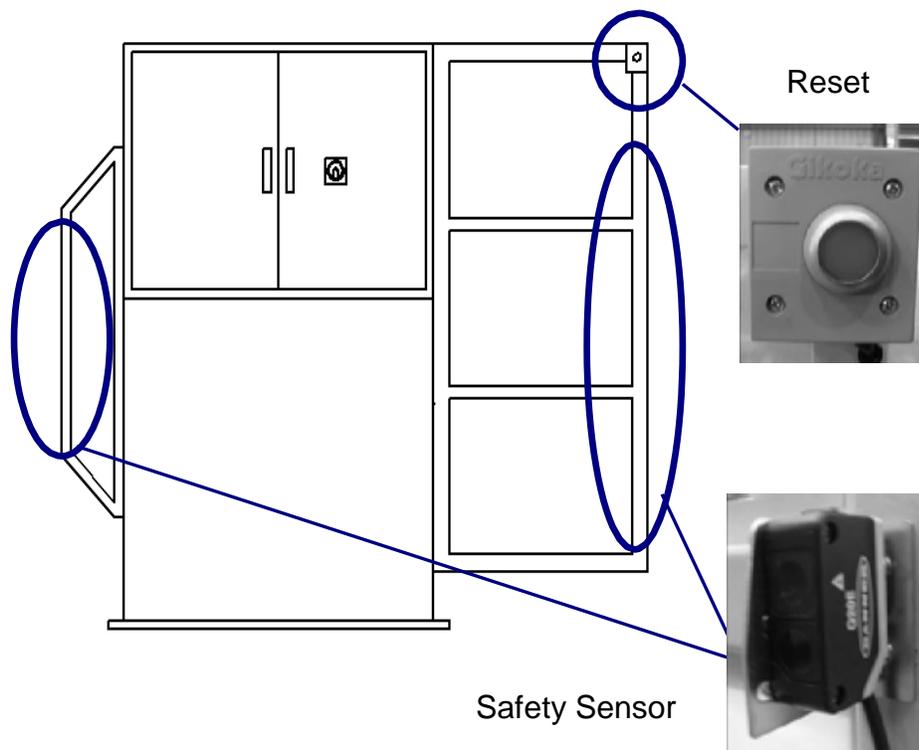
1. Select the controller to the manual page.
2. Press bend (Y) DOWN. This will allow the bending leaf to return to the origin point (0°).

Back Side Barriers

If the back detection eye is blocked, the machine will not move at all.

Remove the stop as below.

1. Press RESET button at the back barriers.
2. Select the controller to the manual page
3. Follow the screen display message to remove the error.



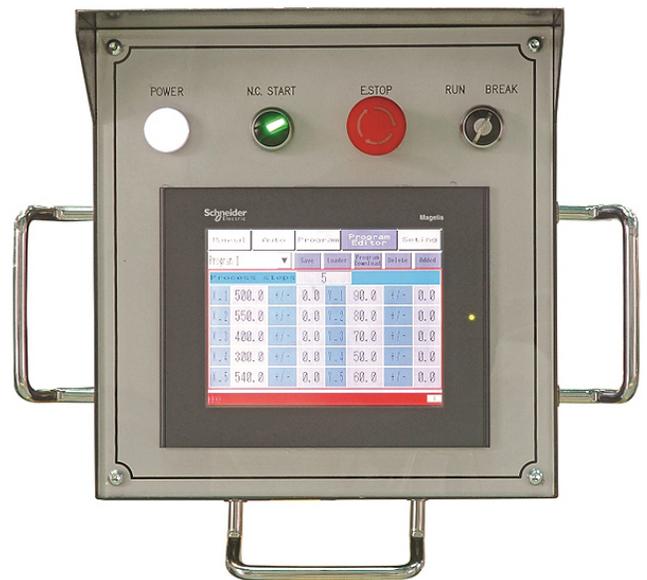


OPERATION

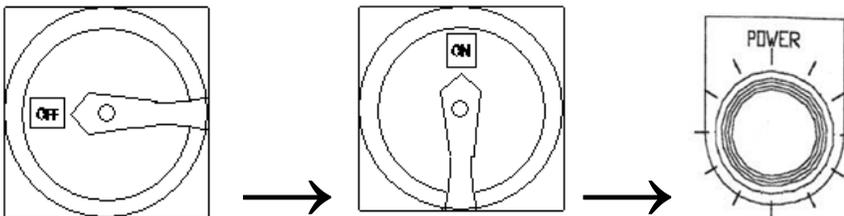
⚠ CAUTION: Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. When handling large heavy material make sure they are properly supported.

Operation Panel Description

POWER	Illuminates to indicate machine power is ON.
NC START	Powers ON the controller.
E. STOP	Pressing the E-STOP button stops the machine immediately. Twist the emergency stop button clockwise (cw) to reset. Resetting the E-Stop will not start the machine.
RUN / BREAK	Controls program operation.
RUN	Automatically bend workpiece after workpiece is clamped.
BREAK	After workpiece is clamped, operator needs to step on foot pedal once again (BEND) to start bending.



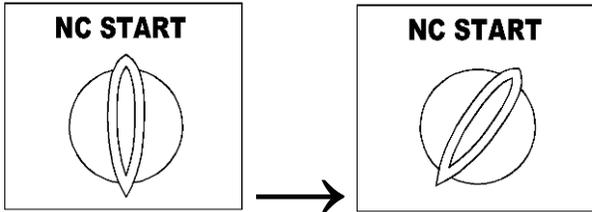
Start Machine Power



Turn Main disconnect in clockwise direction to “ON” position. Power lamp is “ON”.



Start Controller Power



Turn NC START switch clockwise direction to “ON” position. Control Panel display is now operational.

Foot Switch Operation

⚠ CAUTION: Keep hands and fingers clear of the clamping beam. Stand off to the side of the machine to avoid getting hit with the bending apron as it comes up to bend.

Manual Page:

Bend: Not active
Clamp: Clamp work piece (activated when stepped on)
Unclamp: Release work piece (activated when stepped on)

Auto & Program Page:

Bend: Step on Bend pedal once to complete the full cycle. Clamp, bend, and return to origin.
Clamp: Step on the foot pedal once, and the upper beam will start clamping until the upper beam is around 19/32” (15mm) away from the lower beam, the upper beam will automatically stop. Step on the foot pedal again to clamp the work piece.
Unclamp: Release work piece (activated when stepped on)



Bend Clamp Unclamp



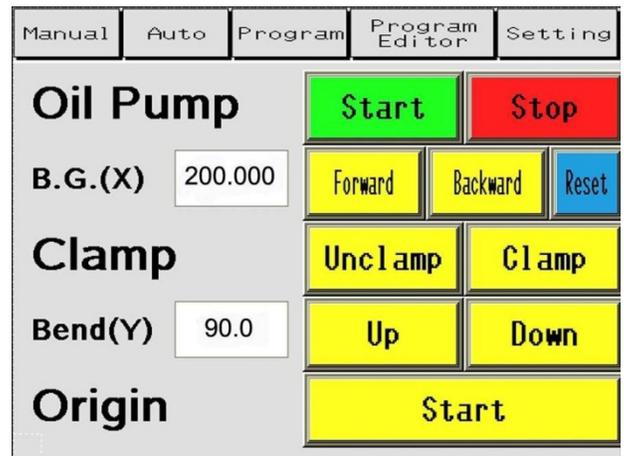
Controller Initial Display

- Touch the screen to enter the next interface (touch panel control)



Controller Manual Page

- Check for error message shown on screen. If any errors are shown, press Reset to clear.
1. Press Oil Pump Start to start the hydraulic pump.
 2. Press Origin Start to confirm current location to the controller.



Oil Pump	Start	Machine start to run.
	Stop	Machine stop to run.
B.G. (X)	10.0	Back gauge length practice Value
	Forward	Increase back gauge value.
	Backward	Decrease back gauge value.
	Reset	Correct value.
Clamp	Unclamp	Release work piece.
	Clamp	Clamp work piece.
Bend (Y)	0.0	Bending angle practice Value
	Up	Increase bending angle.
	Down	Decrease bending angle.
Origin	Start	Go back to original location.



3. Activate B.G. (X) (Forward / Backward).
4. Press Clamp button, until the work piece is fully clamped.
5. Activate Bend (Y) (Up / Down).
6. Press Unclamp button, until the work piece is fully released.



Note: The work piece must be clamped before the Bend (Y) can be activated.

Controller Auto Page

Description: Auto Execute Registration.

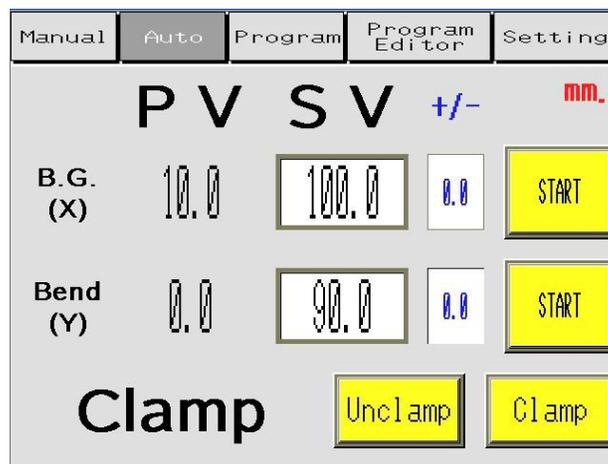
B.G. (X): Back Gauge length (mm/inch)
BEND(Y): Bending angle (degree)
PV: Practice Value
SV: Setting Value
+/-: Compensation

Example:

1. Choose Auto.
2. Enter X setting value 100.0.
3. Press X axis start button, back gauge start registration. Place workpiece.
4. Press clamping one time, top beam go down, stop at 10mm (25/64") distance gap. Press clamp again to clamp the workpiece completely.
5. Enter Y axis setting value for 90.0.
6. Press Y axis start, foot pedal BEND.
7. Press unclamp, until loosen workpiece completely.
8. Measure the workpiece dimension after finished test, compare the setting value to the desired value entered.



Note: The material must be clamped fully (second press) for the Y Axis (Bending leaf) will operate.





Controller Program Editor

B.G. (X)

Display Back Gauge length (mm/inch)

Bend (Y)

Display Bending angle (degree)

Top beam return time

Upper beam releasing time (Min 0.25mm/sec ~
Max. 100mm/4sec)

Program Segments

Display total steps of program

Program NO.

Display current step of the program in action
activate program

Program Start Activate the program.

Program Stop Stop the program.

Download To PLC And Save Save the modified program.

Manual	Auto	Program	Program Editor	Setting			
Program Name		Program_1		Process Segments 1 1			
B. G. (X)	10.0	Bend(Y)	0.0	Program NO. 1			
NO.	B. G. (X)	B. G. (X) +/-	Bend(Y)	Bend(Y) +/-	Top beam return time	Unit	mm.
6.	100.0	0.0	10.0	0.0	1.0		
7.	100.0	0.0	10.0	0.0	1.0	HOME	Program Start
8.	100.0	0.0	10.0	0.0	1.0	▲	Program Stop
9.	100.0	0.0	10.0	0.0	1.0	▼	Download to PLC And save
10.	100.0	0.0	10.0	0.0	1.0		



HOME



Page Up



Page Down

Edit a New Program

Example:

A sample program named "A001" with 2 steps. The first action is a 90 degree bend at 25mm (0.99") depth. The second action is a 45 degree bend at 30mm (1.18") depth.





1. Choose Program editor.
2. Press Added.
3. Enter program name A001.
4. Enter 2 steps that you need in Process steps window.
5. Enter the value for each step for the X and Y axis. For the example, leave +/- values at 0.0.
6. Enter top blade open time 5 (The larger the value, larger the distance).
7. Press Save to save the program.

Manual	Auto	Program	Program Editor	Setting	
A001	▼	Save	Loader	Program Download	
A001		2	mm.		
NO.	B.G.(X)	B.G.(X) +/-	Bend(Y)	Bend(Y) +/-	Top beam return time
1.	25.0	0.0	90.0	0.0	5.0
2.	30.0	0.0	45.0	0.0	5.0

Delete Currently Program

Choose Program editor.

1. Press ▼ (down arrow next to the program name) to choose which program you want to delete.

Manual	Auto	Program	Program Editor	Setting	
A001	▼	Save	Loader	Program Download	
A001		2	mm.		
		Bend(Y)	Bend(Y) +/-	Top beam return time	
		90.0	0.0	5.0	
2.	30.0	0.0	45.0	0.0	5.0

2. When the desired program name is highlighted, press Delete.
3. Press YES, to confirm delete.

Manual	Auto	Program	Program Editor	Setting
A001	▼	Save	Loader	Program Download
A001		Whether to delete? A001		
		YES	NO	
NO.	B.G.(X)			Top beam return time
1.	25.0			0
2.	30.0			0



Choose Program

1. Choose Program Editor
2. Press ▼ (down arrow next to the program name) to choose which program needs to be operated.

Manual	Auto	Program	Program Editor	Setting
A001		Save	Loader	Program Download
A001		Delete	Added	
		2	mm.	
		Bend(Y)	Bend(Y) +/-	Top beam return time
		90.0	0.0	5.0
2.	30.0	0.0	45.0	0.0
				5.0

3. When the desired program name is highlighted, press Program Download.
4. Press YES, confirm download program.
5. The screen will automatically jump to PROGRAM PAGE.

Manual	Auto	Program	Program Editor	Setting
A001		Save	Loader	Program Download
		Delete	Added	
		Whether the program Downloaded to the device?		mm.
		A001		beam time
		YES		0
		NO		0

Controller Program Page

Process Segments: Program total steps.

Program NO.: Current operating step.

Program Start: Operate program.

Program Stop: Stop program

Download to PLC: Saved any changes to the program.

Manual	Auto	Program	Program Editor	Setting
Program Name	A001			Process Segments
B. G. (X)	10.0	Bend(Y)	0.0	Program NO.
NO.	B. G. (X)	B. G. (X) +/-	Bend(Y)	Bend(Y) +/-
				Top beam return time
1.	25.0	0.0	90.0	0.0
				5.0
2.	30.0	0.0	45.0	0.0
				5.0
				Unit mm.
				Program Start
				Program Stop
				Download to PLC And save



Program Operation

For the first time, create and then operate the sample program A001 as noted earlier.

⚠ CAUTION: Keep hands and fingers clear of the clamping beam. Stand off to the side of the machine to avoid getting hit with the material and / or bending apron as it comes up to bend the part.

1. Set the machine for the material thickness to be formed.
2. Once the program is created and save, Press Program Start button, to operate program.
3. The back gauge will move to the set position.
4. Place workpiece onto the bending table and into the back gauge.
5. Step CLAMP one time, top beam go down, stop at 10mm (25/64") distance gap.
6. Step CLAMP once again, complete clamping the workpiece.
7. Stand clear of material and bending leaf and Step BEND one time to bend the workpiece.
8. When the bending leaf returns, Step UNCLAMP to loosen the workpiece. The back gauge will move to the next position.
9. Move the workpiece to the next position. (Turn, flip, rotate, insert deeper. This will vary depending upon your specific piece part needs and design.)
10. Repeat steps 4~9 for each step in the program until the part is complete.

Choose Certain Step to Operate Program

1. Choose any step that you want to operate (Assume from second step.)
2. Press program start button, choose from the program steps to start operation.

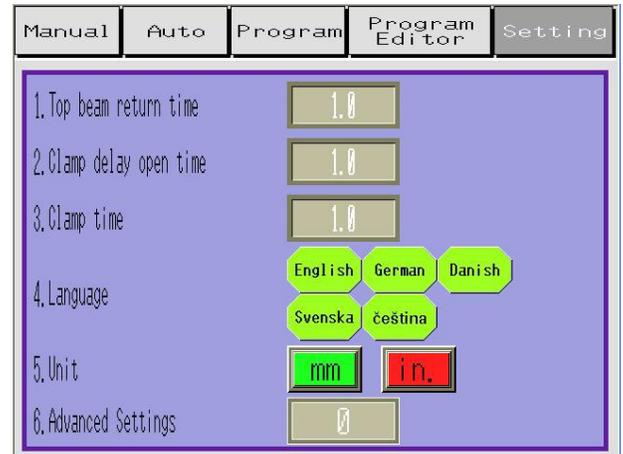
Adjust Program

1. Choose program steps that you want to adjusted.
2. Enter new X, Y axis setting value.
3. Press Download to PLC and save button, stored adjusted program.



Controller Setting Page

Parameter	Description	Default Value
Top beam return time	Beam releasing time (Min. .25mm / 1sec ~ Max. 100mm / 4sec)	1.0
Clamp delay open time	Time between bending leaf stops at origin and material is unclamped.	1.0
Clamp delay bend time	Time between material being clamped and bending leaf starts to bend.	1.0
Language	Select choice	English
Unit	mm/inch	mm
Advance setting	Enter password to enter advance setting	1688



Advance Parameter

Parameter	Remark
X - Axis pulse	
Back gauge(X) jogging speed	300
Back gauge(X) position speed	500
Back gauge(X) min. value of distance	9.5
Back gauge(X) max. value of distance	800
Back gauge(X) origin position	11
Y - Axis pulse	
Y - Axis stroke distance	745
Bend(Y) total angle	135.0
Bend(Y) min. value of angle	0.0
Bend(Y) max. value of angle	135.0
Bend(Y) position angle time	1.0
Bend(Y) angle return of slow speed	12
Bend(Y) angle position of slow speed	5
Bend(Y) angle tolerance	1.0



BENDING ALLOWANCE

In order to bend sheet metal accurately, you will need to consider the total length of each bend. This is referred to as bend allowance. Subtract the bend allowance from the sum of the outside dimensions of the piece part to obtain the actual overall length or width of the piece. Because of differences in sheet metal hardness, and whether the bend is made with the grain or against it, exact allowances must sometimes be made by trial and error. However bend allowances for general use can be obtained from metal working books or from the Internet.

UNDERSTANDING SPRINGBACK

Springback, also known as elastic recovery, is the result of the metal wanting to return to its original shape after undergoing compression and stretch. After the bending leaf is removed from the metal and the load is released, the piece part relaxes, forcing the bent portion of the metal to return slightly to its original shape. The key to obtaining the correct bend angle is to over bend the metal a little and allow it to spring back to the desired angle. All metals exhibit a certain amount of spring back.

MATERIAL SELECTION

 **CAUTION:** It must be determined by the customer that materials being processed through the machine are **NOT** potentially hazardous to operator or personnel working nearby.

When selecting materials keep these instructions in mind:

- Material must be clean and dry. (without oil)
- Material should have a smooth surface so it processes easily.
- Dimensional properties of material must be consistent and not exceed the machine capacity values.
- Chemical structure of material must be consistent.
- Buy certificated steel from the same vendor when possible.



LUBRICATION AND MAINTENANCE



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

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

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



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

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- 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.
- Lubricate the machine grease points with recommended grease every 8 working hours using the grease gun provided.
- Using an oil can with good quality #30W oil, apply 5-6 drops into each oil port. Repeat weekly or more often depending on usage. Wipe off any excess oil.

Recommended Grease

Select a heat-resistant, water-resistant, non-corrosive and stable grease having a high film strength and capable of being applied with the grease gun.

Recommended Grease Types	ESSO Beacon 2	MOBIL Mobilux 2	SHELL Alvania 2
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Hydraulic Oil

The hydraulic oil is the primary medium for transmitting pressure and also must lubricate the running parts of the pump.

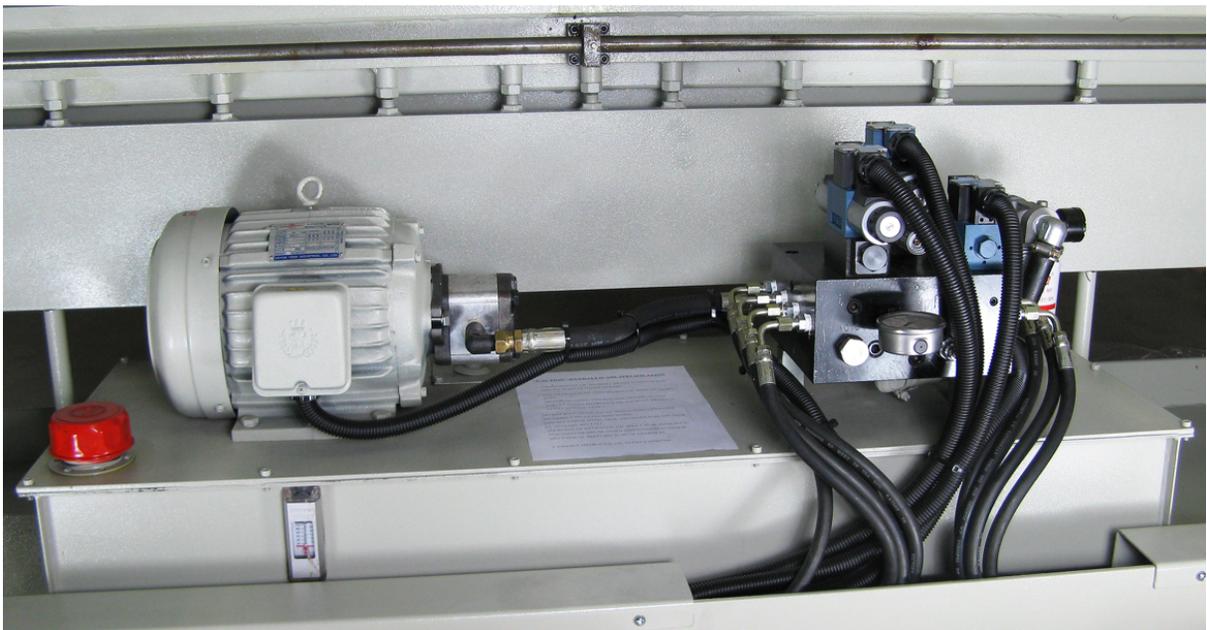
After installation of the machine and before machine startup, bring the oil level up to 90% of capacity. **A shortage of hydraulic oil can cause hydraulic system breakdown and damage to major mechanical parts due to overheating.**

4. Use SHELL BRAND #46 or #68 hydraulic oil or an equivalent with similar specifications. (Based upon location temperature and availability.)
5. Keep hydraulic reservoir filled to 90% of capacity.
6. **DO NOT** rely totally on the oil gauge as they can sometimes indicate an incorrect level reading. Do a visual inspection with the oil fill cap removed as well.
7. A shortage of hydraulic oil will cause hydraulic system breakdown to major mechanical components due to overheating.
8. Change the hydraulic oil every 6 months along with the oil filter.

Oil Change and Disposal

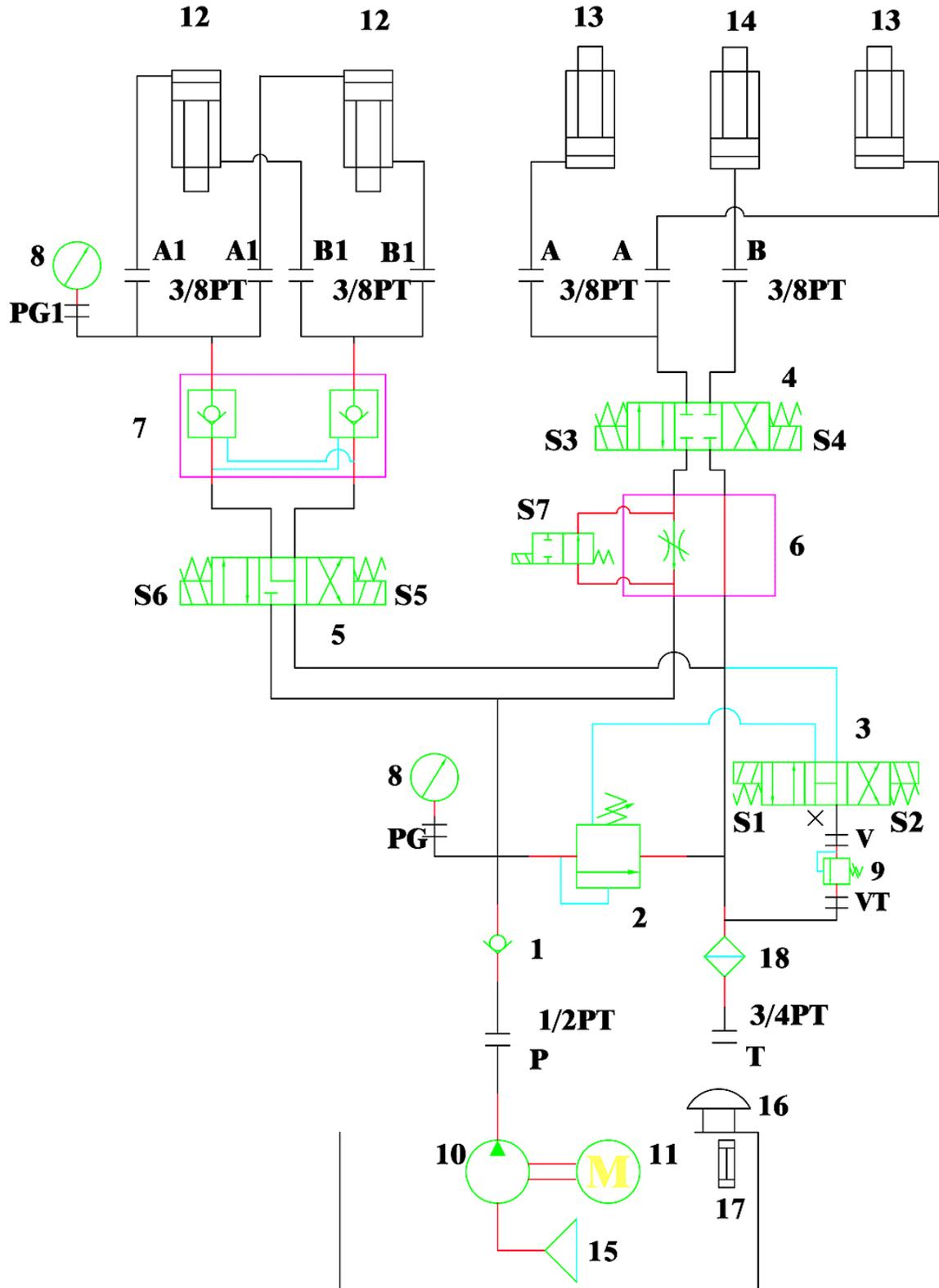
Change the oil in the hydraulic tank after the first 6 months, and every 12 months after that. Clean the filter basket located under the fill cap before refilling the tank. Used oil products must be disposed of in a proper manner following your local regulations.

Hydraulic Tank



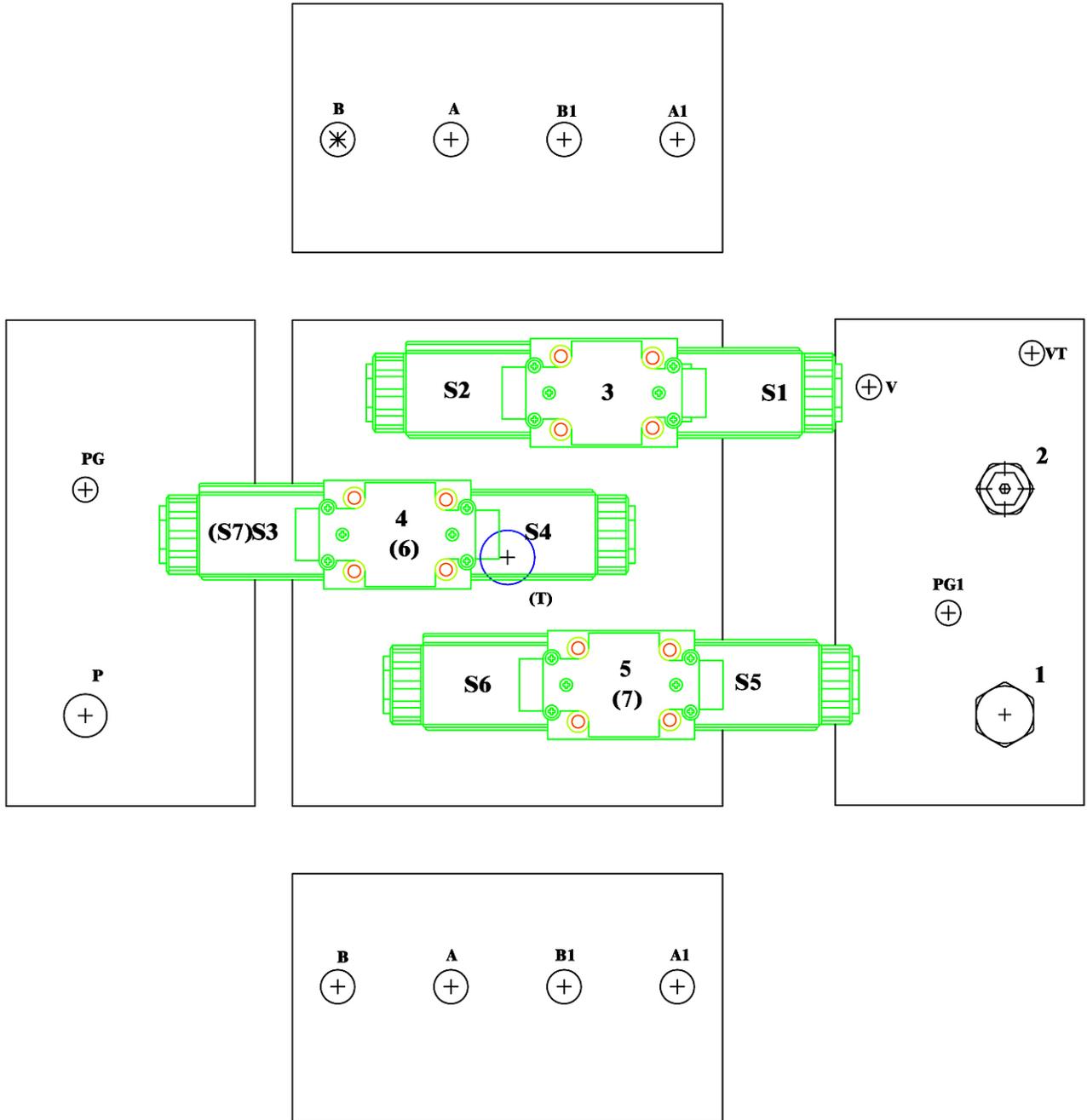


HYDRAULIC SCHEMATIC





Hydraulic Manifold Layout





Hydraulic Components List

Item	Description	Part No.
1	Check Valve	CV10W
2	Relief Valve	RV11A 30AL
3	Solenoid Valve	4WE6H60/EG24
4	Solenoid Valve	4WE6E30/EG24
5	Solenoid Valve	4WE6J60/EG24
6	Counter Balance Valve	MST-02-P
7	Modular Pilot Operated Check Valve	MPC-02-W
8	Pressure Gauge	AT-63 *250Kg
9	Relief Valve	DT-01
10	Pump	
11	Motor	
12	Hydraulic Cylinder	
13	Hydraulic Cylinder	
14	Hydraulic Cylinder	
15	Strainer	SFF-08
16	Air Breather	HY-08
17	Oil Level With Thermometer	LG-3A
18	Strainer	CG050-P10/70134



NOTES



NOTES



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