



OPERATOR'S MANUAL



TUBE AND PIPE NOTCHER MODEL: TN-700

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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 30 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, 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's 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 attorneys' 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-sales@jpwindustries.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
- Set-up 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 unauthorized 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. **DANGER** identifies a hazard or unsafe practice that will result in severe **Injury or Death.**

Safety signs with signal word **DANGER** or **WARNING** are typically near specific hazards.

General precautions are listed on **CAUTION** safety signs. **CAUTION** also calls attention to safety messages in this manual.



DANGER



WARNING



CAUTION

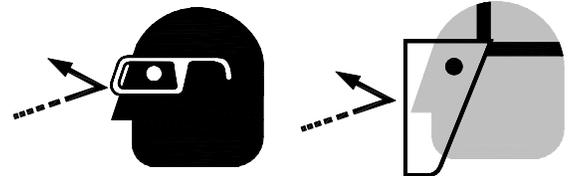


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



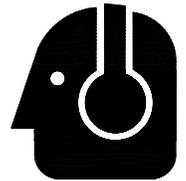
PROTECT EYES

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



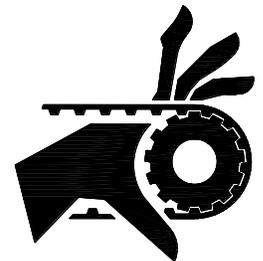
PROTECT AGAINST NOISE

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.



BEWARE OF PINCH POINTS

Keep hands and fingers away from the slide plate and pivot points when operating on and around this machine. Keep chuck guard in place at all times while the machine is running.



ROTATING TOOL HAZARD

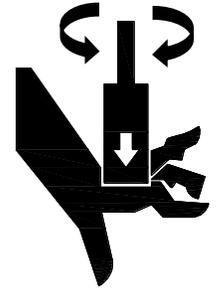
Keep hands and body clear while operating. Rotating chuck can cut, dismember, snag, and entrap. Flying chips, splinters, and other particles can cause serious injury or death.





BEWARE OF PIERCING POINTS

NEVER place hands, fingers, or any part of your body away from rotating tooling bit.



CUTTING HAZARD

Keep hands and fingers away from the rotating cutters. These rotating cutters can be extremely dangerous if you do not follow proper safety procedures. **NEVER place hands directly over or in front of the cutter. Keep the tooling guard in place and closed at all times while operating this machine.**



ENTANGLEMENT HAZARD – ROTATING SPINDLE

Contain long hair, **DO NOT** wear jewelry or loose fitting clothing.



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 won't 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

1. **Only trained and qualified personnel can operate this machine.**
2. **Make sure guards are in place and in proper working order before operating machinery.**
3. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
4. **Keep work area clean.** Cluttered areas invite injuries.
5. **Overloading machine.** By overloading the machine you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
6. **Dressing material edges.** Always chamfer and deburr all sharp edges.
7. **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.
8. **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.
9. **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.
10. **Use eye and ear protection.** Always wear ISO approved impact safety goggles. Wear a full-face shield if you are producing metal filings.
11. **Do not overreach.** Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
12. **Stay alert.** Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
13. **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.
14. **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.
15. **Blade adjustments and maintenance.** Always keep blades sharp and properly adjusted for optimum performance.
16. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.



17. **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.
18. **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.
19. **DO NOT** touch live electrical components or parts.
20. **Turn off** power before checking, cleaning, or replacing any parts.
21. Be sure **all** equipment is properly installed and grounded according to national, state, and local codes.
22. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill!**
23. **DO NOT** bypass or defeat any safety interlock systems.
24. Keep visitors a safe distance from the work area.

TECHNICAL SPECIFICATIONS

Mill Speed	40-230rpm
Maximum Notching Capacity	2-1/2" Diameter using a 2-1/2" end mill (64mm / 12mm)
Minimum Notching Capacity	.5" Diameter using a .5" end mill and .5" reducer bushing (12mm / 12mm / 12mm)
Angle Adjustment	0 – 45°
End Mill Size	1/2" Standard / 2-1/2" Optional (12mm / 64mm optional)
Power	115V, 60hz Prewired 115V
Motor	2hp (1.49kw)
Shipping Weight	340lbs. (154kg)
Shipping Dimensions	31" x 48" x 32" (788 x 1219 x 813mm)

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: baileigh-sales@jpwindustries.com, Phone: 920.684.4990, or Fax: 920.684.3944.



Note: *The photo 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 Industrial machine is shipped complete in one crate. 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 plug in the power cable, or turn the power switch on until the missing parts are obtained and installed correctly.

Cleaning

Your machine may be shipped with a rustproof waxy oil coating and grease on the exposed unpainted metal surfaces. To remove this protective coating, use a degreaser or solvent cleaner. 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.



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.





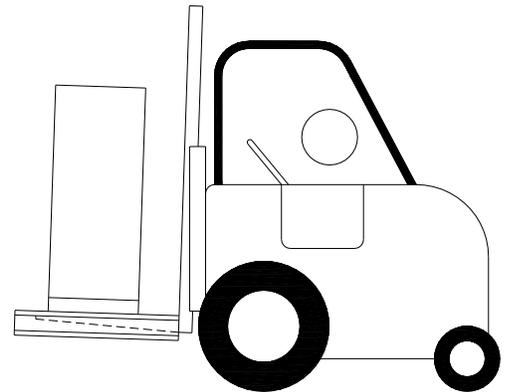
TRANSPORTING AND LIFTING



IMPORTANT: *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 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.
- **LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor 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.



ASSEMBLY AND SET UP

⚠ 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.

1. Remove the machine from the skid it was shipped on.
2. Check the oil level and top off if necessary.
3. Read through the remainder of the manual and become familiar with the tool installation and settings as well as normal operation.
4. Position the machine as desired following the installation guidelines.
5. Follow the electrical guidelines to connect the machine to a power supply.

GETTING TO KNOW YOUR MACHINE

- You have made a practical choice in purchasing a Model TN-700 Endmill Notching Machine. It has been carefully built of high quality materials and designed to give many years of efficient service. The simplicity of design and minimum effort required to operate the machine contributes towards meeting schedules and producing greater profits.
- The TN-700 is an electric variable speed end-mill notching machine specially designed to notch a variety of materials using different sized endmills. The notch that gets cut into the tubing, allows for a perfect joint between mating pieces, helping to create a perfect weld.



- The TN-700 Notching Machine you have purchased is built of solid steel and high-quality components, ensuring maximum rigidity and long life.





Item	Description	Function
A	Y Feed Hand Wheel	Used to move the vise bed along the length of the end mill.
B	Cam Handle	Release the handle to rotate the vise to the desired angel. Lock the handle to lock the vise at the desired angle.
C	X Feed Hand Wheel	Used to move the vise bed into and away from the end mill.
D	Vise	Used to hold and secure the material to be notched. May be rotated to feed the material into the end mill at an angle from 0° - 45°
E	Lexan Guard	Safety cover to covers the mill and milling area during machining to prevent inadvertent contact.
F	End Mill	Machining tool to create the cut.
G	Spindle	Turns the end mill.
H	On/Off Switch	Starts and stops the notcher motor and thereby the notcher.
I	Gear Box	Transfers power from the motor to the spindle.
J	Motor	Powers the notcher for milling.
K	Chip Box	Collects the chips from the cutting process.



ELECTRICAL

⚠ 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.

Motor Specifications

Your machine is wired for 115 volt, 60Hz alternating current. Before connecting the tool to the power source, make sure the machine is cut off from power source.

Considerations

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with a amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your tools. 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 tool.
- 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 tool 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 tool is properly grounded.
- Repair or replace damaged or worn cord immediately.

Extension Cord Safety

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

	LENGTH		
AMP RATING	25ft	50ft	100ft
1-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No
WIRE GAUGE			

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

Plug Connection

- Have an electrician install the correct power supply for the application.
- Once hooked up, turn on the power supply and start the machine.



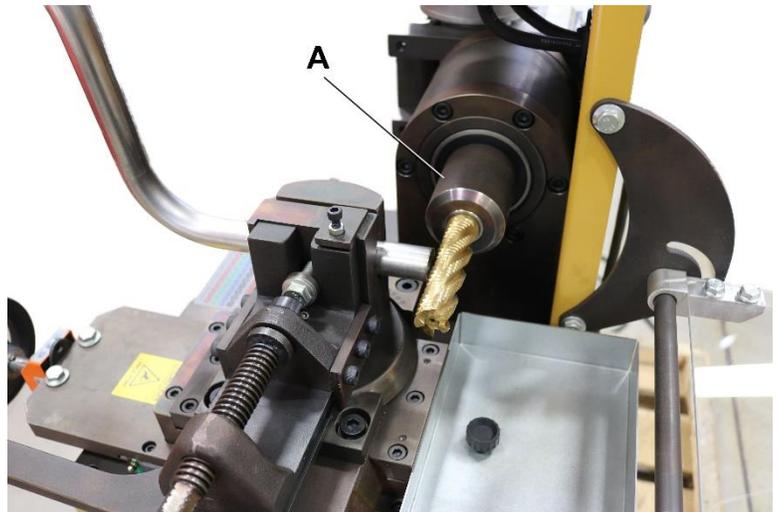
OPERATION

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

⚠ WARNING: BEFORE THE MAIN LEXAN GUARD IS OPENED, THE POWER CORD MUST BE UNPLUGGED FROM ITS SOURCE.

Cutter Selection

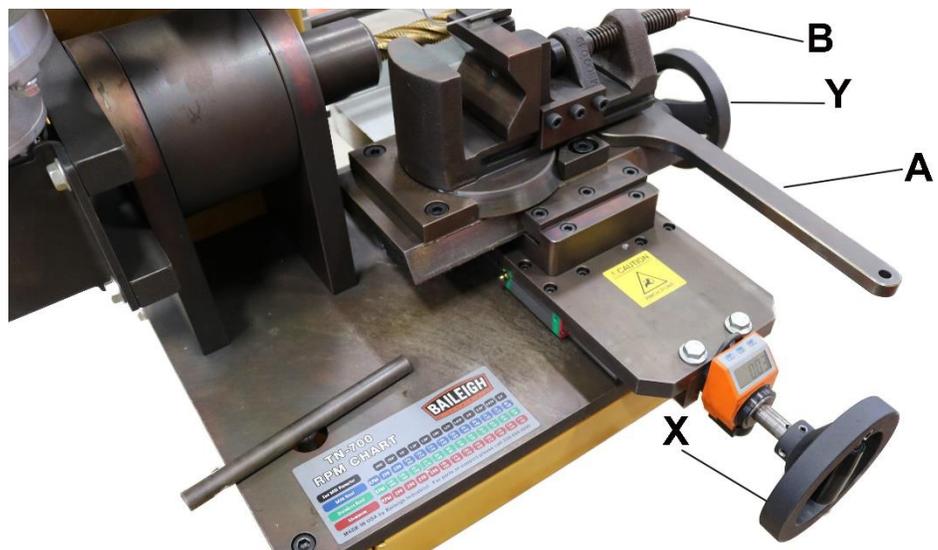
1. Before any notching can take place, the properly sized endmill must be chosen. The size of the endmill required, will be equal to the size of the notch desired. If the desired notch is to be less than 1" (25.4mm), a reducer bushing for the cutter must be used.
2. To install the cutter, first unplug the power cord and open the Lexan guard.
3. Loosen the set screws (A) located on the spindle and insert the desired cutter, align the flats on the cutter with the holes on the spindle.
4. Tighten the set screws (A).
5. Refer to the RPM chart for the suggested starting RPM, matching the size endmill used and the material being notched.





Material Insertion

1. Once the proper cutter is installed, the material to be notched can be inserted into the vise.
2. Open the vise and insert the material, leaving enough room to extend past the vise jaws for notching. Material should be kept as close as possible to the vise jaws to get the most accurate notch.
3. Tighten the vise.
4. If an angle notch is required, loosen the cam handle (A) and rotate vise to the desired angle, not to exceed 45 deg. DO NOT rotate the vise so that the lead screw (B) is in front of the end mill.
5. Using the "X" and "Y" handwheels, position the material as close to the cutter's flutes ending (near the spindle nose) for the most rigid notch.





Notching

1. Turn the power switch on and activate the Start button, while making sure the cutter is rotating the correct way. With the cutter rotating, the notch can be created.
2. Slowly turn the "X" handwheel clockwise (CW) to advance the tube to the cutter. Once the cutter just touches the tube, zero out the digital counter.
3. Advance the tube into the cutter the amount desired. Now take note of the number displayed on the digital counter. Turn the "X" handwheel counterclockwise (CCW) to back out of the notch.

Repeat Notching

1. If multiple parts with the same notch are to be made, have the tube extend the same amount past the vise jaws as in the first notch and simply advance the tube into the cutter, until the digital counter displays the previously noted number, which was acknowledged during the first notch.



The calibration of the counter is:

Counter display	Actual distance in inches
0000.0	0.000
0001.0	0.100
0002.0	0.200



Angle Notching

To notch at an angle, the vise needs to be rotated left or right. For small angles, rotating to the right is ok, but for large angles, rotating the vise to the left is preferred.

⚠ IMPORTANT: Never rotate the vise to the right so that the lead screw is in front of the end mill. The vise could be inadvertently moved into the end mill damaging the vise, end mill and possibly the spindle.

1. Precut the material to the desired angle prior to notching. This will create an edge that is parallel to the end mill.
2. Loosen the cam handle "A" and rotate the vise to the desired angle and lock the cam handle.
3. Load the material into the vise, similar to a square end cut and proceed with the notching.

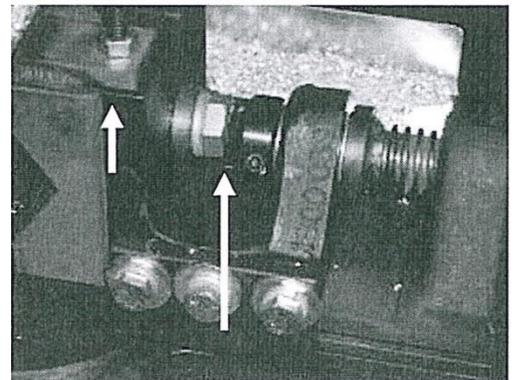


Material Removal

1. After the desired notch depth is reached, back the tube away from the cutter by turning the "X" handwheel counterclockwise (CCW) and activate the stop button.
2. Make sure the spindle has stopped completely before removing completed part and installing new material.

Off-Center Notching

For off-center notching use the vise jaw adjustment screw to adjust the height of the vise jaw to the offset needed.





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.

STANDARD PIPE SIZES AND SCHEDULES TABLE

PIPE SIZES	O.D.	Pipe Schedules and Wall Thickness					
		5	10	40	80	160	XX STRONG
1/8	0.405	0.400	0.050	0.068	0.095		
1/4	0.540	0.500	0.070	0.088	0.119		
3/8	0.675	0.500	0.070	0.091	0.126		
1/2	0.840	0.700	0.080	0.109	0.147	0.188	0.294
3/4	1.050	0.700	0.080	0.113	0.154	0.219	0.308
1	1.315	0.700	0.110	0.133	0.179	0.250	0.358
1-1/4	1.660	0.700	0.110	0.140	0.191	0.250	0.382
1-1/2	1.900	0.700	0.110	0.145	0.200	0.281	0.400
2	2.375	0.700	0.110	0.154	0.218	0.344	0.436
2-1/2	2.875	0.800	0.120	0.203	0.276	0.375	0.552

All sizes are in inches

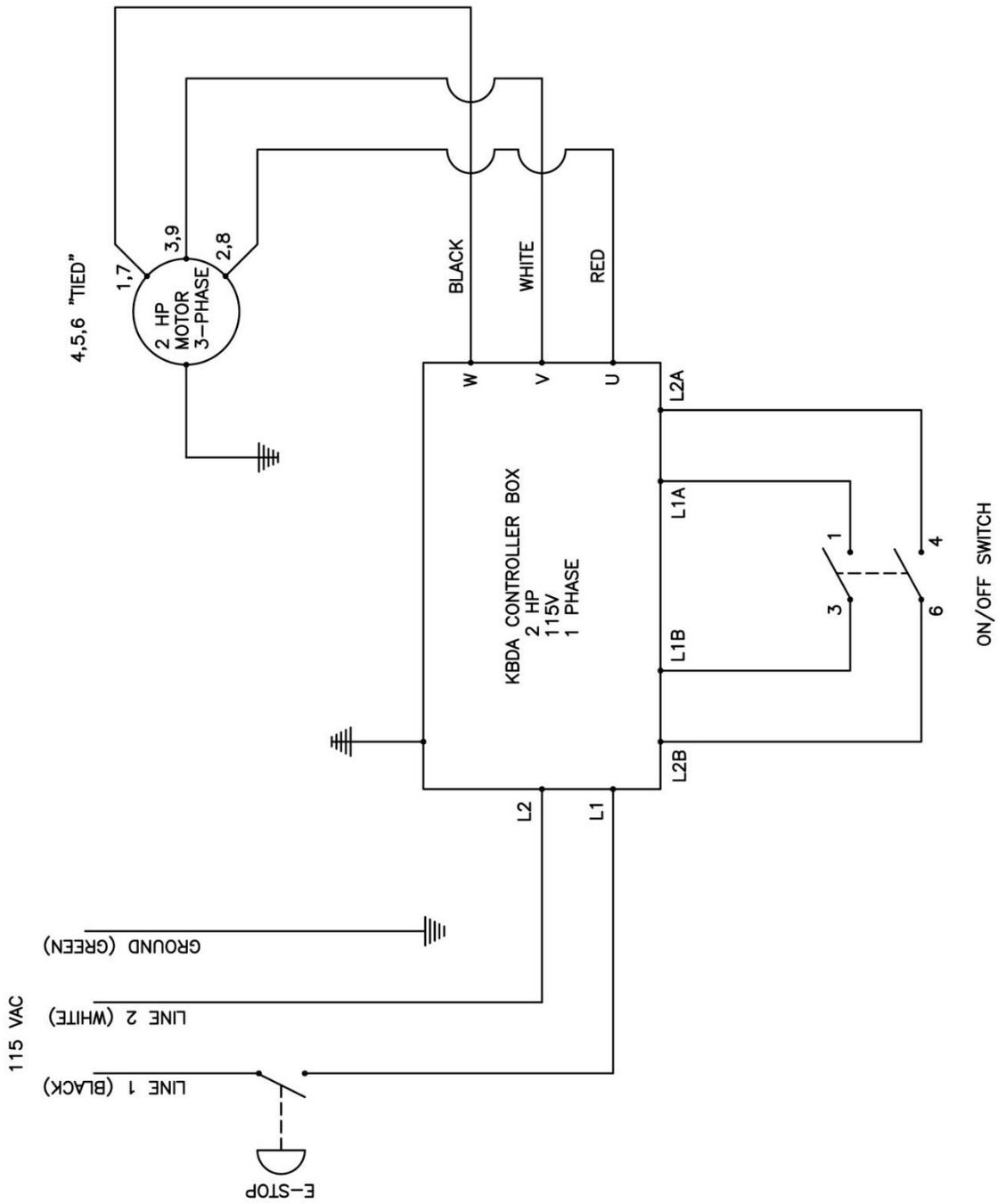


TROUBLESHOOTING

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

Problem	Solution
Chattering	Material sticking too far out past vise
	Material not clamped tight in vise
	Vise lock lever is too loose
	Cutter is dull or loose
	“X” guide rails and/or “Y” table gibs loose
	RPM of cutter too fast
	Material too close to end of cutter
Motor stops while notching	Feeding to fast
	Cutter is dull
	Not a good power source, circuit should be dedicated to this machine only
Handwheels are tight or sticks in spots	Chips are stuck in the linear bearings of the “X” axis guide rails, or on the guide rails
	Chips are stuck in the “Y” axis gibs
	“Y” axis gibs are set too tight

ELECTRICAL SCHEMATIC



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.

- 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.
- The gearbox oil should be changed every 3 years, with VG680 SYN-FG-PG or food grade synthetic polyglycol oil, with an amount of 0.1 qts. (1.5-2 years if used more than 12hrs/day).
- Grease the linear bearings weekly.
- Be sure to keep the slide ways clean and the gib screws properly adjusted.
- Be sure always to use sharp cutters, dull or worn tools will decrease the performance of the machine and may be unsafe.
- Periodically check the power cord for cuts or bare wire and replace if damaged.

Oil Disposal

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

Storing Machine for Extended Period of Time

If the TN-700 notching machine is to be inactive for a long period of time, prepare the machine as follows:

- Unplug the machine from the electrical outlet
- Clean and grease the machine
- Cover the machine.

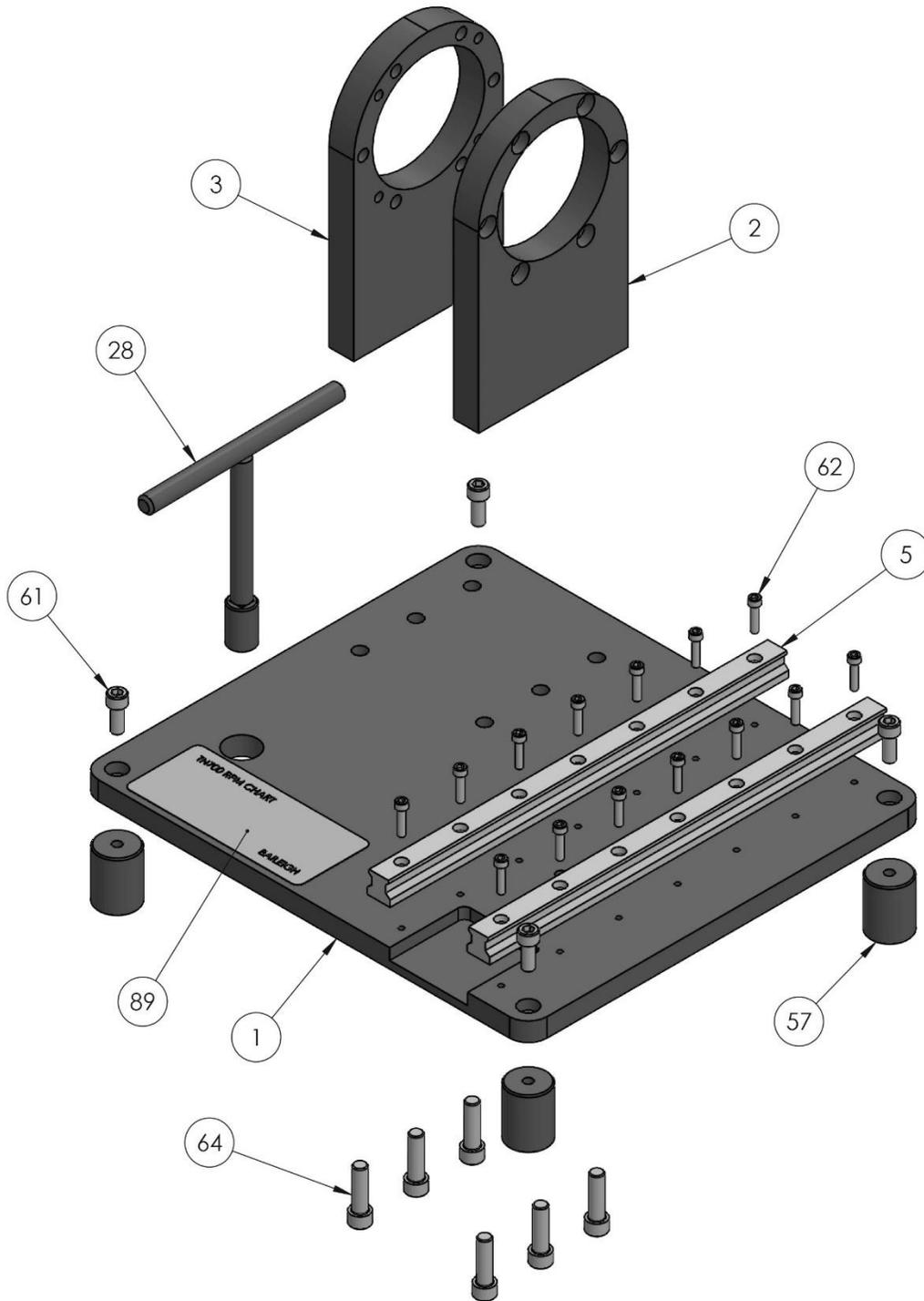


Note: *Proper maintenance can increase the life expectancy of your machine.*

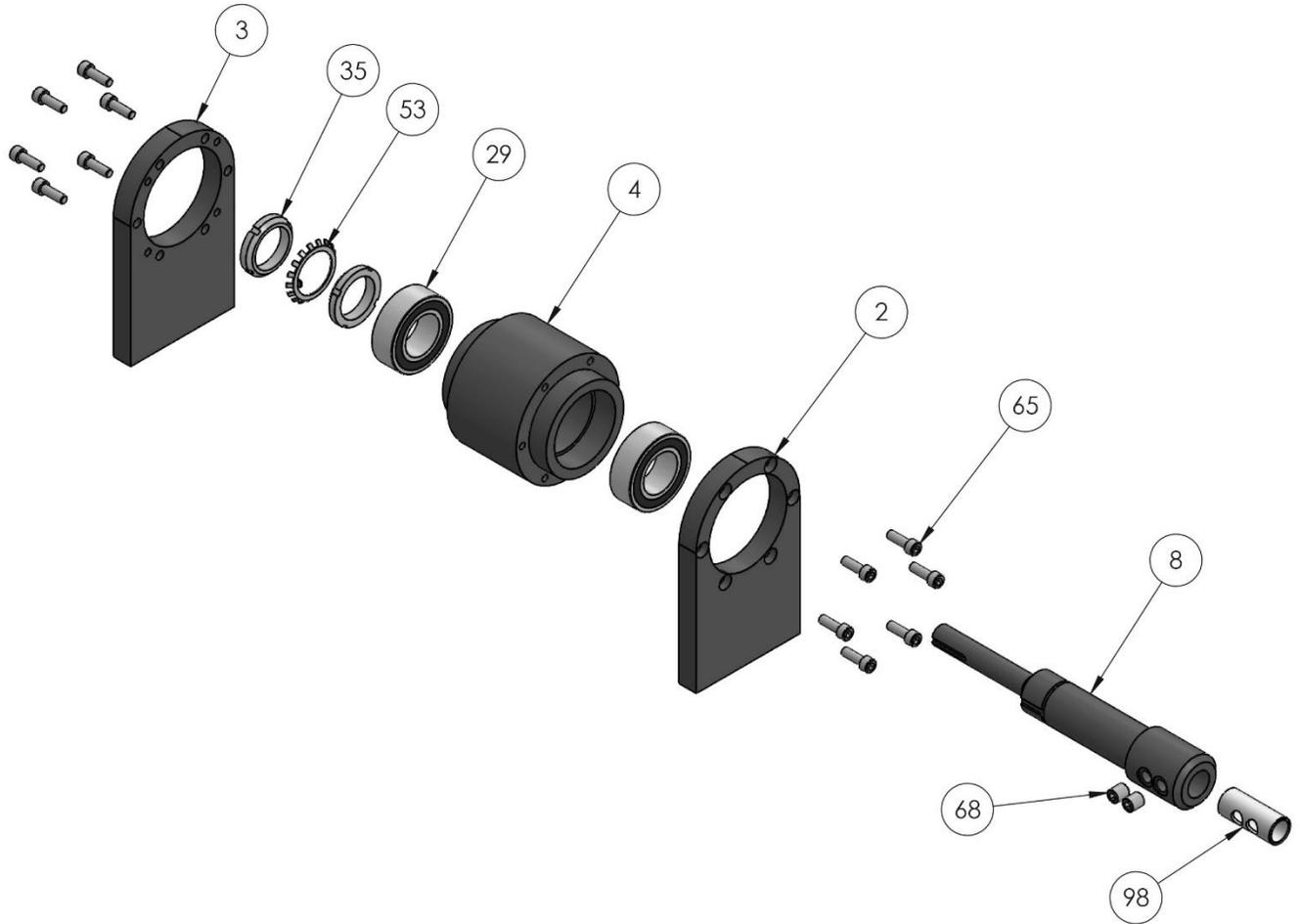


PARTS DIAGRAM

Base Plate Assembly

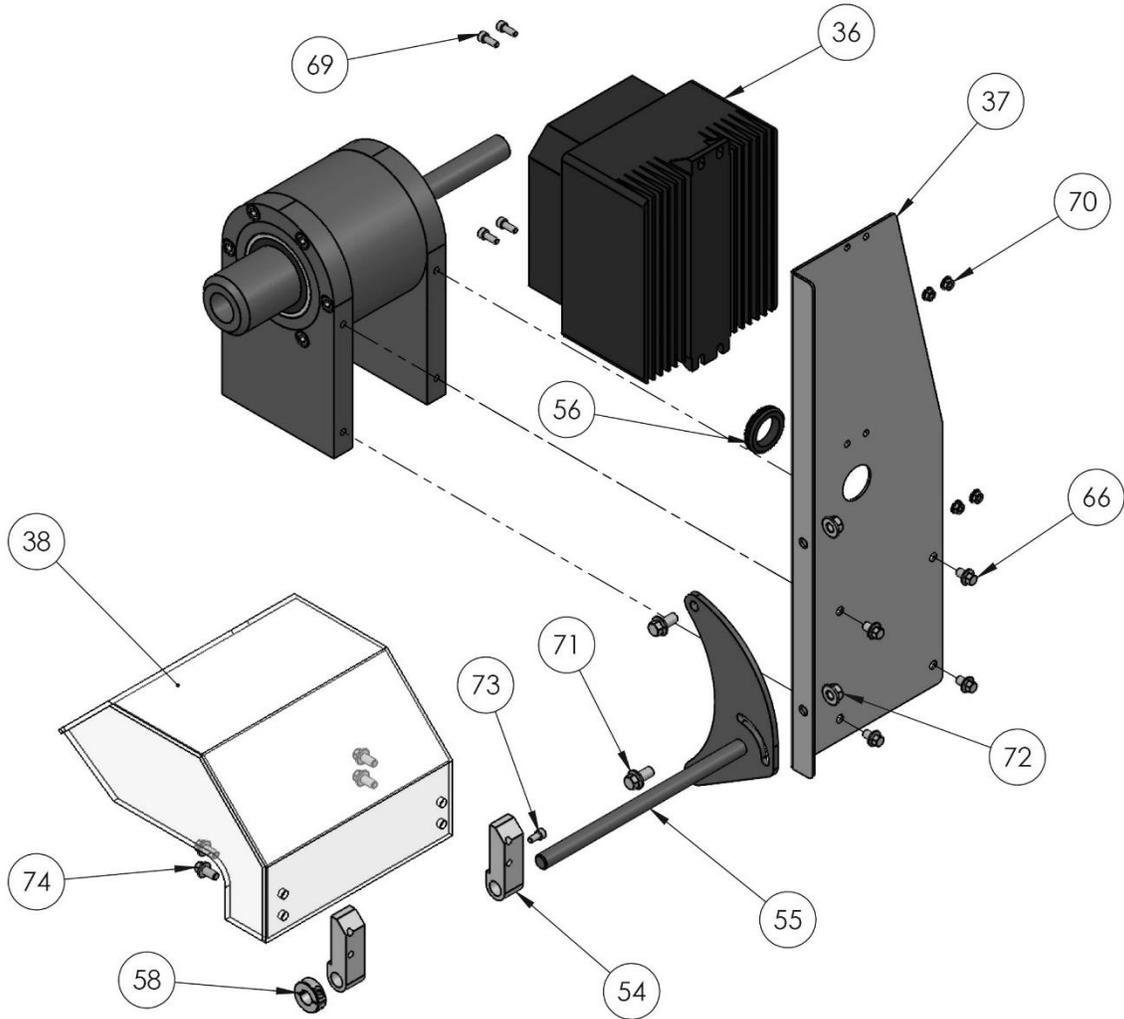


Spindle Assembly



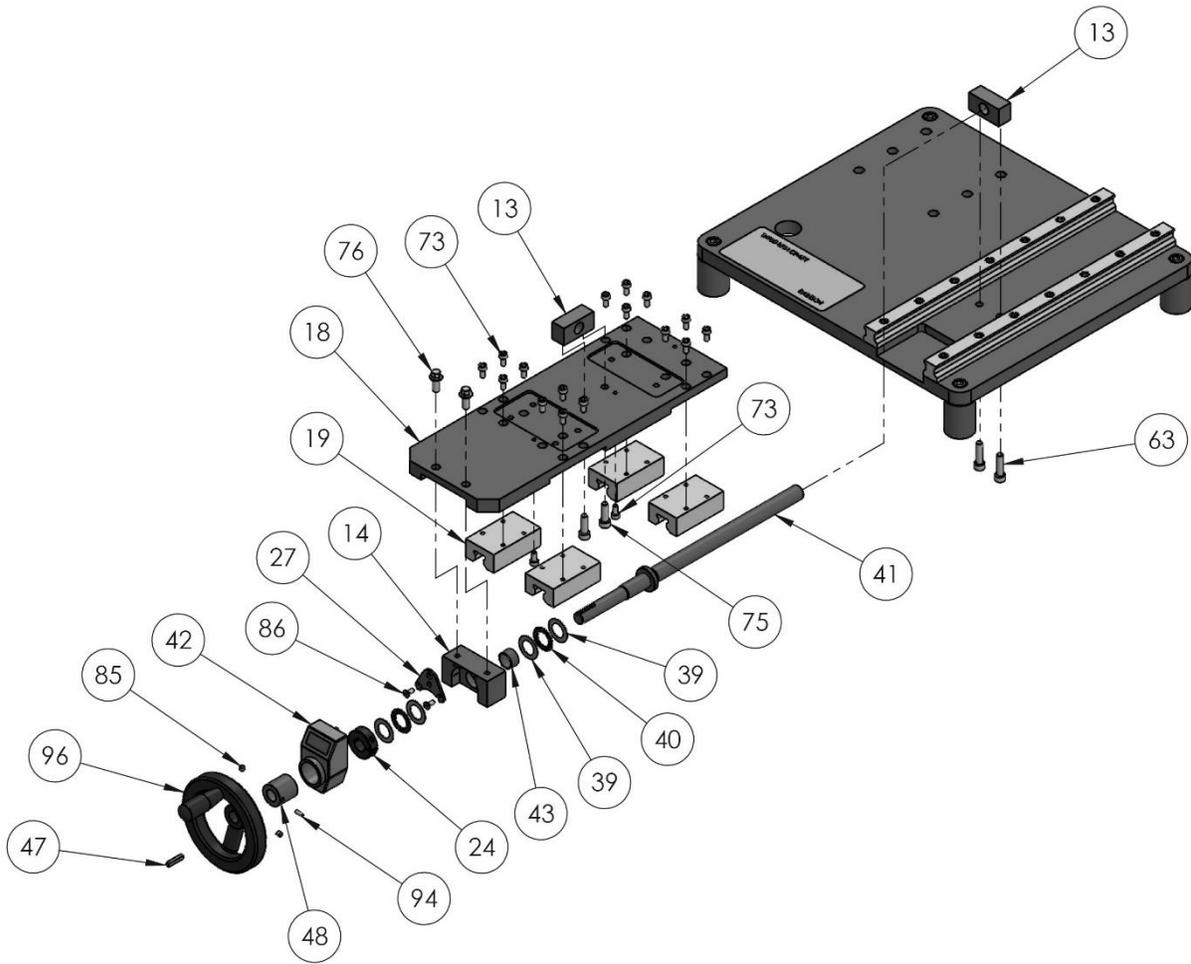


Controller Bracket Assembly



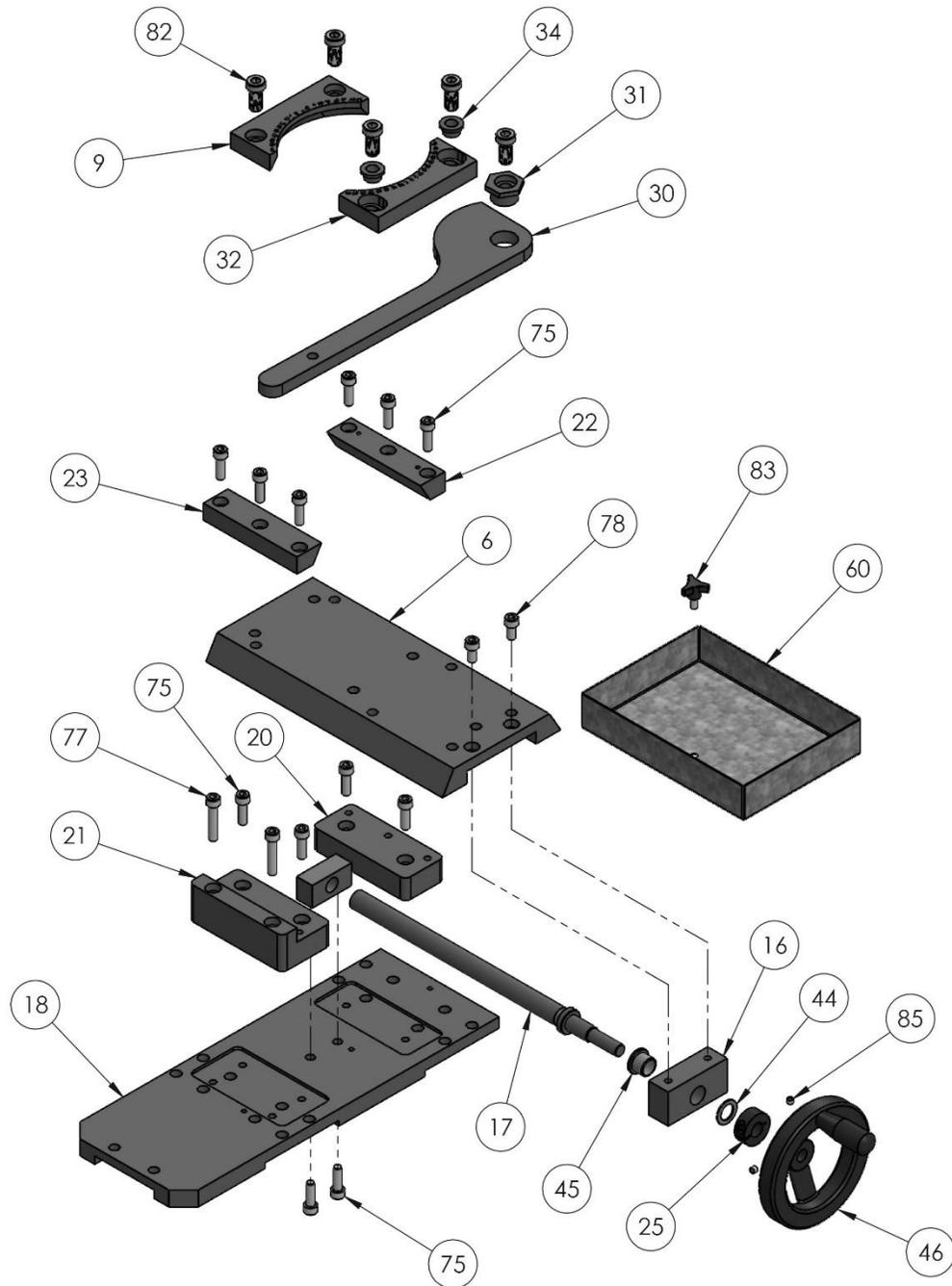


Vise Base Assembly



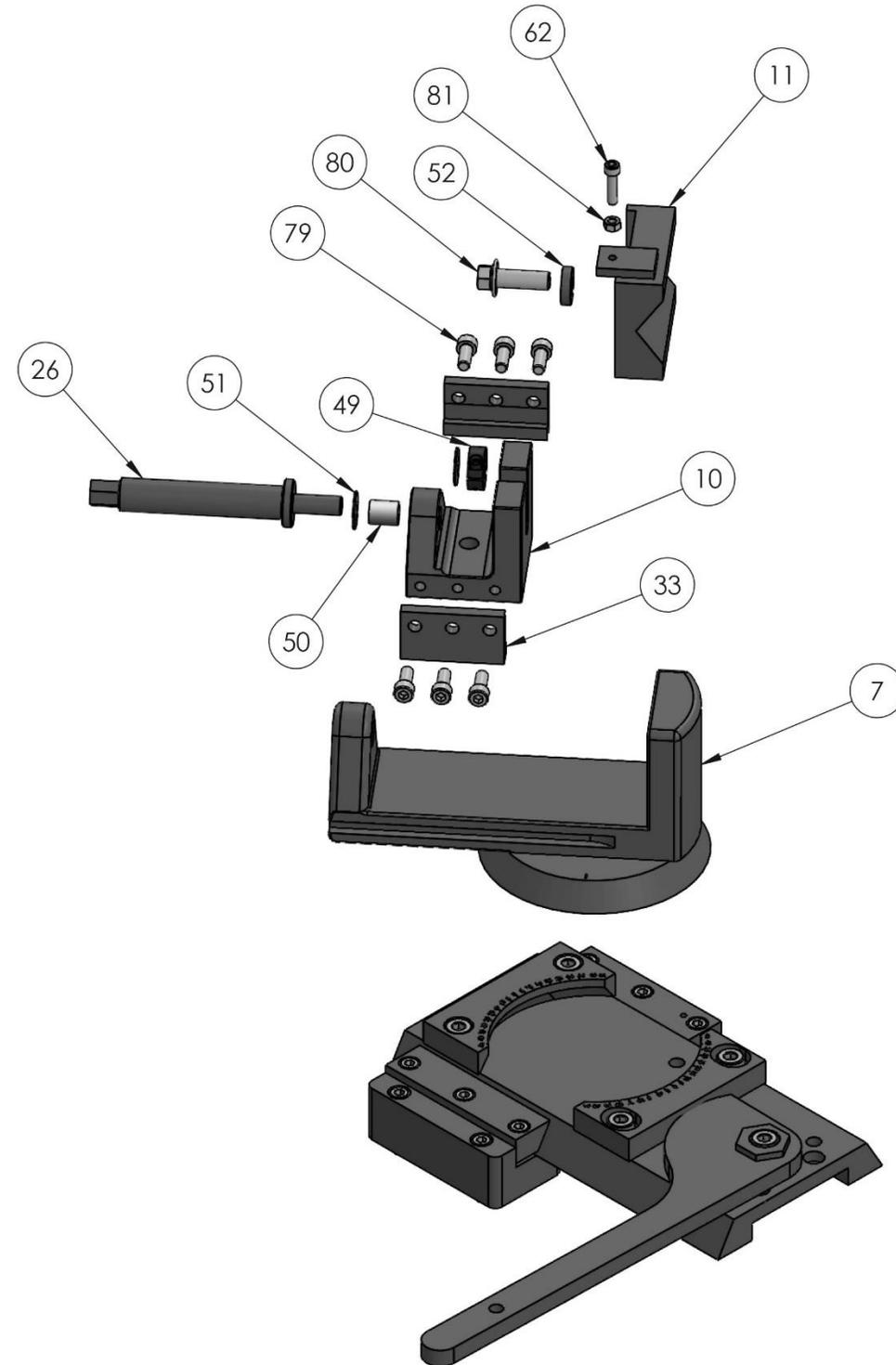


Y-Axis Assembly





Vise Assembly





Parts List

Item	Part Number	Description	Qty.
1	TN2500-6001	Base Plate	1
2	TN2500-6013	Upright Front	1
3	TN2500-6002	Rear Upright	1
4	TN2500-7001	Spindle Hub	1
5	PP-2205	Guide Rail	2
6	ME-M800-6A073	Slide Base (Top)	1
7	M800-6A037	Vise Casting	1
8	TN2500-7002	Spindle	1
9	ME-M800-6A059	Fixed Vise Clamp	1
10	ME-M800-6A039	Vise Slide Block	1
11	ME-M800-5A005	"V" Jaw Ass'y For 1" To 3"	1
12	PP-1076	2 HP 3-Phase Motor	1
13	ME-M800-6A033	Leadscrew Block	2
14	TN2500-6011	X-Axis End Block	1
15	TN2500-6006	Gearbox Spacer	2
16	ME-M800-6A075	End Block (W/O Tap)	1
17	M800-7A018	Short Lead Screw	1
18	TN2500-6007	Slide Table	1
19	PP-1369	Linear Bearing	4
20	TN2500-6009	Gib Riser Fixed	1
21	TN2500-6008	Gib Riser Adjustable	1
22	ME-M800-6A070	4.75" Gib (Thick)	1
23	ME-M800-6A071	4.75" Gib (Thin)	1
24	PP-0781	3/4-16 Threaded Clamp Collar	1
25	PP-0169	5/8-18 Unf Clamp Collar	1
26	M800-5A008	Vise Screw Weldment	1
27	ME-M800-6A074	Counter Support	1
28	M800-5A006	T-Handle Wrench	1
29	PP-0119	Spindle Bearing	2
30	M800-6A061	Cam Handle	1
31	M800-7A026	Eccentric Adjuster	1
32	ME-M800-6A060	Moveable Vise Clamp	1
33	M800-6A040	Gib Key	2



Item	Part Number	Description	Qty.
34	ME-M800-7A025	Shoulder Washer	2
35	PP-0114	Lock Nut	2
36	PP-2212	Control Box Drive Assembly W/E-Stop	1
37	TN2500-6010	Drive Mounting Plate	1
38	M800-5A015	M800 Guard Assembly	1
39	PP-2201	.75 X .032 Bearing Washer	4
40	PP-2203	.75 Thrust Bearing	2
41	TN2500-5001	X-Axis Lead Screw Assy	1
42	PP-1272	Electric Counter	1
43	PP-1763	.75 X .875 X .5 Bushing	1
44	PP-0168	.625 ID X 1.0 OD X .0625	1
45	PP-0167	0.625 ID X 0.75 OD X 0.625 Lg	1
46	PP-1032	5.0 Handwheel (.5 Bore)	1
47	PP-2225	3/16" X 1" Keystock	1
48	TN2500-7005	Counter Sleeve	1
49	PP-0037	1/2" Clamp Collar	1
50	PP-0051	0.5 ID X 0.625 OD X 0.75 Lg	1
51	PP-0055	0.5 ID X 1.0 OD X .0625 Thk	2
52	M800-7A022	Vise Spacer	1
53	PP-0115	Lock Ring	1
54	ME-M800-6A098	Guard Pivot	2
55	ME-M800-5A017	Straddle Assembly	1
56	PP-2204	1.25 Rubber Grommet	1
57	TN2500-7006	Bench Top Peg	4
58	PP-0958	5/8" Clamp Collar	1
59	TN2500-6014	Gearbox Key	1
60	TN2500-6015	Chip Tray	1
61	BSM-0015	M10 X 1.5 X 25 Shcs	4
62	BSM-0003	M6 X 1.0 X 25 Shcs	15
63	BSM-0010	M8 X 1.25 X 30 Shcs	2
64	BSM-0024	M12 X 1.75 X 40 Shcs	6
65	BSM-0016	M10 X 1.5 X 30 Shcs	12
66	BSM-0192	M8 X 1.25 X 12 Hx Flg	4
67	BS-0074	3/8 Lock Washer	4
68	BSM-0204	M16 X 2.0 X 20 Set Screw	2



Item	Part Number	Description	Qty.
69	BSM-0001	M6 X 1.0 X 14 Shcs	4
70	BSM-0121	M6 X 1.0 Flanged Nut	4
71	BSM-0058	M10 X 1.5 X 20 Hx Flg	2
72	BSM-0187	M10 X 1.5 Flg Nut	2
73	BSM-0183	M6 X 1.0 X 12 Shcs	19
74	BSM-0166	M8 X 1.25 X 16 Hex Flg	4
75	BSM-0009	M8 X 1.25 X 25 Shcs	12
76	BSM-0052	M8 X 1.25 X 20 Hx Flg	2
77	BSM-0011	M8 X 1.25 X 40 Shcs	2
78	BSM-0149	M8 X 1.25 X 16 Shcs	2
79	BSM-0008	M8 X 1.25 X 20 Shcs	6
80	BSM-0174	M12 X 1.75 X 35 Hex Flg	1
81	BSM-0182	M6 X 1.0 Hex Nut	1
82	BSM-0171	M12 X 1.75 X 25mm Lhscs	5
83	PP-1533	M6 Knob	1
84	TN2500-7008	Motor Adaptor Disc	1
85	BS-0313	1/4-20 X .25 Set Screw	4
86	BSM-0208	M5 X .8 X 14 Fhcs	2
88	TN2500-6017	Gearbox Mounting Bracket	2
89	PP-2237	Rpm Sticker Chart	1
90	BS-0045	3/8-16 X 2.0 Hhcs	4
91	BSM-0059	M10 X 1.5 X 25 Hx Flg	4
92	BSM-0053	M8 X 1.25 X 25 Hx Flg	4
93	BSM-0100	M8 X 1.25 Flg Nylock Nut	4
94	BSM-0093	M4 X 0.7 X 12 Set Screw	1
95	BSM-0190	M10 X 1.5 X 55 Shcs	4
96	PP-1710	5.0 Handwheel (.625 Bore)	1
97	PP-2240	Coupler, White (TN2500 Nord Gearbox)	1
98	TN2500-7007	1" Reducer Sleeve	1

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