



OPERATOR'S MANUAL

Metal Working



POWER HAMMER MODEL: PH-28HD

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Table of Contents

THANK YOU & WARRANTY	1
INTRODUCTION.....	3
GENERAL NOTES.....	3
SAFETY INSTRUCTIONS	4
SAFETY PRECAUTIONS	6
Dear Valued Customer:.....	6
TECHNICAL SPECIFICATIONS.....	8
TECHNICAL SUPPORT	8
UNPACKING AND CHECKING CONTENTS.....	9
Cleaning	9
TRANSPORTING AND LIFTING	10
INSTALLATION.....	11
Levelling Feet	11
ELECTRICAL.....	12
OPERATION.....	14
Setup and Adjustments	14
Operation.....	16
MATERIAL SELECTION.....	17
LUBRICATION AND MAINTENANCE	17
PLATE ASSEMBLY	18
SLEEVE SPACER (POST 1-2018)	19
UPPER / LOWER RAM ASSEMBLY	20
SPROCKET ASSEMBLY	21
SPRING ASSEMBLY	22
LEVER ASSEMBLY	23
SLIDE STROKE ASSEMBLY.....	24
QUICK RELEASE ASSEMBLY.....	25
TIMING BELT ASSEMBLY PRE-JAN. 2018	26
ELECTRICAL BOX ASSEMBLY PRE-JAN. 2018.....	27
GUARD ASSEMBLY PRE-JAN. 2018.....	28
V-BELT ASSEMBLY POST-JAN. 2018.....	29
GUARD AND CONTROL BOX ASSEMBLY POST-JAN. 2018.....	30
Parts List	31



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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 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.



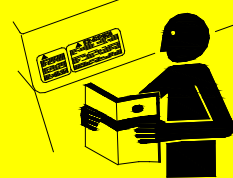
Note: This symbol refers to useful information throughout the manual.



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

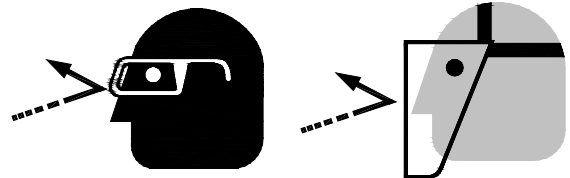


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



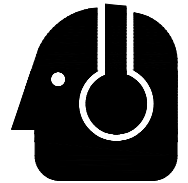
PROTECT EYES

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



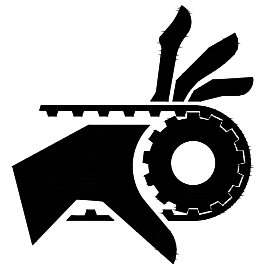
PROTECT AGAINST NOISE

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.



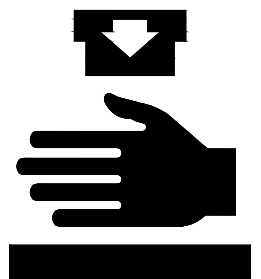
BEWARE OF PINCH POINTS

Keep hands and fingers away from the servo motors drive belt and pulleys when performing maintenance. Keep motor guards in place at all times while the machine is running.



BEWARE OF CRUSH HAZARD

NEVER place your hands, fingers, or any part of your body in the die area of this machine.



HIGH VOLTAGE

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





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. **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. **Turn off** power before checking, cleaning, or replacing any parts.
20. Be sure **all** equipment is properly installed and grounded according to national, state, and local codes.
21. Keep **all** cords dry, free from grease and oil, and protected from sparks and hot metal.
22. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill!** **DO NOT** touch live electrical components or parts.
23. Keep visitors a safe distance from the work area.



TECHNICAL SPECIFICATIONS

Mild Steel Capacity	16ga. (1.519mm)
Aluminum Capacity	12ga. (2mm)
Speed	0 - 1000 beats / min (Variable)
Throat Depth	28" (711mm)
Working Height	52" (1321mm)
Length of Stroke Adjustment	Variable from 1/4" – 3/4" (6.35 – 19mm)
Power	220V / 1 Phase / 60Hz / 20A
Motor	3hp, (2.25kw) 220V / 1 Phase / 60Hz / 20A
Shipping Dimensions	48" x 48" x 96" (1220 x 1220 x 2439mm)
Shipping Weight	2,000lbs. (907kgs)
Based on a material tensile strength of *60000 PSI – mild 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.



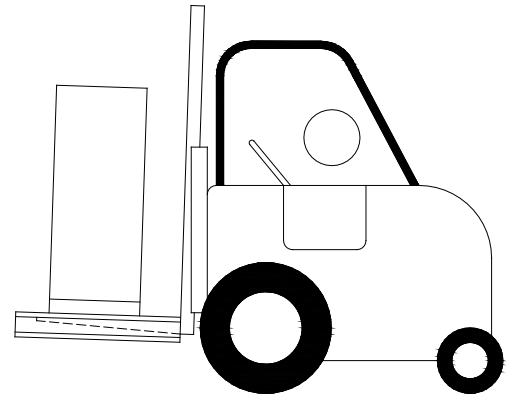


TRANSPORTING AND LIFTING

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

Follow these guidelines when lifting with truck or trolley:

- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a 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.



Follow these guidelines when lifting crane or hoist:

- 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, then lower slowly until it touches the floor.



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 machine distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.
- **POWER SUPPLY PLACEMENT:** The power supply should be located close enough to the machine so that the power cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

Levelling Feet

1. Remove the machine from the pallet and install the leveling feet.
2. Once the machine is moved to its location, level the machine keeping firm even contact on all four feet.



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.

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.

Extension Cord Safety

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

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

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

Power cord connection:

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



OPERATION

⚠ CAUTION: Always wear proper hearing and eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. Keep hands and fingers clear of the hammer dies. When handling large heavy sheets make sure they are properly supported.

⚠ WARNING: HEARING PROTECTION MUST BE WORN ALWAYS WHEN OPERATING THIS MACHINE.

The PH-28HD Power Hammer is a multi-stroke reciprocating machine. The upper slide ram (hammer) is connected to the crank toggle mechanism via a multi stack leaf spring. As the crank turns, speed and momentum load the spring which in turn “throws” the upper slide ram down with spring force and gravity. The amount of throw and force are controlled by speed and/or stroke. The speed is controlled through a variable foot control and a limiting potentiometer on the upper control box. The foot control fully depressed will max out at whatever the limiting potentiometer is set to. Using a power hammer is a highly artistic operation. It requires time and experience to become proficient at creating the desired results. The best recommendation is to practice, take notes, experiment, and seek out advice through technical colleges, individual mentoring with an experienced operator, and through online forums and trade magazines. Practice!


Setup and Adjustments

1. Turn the main disconnect “off”.
2. Rotate the stroke handwheel to raise the upper slide ram (hammer) to the high point of the stroke.





3. Pull outward and down on the release lever to raise the hammer to allow additional clearance for tool changes. Verify that the lever is locked into the lower position (Up position shown).
4. Install the desired tooling (sold separately) into the lower and upper rams and lock in position using the retaining pins.
5. Pull outward and up on the release lever to lower the hammer to the operating position. Verify that the lever is locked into the upper position (Shown).

 **IMPORTANT:** The tool change release lever **MUST** be locked in the UP position before and during operation. Operating the power hammer with the release lever in the lower position will damage the machines operating linkage.



6. Adjust the anvil height by loosening the two guide screws just enough to allow the anvil to move up or down.
7. Turn the handwheel on the right side of the frame so that the hammer tool is at the lowest (closest) point of its travel.
8. Turn the adjustment collar to raise or lower the anvil post. The initial setting for the gap between the lower and upper tool should be the same as the material thickness.



Note: Shown with no tool installed.
Normal adjustment would have a tool set installed.





9. Next, adjust the stroke as needed to provide the amount of force desired to produce the results desired. The longer the stroke, the greater the force generated. When starting for the first time, use the factory setting (typically the mid-point) until some practice has occurred to become familiar with the machines operation.



WARNING: The tools on this machine should never come in contact with each other, if they do, machine damage will occur.

Operation

1. Set the control switch to the "ON Foot Control" position.
2. Set the limiting potentiometer to 100%, about 1000 BPM (Beats Per Minute), slowly press the foot control, the machine should begin to "hammer", hitting harder the faster you go.
3. Turn the main disconnect to ON.
4. Shrinking as well as most of the shaping functions will take time to learn and control. To practice shrinking, use 3003-H14 .059 wall aluminum. This is a good material to learn on because it shapes easily and is more forgiving. To shrink start feeding the metal in slowly controlling the shrink by your foot control; slowing as you pull out not to flatten the edge too much.
5. The hammer mode is also used for planishing. Install the flat top die and the 6000R x 1000F lower hammer die. This die has a contact patch of 1" diameter. Install the tools following the same steps as before. Adjusting the stroke will give different results. Shortening the stroke will allow different speed settings, faster speeds can be achieved by finding the "sweet spot", just before the spring begins to float. The combinations of stroke / speed / down feed are almost endless.
6. These dies can be used for planishing as well as stretching. The flat top die is used for most of the stretching applications except for aggressive doming. The rubber die can be installed on either the top or bottom depending on your application.





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.

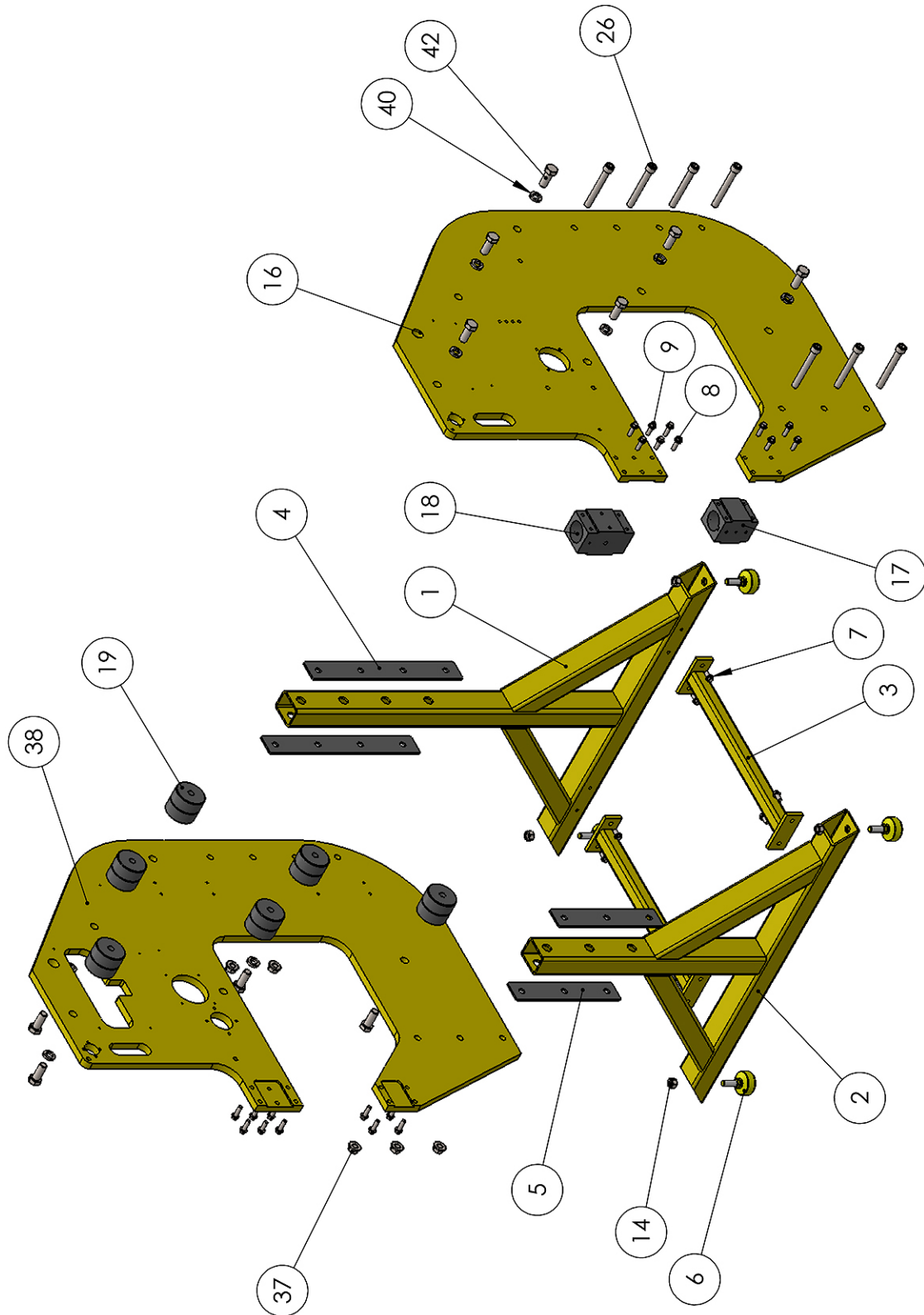
- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- On a weekly basis clean the machine and the area around it.
- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Grease the fittings every month with two pumps from a standard grease gun.
- Check for any worn or damaged parts and replace immediately.
- Check and fill oil cup as needed. Use AW-46 hydraulic oil.



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

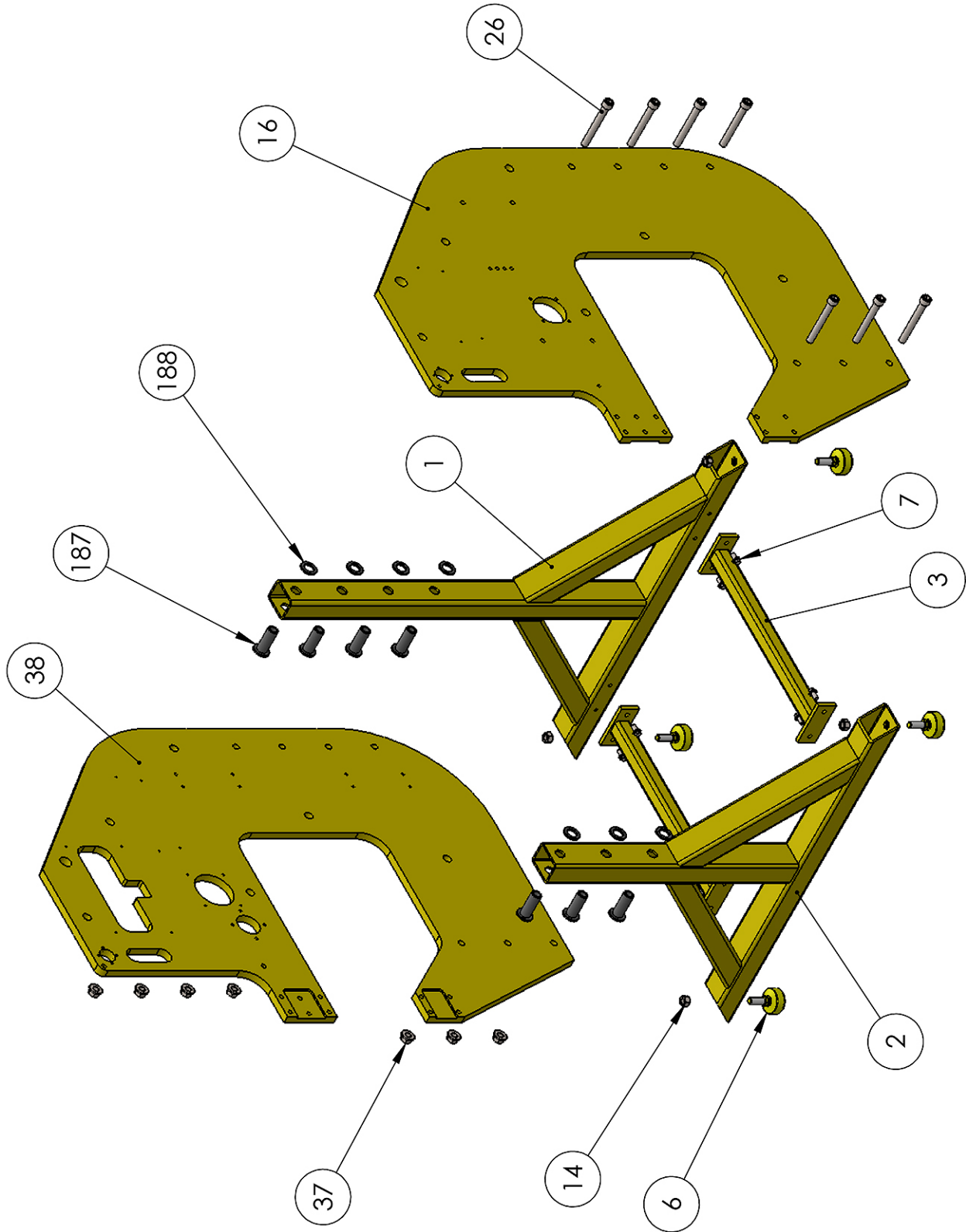


PLATE ASSEMBLY



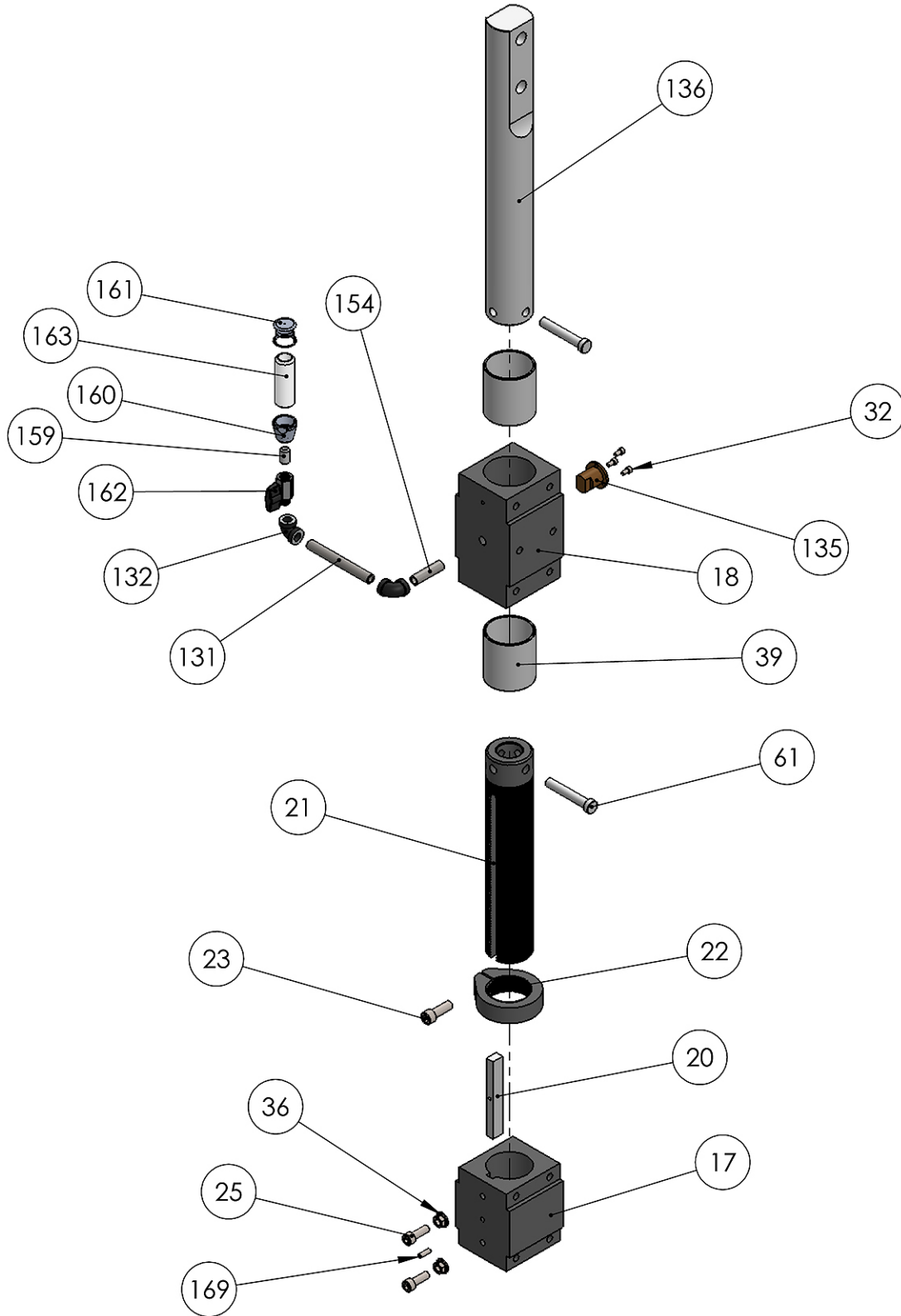


SLEEVE SPACER (POST 1-2018)



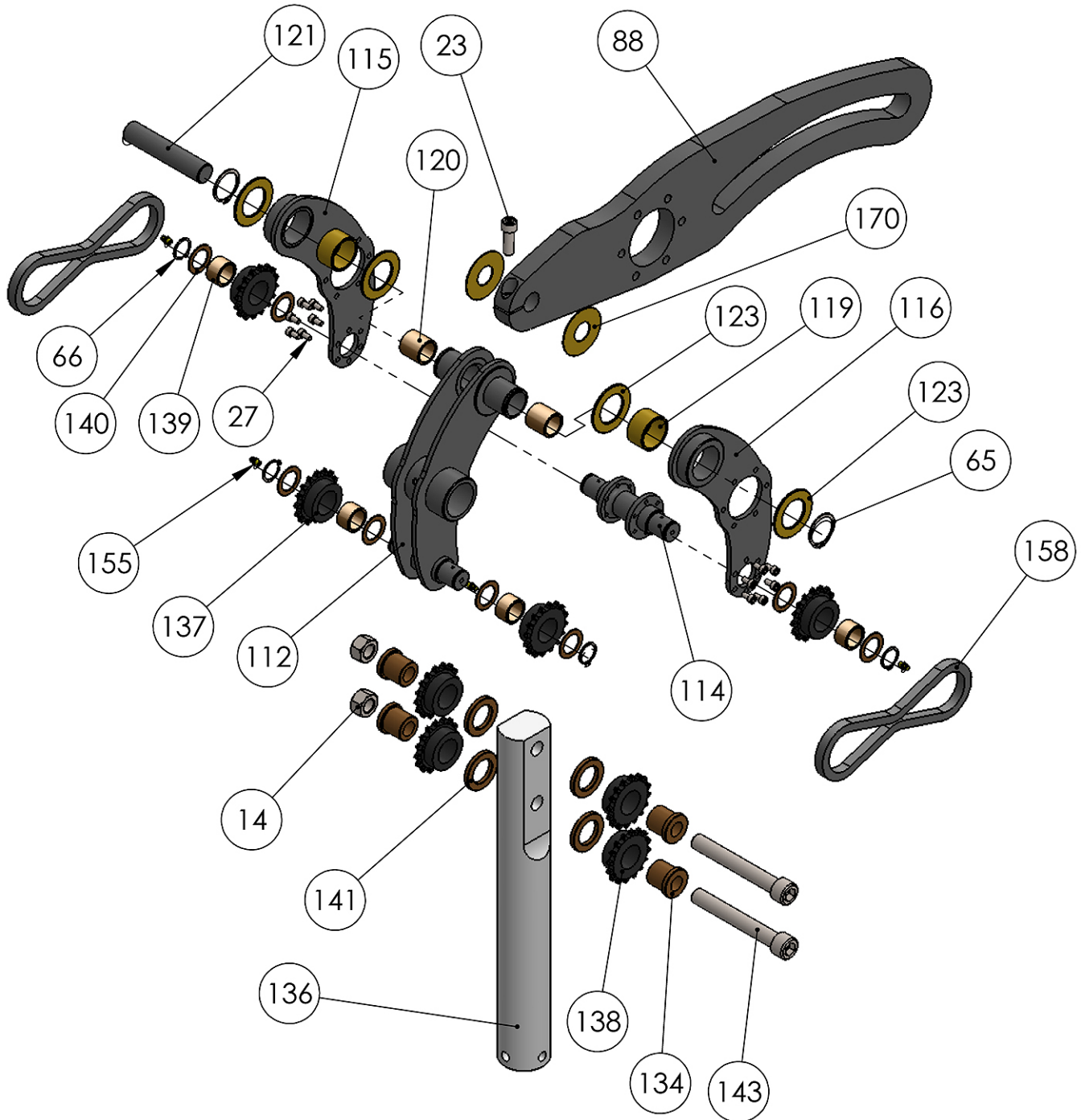


UPPER / LOWER RAM ASSEMBLY



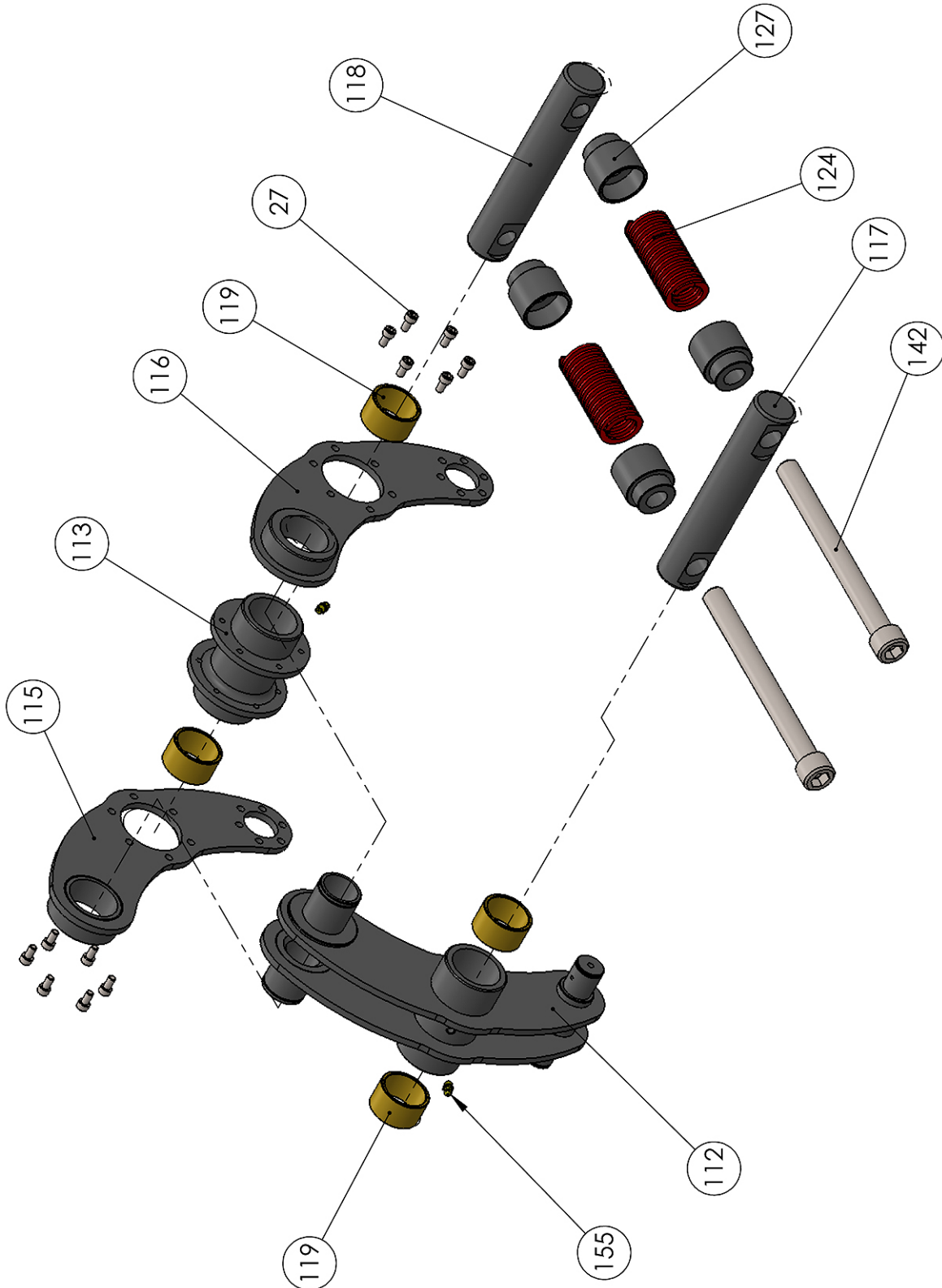


SPROCKET ASSEMBLY



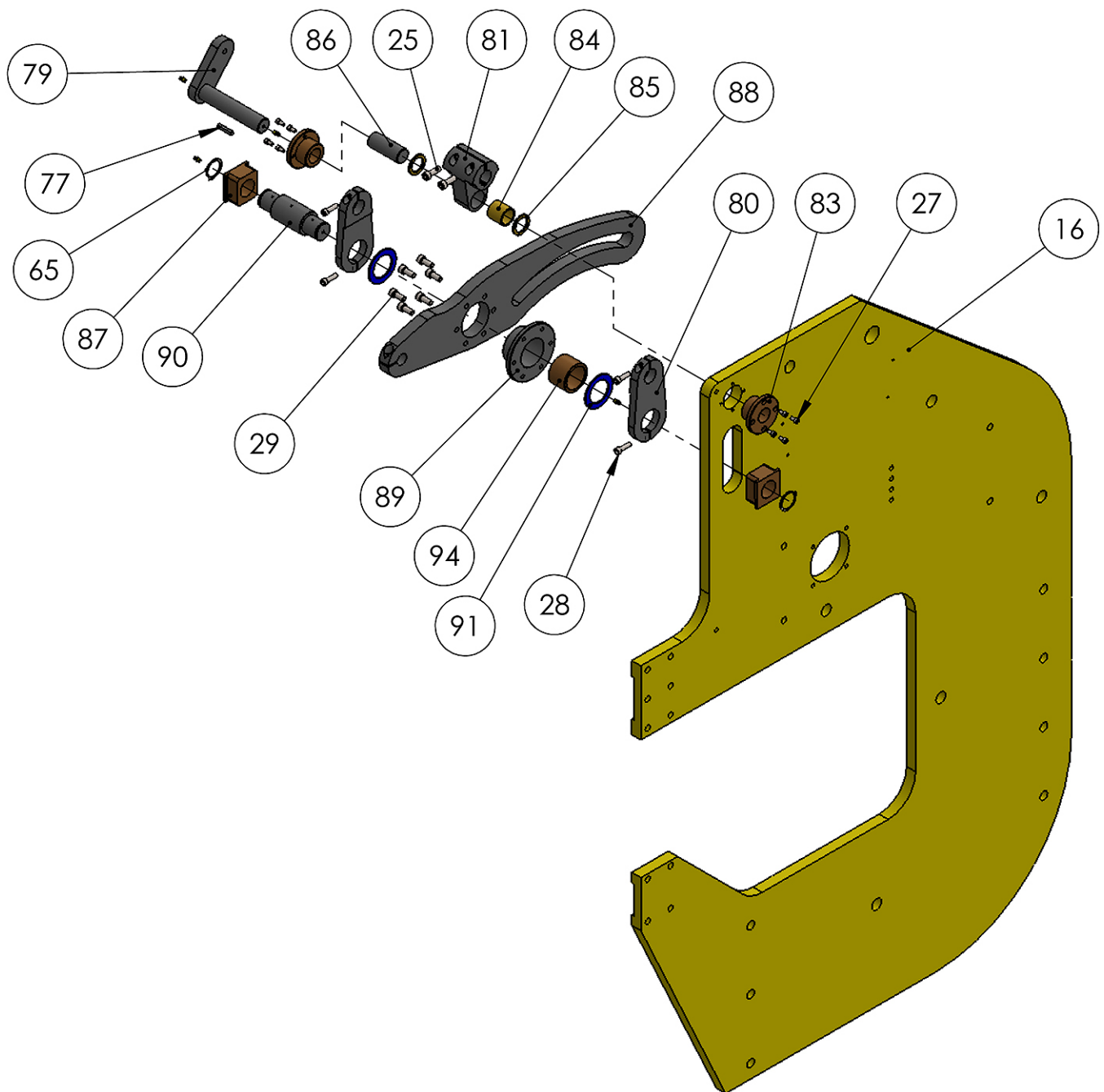


SPRING ASSEMBLY





LEVER ASSEMBLY





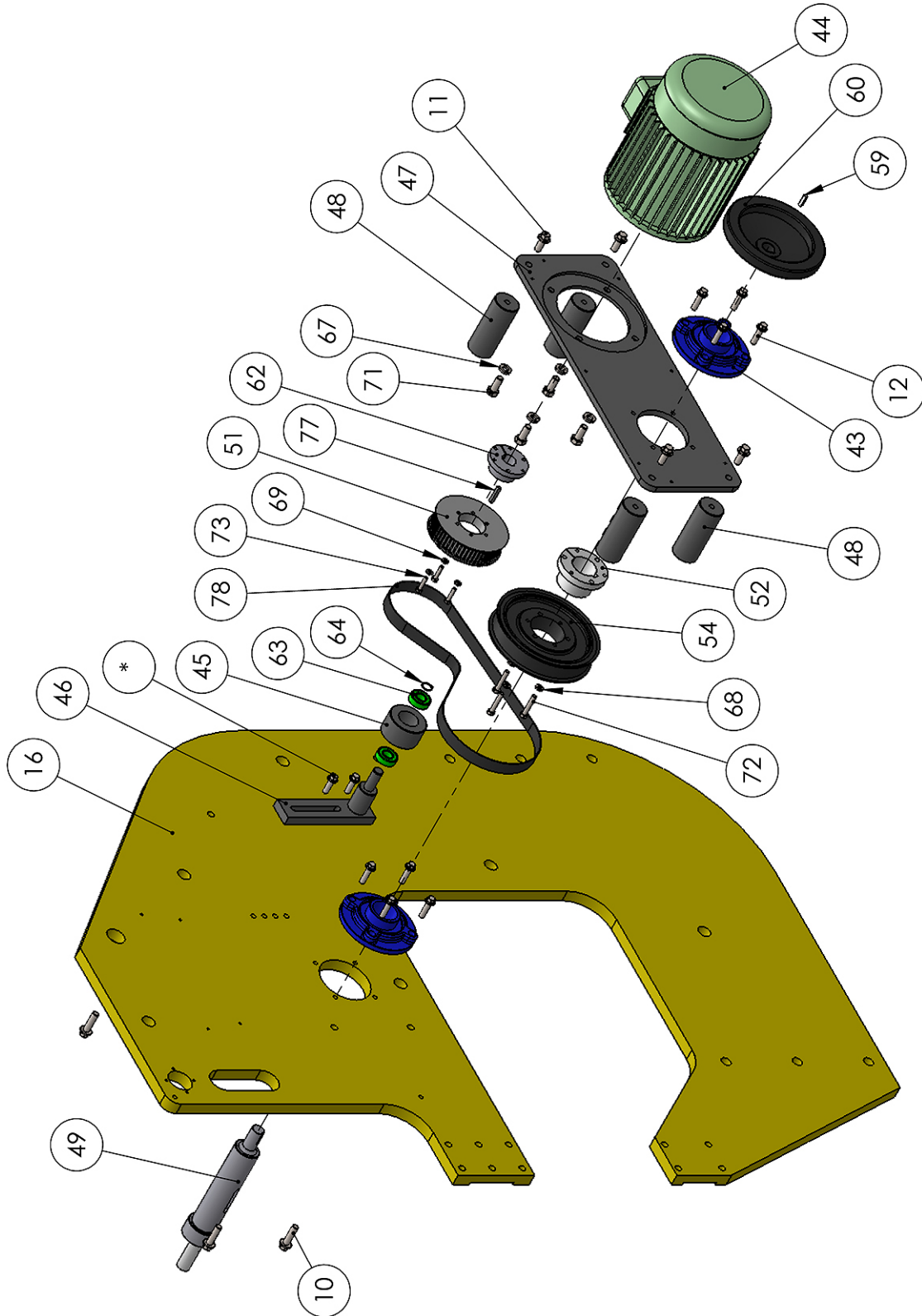
SLIDE STROKE ASSEMBLY





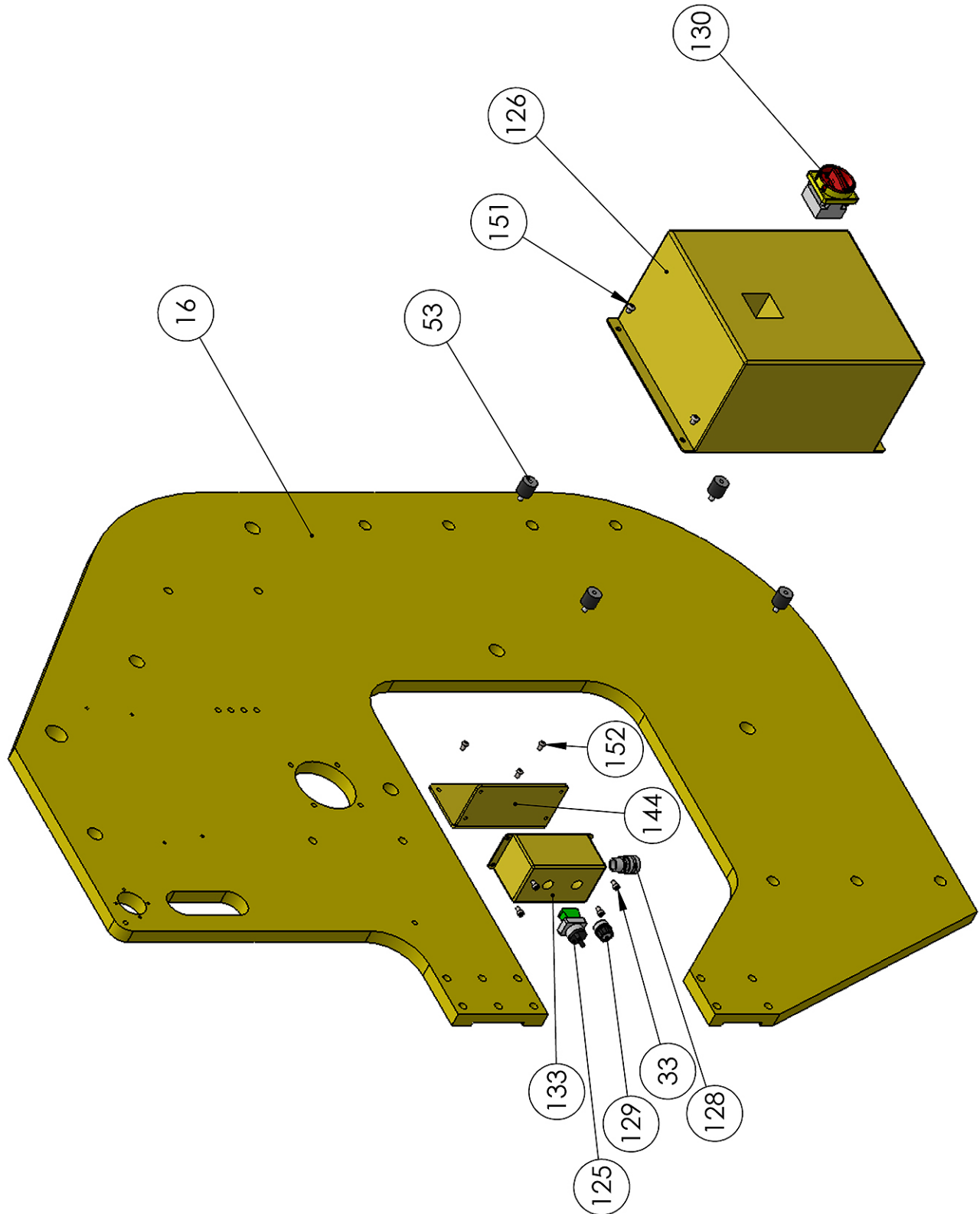


TIMING BELT ASSEMBLY PRE-JAN. 2018





ELECTRICAL BOX ASSEMBLY PRE-JAN. 2018

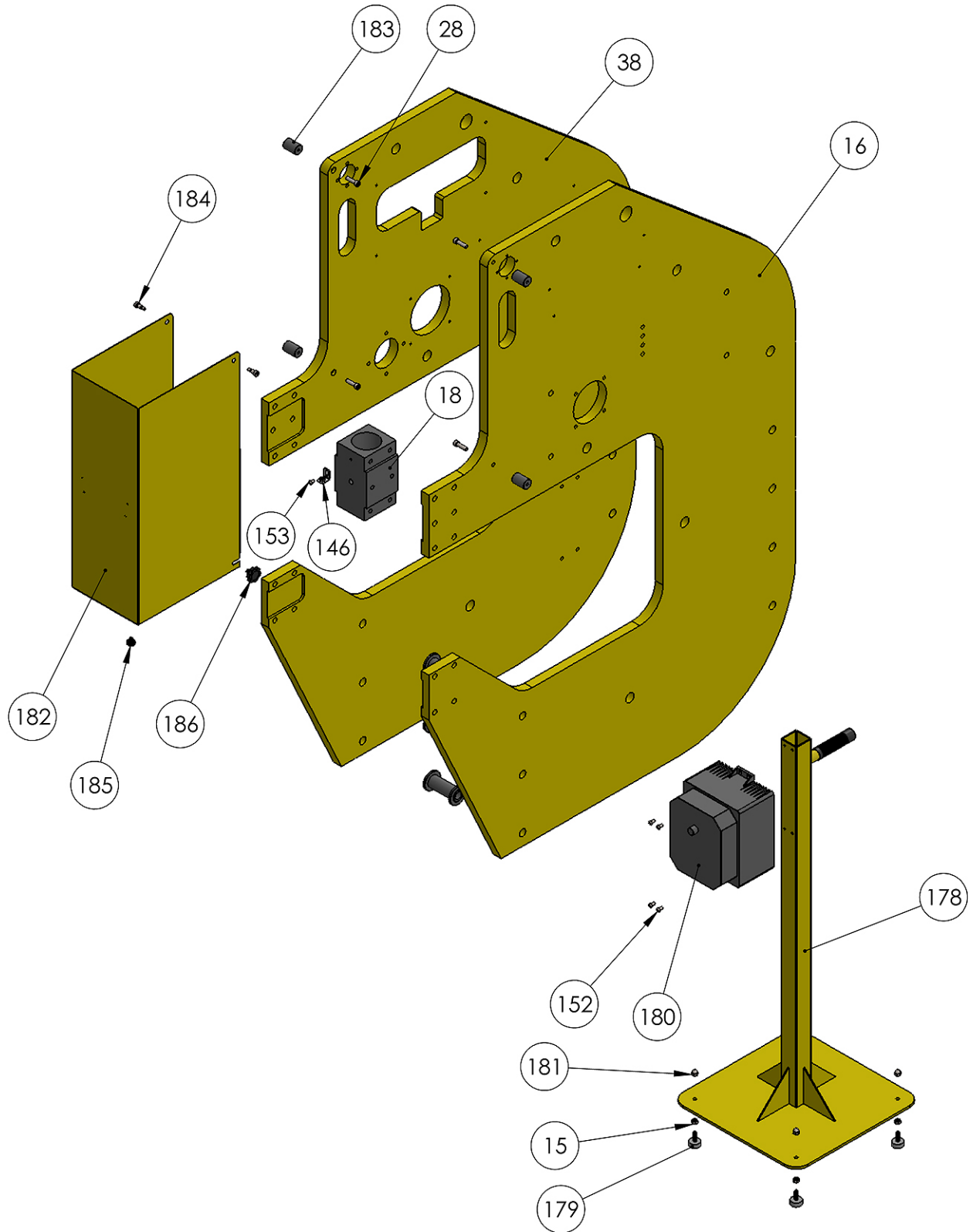








GUARD AND CONTROL BOX ASSEMBLY POST-JAN. 2018





Parts List

Item	Part Number	Description	Qty.
1	PH24-5A005	Rear Leg Weldment	1
2	PH24-5A006	Front Leg Weldment	1
3	PH24-5A007	Cross Tube Weldment	2
4	PH24-6A036	Spacer Plate	2
5	PH24-6A037	Spacer Plate	2
6	PP-0919	Leveling Pad	4
7	M12 X 1.75 X 25	Hex Flange	8
8	M12 X 1.75 X 40	Hex Flange	16
9	M12 X 1.75 X 35	Hex Flange	6
10	M12 X 1.75 X 45	Hex Flange	5
11	M12 X 1.75 X 30	Hex Flange	5
12	M10 X 1.5 X 40	Hex Flange	8
13	M8 X 1.25 X 40	Hex Flange	4
14	3/4-10 HEX NUT	Std.	6
15	5/16-18 HEX NUT	Std.	4
16	PH24-6A001	Side Frame	1
17	PH24-6A022	Lower Tool Block	1
18	PH24-6A031	Top Slide Block	1
19	PH24-7A028	Frame Spacer	6
20	PH24-6A044	Lower Tool Shaft Key	1
21	PH24-7A007	Lower Ram	1
22	PH24-7A036	Ram Locknut	1
23	M12 X 1.75 X 35	SHCS	2
25	M10 X 1.5 X 30	SHCS	3
26	M20 X 2.5 X 160 SHCS	Std.	7
27	M6 X 1.0 X 12	SHCS	32
28	M8 X 1.25 X 30	SHCS	8
29	M10 X 1.5 X 25	SHCS	6
30	M16 X 2.0 X 90	SHCS	1
31	M10 X 1.5 X 65	SHCS	4
32	M5 X 0.8 X 10	SHCS	3
33	SHCS	M6 X 1.0 X 10	4
34	M6 X 1.0 X 50	SHCS	6



Item	Part Number	Description	Qty.
35	M5 X 0.8 X 16	SHCS	2
36	M10 X 1.5	Flange Nut	2
37	M20 X 2.5 FLANGE NUT	Std.	7
38	PH24-6A002	Left Side Frame	1
39	PP-0825	Slide Block Bushing	2
40	M24 LOCK WASHER	Std.	12
41	5/16 LOCK WASHER	Std.	3
42	M24 X 3.0 X 60	HHCS	12
43	PP-1454	2" Bore Cartridge Bearing	2
44	PP-1081	3hp 3phase Motor	1
45	MH36-7A041	Idler Pulley	1
46	PH24-5A004	Idler Bracket	1
47	PH24-6A023-V2	Motor Mounting Plate	1
48	PH24-7A033	Plate Spacer	4
49	MH19-7A005-V2	Crank Shaft (.25 Offset)	1
50	MH19-6A071	Crankshaft Key	1
51	PP-1778	56T Timing Pulley	1
52	PP-0828	Tapered Lock Bushing	2
53	PP-1692	Rubber Standoff	4
54	PP-1782	80T Timing Pulley	1
55	PH24-6A053	Drive Lever V3	1
56	MH19-7A036	Bearing Spacer	1
57	MH19-7A057	Crank Nut	1
58	PP-0921	Needle Bearing	1
59	STD.	.25 X .25 X 1.0 Key	1
60	PP-1034	8" Solid Handwheel	1
61	PP-1492	Tooling Pin	2
62	PP-1779	1.125 QD Bushing	1
63	PP-1470	0.75 Ball Bearing	2
64	3/4" EXT. RETAINING RING	Std.	3
65	1.50 EXT. RETAINING RING	Std.	4
66	STD	1" Ext. Retaining Ring	4
67	1/2 LOCK WASHER	Std.	4
68	5/16 LOCK WASHER	Std.	3
69	1/4 LOCK WASHER	Std.	3



Item	Part Number	Description	Qty.
70	3/8 LOCK WASHER	Std.	4
71	1/2-13 X 1.25	HHCS	4
72	5/16-18 X 1.875	HHCS	3
73	1/4-20 X 1.25	HHCS	3
74	1/4-20 X 1.50	HHCS	3
75	5/16-18 X 1.50	HHCS	3
76	3/8-16 X 1.25	HHCS	4
77	STD.	.25 X .25 X 1.50 Key	2
78	PP-0826	Timing Belt	1
79	PH24-5A003	Release Lever	1
80	PH24-6A027	Toggle Plate	1
81	PH24-6A032	Toggle Block	1
82	PH24-6A034	Toggle Plate LH	1
83	PH24-7A025	Bearing Hub	2
84	PP-0837	1.25 ID X 1.50 OD X 1.50 Long	1
85	PP-1004	1.25 ID X 1.75 OD X .125 Thrust Washer	2
86	PH24-7A039	Toggle Block Shaft	1
87	PH24-6A028	Slide Block	2
88	PH24-6A050	Main Lever-V2	1
89	PH24-7A014	Main Pivot Hub	1
90	PH24-7A015	Main Pivot Pin	1
91	PH24-7A040	Toggle Link Washer	2
92	PH24-6A054	LH Slide Cap	1
93	PH24-6A055	RH Slide Cap	1
94	PP-1808	2.0 ID X 2.5 OD X 1.75 Bushing	1
95	PP-1806	32 ID X 42 OD X 20 Needle Bearing	2
96	PH24-7A037-V2	Slide Stroke Washer	1
97	PH24-7A038-V3	Slide Stroke Clamp	1
98	PP-1781 (RH) PP-1780 (LH)	12mm Male Rod End	2
99	STD.	10 Mm Rod End Ball	2
100	M150-7A013	Quick Release Shaft	1
101	PH24-6A030	Release Block	1
102	PH24-7A017	Latch Disc	1
103	PH24-7A018	Release Hub	1



Item	Part Number	Description	Qty.
104	PH24-7A020	Drive Rod	1
105	PP-0133	Black Ball Knob	1
106	PP-0795	.50 X 1.0 Spring	1
107	PP-1192	1/2" Steel Ball	1
108	PP-0388	1"-14 UNF Clamp Collar	1
109	PP-0483	Spring Washer	1
110	M350-7A062	Pivot Pin	1
111	M12 FLATWASHER	Std.	3
112	PH24-5A001-V2	Front Spring Lever Assembly	1
113	PH24-7A030	Bolted Spindle	1
114	PH24-7A023	Sprocket Shaft	1
115	PH24-5A008	LH Toggle Arm Weldment	1
116	PH24-5A009	RH Toggle Arm Weldment	1
117	PH24-7A010	Spring Shaft	1
118	PH24-7A011	Threaded Spring Shaft	1
119	PP-0835	1.50 ID X 1.75 OD X 1.0 Bushing	6
120	PP-0143	1.25 OD X 1.0 ID X 1.25 LG	2
121	PH24-7A029	Rocker Pin	1
122	M12 X 1.75	Jam Nut	2
123	PH24-7A041	1.50 Bronze Washer (0.115 THK)	4
124	PP-1300 (MH19 & PH24) PP-1772 (MH36)	Spring	2
125	PP-1402	Black Switch	1
126	PP-1310	Electrical Box	1
127	MH36-7A009-1.0	Spring Cup 1.0	4
128	PP-0023	Cord Grip	1
129	PP-0044	Potentiometer	1
130	PP-0304	On/Off 2 Pole Switch	1
131	PP-0588	1/4" X 4 1/2" Pipe	1
132	PP-0589	1/4" Elbow	2
133	PP-0831	Switch Box	1
134	PH24-7A022	Sprocket Bushing	4
135	PH24-7A021-v2	Guide Sleeve	1
136	PH24-7A005	Main Ram	1
137	PH24-7A032	16T Sprocket	4



Item	Part Number	Description	Qty.
138	PH24-7A042	16T Sprocket (Ram)	4
139	PP-1191	1.25 OD X 1.0 ID X .75 LG	4
140	MH19-7A059	Thrust Washer	8
141	PH24-7A043	Sprocket Bushing Washer	4
142	3/4-10 X 8.0	SHCS	2
143	3/4-10 X 5.50	SHCS	2
144	MH19-6A034	Angle Bracket	1
145	MH19-6A058	Crank Guard	1
146	MH19-5A005	Guard Tab	9
147	PH24-6A047	Lower Pulley Guard	1
148	PH24-6A048	Upper Pulley Guard	1
149	PH24-6A049	Spring Guard	1
150	PH24-7A035	Spring Guard Spacer	6
151	M8 X 1.25 X 10	Button Head	4
152	M6 X 1.0 X 12	Button Head	7
153	M6 X 1.0 X 10	Button Head	18
154	PP-0587	1/4" X 2" Pipe	1
155	STD.	Straight Grease Zerk	13
156	PH24-6A056	Slide Stroke Guard	1
157	M5 X 0.8 X 10	PPMS	4
158	STD.	#40 Chain	2
159	PP-1698	1/4 NPT Adaptor	1
160	MH19-7A062	Filler Adapter	1
161	MH19-7A063	Breather Cap	1
162	PP-1673	Ball Valve	1
163	PP-1672	Sight Tube	1
164	PH24-6A057	Hinge Bracket	1
165	PH24-6A058	15.0 Piano Hinge	1
166	PP-0487	M800 Guard Rivets	8
167	STD.	M5 Star Washer	2
168	PP-1812	M5 Knob	2
169	M6 X 1.0 X 20	Set Screw	1
170	PH24-7A046	1.00 Bronze Washer (0.050 THK)	2
171	PH24-6A023-V3	Motor Mounting Plate	1
172	PH24-7A047	8.5 Diameter Vee Pulley	1



Item	Part Number	Description	Qty.
173	PH24-7A048	6.0 Diameter Vee Pulley	1
174	PP-1075	2 Hp Yen Motor	1
175	PP-1848	.875 QD Bushing	1
176	PP-1847	49" Perimeter V Belt	2
177	STD	.25 Lock Washer	3
178	PH24-5A010	Controller Stand	1
179	PP-1846	Leveling Foot	4
180	PP-1831	Control Box	1
181	5/16-18	Acorn Nut	4
182	PH24-6A049-V2	Spring Guard Version V2	1
183	PH24-7A050	Spring Guard Spacer V2	4
184	M8 X 1.25 X 9 X 9	Shoulder Bolt	2
185	PP-1881	.25-20 X .375 Knob	1
186	PP-1882	M8 X 16 Knob	2
187	PH24-7A051	Upright Sleeve Spacer	7
188	PH24-7A052	Upright Spacer	7



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