



OPERATOR'S MANUAL



RECIPROCATING HAMMER MODEL: PH-19 & PH-19VS

Baileigh Industrial, Inc.
P.O. Box 531
Manitowoc, WI 54221-0531
Phone: 920.684.4990
Fax: 920.684.3944
sales@baileighindustrial.com

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Trick-Tools.com

75 Truman Road

Pella, IA 50219

Phone:1-877-VAN-SANT

E-mail: sales@trick-tools.com





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, (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'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 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@baileighindustrial.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.



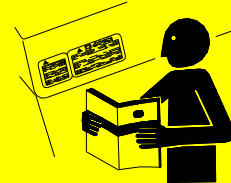
Note: *This symbol refers to useful information throughout the manual.*



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

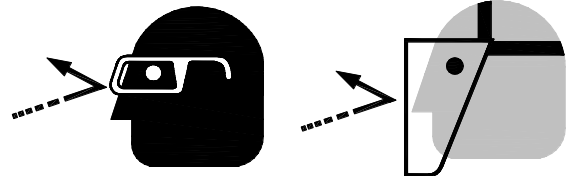


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



PROTECT EYES

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



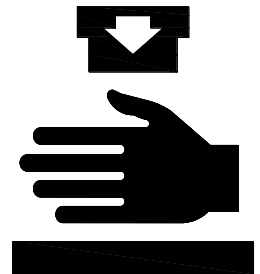
PROTECT AGAINST NOISE

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 AND CRUSH HAZARD

NEVER place your hands, fingers, or any part of your body in the die area of this 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 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. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
16. **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.
17. **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.
18. **DO NOT** touch live electrical components or parts.
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. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill!**
22. **DO NOT** bypass or defeat any safety interlock systems.
23. Keep visitors a safe distance from the work area.



TECHNICAL SPECIFICATIONS

Mild Steel Capacity	16 ga.
Aluminum Capacity	12 ga.
Tooling Height Adjustment	127mm (5")
Throat Depth	483mm (19")
Speed (PH-19)	1700 bpm (beats/minute)
Speed (PH-19VS)	0~1700 bpm (beats/minute)
Power	110V 60hz
Motor	110V, 2Hp (1.5kw)
Shipping Weight	455 kgs. (1000lbs.)
Shipping Dimensions	1524 x 1219 x 2134 mm (60"x48"x84")

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@baileighindustrial.com, Phone: 920.684.4990, or Fax: 920.684.3944.



Note: *The photos 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 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.





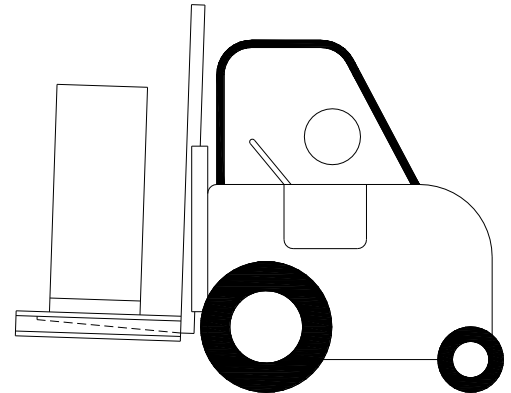
TRANSPORTING AND LIFTING



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.



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, and 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 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.



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 tool is wired for 110 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:

AMP RATING	LENGTH		
	25ft	50ft	100ft
0-6	16	16	16
7-10	16	16	14
11-12	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

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



OPERATION

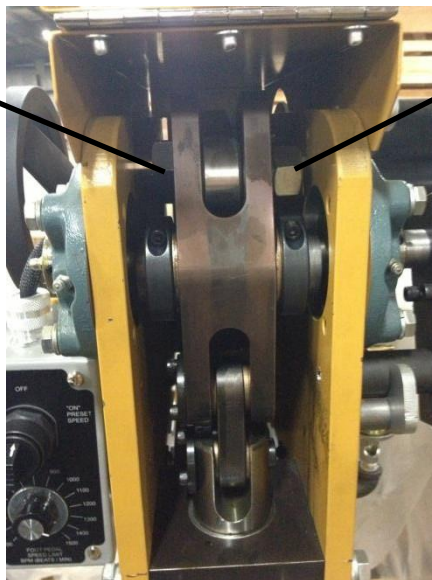
⚠ CAUTION: Always wear proper hearing and eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. Keep hands and fingers clear of the hammer dies. When handling large heavy sheets make sure they are properly supported.

The PH-19 Reciprocating Hammer is a multi-stroke reciprocating machine, capable of many different metal forming operations. In the next few steps, we will explain each mode of operation as well as setting the tooling

RIGID MODE

1. Always unplug the machine before making stroke adjustments
2. Rigid mode is the primary function of this machine operating similar to a Pullmax machine.
3. The machine has two stroke settings, high stroke and low stroke. This is changed by turning the eccentric adjuster under to front guard. The stroke is designed to either be hi or low and NOT in between. To change, two wrenches are required.

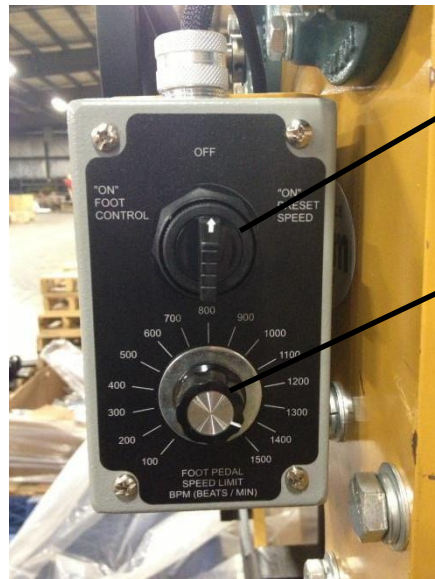
Adjusting
Cam



Lock nut, Shown
in the "HIGH
stroke position



4. If your machine is equipped with a variable speed, you can either run the speed with the foot pedal, or turn the main selector switch to "on"



Selector switch

Speed Potentiometer

5. If using the foot pedal, the max speed is set with the potentiometer located on the control box.
6. If your machine does not have the foot pedal, then the only choice is "on".
7. To install tools, both the top and bottom tool receivers have quick release pins to hold the tools in.

Quick release pin



Tool gap adjusting nut

8. The tool gap is set by turning the lower adjusting nut up or down. The gap should be set to material thickness.



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

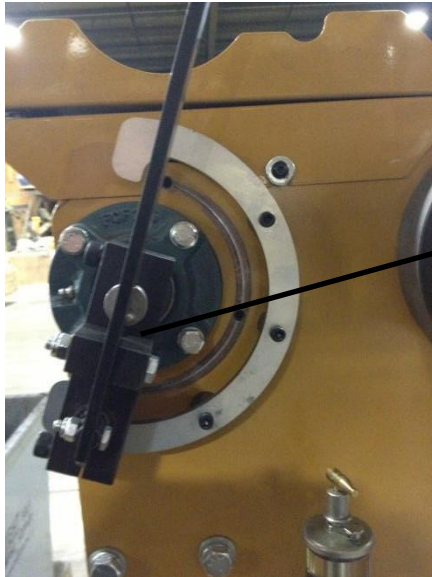
9. With the tools installed, it is very important to verify the tool gap. Rotate the handwheel to cause the ram to move up and down.
10. Rotate the handwheel so that the ram is in the most downward position. The gap should be set to the material thickness. If not, reset the gap with the gap adjusting nut on the lower ram.



Handwheel for
verifying tool gap



11. The PH-19 is equipped with a quick release lever which aids in removing formed material from in between the tooling. Especially helpful when using beading dies that requires starting in the middle of a panel.



Quick release lever shown in the "Down Position"

12. One of the most common tools used are the supplied Mini Thumbnail Shrink dies. Again, set the most downward stroke to be equal to the material thickness.
13. Beading tools can be installed in the same fashion; but the tool clearance is more critical. It must be slightly greater than the material thickness.
14. When beading or flanging, use of the guide fence will ensure perfectly straight forms. Setting the guide fence is self-explanatory.



Adjustable guide fence



15. When beading, flanging, or forming the control can be either foot or the preset "on", whichever the user wants.
16. The max speed is 1750 BPM; you should only use max BPM if the stroke is set to the minimum. Most forming applications in rigid mode work at 1000 BPM.
17. Another common tool in this mode is a joggle tool which can be simply made from 1/2" (12.7mm) mild steel and installed in the universal tool holder.
18. Almost any profile tool can be made to fit in the universal tool holders, using 1/2" x 2" x 2" (12.7 x 50.8 x 50.8mm) steel bar stock.

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.
- There are 7 grease fittings on the machine. Grease these 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.

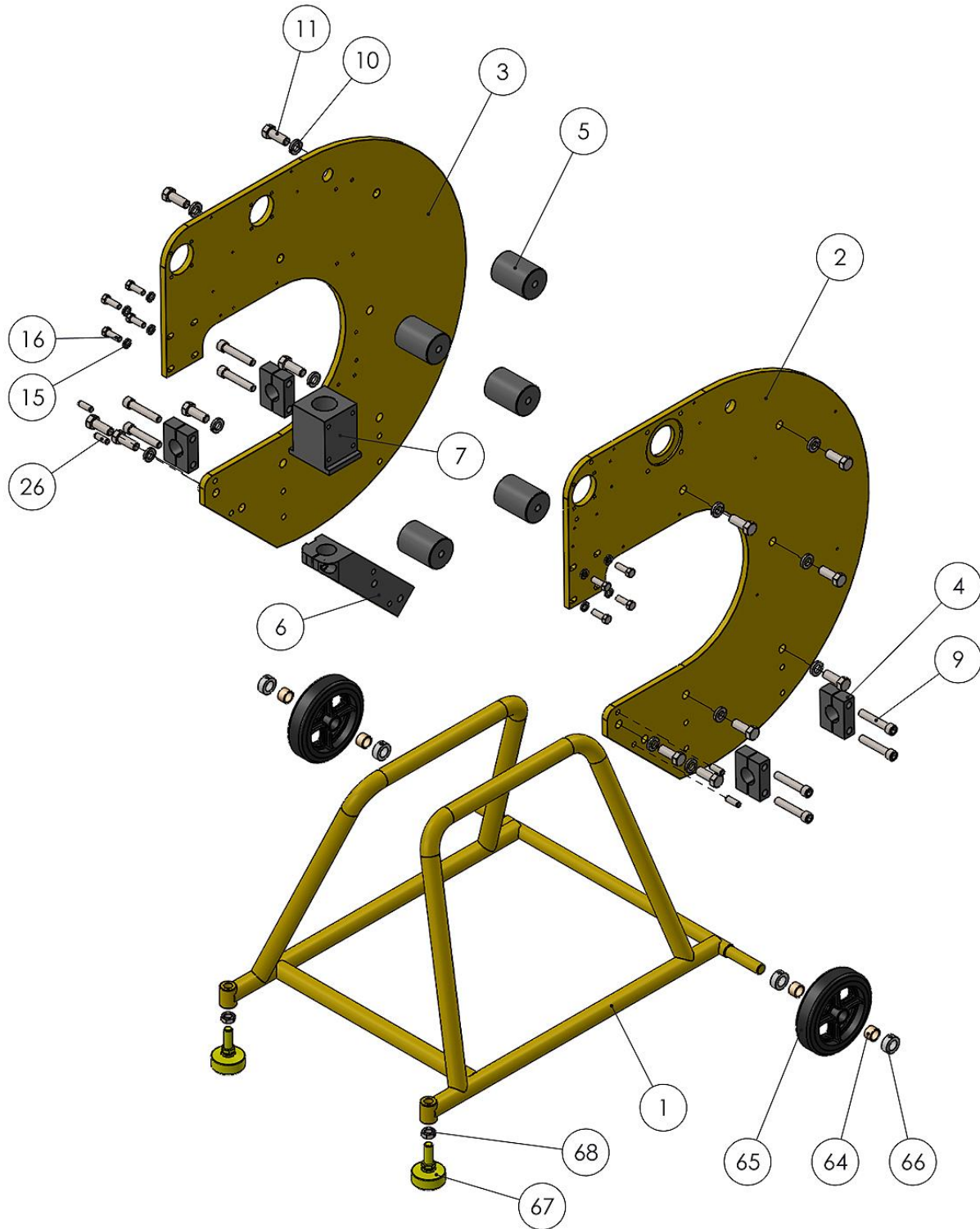


Note: *Proper maintenance can increase the life expectancy of your machine.*



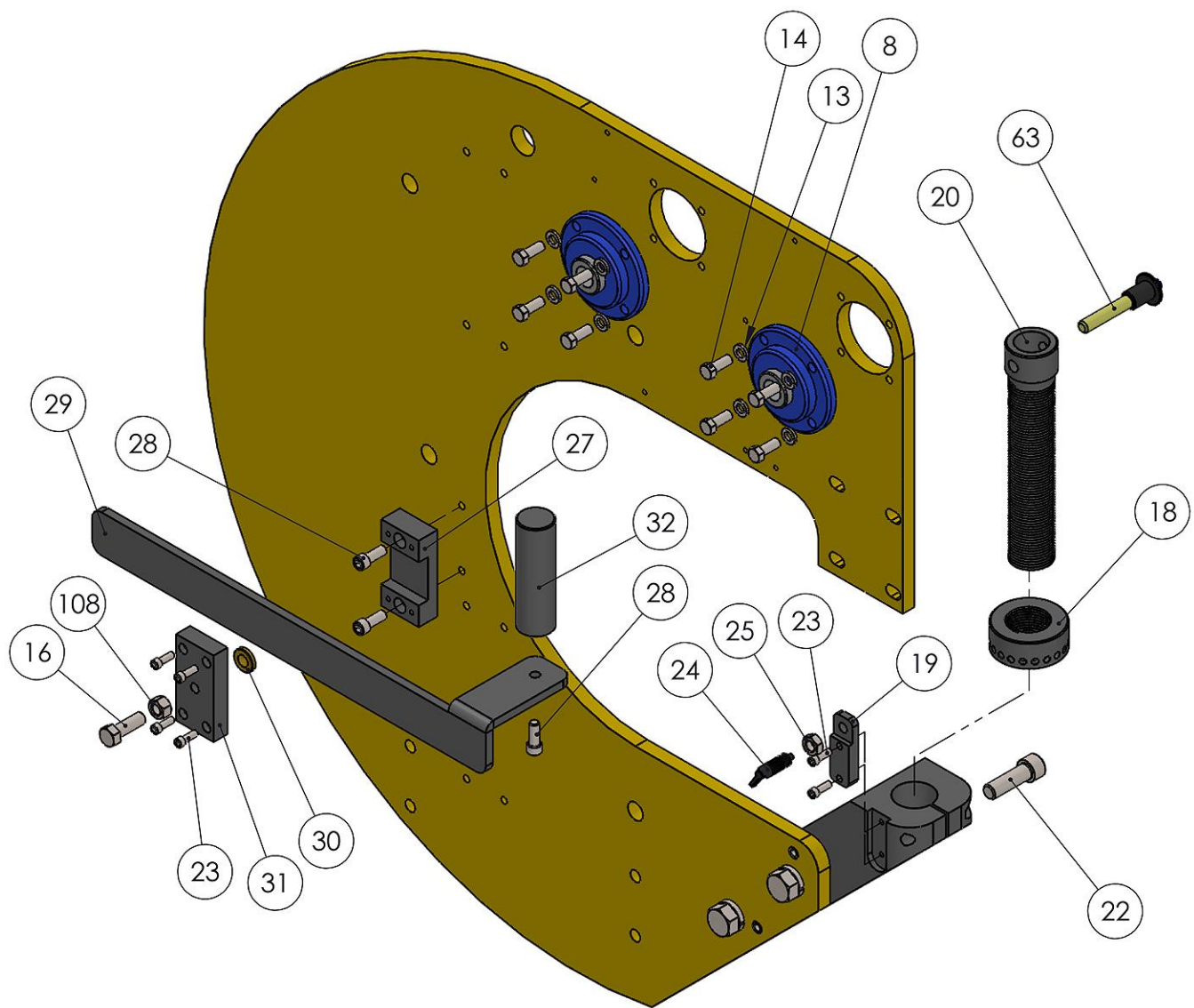
PARTS DIAGRAM

Main Frame Assembly



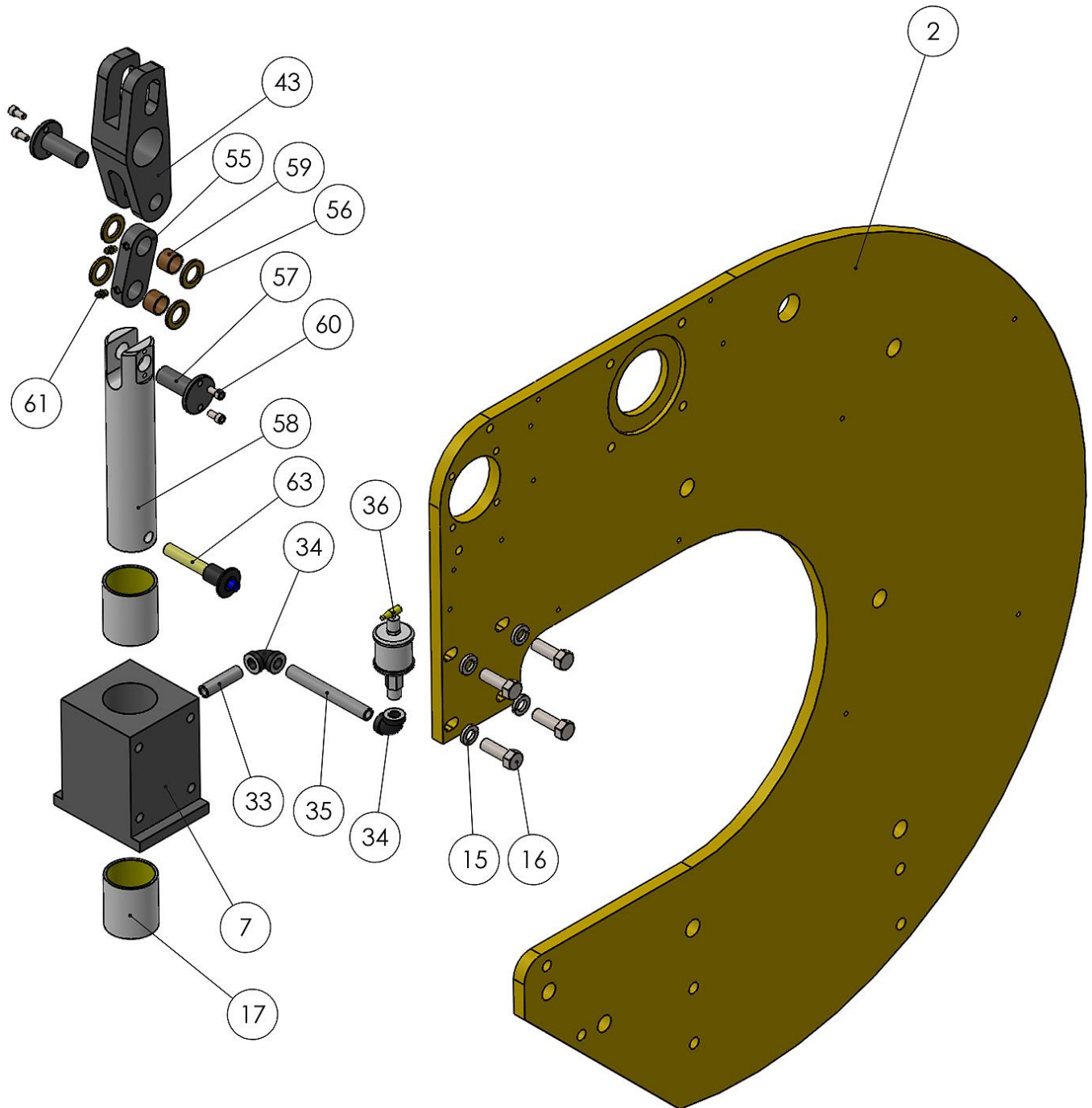


Back Stop Assembly





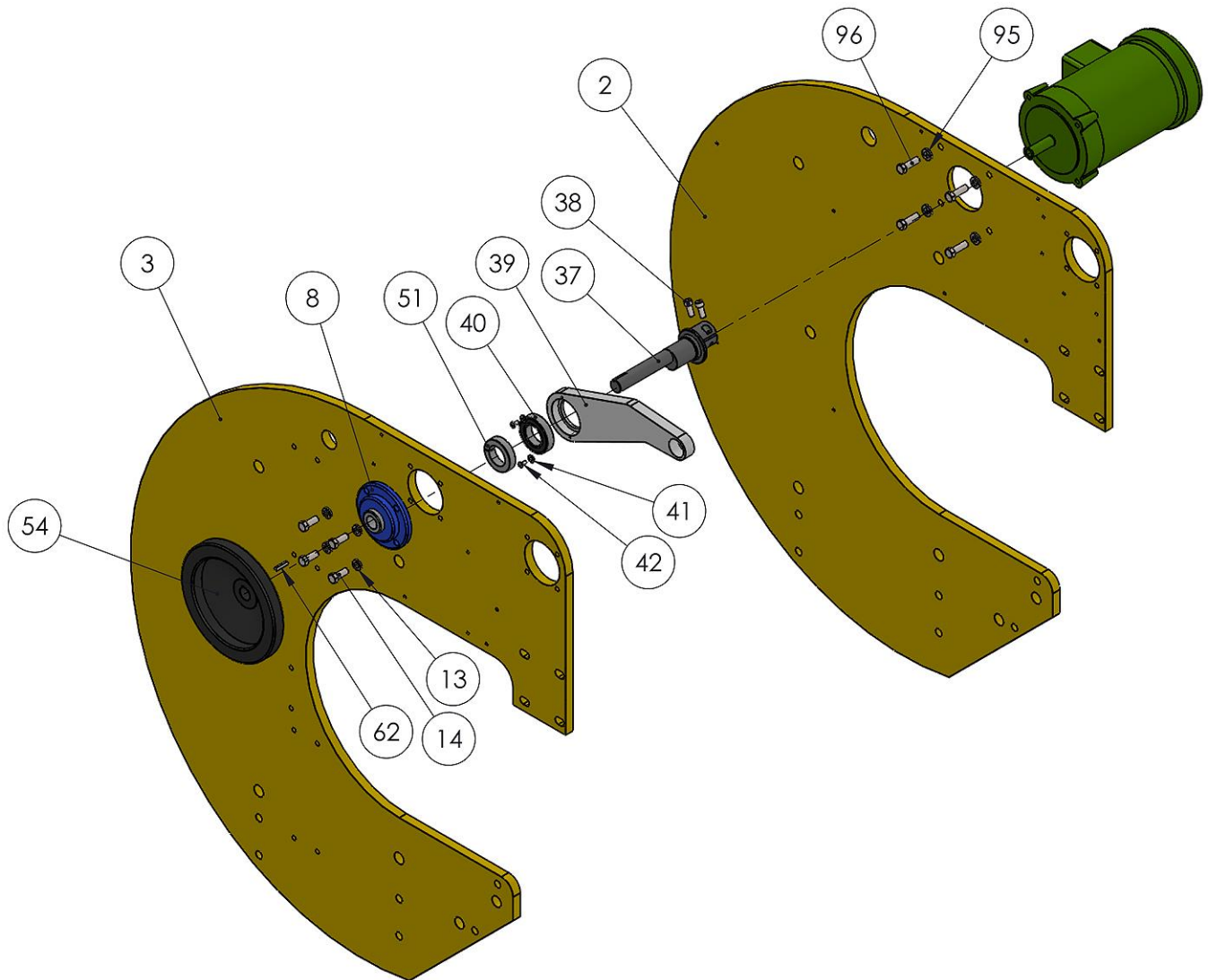
Toggle Assembly





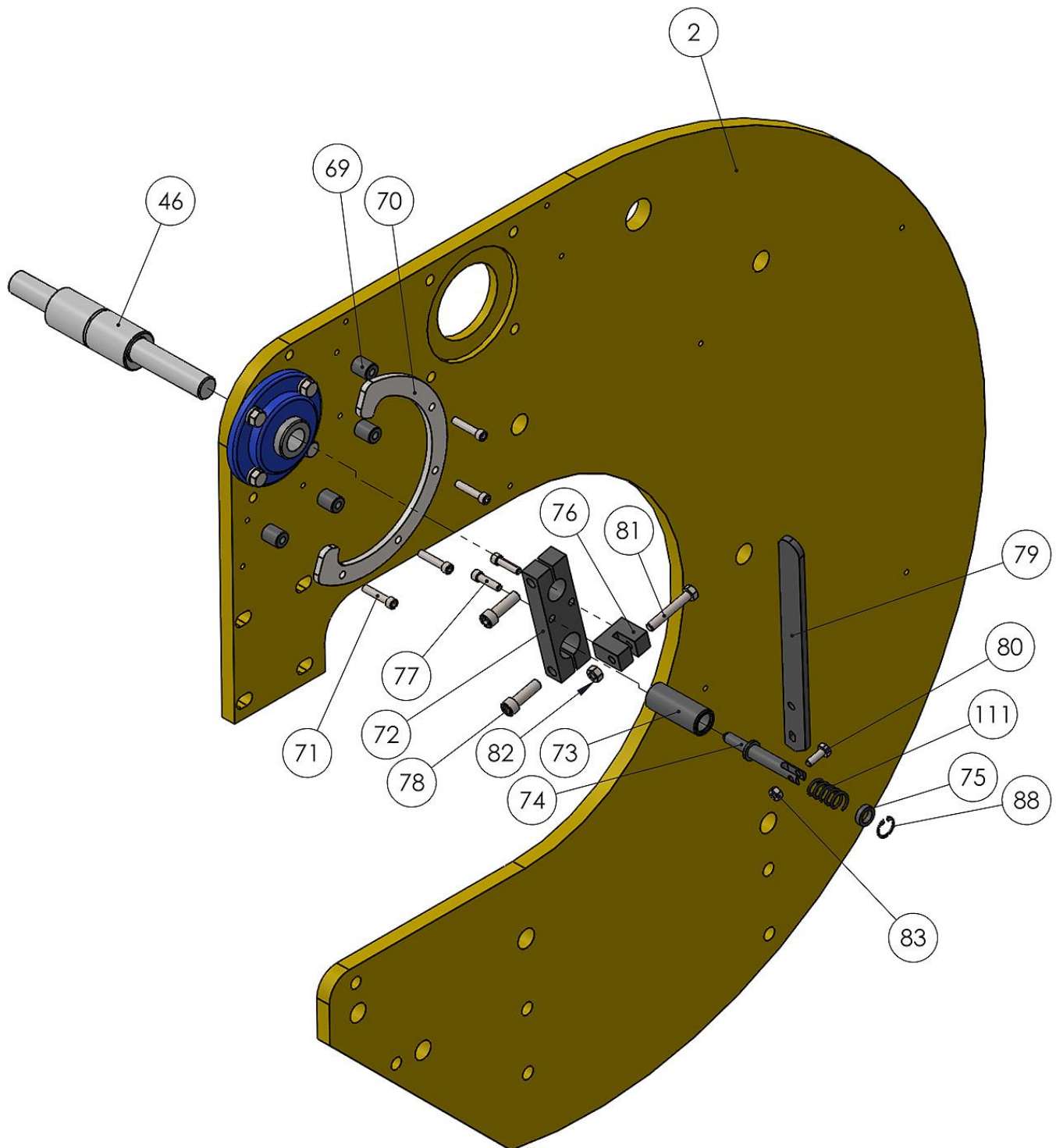


Crankshaft Assembly



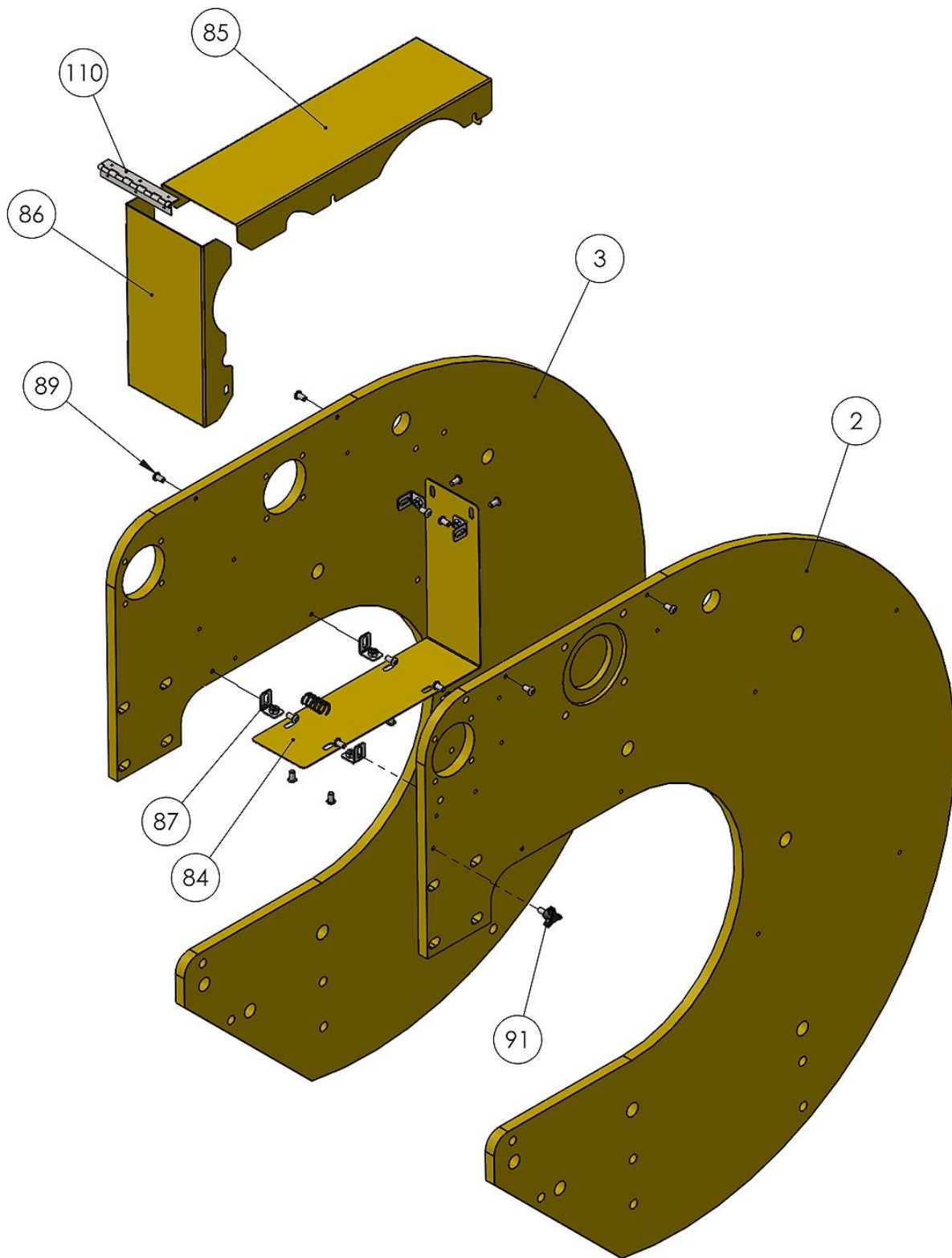


Release Pin Assembly



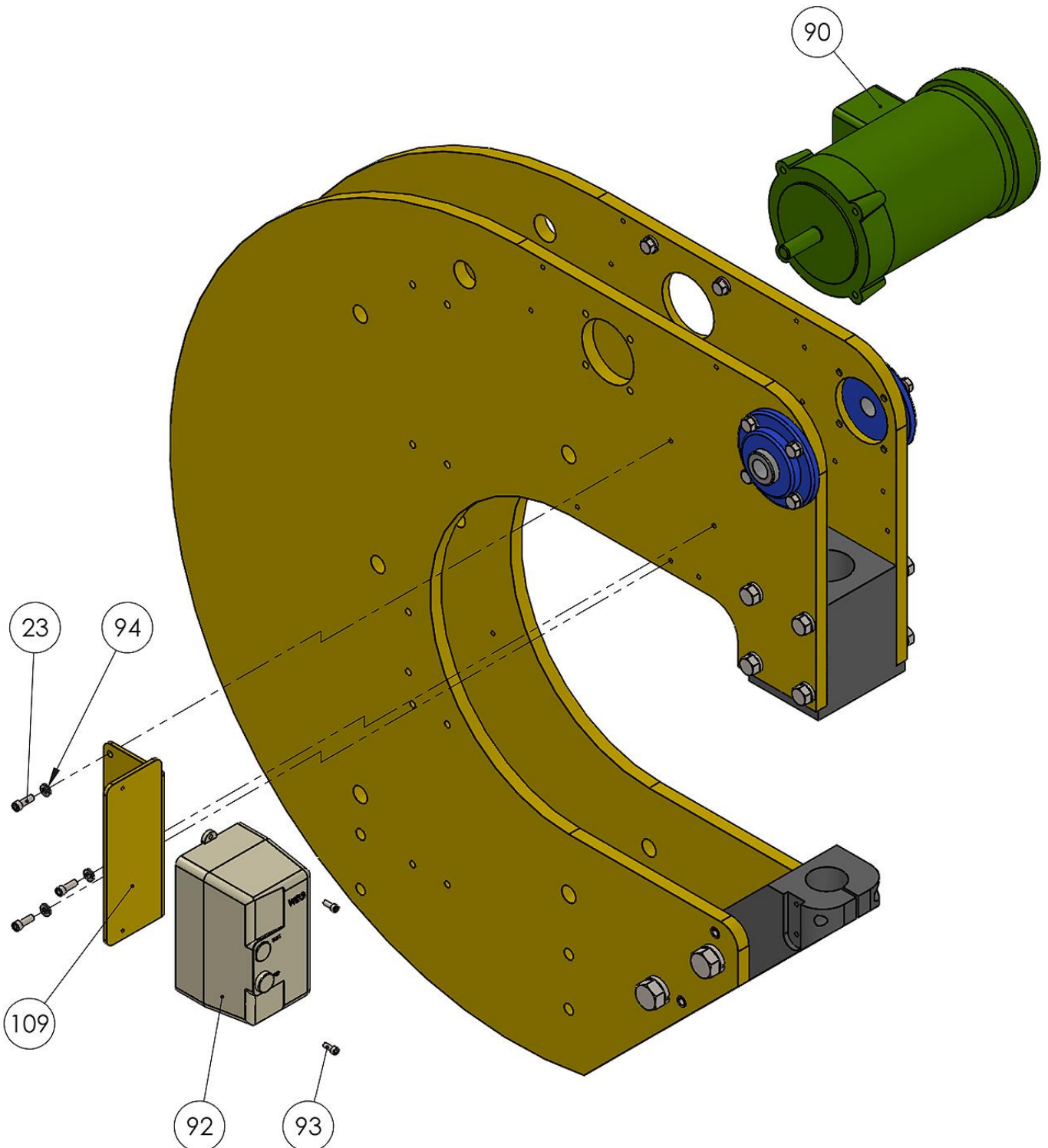


Guard Assembly



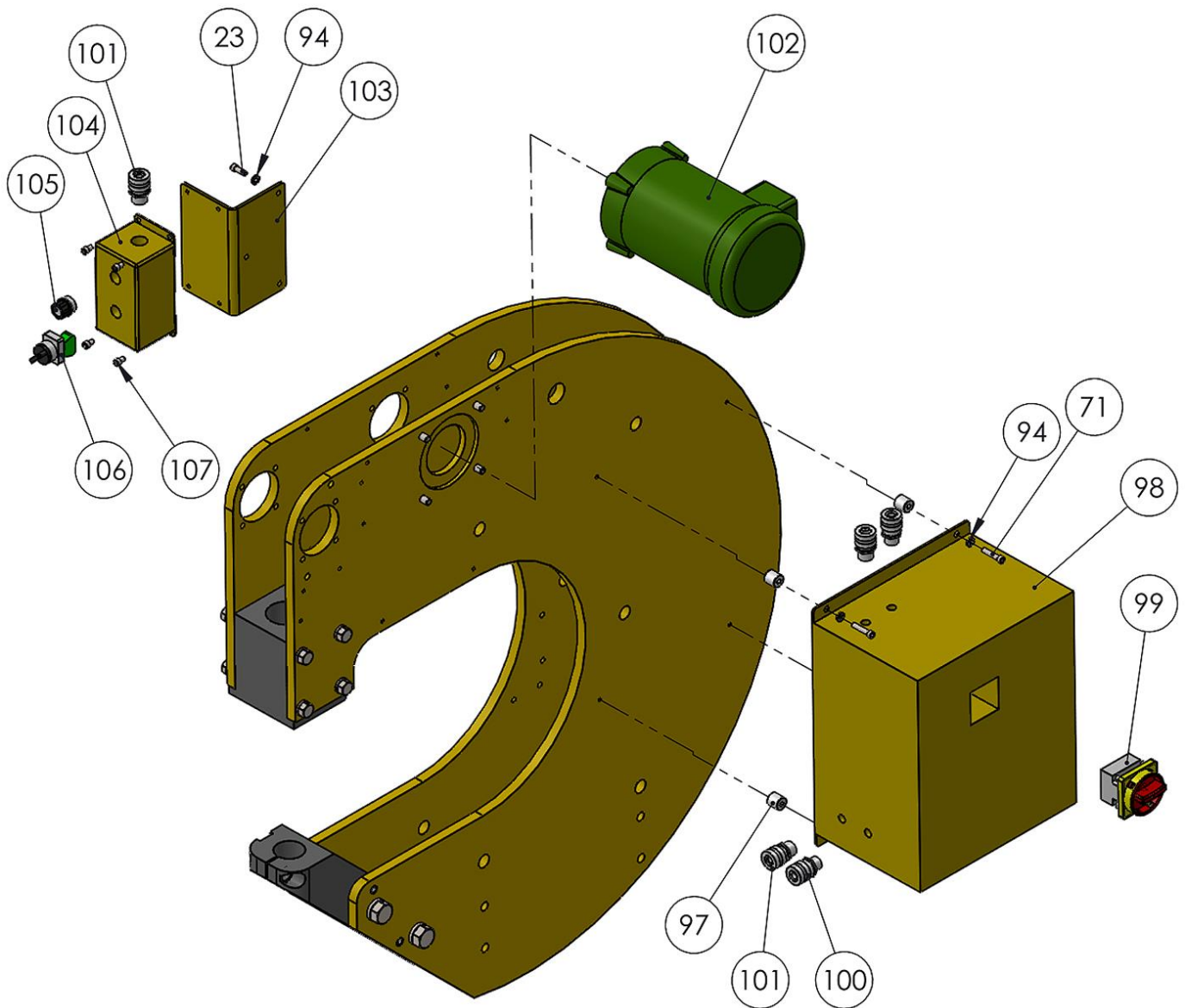


Single Phase Power System





Three Phase Power System





Parts List

Item	Part Number	Description	Qty.
1	RH19-5A001	Stand Assembly	1
2	RH19-6D001	Side Frame (R.H.)	1
3	RH19-6D002	Side Frame (L.H.)	1
4	RH19-6A010	Frame Mtg. Block	4
5	RH19-7A001	Frame Spacer	5
6	RH19-6C004	Lower Arm	1
7	RH19-6C003	Top Slide Block	1
8	PP-1151	7/8 Bore Cartridge Bearing	3
9	5/8-11 X 3.50	SHCS	8
10	3/4 Lockwasher	Imperial	10
11	3/4-10 X 2.0	HHCS	14
12	3/4 Lock Washer	Imperial	4
13	3/8" Lock Washer	Imperial	12
14	3/8-16 X 1	HHCS	12
15	1/2 Lock Washer	Imperial	8
16	1/2-13 X 1.5	HHCS	9
17	PP-1150	2" Linear Bearing	2
18	RH19-7A007	Adjusting Ring	1
19	RH19-6A008	Lock Tab	1
20	RH19-7A003	Lower Tool Holder	1
21	3/8-16 X .50	SHCS	1
22	5/8-11 X 2.0	SHCS	1
23	.25-20 X .75	SHCS	9
24	PP-1193	Locking Pin	1
25	1/2-13 Hex Nut	Imperial	1
26	1/2 X 1.50	Slotted Spring Pin	4
27	MH19-6A032	Slide Base	1
28	3/8-16 X 1.0	SHCS	3
29	MH19-6A031	Fence Arm	1
30	MH19-7A050	Lock Disc	1
31	MH19-6A033	Slide Cap	1
32	MH19-7A029	Guide Shaft	1
33	PP-0587	1/4" X 2" Pipe	1



Item	Part Number	Description	Qty.
34	PP-0589	1/4" Elbow	2
35	PP-0588	1/4" X 4 1/2" Pipe	1
36	PP-0821	Oil Reservoir	1
37	RH19-7A004	Crank Shaft	1
38	5/16-18 X .75	SHCS	2
39	RH19-6C005	Connecting Rod	1
40	PP-1155	35mm Bearing	1
41	#10 Flat Washer	Imperial	2
42	10-24 X .375	Cross Machine Screw	2
43	RH19-6C006	Toggle Link	1
44	RH19-7A006	Stroke Adjuster	1
45	RH19-7A017	Heavy Washer	1
46	RH19-7A005	Release Eccentric	1
47	1.0 I.D. Bushing	1.0 I.D. X 1.25 O.D. X .75 Bushing	1
48	PP-0101	0.75 ID X 1.25 OD X .0625 THK	2
49	PP-1593	1.50 I.D. X 1.75 O.D. X 2.0 Bushing	1
50	PP-1196	1.50 Clamp Collar	2
51	PP-1156	35mm Clamp Collar	1
52	PP-1195	1.50 Thrust Washer	2
53	3/4-16 Hex Nut	Imperial	1
54	PP-1209	8" Solid Handwheel (.875 Bore)	1
55	RH19-6A007	Short Link	1
56	PP-0322	0.75 ID X 1.25 OD X .125 THK	4
57	RH19-7A016	Lock Pin	2
58	RH19-7A002	Slide Ram	1
59	PP-1064	.75 I.D. X .875 O.D. X .625 Bushing	2
60	1/4-20 X .50	SHCS	4
61	.25-28 Grease Zerk	Straight Grease Zerk	3
62	Imperial	.1875 X 1 Key Stock	1
63	PP-1190	Quick Release Pin	2
64	PP-0043	1.0 ID X 1.1875 OD X 0.75 LG Bushing	4
65	PP-0064	8" Rubber Wheel	2
66	PP-0035	1" Set Screw Collar	4
67	PP-0919	Leveling Pad	2
68	3/4-10 Hex Nut	Imperial	2



Item	Part Number	Description	Qty.
69	RH19-7A010	Spacer	4
70	RH19-6A011	Detent Stop	1
71	1/4-20 X 1.25	SHCS	8
72	RH19-6A016	Release Bar	1
73	RH19-7A020	Release Tube	1
74	RH19-7A021	Release Pin	1
75	RH19-7A022	Spring Retainer	1
76	RH19-6A015	Release Pivot	1
77	1/4-20 X 1.0	SHCS	2
78	3/8-16 X 1.25	SHCS	2
79	RH19-6A017	Lock Lever	1
80	1/4-20 X .75	HHCS	1
81	5/16-18 X 2.0	HHCS	1
82	5/16-18 Hex Nut	Imperial	1
83	.25-20	Hex Nut	1
84	RH19-6A012	Internal Guard	1
85	RH19-6A014	Top Guard	1
86	RH19-6A013	Front Guard	1
87	M19-5A005	Guard Tab	6
88	3/4" Internal Retaining	Imperial	1
89	1/4-20 X .50	BHCS	16
90	PP-1080	1Hp (.75kw) 1Ph Motor	1
91	PP-0529	1/4-20 Knob	1
92	PP-1296	Ce On/Off Switch	1
93	10-24 X .50	SHCS	2
94	1/4 Lock Washer	Imperial	7
95	3/8 Lock Washer	Imperial	4
96	3/8-16 X 1.25	HHCS	4
97	RH19-7A024	Elect. Box Standoff	4
98	PP-1310	Electrical Box	1
99	PP-0304	On/Off 2 Pole Switch	1
100	PP-0025	Cord Grip	2
101	PP-0023	Cord Grip	3
102	PP-1189	1Hp (.75kw) 3Ph Motor	1
103	MH19-6A034	Angle Bracket	1



Item	Part Number	Description	Qty.
104	PP-0831	Switch Box	1
105	PP-0044	Potentiometer	1
106	PP-1402	Black Switch	1
107	1/4-20 X .375	SHCS	4
108	1/2-13 Hex Nut	Imperial	1
109	RH19-6A018	Euro Switch Bracket	1
110	RH19-6A020	5" Hinge	1
111	RH19-6A019	2" Spring	1



NOTES



BAILEIGH INDUSTRIAL, INC. 1625 DUFEEK DRIVE MANITOWOC, WI 54220

PHONE: 920. 684. 4990 FAX: 920. 684. 3944

www.baileigh.com

BAILEIGH INDUSTRIAL, INC. 1455 S. CAMPUS AVENUE ONTARIO, CA 91761

PHONE: 920. 684. 4990 FAX: 920. 684. 3944

BAILEIGH INDUSTRIAL LTD. UNIT D SWIFT POINT

SWIFT VALLEY INDUSTRIAL ESTATE, RUGBY

WEST MIDLANDS, CV21 1QH UNITED KINGDOM

PHONE: +44 (0)24 7661 9267 FAX: +44 (0)24 7661 9276

WWW.BAILEIGHINDUSTRIAL.CO.UK

BAILEIGH INDUSTRIAL GMBH HOFENER STRAßE 64

70736 FELLBACH

DEUTCHSLAND

WWW.BAILEIGHINDUSTRIAL.DE

BAILEIGH INDUSTRIAL PTY. LTD.

P.O Box 1573, 126 MELROSE DRIVE TULLAMARINE,

VIC 3043 AUSTRALIA

WWW.BAILEIGHINDUSTRIAL.COM.AU