OPERATOR'S MANUAL

HYDRAULIC PRESS BRAKE

MODEL: BP-3142NC

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Rev. 4/2015

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BAILEIGH
INDUSTRIAL®

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 INCIDENTIAL, 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 Majuere. 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.

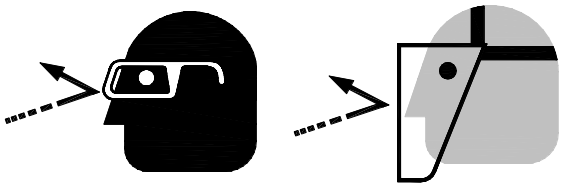
Safety signs with signal word **DANGER** or **WARNING** are typically near specific hazards.

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

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

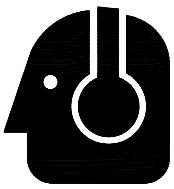
PROTECT EYES

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



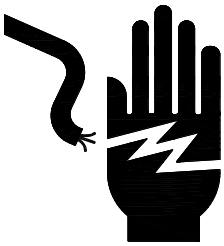
PROTECT AGAINST NOISE

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.



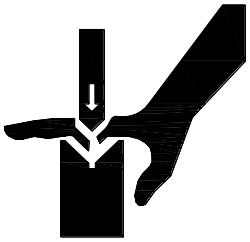
HIGH VOLTAGE

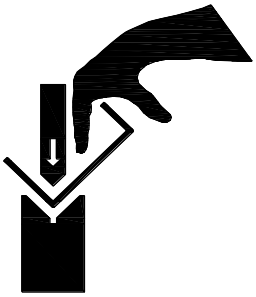
USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
FOLLOW PROPER LOCKOUT PROCEDURES.



BEWARE OF CRUSH HAZARD

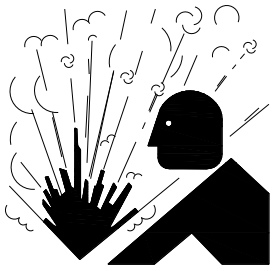
NEVER place your hands, fingers, or any part of your body in the die area of this machine.





HYDRAULIC HOSE FAILURE

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



EMERGENCY STOP BUTTON

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

SAFETY PRECAUTIONS

Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.
Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard 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.** Before bending sheet metal, 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. Be sure all equipment is properly installed and grounded according to national, state, and local codes.
21. **DO NOT** bypass or defeat any safety interlock systems.
22. Keep visitors a safe distance from the work area.

TECHNICAL SPECIFICATIONS

Maximum Pressure	42 tons (38metric tons)
Maximum Hydraulic Pressure	3000psi (20.7MPa)
Table Length	31" (787mm)
Back Gauge Length	19.5" (495mm)
Return Speed	1.1"/sec. (28mm/sec.)
Stroke Distance, Maximum	2" (50.8mm)
Approach Speed	0.9"/sec. (23mm/sec.)
Working Speed	.4"/sec. (10mm/sec.)
Return Speed	0.9"/sec. (23mm/sec.)
Back Gauge	Manual w/DRO
Distance Between Housings	24" (610mm)
Distance From Table To Ram	8.5" (216mm)
Free bending depth inside of frames	16” (406mm)
Bending depth at full width	6.75” (171mm) to die center
Main Motor	2hp (1.5kw) 18A
Power	220V / 60Hz / 15A
Hydraulic Reservoir Capacity	3gal. (11.3L)
Shipping Weight	2100lbs. (953kg)
Shipping Dimensions	48" x 48" x 72" (1220 x 1220 x 1829mm)

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 using 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 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

⚠ CAUTION: Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced. Choose a location that will keep the machine free from vibration and dust from other machinery. Keep in mind that having a large clearance area around the machine is important for safe and efficient working conditions.

⚠ CAUTION: This machine is extremely top heavy. Failure to take proper lifting precautions may cause the machine to tip causing severe damage and possible injury or death to any person that the tipping machine contacts.

Follow these guidelines when lifting:

- Always lift and carry the machine with the lifting holes provided at the top of the machine.
- Use lift truck and lift equipment such as straps, chains, capable of lifting 1.5 – 2 times the gross weight of the machine and any packaging.
- Use a fork lift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- 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.
- A forklift is the best way to remove machine from the skid, picking up underneath the cabinet.
- Take proper precautions for handling and lifting.
- Remove the securing bolts that attach the machine to the pallet.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Locate the machine where it is to be installed, and lower slowly until it touches 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:

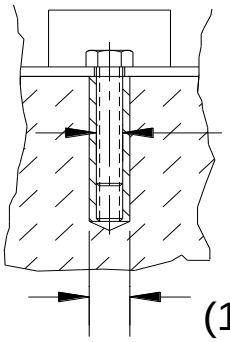
- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for 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.

Before beginning assembly, take note of the following precautions and suggestions.

- Is the machine is bolted to the pallet? Before attempting any of the assembly procedures remove all of the loose parts and hardware and unbolt the machine from the pallet.
- 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. The machine should be leveled at the bed in all directions to until the leveling accuracy is within 0.2/1000mm.
- 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.

Anchoring the Machine

- Position the machine on a firm and level concrete floor and maintain a safe operating distance around the machine.
- Anchor the machine to the floor, as shown in the diagram, using bolts and expansion plugs or sunken tie rods that connect through holes in the base of the stand.



GETTING TO KNOW YOUR MACHINE

Item	Name	Description
A	Back stop position Handwheel.	This handwheel will adjust the position of the back stop either near or far.
B	Ram Position Handwheel.	This handwheel will set your bend angles by controlling the ram end position.
C	Lower Die	Material is pressed onto/into the die to create the bend.
D	Upper Punch	Presses the material onto/into the die.
E	Return Springs	Assists in raising the ram to the up/retracted position.
F	Electrical Enclosure	Houses the electrical operating controls and connections.
G	Pressure Gauge	Displays the current operating pressure of the hydraulic system.
H	Retract position Handwheel.	This handwheel will adjust the retract distance of the ram. Used to set the retract height just above the material being bent.
I	Foot Pedals	Pressing the foot pedal will actuate the hydraulics which will in turn cause the ram to move down or up as selected.
J	Main disconnect switch.	Turns on the main power to the machine
K	On push button (lighted)	When pressed, the hydraulic pump will start running.
L	Jog/ Auto switch	Selects which mode of operation. In Jog the ram will only move when the foot pedal is activated in either direction. In Auto the ram will travel down with the foot pedal, but will return automatically to the preset retract limit and stop.
M	E-Stop	Will disconnect all power to the motor circuit.
N	Position Counter	Displays the relative movement/adjustment dimension of each axis.
O	Retract Position Indicators	Indicates the approximate position of the ram and sets the amount the ram will retract during operation.

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 220 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
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.

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.

   Route the power cord so that it will NOT become entangled in the machine in any way.

   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.

IMPORTANT: DO NOT allow the cord to become and entanglement or trip hazard. DO NOT allow the cord to have material dropped or resting on the cord causing it to be pinched or cut. DO NOT allow the cord to be positioned in a way that will allow it to be stepped on or rolled over.

OPERATION

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

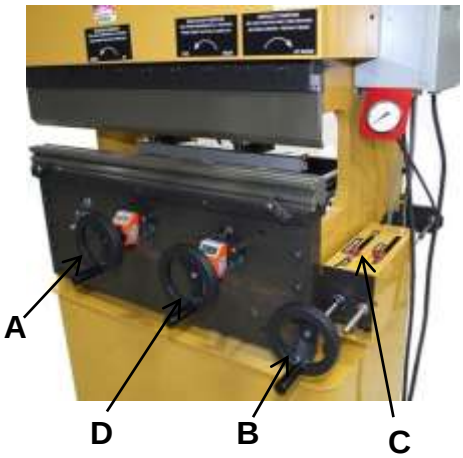
⚠ CAUTION: Keep hands and fingers clear of the clamping beam. Stand off to the side of the machine to avoid getting hit with the bending apron as it comes up to bend. When handling large heavy materials make sure they are properly supported.

Tooling Selection and Set-up

- Your tooling choice is based off of the material you are bending.
- Using a sheet metal tonnage die gap chart 9available on the internet), find the material thickness and then the width. Make sure the tonnage is within limit of the machine. The chart will give the die width requirement for the chosen material.
- With the correct tools chosen, follow the “CHANGING AND ADJUSTING DIES” procedure to set the dies as needed.

Setting the Ram End Position

- With the dies engaged, bump the ram up with the foot pedal to give clearance between the dies.
- Rotate the ram end position handwheel (A) **“CW”** in the **“up”** direction.
- Rotate 4-5 turns, and press the **“down”** foot pedal watching to see if the dies come in contact. *You are trying to establish a gap in between the dies when the upper ram reaches its final end position.*
- Once a gap is established, press the down pedal to make sure the upper ram is fully extended (down).
- Rotate the ram position handwheel (A) **“up”** until the material being bent just fits in between the top ram and the top of the lower bend die.



- At this point **“0”** the ram position counter (located behind the handwheel) by pressing **“reset”** on the counter.

- The counter reads incrementally in inches of ram travel. These numbers can be documented for every different size of material for future reference of degrees.
- Cut some sample material to perform some test bends.
- Rotate the ram position (A) CCW and you will watch the ram slowly extend into the lower die opening, these end positions will be relative to bend angles.
- Retract the ram with the up foot penal until the top ram is about 1/4" above the material being bent.
- At this point rotate the retract position hand wheel (B) CW until the two indicator arrows (C) are aligned with each other. This sets the ram retract position.
- Press the **"Down"** foot pedal again until it reaches its end position. Switch the machine to **"AUTO"** mode. The top ram will automatically return to the retract position that was just set.
- Adjust the back stop (D) as required.
- Insert a piece of test material and activate the **"down"** foot pedal and hold until the ram reaches it fully extended position. When the pressure gauge displays 2500psi, release the foot pedal.
- Check the bend angle of the sample and adjust the ram position accordingly to achieve the desired bend angle. It is always best to make the ram position adjustments in the **"down"** direction. So if you need to go less degrees, rotate the ram position up, then back down and gradually get to you final position in the down direction. This builds in accuracy and consistency by removes any tolerance variation from the adjusting mechanism.

General Notes

- Always bend in the center of the machine to avoid machine damage. This will evenly place the load throughout the machine.
- When bending heavier material hold the machine at the final position and let pressure build up to the relief setting. This will ensure the ram fully reaches its end position making up for the load of material.
- Always make sure you have the correct tool with for the material being bent, having too tight of an opening can damage the machine and tooling.

CHANGING AND ADJUSTING DIES

Replacing Upper Die

⚠ WARNING: Always keep hands and fingers from between the dies.
The dies supplied with the press are heavy. Have an assistant and a suitable lifting device available. DO NOT try and remove by yourself.

Note: *Never install or use dies that are cracked, chipped, or otherwise damaged. Make sure dies are the correct size and type to reduce the risk of overload.*

1. Safely start the machine and place the selector switch in JOG mode.
5. Lower the ram until the top die is approximately 1/32” (.79mm) from bottoming in the lower die.
6. Stop the machine and turn the main disconnect to OFF.
7. Evenly loosen the ten retaining cap screws (A) about two full turns.
8. Slide the die out. Make sure there is adequate clearance around the machine to safely remove and replace the die.
9. Carefully slide in the new die.
10. When positioned and centered, evenly tighten the ten retaining cap screws to lock the die in position.
11. From the end of the die, check upper and lower die alignment. If the die alignment is not correct, follow the lower die rotation/replacement instructions to loosen the lower die and align the dies.

12. Turn power on to the machine and raise the ram to the retracted position.
13. Begin normal operations and recheck the cap screw tightness after 1 or 2 bends.

Rotating/Replacing Lower Die

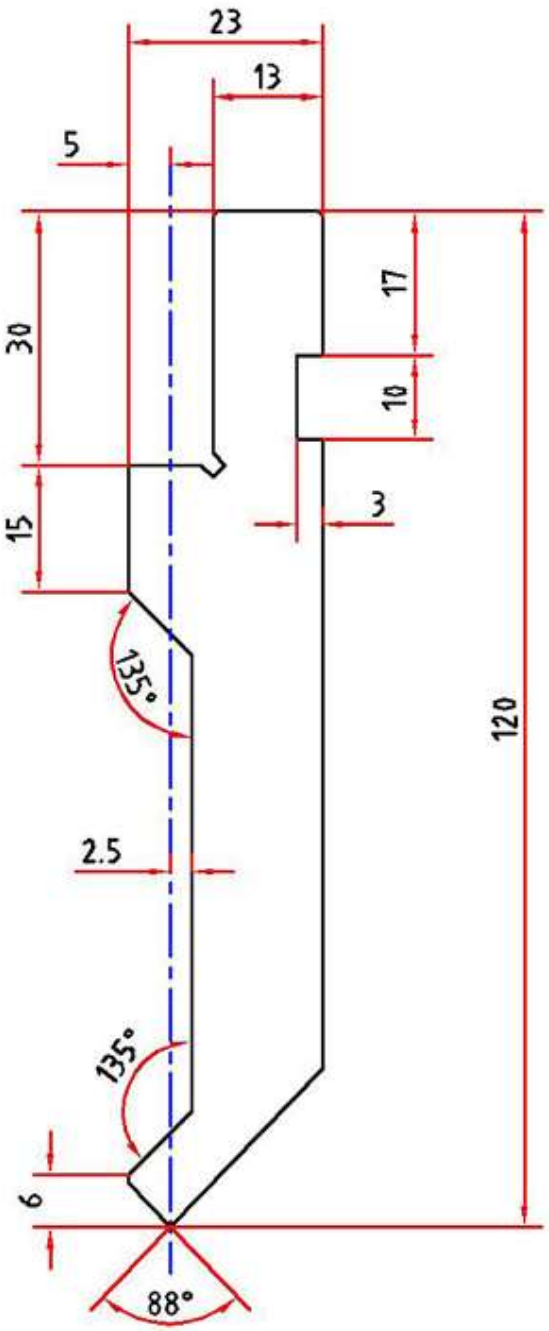
⚠ WARNING: Always keep hands and fingers from between the dies.
The dies supplied with the press are heavy. Have an assistant and a suitable lifting device available. DO NOT try and remove by yourself.

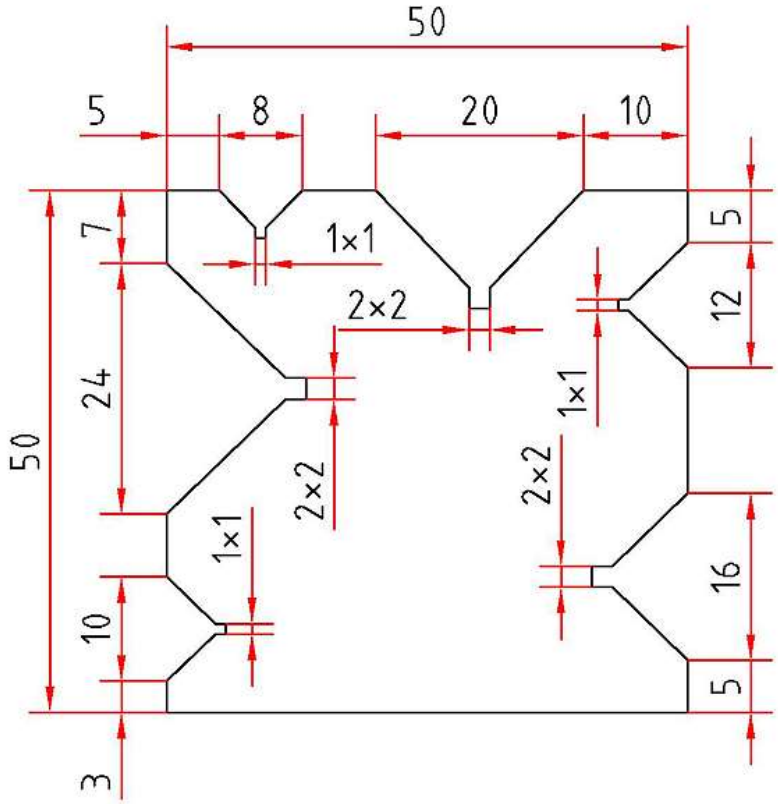
Note: *Never install or use dies that are cracked, chipped, or otherwise damaged. Make sure dies are the correct size and type to reduce the risk of overload.*

1. Raise the ram to the top position and unplug the machine from the power supply.
2. Loosen the four adjusting bolts (A) (two in front and two in the back) which align and secure the die to the table.
3. Carefully rotate or remove the die on/from the table. Do not drop the die as this will cause damage and or injury.
4. With the desired bending groove selected, center the die across the width of the table and visually align the desired die groove to the upper die.
5. Connect power to the machine and start the pump.
6. Place the selector switch in JOG mode.
7. Verify that hands and all tools and materials are clear and slowly lower the top die gently into the selected V-groove of the bottom die to position it.

8. When the top die is placing light pressure on the lower die in the desired groove, stop the machine and disconnect power.
9. Evenly tighten the adjusting bolts (A). Take care not to over tighten the back bolts for example which would place forward pressure on the lower die and cause a misalignment when the upper die is retracted.
10. When the adjustment bolts are evenly tight and securing the lower die in position, tighten the jam nuts to lock the bolt positions.

Punch and Die Specifications





BENDING ALLOWANCE

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

UNDERSTANDING SPRINGBACK

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

MATERIAL SELECTION

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

When selecting materials keep these instructions in mind:

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

LUBRICATION AND MAINTENANCE

WARNING: Make sure the electrical disconnect is OFF before working on the machine.
Maintenance should be performed on a regular basis by qualified personnel.
Always follow proper safety precautions when working on or around any machinery.

- 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.

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

Lubrication

- The power unit oil should be checked monthly.
- If the oil get really discolored or very dark, it should be changed
- Check periodically for leaks. If a leak is detected, consult RMD, Inc.
- On very hot days, gear oil may drip from the breather; this is normal expansion of the oil.
- Be sure to keep the slide ways and lead screws lubricated with light hydraulic oil or equivalent.
- The only grease zerks on the machine are the main pivots and the slide blocks. Grease the zerks every 8hrs of use.
- Check for any worn or damaged parts and replace immediately.

Hydraulic System

Hydraulic Oil

Check the oil level in the tank periodically.
Changing the oil after the first 500 working hours. Thereafter, changing the oil after ever 2,000 working hours.

Filter

Replace the filter with each oil change.

Hydraulic Connections

Check the entire hydraulic system for leaks daily. Repair any leaks found before placing the machine in operation. Replace any fitting that will not tighten to stop the leak.
Replace lines and hoses if they have been damaged in any way.
If the valve block is leaking, start by replacing the 0-ring and compounding seal ring.

Mechanical Parts

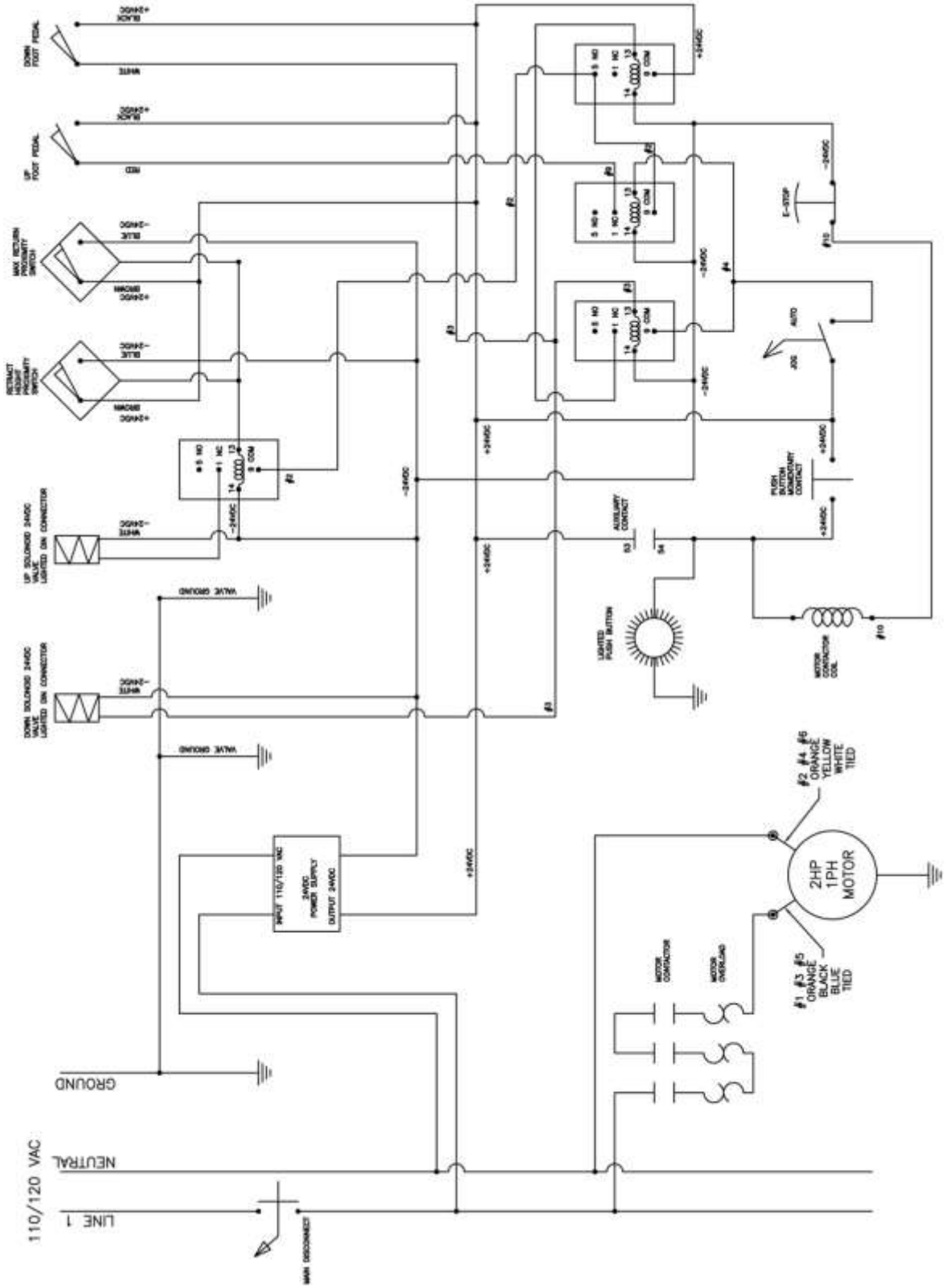
Check all mechanical parts regularly, as well as the chain transmissions and the guides.

Relief Valve

The adjustment of the relief valve is very important for a durable operation of machine.
The value normally set for this adjustment equals the maximum allowed working pressure.
If our service engineer finds that a relief valve has been adjusted to a higher valve than allowed, our company will decline all responsibility regarding the guarantee.

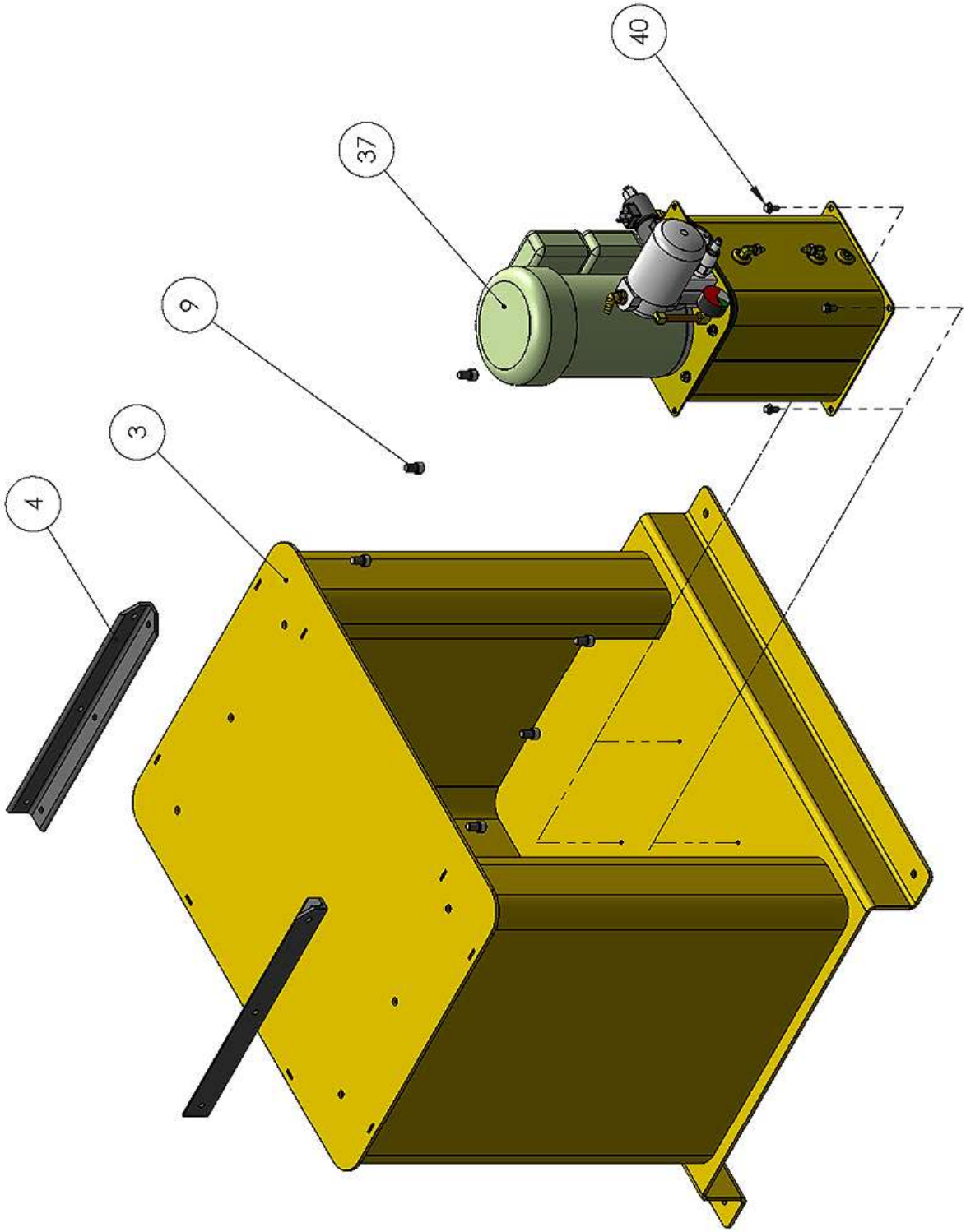
***Note**: Unless necessary, don't adjust the relief valve, it will affect the capability of the machine.*

ELECTRICAL SCHEMATIC

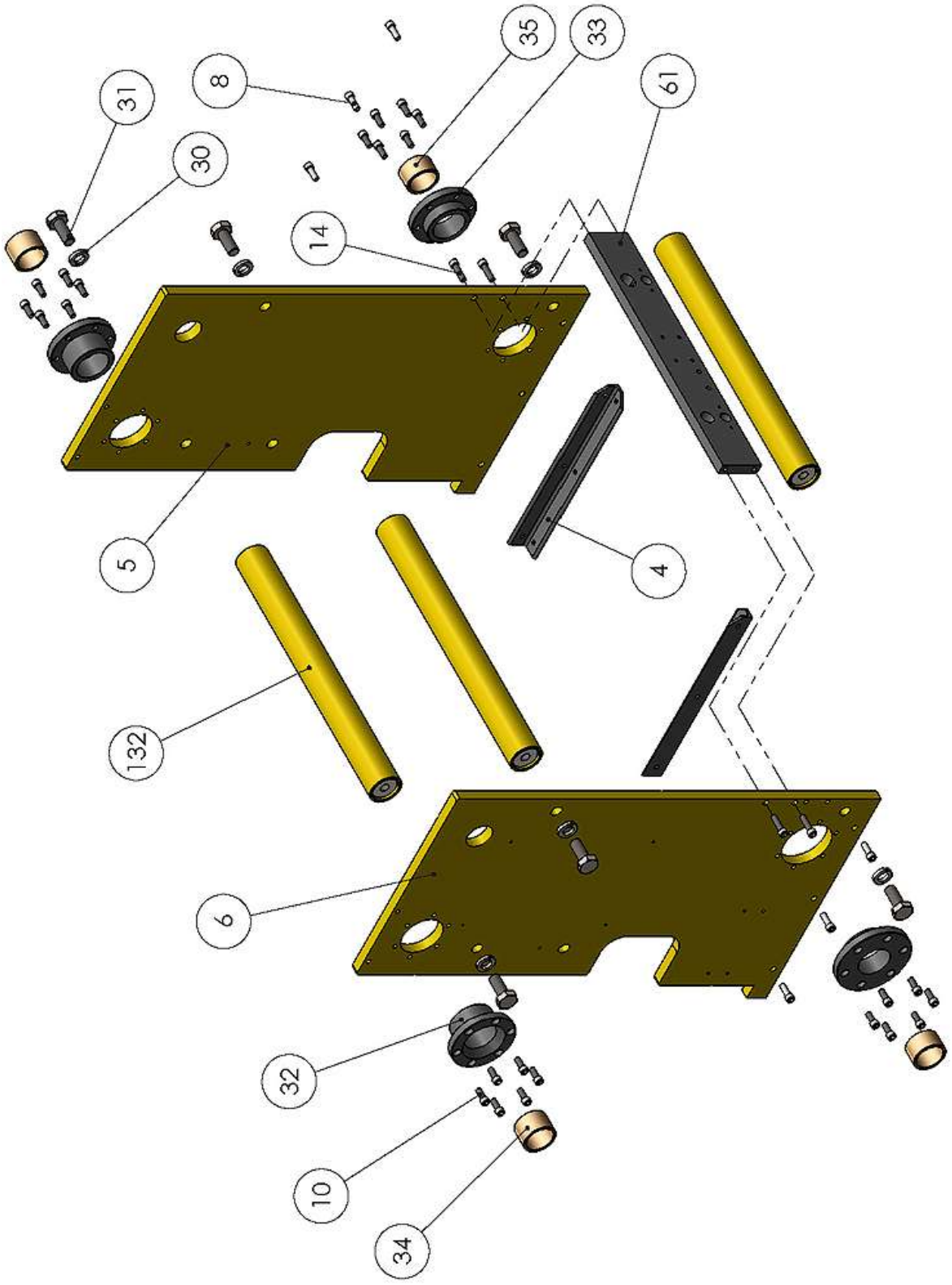


PARTS DIAGRAMS

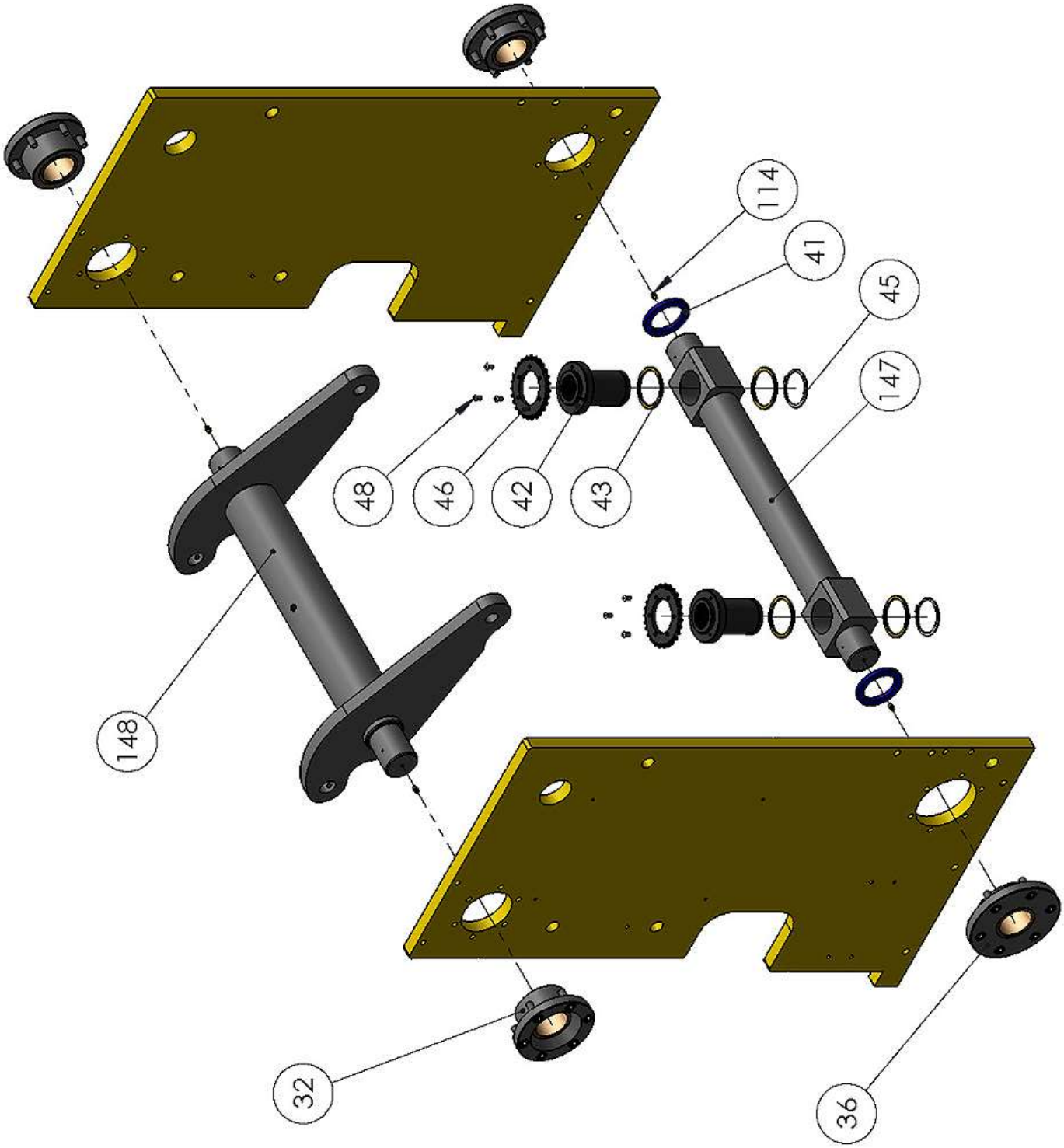
Base Assembly Parts Diagram



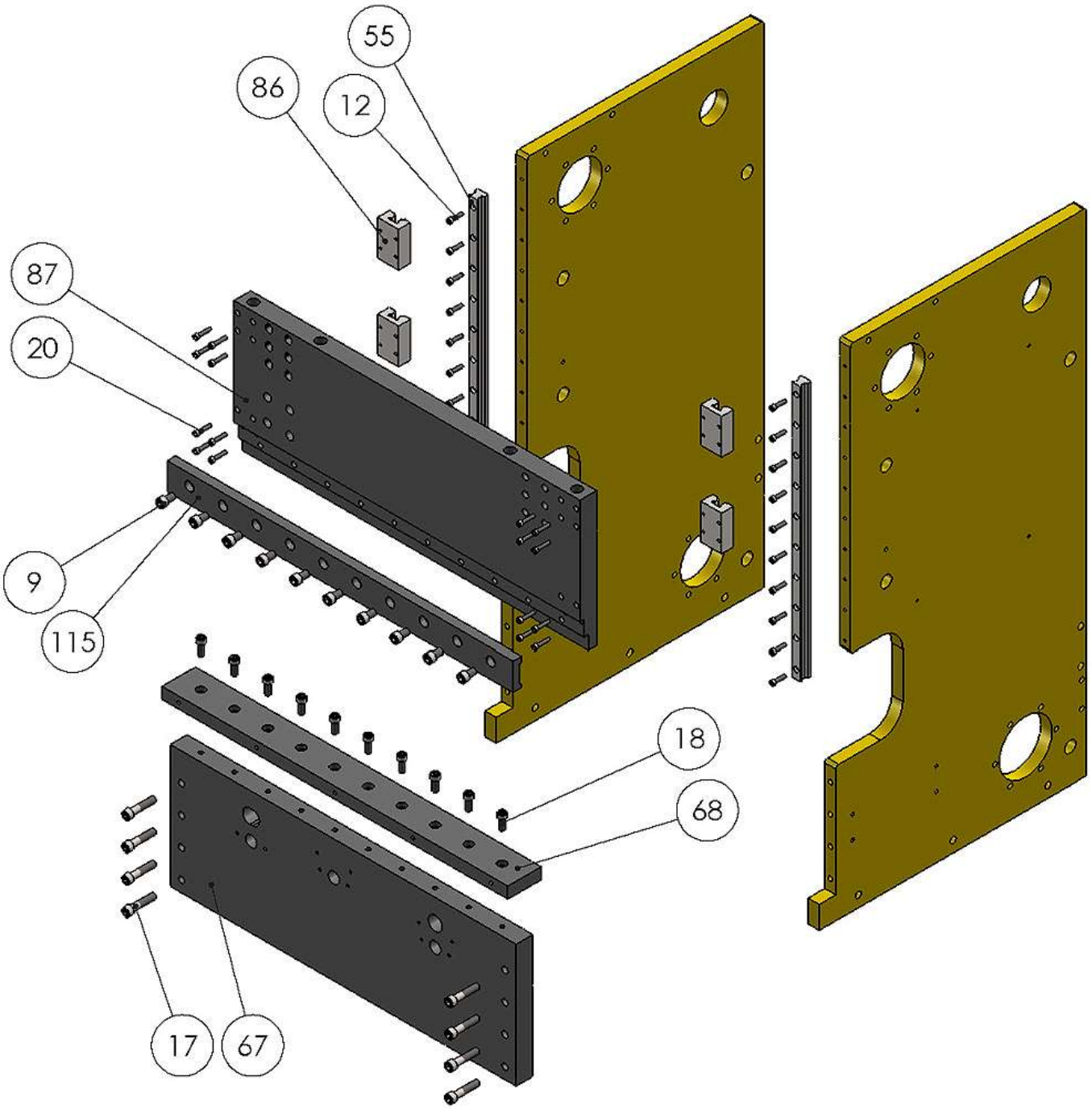
Main Frame Assembly Parts Diagram



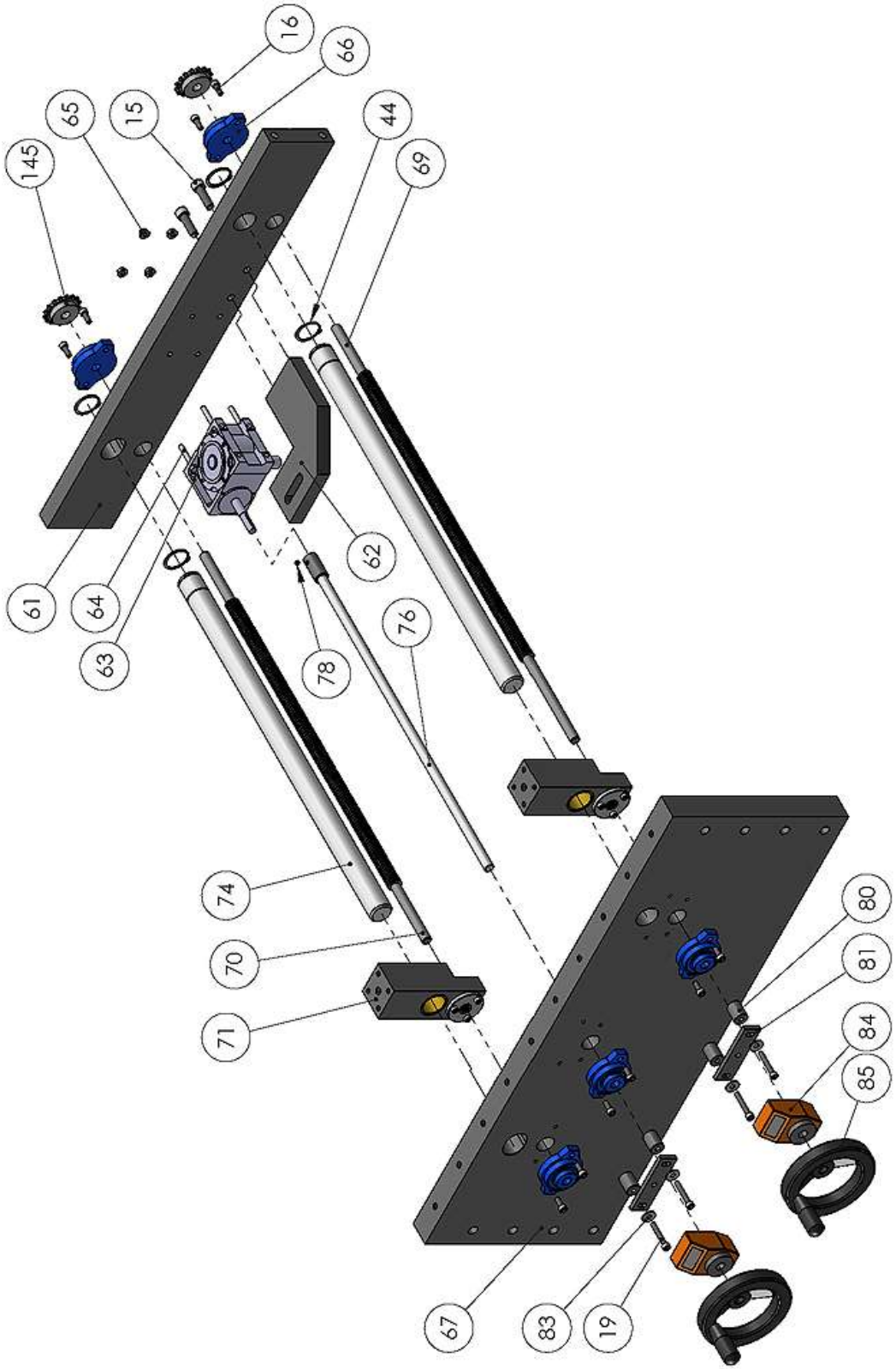
Trunnion/Bending Arm Assembly Parts Diagram



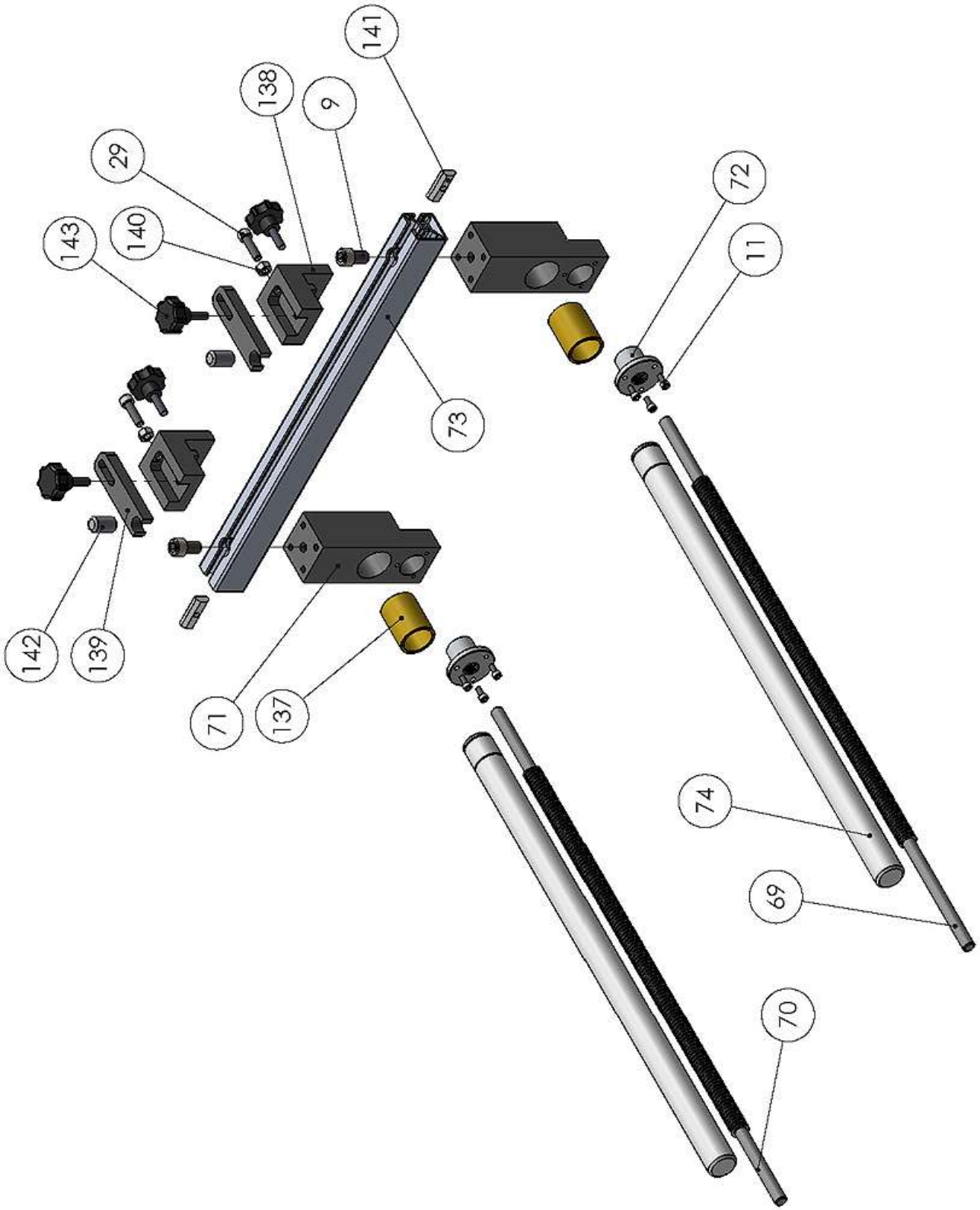
Upper and Lower Ram Assembly Parts Diagram



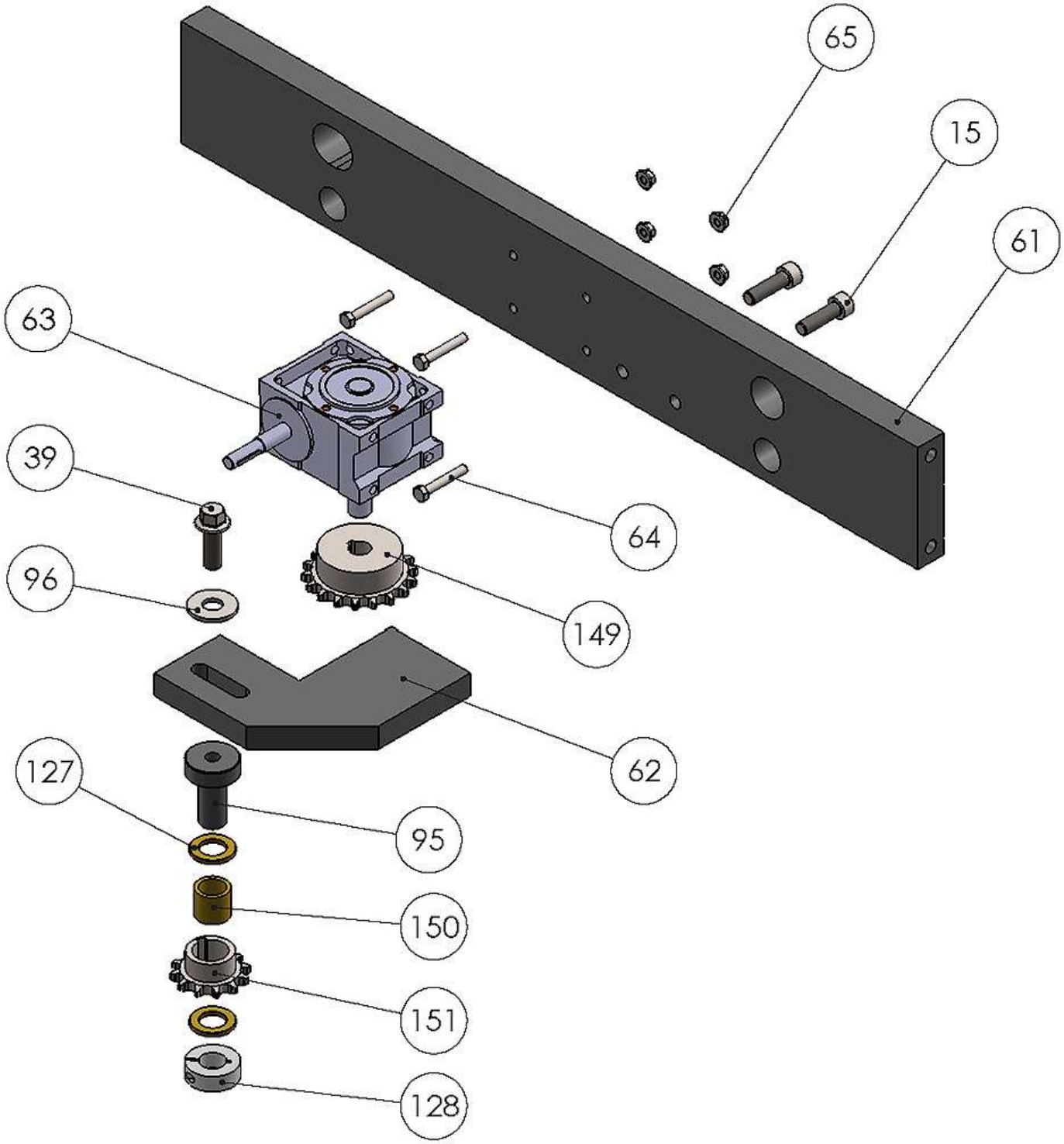
Back Stop Slide Shaft Assembly Parts Diagram



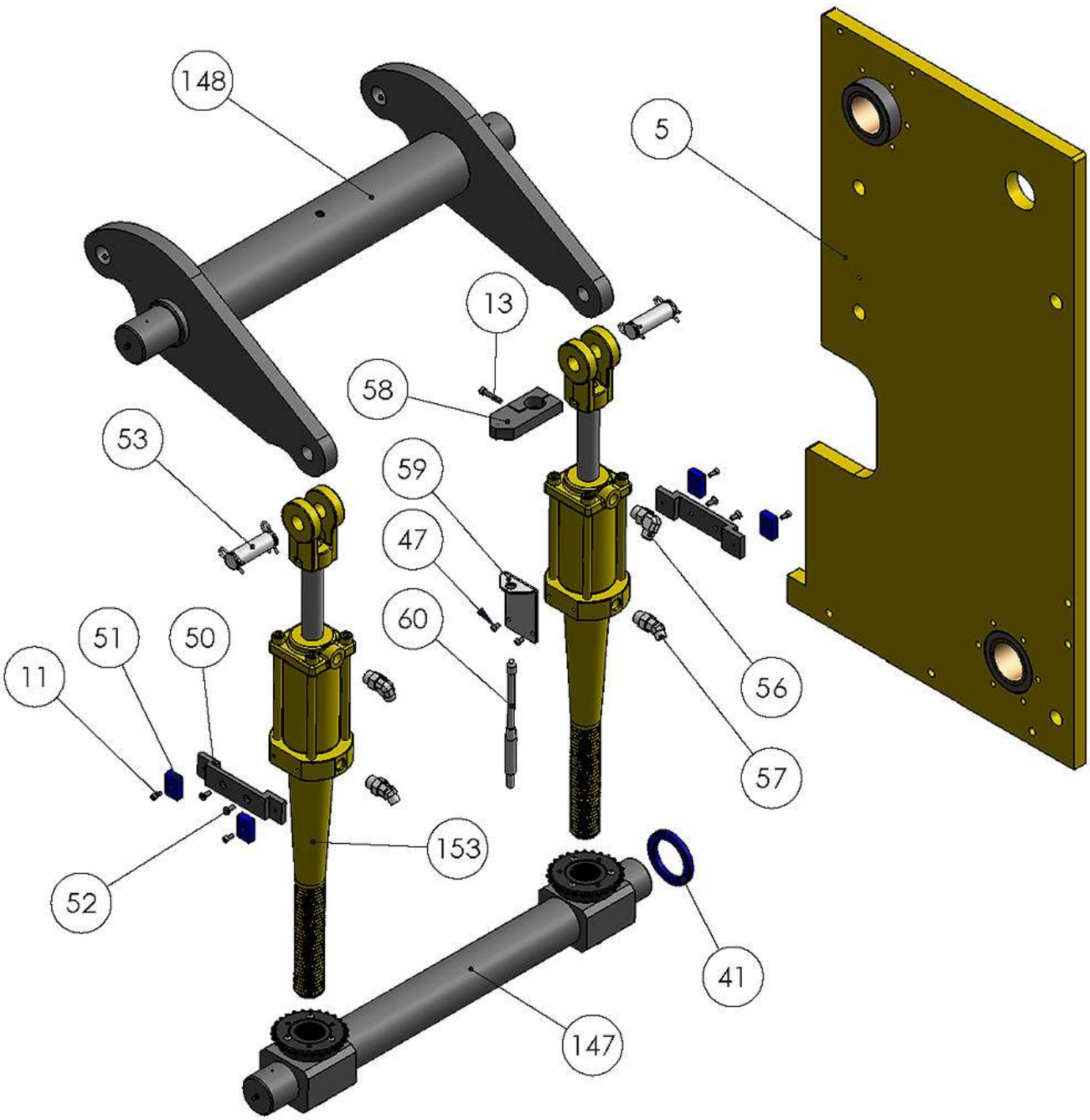
Back Stop Assembly Parts Diagram



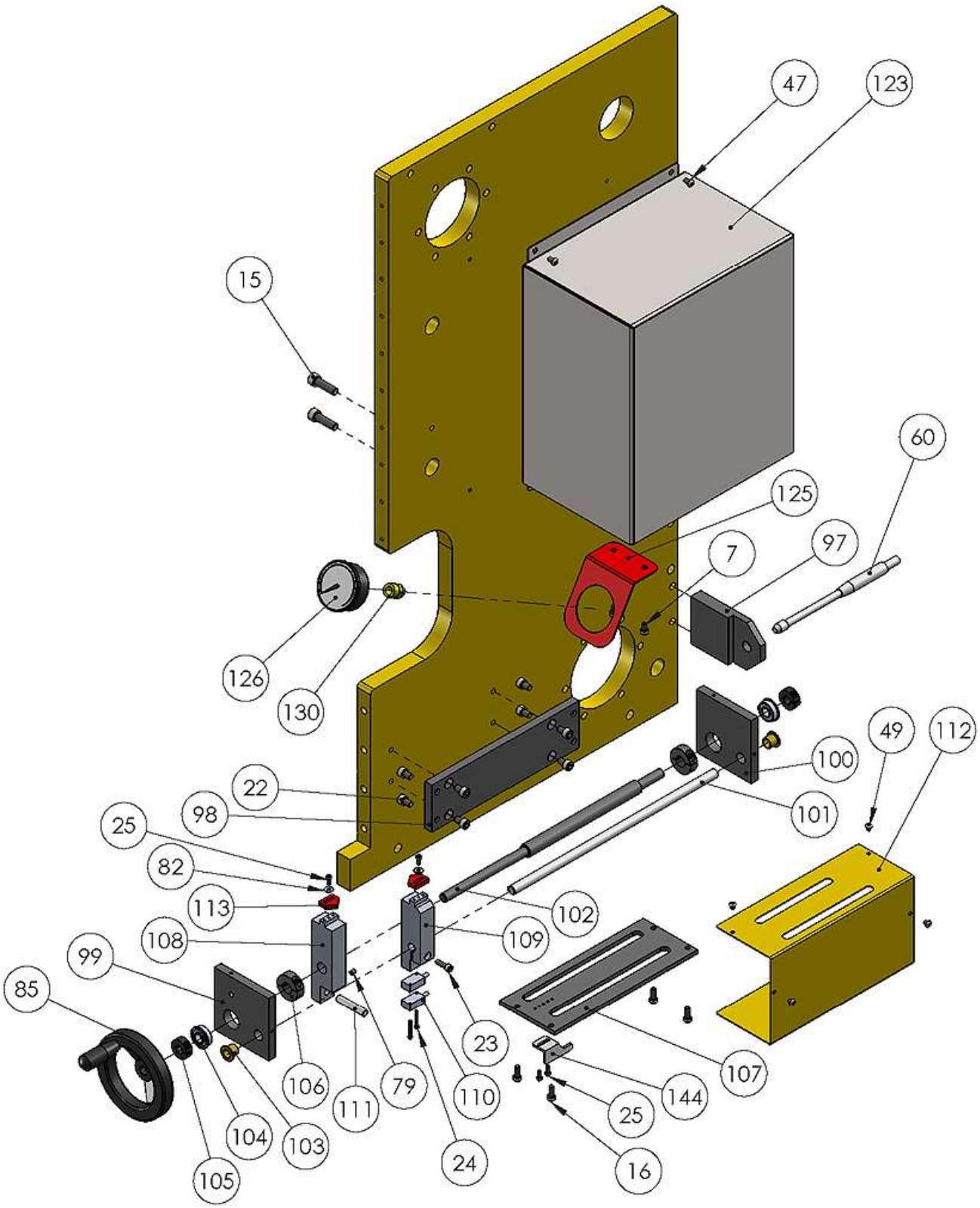
Chain Tensioner Assembly Parts Diagram



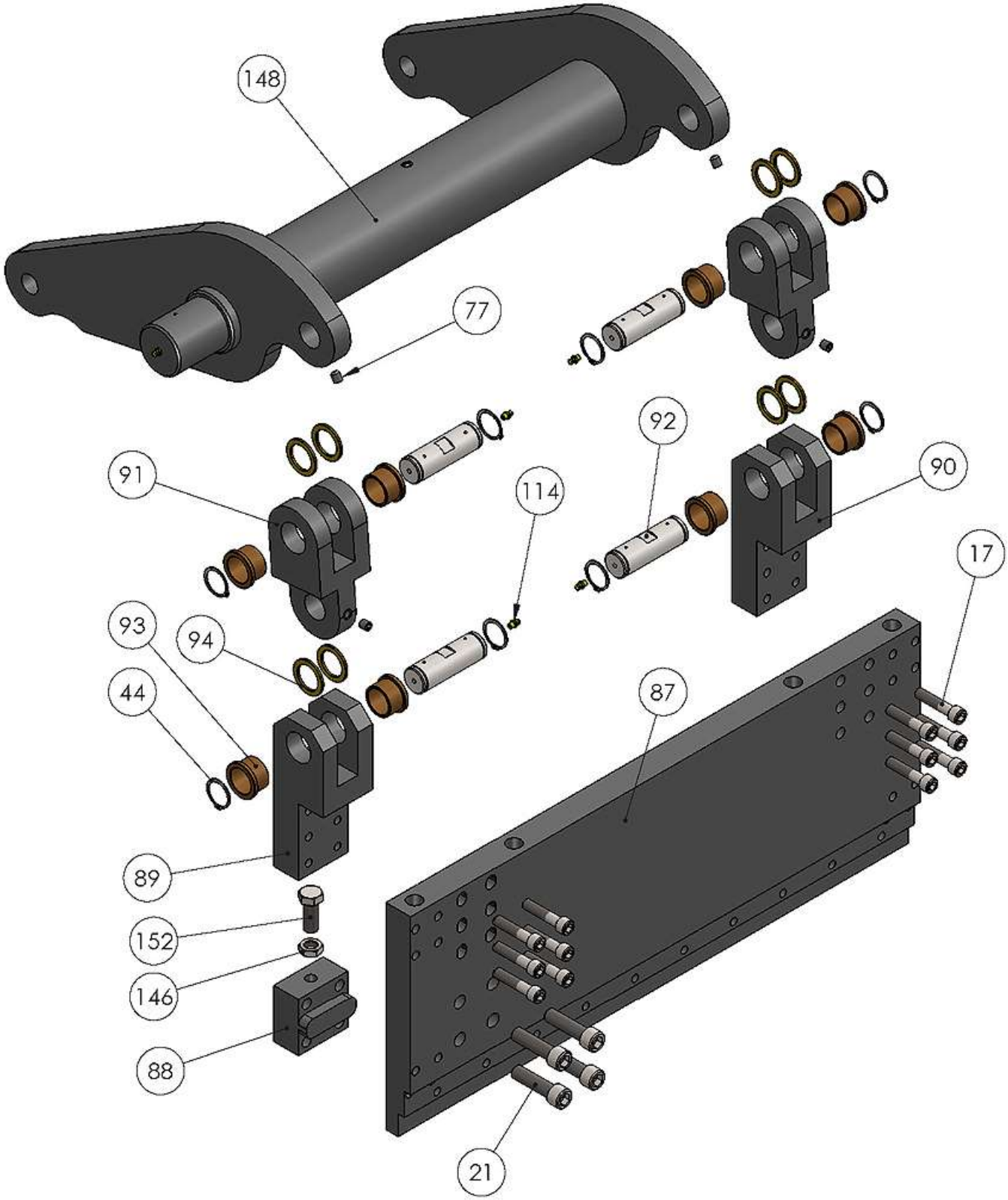
Cylinder Assembly Parts Diagram



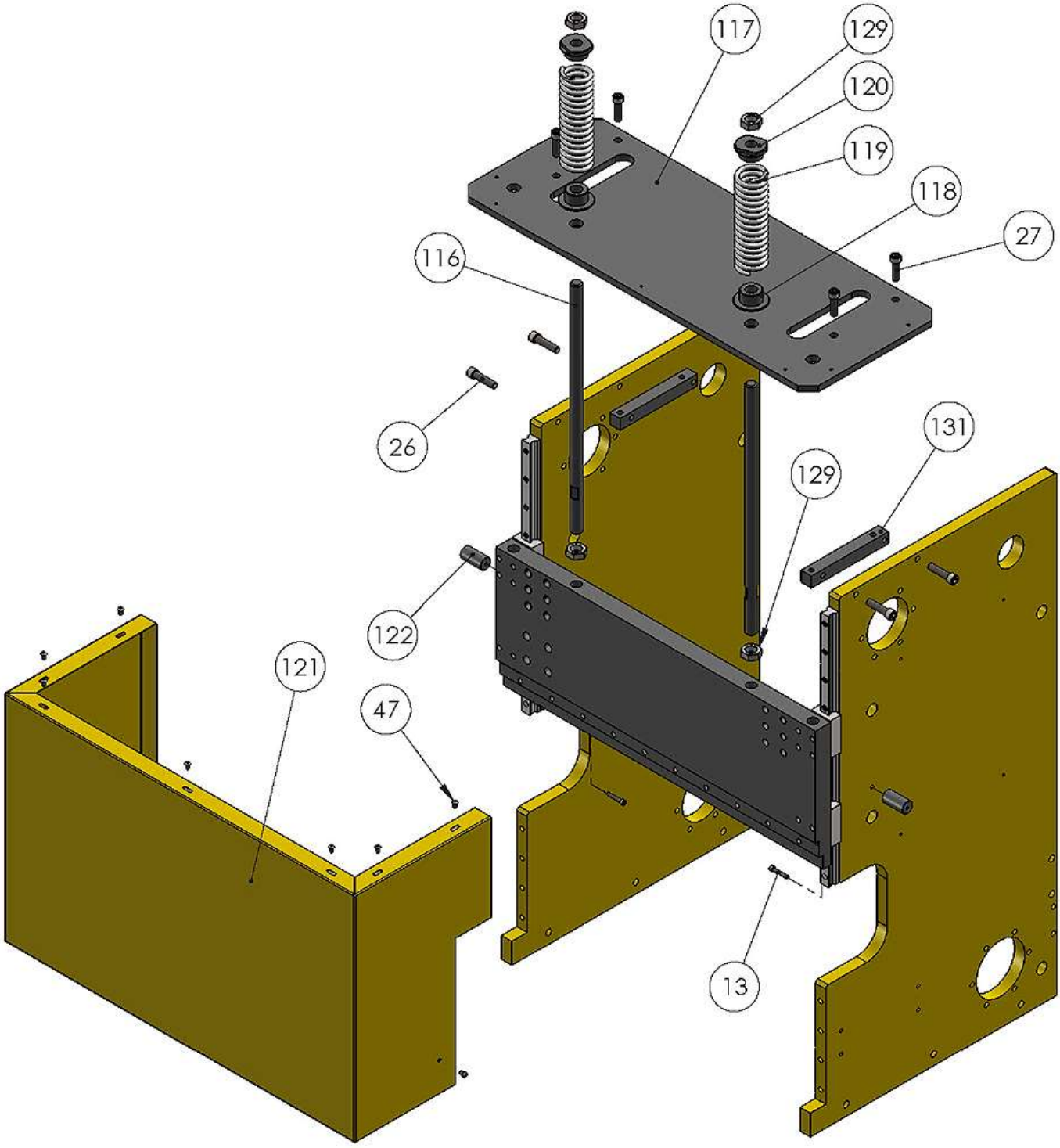
Travel Limit Assembly Parts Diagram



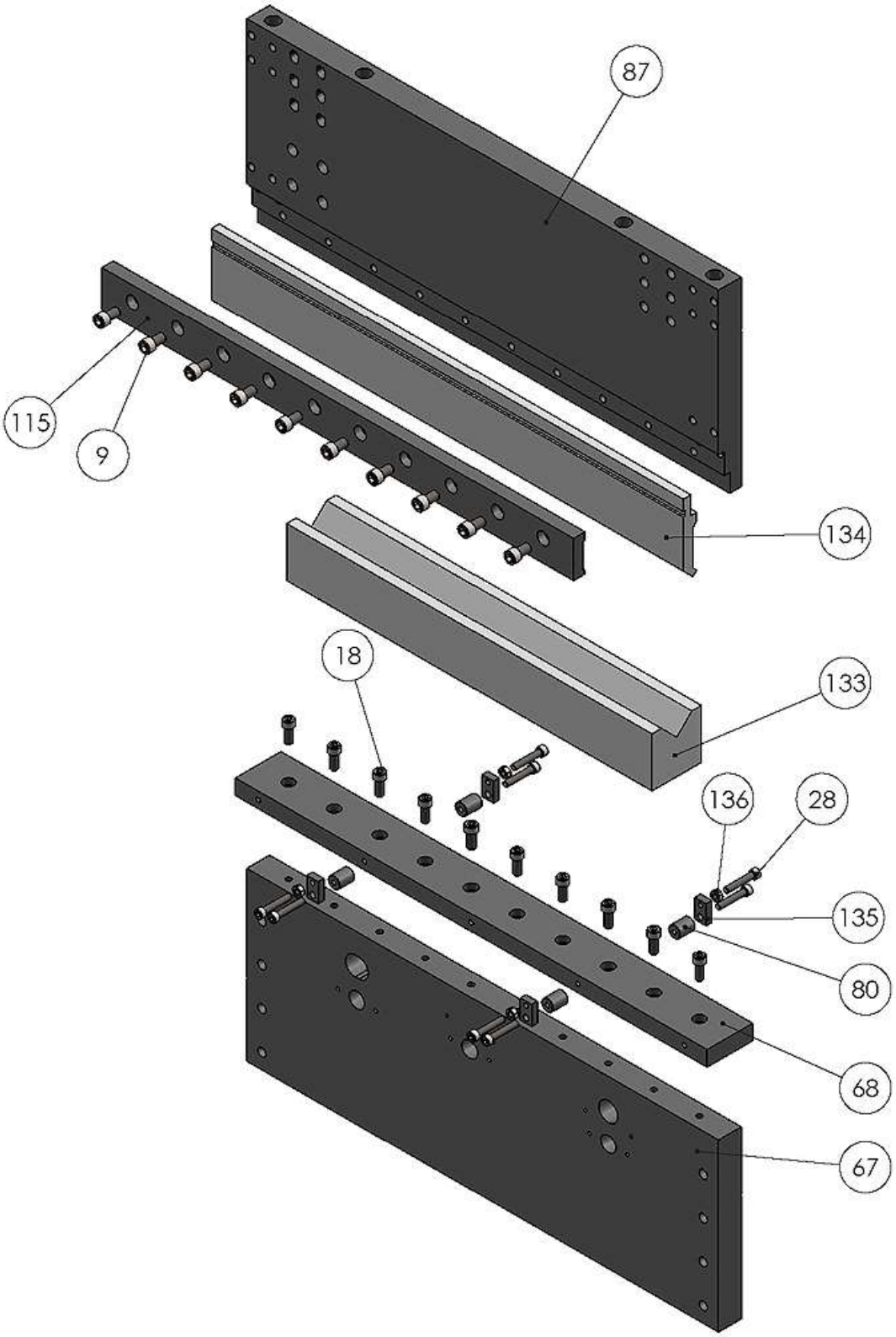
Linkage Assembly Parts Diagram



Cross Plate Assembly Parts Diagram



Tooling Assembly Parts Diagram



Parts List

Item	Part Number	Description	Qty.
3	PB24-5A002	PB24 BASE	1
4	PB24-6A025	ANGLE MOUNT	2
5	PB24-6A002-V2	SIDE FRAME (L.H.)	1
6	PB24-6A001-V2	SIDE FRAME (R.H.)	1
7	M6 X 1.0 X 10	SHCS	2
8	M12 X 1.75 X 35	SHCS	6
9	M12 X 1.75 X 20	SHCS	18
10	M12 X 1.75 X 30	SHCS	24
11	M5 X 0.8 X 12	SHCS	10
12	M6 X 1.0 X 25	SHCS	20
13	M6 X 1.0 X 35	SHCS	4
14	M12 X 1.75 X 45	SHCS	4
15	M10 X 1.5 X 35	SHCS	4
16	M6 X 1.0 X 14	SHCS	14
17	M12 X 1.75 X 55	SHCS	20
18	M10 X 1.5 X 25	SHCS	10
19	M6 X 1.0 X 40	SHCS	4
20	M6 X 1.0 X 30	SHCS	16
21	M16 X 2.0 X 60	SHCS	4
22	M8 X 1.25 X 12	SHCS	8
23	M6 X 1.0 X 20	SHCS	1
24	M3 X 0.5 X 25	SHCS	2
25	M4 X 0.7 X 10	SHCS	4
26	M12 X 1.75 X 50	SHCS	4
27	M12 X 1.75 X 40	SHCS	4
28	M8 X 1.25 X 45	SHCS	8
29	M8 X 1.25 X 30	SHCS	2
30	STD.	M24 LOCK WASHER	6
31	M24 X 3.0 X 60	HHCS	6
32	PB24-7A004	BEARING HUB	2
33	PB24-7A030	LOWER BEARING HUB	1
34	3.0 OD X 2.5 ID X 2.0 LG	3.0 OD X 2.5 ID X 2.0 LG BUSH	2
35	3.0 OD X 2.5 ID X 1.75 LG	3.0 OD X 2.5 ID X 2.0 LG BUSH	2

Item	Part Number	Description	Qty.
36	PB24-7A029	LOWER BEARING HUB	1
37	PP-1115	M175 POWER UNIT	1
38	0500-13 X 2.00	SHCS	4
39	M12 X 1.75 X 35	HEX FLANGE	1
40	M8 X 1.25 X 14	HEX FLANGE	4
41	PB24-7A032	SPACER	2
42	PB24-7A027-1	ADJUSTING HUB	2
43	PB24-7A022	WASHER	4
44	STD.	1.25" EXT. RETAINING RING	12
45	STD.	2.50" EXT. RETAINING RING	2
46	PB24-6A066	27 TOOTH #40 SPROCKET (ALTER)	2
47	M6 X 1.0 X 10	BUTTON HEAD	15
48	M6 X 1.0 X 12	BUTTON HEAD	6
49	M5 X 0.8 X 6	BUTTON HEAD	4
50	PB24-6A040	ANTI ROTATION PLATE	2
51	PB24-6A041	SLIDE BLOCK	4
52	M6 X 1.0 X 16	FHCS	4
53	PP-0403-J	PIN	2
54	PP-0403-K	HAIRCLIP	4
55	PP-1368	GUIDE RAIL	2
56	PP-0853 (6-8C5OLO-S)	90 DEG CYLINDER FITTING	2
57	PP-1412	45 DEGREE ELBOW	2
58	PB24-6A047	CABLE CLAMP BLOCK	1
59	PB24-6A046	CABLE BRACKET	1
60	PP-1356	CABLE	2
61	PB24-6A012	REAR TIE BAR	1
62	PB24-6A039	GEAR PLATE	1
63	PP-1355	GEARBOX	1
64	STD.	M6 X 1.0 X 40 HHCS	4
65	M6 X 1.0	FLANGED NUT	4
66	PP-1348	1/2 FLANGE BEARING	5
67	PB24-6A003-V2	LOWER DIE SUPPORT	1
68	PB24-6A050-V2	LOWER DIE BASE PLATE	1
69	PB24-7A010	LEAD SCREW	1
70	PB24-7A011	LEAD SCREW SHORT	1

Item	Part Number	Description	Qty.
71	PB24-6A011	SLIDE BLOCK	2
72	PB24-7A013	ACME NUT	2
73	PB24-6A052	SLIDE BAR	1
74	PB24-7A006	SLIDE SHAFT	2
75	PB24-7A031	COUPLING	1
76	PB24-7A040	EXTENSION SHAFT	1
77	M10 X 1.5 X 12	SET SCREW	4
78	M5 X 0.8 X 5	SET SCREW	1
79	M6 X 1.0 X 8	SET SCREW	1
80	PB24-7A037	COUNTER SPACER	8
81	PB24-6A049	COUNTER STRAP	2
82	STD.	4MM FLAT WASHER	2
83	M6	FLATWASHER	4
84	PP-1272	COUNTER	2
85	PP-0170	5.0 HANDWHEEL	3
86	PP-1369	LINEAR GUIDE BEARING	4
87	PB24-6A004-V2	TOP RAM	1
88	PB24-6A062	JACK SCREW BLOCK	1
89	PB24-6A063	LINK ADAPTER (WITH CLEARANCE)	1
90	PB24-6A006	LINK ADAPTER	1
91	PB24-6A007	LINK	2
92	PB24-7A012	PIN	4
93	PP-1383	HARDENED BUSHING	8
94	PP-1004	1.25 ID X 1.75 OD X .125 THRUST WASHER	8
95	PB24-7A028	IDLER STUD	1
96	STD.	1/2" FLAT WASHER	1
97	PB24-6A045	CABLE MOUNT	1
98	PB24-6A044	SWITCH GEAR MTG BRKT	1
99	PB24-6A042	BEARING BLOCK (FRONT)	1
100	PB24-6A043	BEARING BLOCK	1
101	PB24-7A033	SWITCH SLIDE SHAFT	1
102	PB24-7A007	COUNTER SCREW R.H.	1
103	PP-0196	0.5 ID X 0.625 OD X 0.562 LG	2
104	PP-1385	1/2 LIGHT DUTY BEARING	2
105	PP-0037	1/2" CLAMP COLLAR	2

Item	Part Number	Description	Qty.
106	PP-1381	3/4-10 THREADED CLAMP COLLAR	2
107	PB24-6A024	SLIDE GUIDE	1
108	PB24-6A057	HEIGHT ADJUSTMENT BLOCK	1
109	PB24-6A058	CURRENT POSITION BLOCK	1
110	PP-1384	PROXIMITY SWITCH	2
111	PB24-7A035	STOP INITIATOR	1
112	PB24-6A048-2	SWITCH GUARD	1
113	PB24-6A059	POINTER	2
114	.25-28 GREASE ZERK	STRAIGHT GREASE ZERK	8
115	PB24-6A053	CLAMP BAR (EUROPEAN TOOLING)	1
116	PB24-7A019	STOP SHAFT	2
117	PB24-6A032-2	CROSS BAR	1
118	PB24-7A036	SPRING SHOULDER WASHER	2
119	PP-1360	8" SPRING	2
120	PB24-7A021	SPRING STOP	2
121	PB24-6A034	TOP GUARD	1
122	PB24-7A038	GUARD SPACER	2
123	PP-1495	ELECTRICAL BOX	1
124	PP-1134	.125" BRASS ELBOW	1
125	PB24-6A064	GAUGE MOUNT	1
126	PP-1367	PRESSURE GAUGE	1
127	PP-0322	0.75 ID X 1.25 OD X .125 THK	2
128	PP-0090	3/4" SPLIT COLLAR	1
129	STD.	7/8-14 JAM NUT	4
130	PP-1416	GAUGE ADAPTOR	1
131	PB24-6A067	CROSS BAR ADAPTOR	2
132	PB24-5A001	SPACER TUBE ASSY	3
133	PB24-5A007	LOWER DIE	1
134	PB24-5A007	UPPER DIE	1
135	PB24-6A065	PUSH BLOCK	4
136	STD.	M8 X 1.25 HEX NUT	4
137	PP-1537	1.25 I.D. X 1.50 O.D. X 2.0	2
138	PB24-6A054	ADJUSTABLE SLIDE	2
139	PB24-6A055	STOP BAR	2
140	STD.	M8 NUT	2

Item	Part Number	Description	Qty.
141	PB24-6A061	SLIDE KEY	2
142	BS-0355	5/8 X 1.0" PEG	2
143	PP-1382	KNOB	4
144	PB24-6A060	SWITCH ACTUATOR	1
145	PP-1350	16 TOOTH #35 SPROCKET	2
146	M16 X 2.0	JAM NUT	1
147	PB24-5A003	LOWER CYLINDER MOUNT ASSY	1
148	PB24-5A005	TORQUE LEVER ASSY	1
149	PP-1354	#40 18T 5/8 BORE SPROCKET	1
150	PP-1227	0.75 ID X 0.875 OD X 0.75 WIDE	1
151	PP-1353	#40 12T 1.0 BORE SPROCKET	1
152	STD.	M16 X 2.0 X 40 HHCS	1
153	PB24-5A006	3.0 BORE X 6.0 STROKE CYLINDER	2

NOTES

NOTES

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