

# METALMASTER



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Date: (01/25)

## Instruction Manual

# POWER HAMMER PHM-760HD & PHM-940HD

Order Code: (S2285 & S2287)

## MACHINE DETAILS

MACHINE.	POWER HAMMER
MODEL NO.	PHM-760HD & PHM-940HD
SERIAL NO.	
DATE OF MANF.	

IMPORTED BY

AUSTRALIA



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### NOTE:

*This manual is only for your reference. At the time of the compiling of this manual every effort to be exact with the instructions, specifications, drawings, and photographs of the machine was taken. Owing to the continuous improvement of the METALMASTER machine, changes may be made at any time without obligation or notice. Please ensure the local voltage is the same as listed on the specification plate before operating any electric machine.*

### SAFETY SYMBOLS:

*The purpose of safety symbols is to attract your attention to possible hazardous conditions*



**WARNING**

*Indicates a potentially hazardous situation causing injury or death*



**CAUTION**

*Indicates an alert against unsafe practices.*

*Note: Used to alert the user to useful information*

### NOTE:

*In order to see the type and model of the machine, please see the specification plate. Usually found on the back of the machine. See example (Fig.1)*

<b>METALMASTER</b>	
<b>PRODUCT SPECIFICATIONS</b>	
Model: PHM-760HD	Voltage: 240V, 50Hz
Capacity: 2.0mm Mild Steel	Motor: 2.2kW / 3HP
Nett Weight: 760kg	Full Load Current: 4.8Amps
MFG Date:	
Serial No:	<input type="text"/>
Imported by <a href="http://www.machineryhouse.com.au">www.machineryhouse.com.au</a>	Made in China <a href="http://www.machineryhouse.co.nz">www.machineryhouse.co.nz</a>

FIG.1

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## 1.1 SPECIFICATIONS

Order Code	S2285	S2287
Model	PHM-750HD	PHM-940HD
Mild Steel Capacity (mm / Gauge)	2.0 / 12	
Aluminium Capacity (mm / Gauge)	3.0 / 8	
Tooling Shank Size (mm)	22	
Throat Depth (mm)	760	940
Throat Height (mm)	570	570
Speed - Blows per minute (BPM)	0 - 960 (Variable)	0 - 960 (Variable)
Motor Power (kW / hp)	2.2 / 3	3 / 4
Voltage / Amps (V / amp)	240 / 15	240 / 15
Nett Weight (kg)	760	970

## 1.2 INCLUDED ACCESSORIES

**Tools**  
Collet Spanner,  
Hex Keys



**3 x Sets of Springs**  
Soft, Medium, Hard

**Die Holders and Dies**



## 1.3 INCLUDED DIE HOLDERS & DIES



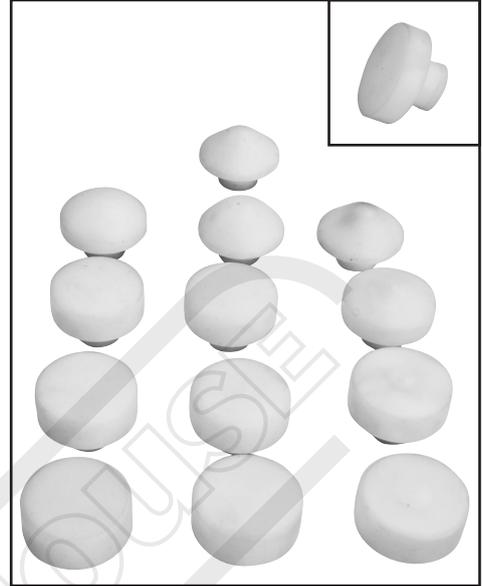
**1 x Set - Round Die Holders**  
 Ø30 x 20mm Holder  
 (22mm square shank)



**1 x Set Doming Dies**  
**3.1" Radius**  
 (Ø30 x 20mm round shank)



**16 x Steel Lower Dies**  
 3/4", 1", 1-1/8", 1-1/2", 1-7/8", 2", 3", 4", 5",  
 6", 8", 14-1/2", 24", 36" Radius  
 (Ø30 x 20mm round shanks)



**1 x Nylon Upper Die**  
**13 x Nylon Lower Dies**  
 3/4", 7/8", 1-1/8", 1-1/2", 1-7/8", 4", 5",  
 6" x 1/16" Radius Edge, 6" x 1/4" Radius Edge,  
 8", 14-1/2", 24", 36" Radius  
 (Ø30 x 20mm round shank)



**Upper Hammer Die**  
 (22mm square shank)



**Lower Linear Stretching Die**  
 (22mm square shank)



**1 x Set Universal Die Holders**  
 16mm opening  
 (22mm square shank)



**1 x Set Thumbnail Shrinking Dies**  
 (22mm square shank)



**1 x Set 1/4" Beading Dies**  
 (22mm square shank)



**1 x Set 3/8" Beading Dies**  
 (22mm square shank)



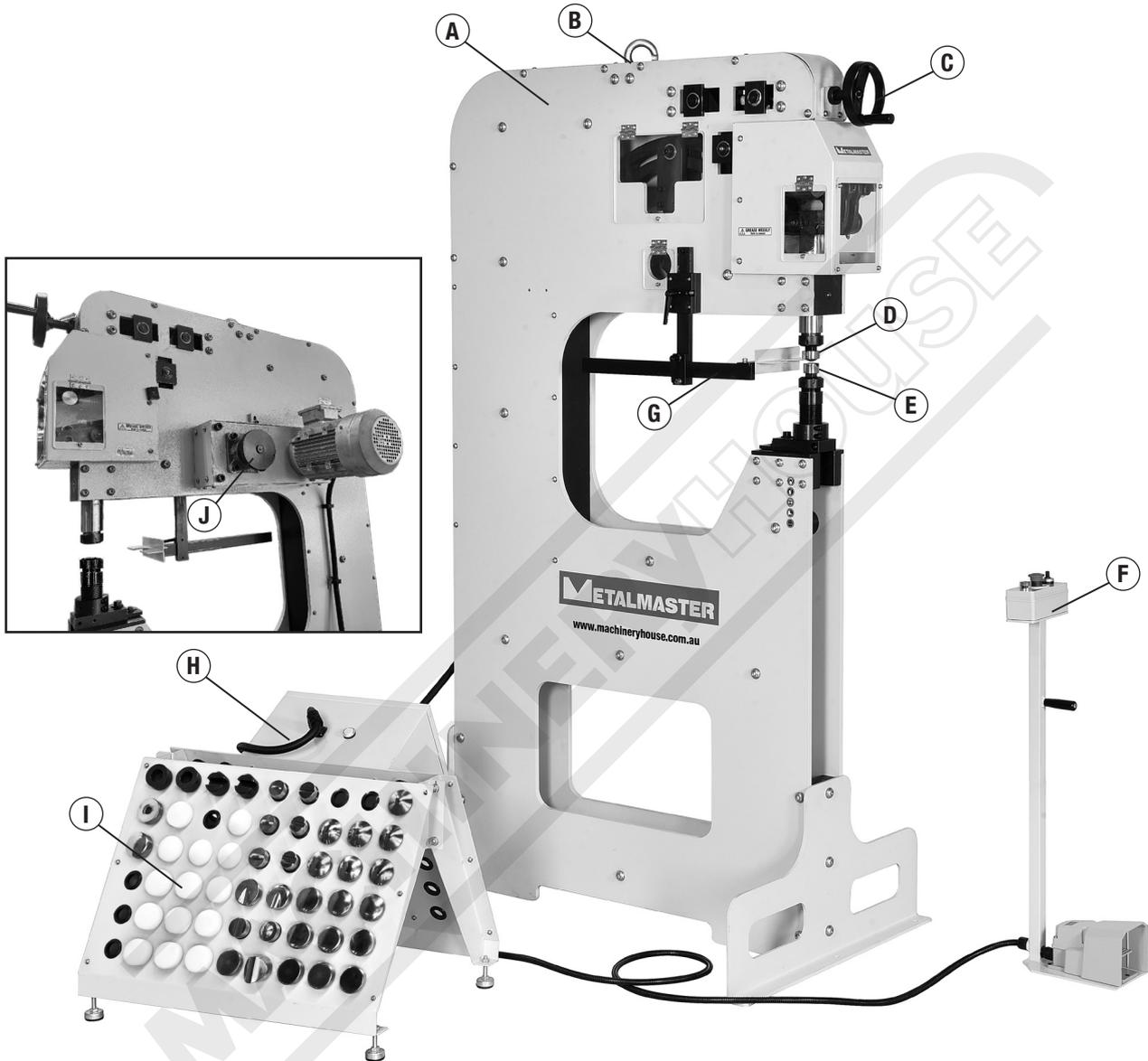
**1 x Set 1/2" Beading Dies**  
 (22mm square shank)



**1 x Set Louvre Dies**  
 (22mm square shank)

## 1.4 IDENTIFICATION

Become familiar with the names and locations of the controls and features shown below to better understand the instructions when mentioned later in this manual.



<b>A</b>	Main Frame	<b>F</b>	Foot Control
<b>B</b>	Lifting Point	<b>G</b>	Adjustable Fence
<b>C</b>	Stroke Length Adjustment Hand Wheel	<b>H</b>	Power Pack (Electrical Box)
<b>D</b>	Top Die	<b>I</b>	Die Holder
<b>E</b>	Bottom Die	<b>J</b>	Top Tool Adjustment Hand Wheel

## 2. SAFETY

### 2.1 GENERAL METALWORKING MACHINE SAFETY

DO NOT use this machine unless you have read this manual or have been instructed in the use of this machine in its safe use and operation.



## WARNING

This manual provides safety instructions on the proper setup, operation, maintenance, and service of this machine. Save this manual, refer to it often, and use it to instruct other operators. Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine is solely responsible for its safe use. This responsibility includes, but is not limited to proper installation in a safe environment, personnel training and authorization to use, proper inspection and maintenance, manual availability and comprehension, of the application of the safety devices, integrity, and the use of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



- ✓ Always wear safety glasses or goggles.
- ✓ Wear appropriate safety footwear.
- ✓ Wear respiratory protection where required.
- ✓ Gloves should never be worn while operating the machine, and only worn when handling the workpiece.
- ✓ Wear hearing protection in areas > 85 dBA. If you have trouble hearing someone speak from one metre (three feet) away, the noise level from the machine may be hazardous.
- ✓ DISCONNECT THE MACHINE FROM POWER when making adjustments or servicing.
- ✓ Check and adjust all safety devices before each job.
- ✓ Ensure that guards are in position and in good working condition before operating.
- ✓ Ensure that all stationary equipment is anchored securely to the floor.
- ✓ Ensure all machines have a start/stop button within easy reach of the operator.
- ✓ Each machine should have only one operator at a time. However, everyone should know how to stop the machine in an emergency.

## 2.1 GENERAL SAFETY REQUIREMENTS CONT.

- ✓ Ensure that keys and adjusting wrenches have been removed from the machine before turning on the power. Appropriate storage for tooling should be provided.
- ✓ Ensure that all cutting tools and blades are clean and sharp. They should be able to cut freely without being forced.
- ✓ Stop the machine before measuring, cleaning or making any adjustments.
- ✓ Wait until the machine has stopped running to clear cuttings with a vacuum, brush or rake.
- ✓ Keep hands away from the cutting head and all moving parts.
- ✓ Avoid awkward operations and hand positions. A sudden slip could cause the hand to move into the cutting tool or blade.
- ✓ Return all portable tooling to their proper storage place after use.
- ✓ Clean all tools after use.
- ✓ Keep work area clean. Floors should be level and have a non-slip surface.
- ✓ Use good lighting so that the work piece, cutting blades, and machine controls can be seen clearly. Position any shade lighting sources so that they do not cause any glare or reflections.
- ✓ Ensure there is enough room around the machine to do the job safely.
- ✓ Obtain first aid immediately for all injuries.
- ✓ Understand that the health and fire hazards can vary from material to material. Make sure all appropriate precautions are taken.
- ✓ Clean machines and the surrounding area when the operation is finished.
- ✓ Use proper lock out procedures when servicing or cleaning the machines or power tools.

### DO NOT

- × Distract an operator. Horseplay can lead to injuries and should be strictly prohibited.
- × Wear loose clothing, gloves, neckties, rings, bracelets or other jewelry that can become entangled in moving parts. Confine long hair.
- × Handle cuttings by hand because they are very sharp. Do not free a stalled cutter without turning the power off first. Do not clean hands with cutting fluids.
- × Use rags or wear gloves near moving parts of machines.
- × Use compressed air to blow debris from machines or to clean dirt from clothes.
- × Force the machine. It will do the job safer and better at the rate for which it was designed.



### **CAUTION !**

***A prepared list of safety guidelines can never be complete. Every workshop environment is different. Always consider Safety first, as it applies to your individual working conditions. Use this machine and other machinery with caution and respect. Failure to do so could result in serious Personal injury, damage to the equipment, or poor work results.***

## 2.1 GENERAL SAFETY REQUIREMENTS CONT.

**HAZARDS ASSOCIATED WITH MACHINES** include, but are not limited to:

- Being struck by ejected parts of the machinery.
- Being struck by material ejected from the machinery.
- Contact or entanglement with the machinery.
- Contact or entanglement with any material in motion.

**Health Hazards** (other than physical injury caused by moving parts)

- Chemicals hazards that can irritate, burn, or pass through the skin.
- Airborne items that can be inhaled, such as oil mist, metal fumes, solvents, and dust.
- Heat, noise, and vibration.
- Ionizing or non-ionizing radiation. (X-ray, lasers, etc.)
- Biological contamination and waste.
- Soft tissue injuries (for example, to the hands, arms, shoulders, back, or neck) resulting from repetitive motion, awkward posture, extended lifting, and pressure grip.

**Other Hazards**

- Slips and falls from and around machinery during maintenance.
- Unstable equipment that is not secured against falling over.
- Safe access to/from machines. (access, egress)
- Fire or explosion.
- Pressure injection injuries from the release of fluids and gases under high pressure.
- Electrical Hazards, such as electrocution from faulty or ungrounded electrical components.
- Environment in which the machine is used. (in a machine shop, or on a work site)



### **WARNING**

*The machine is the sole responsibility of the owner for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training, proper inspection and maintenance, manual availability and comprehension. The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.*



### **WARNING!**

*Machines are safeguarded to protect the operator from injury or death with the placement of guards. Machines must not be operated with the guards removed or damaged.*

## 2.2 SPECIFIC SAFETY FOR POWER HAMMERS

**DO NOT use this machine unless you have been instructed in its safe use and operation and have read and understood this manual.**



*Safety glasses must be worn at all times in work areas.*



*Close fitting protective clothing or overalls are encouraged*



*Appropriate protective footwear with substantial uppers must be worn.*



*Rings and jewellery must NOT be worn in the workshop*



*Gloves should be worn when handling a work piece*



*Ear protection should be used in loud and noisy conditions*

### PRE-OPERATIONAL SAFETY CHECKS

1. Ensure you are familiar with the operation of the Power Hammer.
2. Check for any damage or parts missing.
3. The area around the machine must be clean and free of trip hazards.
4. Hammer dies used, must be inspected for safe use i.e. no cracks.
5. Double check/re-tighten upper locator dies & mounting posts.
6. Ensure safety glasses or goggles are available and are worn by all persons in the vicinity.
7. Any test piece, project or material (work piece) to be pressed must be of an appropriate thickness and safe to use on this equipment.
8. Faulty equipment must not be used. Immediately check suspect machinery.

### OPERATIONAL SAFETY CHECKS

1. Check working height is approximately at the middle of operators chest (Standing platform may be required)
2. Place your test piece, project or material securely between the top and bottom dies.
3. Using the hand-wheel/crank, rotate the hand-wheel to check the two dies are not impacting & check clearance before turning the machine on.
4. Do not over reach. Maintain a balanced stance at all times, so that you do not fall or lean against the machine.
5. Use the Power Hammer pedal, to slowly work the material & gradually increase RPM
6. Keep hands and fingers away from the hammer dies.
7. Wear leather gloves when handling any work piece with sharp edges.
8. Use the right tool. Do not force a hammer die set to do a job that it was not designed to do.
9. Give your work undivided attention. Looking around, carrying on a conversation and “horseplay” are careless acts that can result in serious injury
10. DO NOT apply excessive force to the Power Hammer.

### AFTER OPERATION COMPLETED

1. After use, clean the machine down and place any tools and equipment in the appropriate storage area.
2. Place all scrap or waste in the appropriate bin.

### POTENTIAL HAZARDS

- Beware of high forces applied
- Eye injuries – flying or shattering objects
- Pinch and squash
- Laceration injuries

### 3. POWER SUPPLY

#### 3.1 ELECTRICAL INSTALLATION

Place the machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure there is access to a means of disconnecting the power source. The electrical circuit must meet the requirements for 240V.

**NOTE :** *The use of an extension cord is not recommended as it may decrease the life of the electrical components on your machine.*

#### ELECTRICAL REQUIREMENTS

##### *PHM-760HD & PHM-940HD*

Nominal Voltage.....	240V
Cycle.....	50 Hz
Phase.....	Single Phase
Power Supply Circuit.....	15 Amps
Full Load Current.....	See the Motor Plate

(Full load current rating is also on the specification plate on the motor.)

#### 3.2 FULL-LOAD CURRENT RATING

The full-load current rating is the amperage a machine draws when running at 100% of the output power. Where machines have more than one motor, the full load current is the amperage drawn by the largest motor or a total of all the motors and electrical devices that might operate at one time during normal operations.

Full-Load Current Rating for these machine is available on the motor plate.

It should be noted that the full-load current is not the maximum amount of amps that the machine will draw. If the machine is overloaded, it will draw additional amps beyond the full-load rating and if the machine is overloaded for a long period of time, damage, overheating, or fire may be caused to the motor and circuitry.

This is especially true if connected to an undersized circuit or a long extension lead. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets the requirements.



## 4 SET-UP

### 4.1 UNPACKING

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. If items are damaged, please contact your distributor.

**NOTE: Save all the packaging materials until you are completely satisfied with the machine and have resolved any issues with the distributor, or the shipping agent.**

When unpacking, check the packing list to make sure that all parts shown are included. If any parts are missing or broken, please contact your distributor.

### 4.2 CLEAN - UP

The unpainted surfaces of the machine have been coated with a waxy oil to protect them from corrosion during shipment. Remove the protective coating with a solvent cleaner or a citrus based degreaser.

Optimum performance from your machine will be achieved when you clean all moving parts or sliding contact surfaces that are coated with rust preventive products.

It is advised to avoid chlorine based solvents, such as acetone or brake parts cleaner, as they will damage painted surfaces and strip metal should they come in contact. Always follow the manufacturer's instructions when using any type of cleaning product.

### 4.3 SITE PREPARATION

When selecting the site for the machine, consider the largest size of workpiece that will be processed through the machine and provide enough space around the machine for operating the machine safely. Consideration should be given to the installation of auxiliary equipment. Leave enough space around the machine to open or remove doors/covers as required for the maintenance and service as described in this manual.

It is recommended that the machine is anchored to the floor to prevent tipping or shifting. It also reduces vibration that may occur during operation.

### 4.4 LIFTING INSTRUCTIONS

**WARNING** *This machine is extremely heavy. Serious personal injury may occur if safe moving methods are not followed. To be safe, you will need assistance and power equipment when moving the shipping crate and removing the machine from the crate.*



On the day that the machine arrives, make sure that a forklift or lifting device, with sufficient capacity is available to unload the machine from the vehicle. Ensure access to the chosen site is clear and that doors and ceilings are sufficiently high and wide enough to receive the machine.

**WARNING** *Make sure that the lifting eye-bolt is screwed completely in and is secured. Use only certified lifting equipment.*

## 4.5 ANCHORING TO THE FLOOR

### OPTIONS FOR MOUNTING

The machine is best mounted on a concrete slab. Masonry anchors with bolts are the best way to anchor machinery, because the anchors sit flush with the floor surface, making it easy to unbolt and move the machine later if needed. (Fig. 4.1)

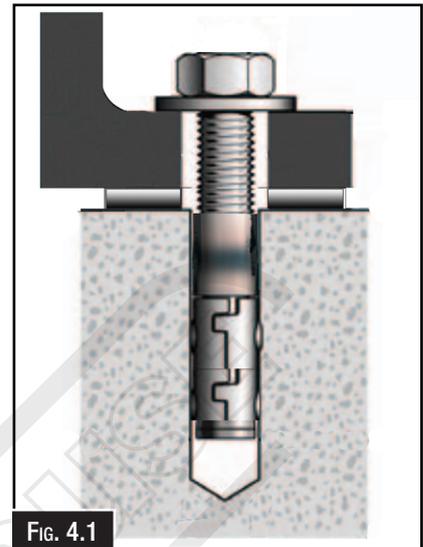


Fig. 4.1

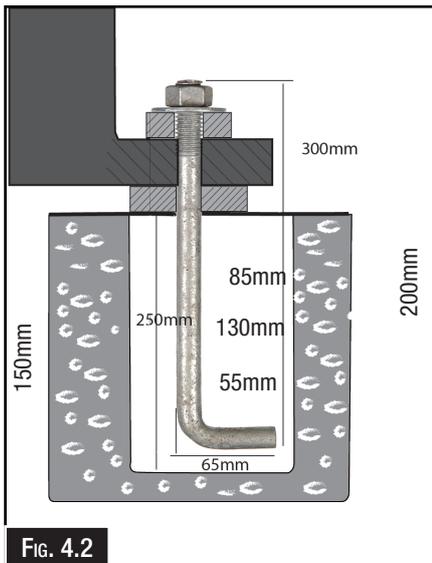


Fig. 4.2

In some cases a suitable foundation may not be available and a new one may need to be prepared.

The foundation should be concrete approximately 200mm thick with pockets left clear for the hold down bolts. The hold down bolts can be “L” shape as per the example in Fig. 4.2.

## 4.6 MACHINE LEVELING

To set your machine up so that it operates to optimum performance, apply the following procedure.

After your machine has been anchored to a concrete slab floor, it then needs to be leveled. Loosen the hold down bolts and place a level on the surface of the working table. Metal shims need to be placed under the corner of the base of the machine until level. Once level then tighten the hold down bolts. (Fig. 4.3).

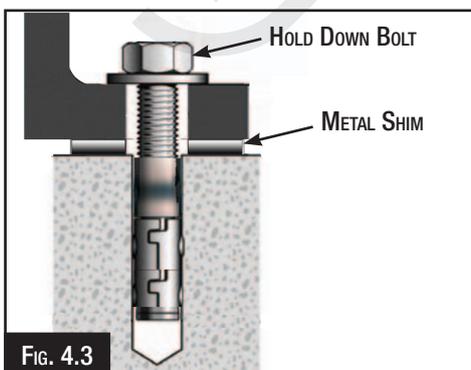


Fig. 4.3



### CAUTION

*The machine must not rest on supports other than those defined in Fig. 4.3*

## 4.7 ASSEMBLY

The machine must be fully assembled before it can be operated. First clean any parts that are coated in rust preventative to ensure the assembly process can proceed smoothly.

### Die Holder and Power Pack

Place the die holder and power pack close to the machine in a place which is clear of foot traffic and operators working area. (Fig. 4.4)

Connect the pinned connector (A) to the power pack. (Fig. 4.5)

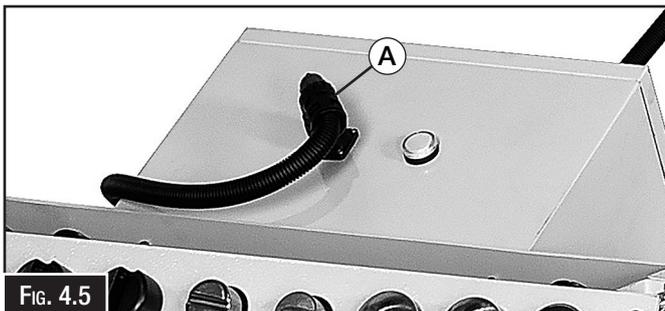


FIG. 4.5

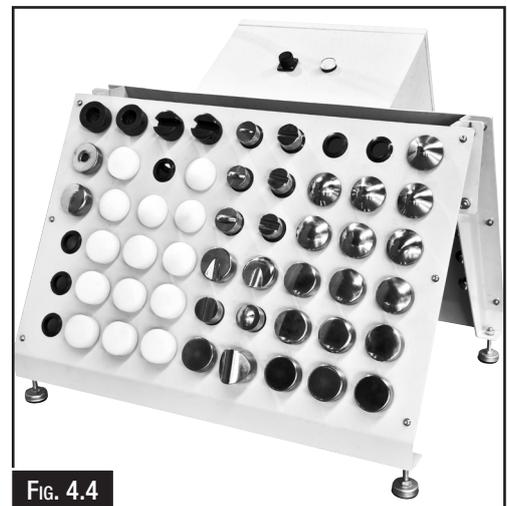


FIG. 4.4

## 4.8 TEST RUN

Before installing any tooling, test run the machine to ensure it is properly connected to power and safety components are functioning correctly. If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and fix the problem BEFORE operating the machine again. If no solution can be found, then consult your service engineer for help.

The Test Run consists of verifying the following:

1. The motor powers up and runs correctly, and
2. The safety disabling mechanism on the emergency stop button works correctly.

### TO TEST RUN THE MACHINE:

1. Clear all setup tools away from machine.
2. Press the Emergency STOP button (B in Fig. 4.6)  
This will help prevent unexpected startup when the machine is connected to the power.
3. Connect the machine to the power supply. The lamp on the power pack will illuminate. (D in Fig. 4.5)
4. Reset the EMERGENCY STOP button by twisting the top until the top pops up, then press the ON button. (A in Fig. 4.6)



FIG. 4.5

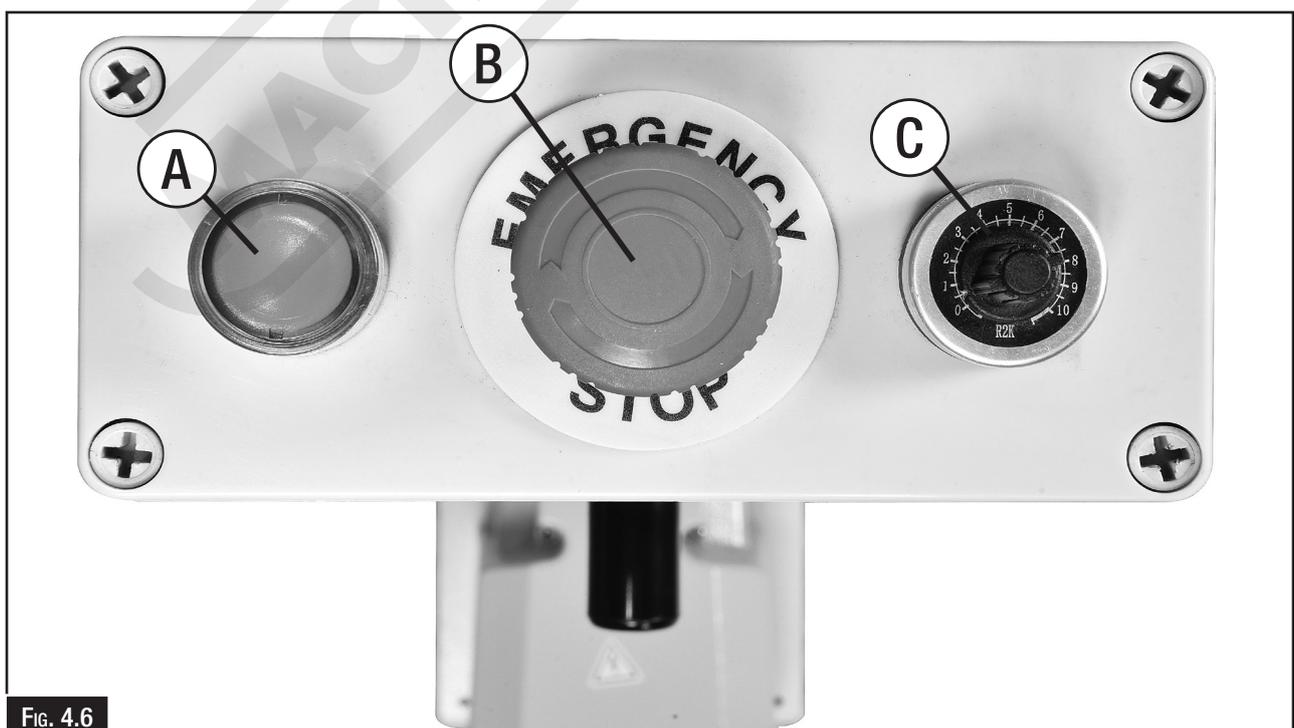
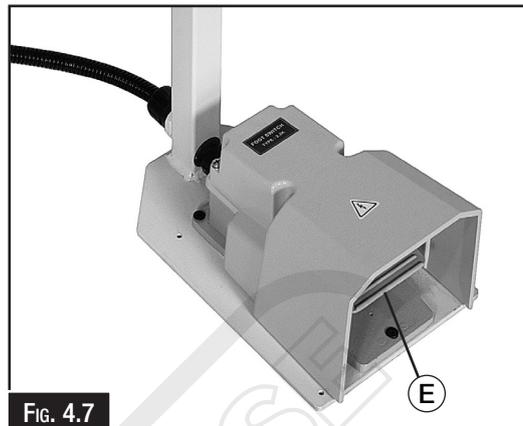


FIG. 4.6

**4.8 TEST RUN** Cont.

5. Press the foot pedal (E in Fig.4.7). The machine should run smoothly without any rubbing noises.
6. Check the speed control (C in Fig. 4.6) by adjusting the speed control knob up and down.
7. Hold the pedal down and press the Emergency stop button (B in Fig 4.6) and the machine should stop.
8. Without resetting EMERGENCY STOP button, press the foot pedal (E in Fig.4.7). The machine should not start.
9. Reset the emergency stop button (B in Fig. 4.6) and press the ON button (A in Fig. 4.6) then press the foot pedal and the machine should work.
10. Once the machine is working correctly, the Test Run is completed.

**Fig. 4.7**

## 5. OPERATION

The **METALMASTER PHM series** are fitted with a spring system that uses speed and momentum to load the spring which in turn “throws” the upper die 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 potentiometer on the foot controller.

When the foot control is fully depressed it will only operate at the speed that the speed variable potentiometer is set to.

This machine may perform many types of operations that are beyond the scope of this manual. Many of these operations may be dangerous or deadly if performed incorrectly.

The instructions in this section are written with the understanding that the operator has the necessary knowledge and skills to operate this machine. If at any time you are experiencing difficulties performing any operation, stop using the machine!

If you are an inexperienced operator, we strongly recommend that you read books, trade articles, or seek training from an experienced operator before performing any unfamiliar operations. ***Above all, your safety should come first!***

### 5.1 CONTROLS

The purpose of this control overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, and the machine controls and what they do. It also helps the operator to understand if they are discussed later in this manual.

***NOTE: DO NOT start the machine until all of the setup instructions have been performed. Operating a machine that is not setup may result in malfunction or unexpected results that can lead to serious injury, death or damage to the machine or property.***

- A. ON Button:** When pressed switches the motor ON
- B. Emergency Stop Button:** When pressed, cuts the power to the machine and stays cut until the emergency button has been reset.
- C. Speed Control:** Adjusts the speed of the machine.

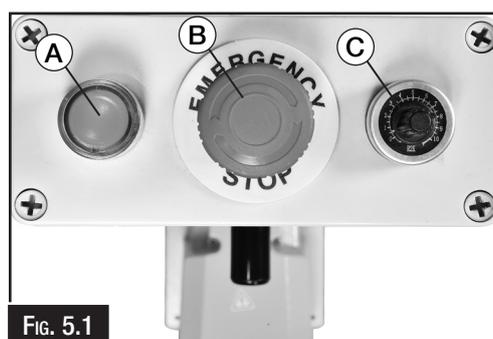


FIG. 5.1

- D. Foot Pedal:** When pressed operates the hammer action of the machine. (D in Fig. 5.2)

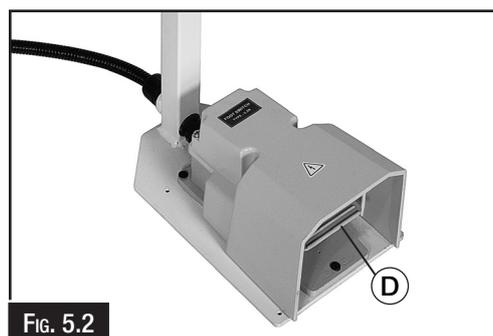


FIG. 5.2

## 5.2 RIGID & SPRING MODES

In **Rigid Mode**, where there's no “give” between the die heads, the tool would provide precise, controlled pressure for tasks like shaping and flanging, which require a consistent, firm approach to form the material with minimal movement or deformation.

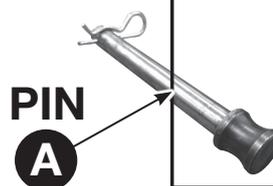
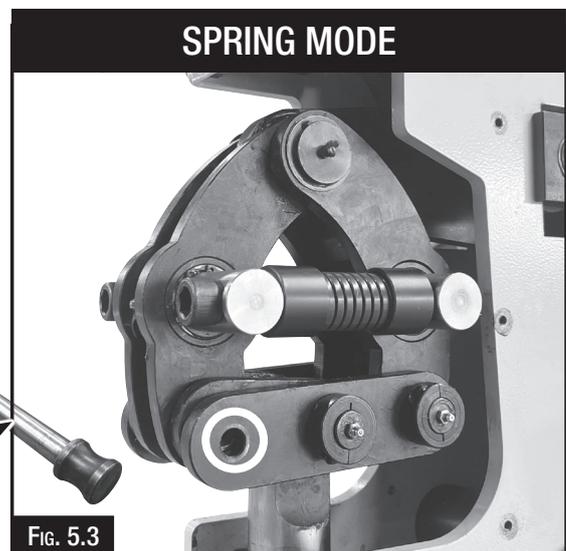
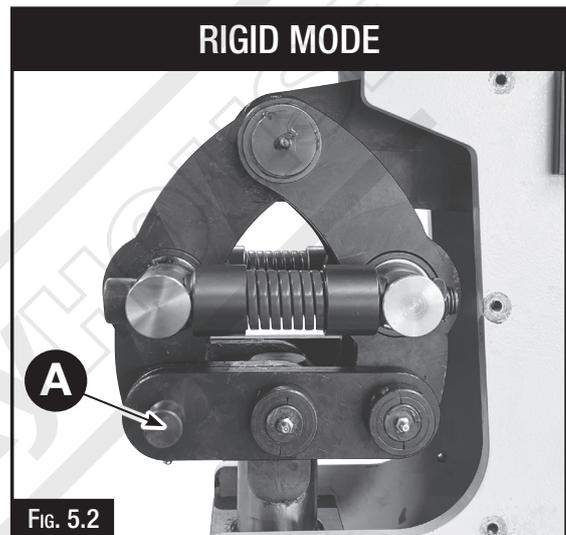
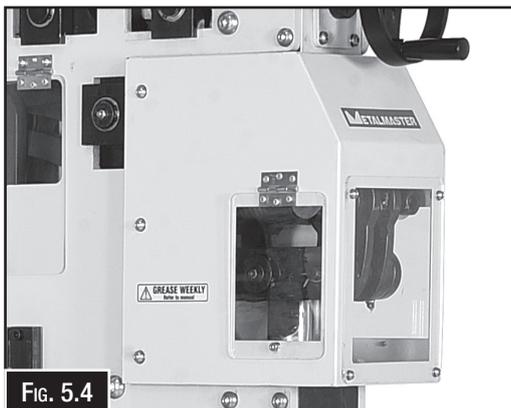
In **Spring Mode** (or “spring-slapping”), the tool’s mechanism introduces a more impactful action, which would help with aggressive shrinking and planishing. The “dead blow hammering” effect adds a bit of bounce or give, making it more effective at working the metal by delivering controlled, repeated strikes to stretch, smooth, or shrink the surface.

### CHANGING FROM RIGID TO SPRING MODE

1. **Disconnect the machine from power.**
2. Remove the **top die cover** to access the spring mechanism (Fig. 5.4).
3. Use the **stroke handle** (Fig. 5.5) to apply pressure between the upper and lower die holders—this relieves tension on the locking pin.
4. Remove the **R-clip** and slide out **Pin A** to switch to Spring Mode (Fig. 5.3).
5. Replace the **top die cover** and store **Pin A** for future use.
6. **Reset the stroke** (see page 19).

### CHANGING FROM SPRING TO RIGID MODE

1. Repeat steps 1–5 above.
2. Reinsert **Pin A** (Fig. 5.2) to lock the mechanism in Rigid Mode.



## 5.3 CHANGING THE SPRINGS

Stroke length adjustment is used to provide the amount of force desired to produce the results desired. The longer the stroke, the greater the force will be generated. Three different spring sets are supplied and can be changed in the machine depending on type of material being used.

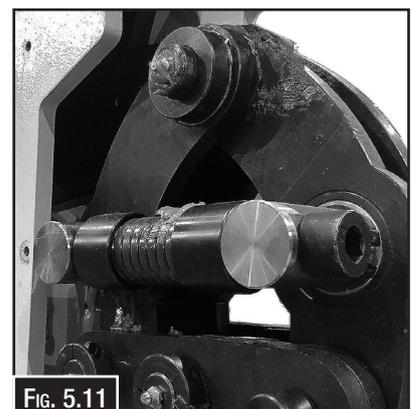
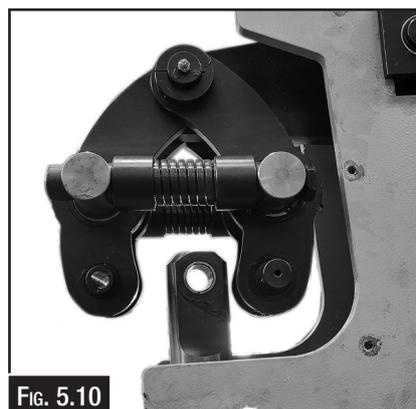
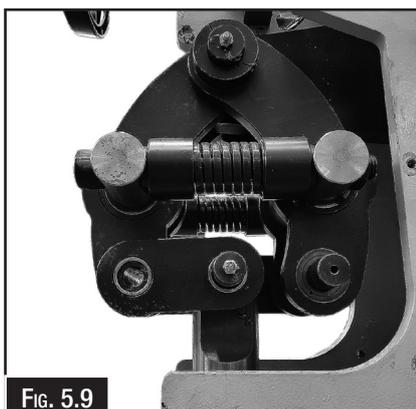
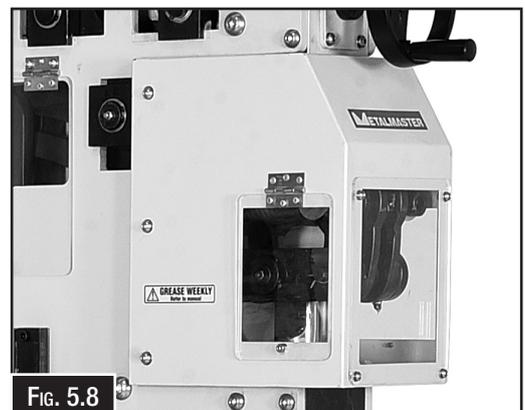
SPRING COLOUR	BLUE	RED	GREEN
SPRING HARDNESS	SOFT	MEDIUM	HARD
STEEL GAUGE	0.8~1mm	1~1.2mm	2mm
ALUMINIUM GAUGE	1~1.2mm	1.2~1.6mm	2~3mm

### CHANGING THE SPRINGS

1. Disconnect the machine from power.
2. Using the **handwheel** on the back of the motor, raise the **top die** to the top of its stroke (Fig. 5.6).
3. Use the **stroke handle** (Fig. 5.7) to position the spring assembly as shown in Fig. 5.9.
4. Remove the **top die cover** to access the spring mechanism (Fig. 5.8).
5. Disconnect the **top die hammer shaft** from the spring mechanism (Fig. 5.10).
6. Once the hammer shaft is detached, use a hex key to **slowly remove both spring retaining screws**. Carefully remove the springs (Fig. 5.11).

**WARNING: Springs may be under light tension. Use caution when removing them.**

7. Mount the **new springs** into the end cups, insert them into the mechanism, then replace and tighten the retaining screws securely.



## 5.4 TOOLING SET-UP & ADJUSTMENT

The machine's top and bottom tool holders are designed to accommodate **22mm square shank tools**. Both tools are secured in place using collet chucks, ensuring stability and precision during operation. The top tool is fastened by tightening its dedicated collet chuck (Fig. 5.12).

Before locking either tool into place, it is important to insert the tool shank fully into the holder until it seats firmly at the bottom. This ensures proper alignment and performance during use.

While the top collet chuck is fixed in position, the bottom collet chuck is equipped with an adjusting screw and lock ring (Fig. 5.13). This mechanism allows the bottom tool to be raised incrementally after each pass, facilitating multiple-pass operations without the need to loosen the chuck—enhancing both efficiency and repeatability.

### TOOLING ADJUSTMENT

The bottom tool holder is adjustable both in-out and side-to-side relative to the top tool holder.

#### In-Out Adjustment

To adjust the bottom tool holder in and out, begin by loosening the screw labeled **E** (Fig. 5.13) that secures the adjuster lock plate. Then, loosen the screw labeled **C** (Fig. 5.13) that holds the bottom post base. Move the post in or out as needed to achieve the desired position. After making the adjustment, check the side-to-side alignment. Once the final position is set, lock the bottom post base in place (**C**, Fig. 5.13), then slide the adjuster lock plate (**E**) against the post base and secure it.

#### Side-to-Side Alignment

Always verify that the bottom tool is properly aligned side-to-side with the top tool after any in-out adjustment. Precise alignment ensures optimal tool engagement and performance.

#### Up and Down Adjustment

Vertical adjustment of the bottom tool holder is typically not required, as factory-furnished dies are standardized to match the factory-set height. However, if adjustment is necessary:

1. Loosen the clamp lock set screw labeled **D** (Fig. 5.13) to free the bottom tool adjuster screw.
2. Rotate the lock ring (**F**, Fig. 5.13) to raise or lower the bottom tool as needed.
3. Once the desired height is achieved, re-tighten the clamp lock set screw (**D**) to prevent the adjuster screw from loosening during operation.

**Note:** After the machine's initial run or test, always re-tighten the collets using a C-spanner. Collets may vibrate and loosen if not properly secured after the first lock.



FIG. 5.12

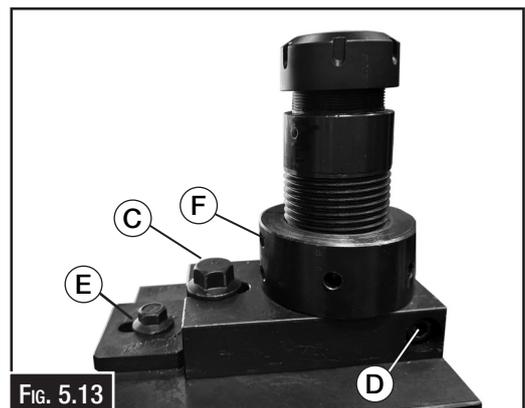


FIG. 5.13



### WARNING!

**Tool contact will damage the machine. Ensure the top and bottom tools never touch.**

## 5.5 STROKE SETUP

The machine's main stroke arm, located on the side of the machine (Fig. 5.14), controls the vertical movement of the top slide hammer. When the stroke arm is set to the leftmost position, the stroke is approximately **10mm (minimum)**. When set to the rightmost position, the stroke increases to approximately **40mm (maximum)**.

Shifting the stroke arm to the right increases the downward travel of the hammer, thereby generating more force between the top and bottom anvils. As a general rule, a longer stroke produces greater impact force.

For initial setup, use the factory setting—typically at the midpoint—and operate the machine to become familiar with its behavior before making further adjustments.

### ADJUSTING THE MAIN STROKE ARM:

1. **Turn off the main power.**
2. **Unlock** the screw securing the perspex cover.
3. **Loosen bolt (A)** to allow adjustment using a 12mm Hex wrench.
4. **Slide the stroke arm** to the desired position:
  - **Left** for less stroke (less force)
  - **Right** for more stroke (greater force)

**Note:** A lever may be needed to return the arm from the far-right position to midpoint.
5. **Tighten bolt (A)** to lock the stroke arm in place.

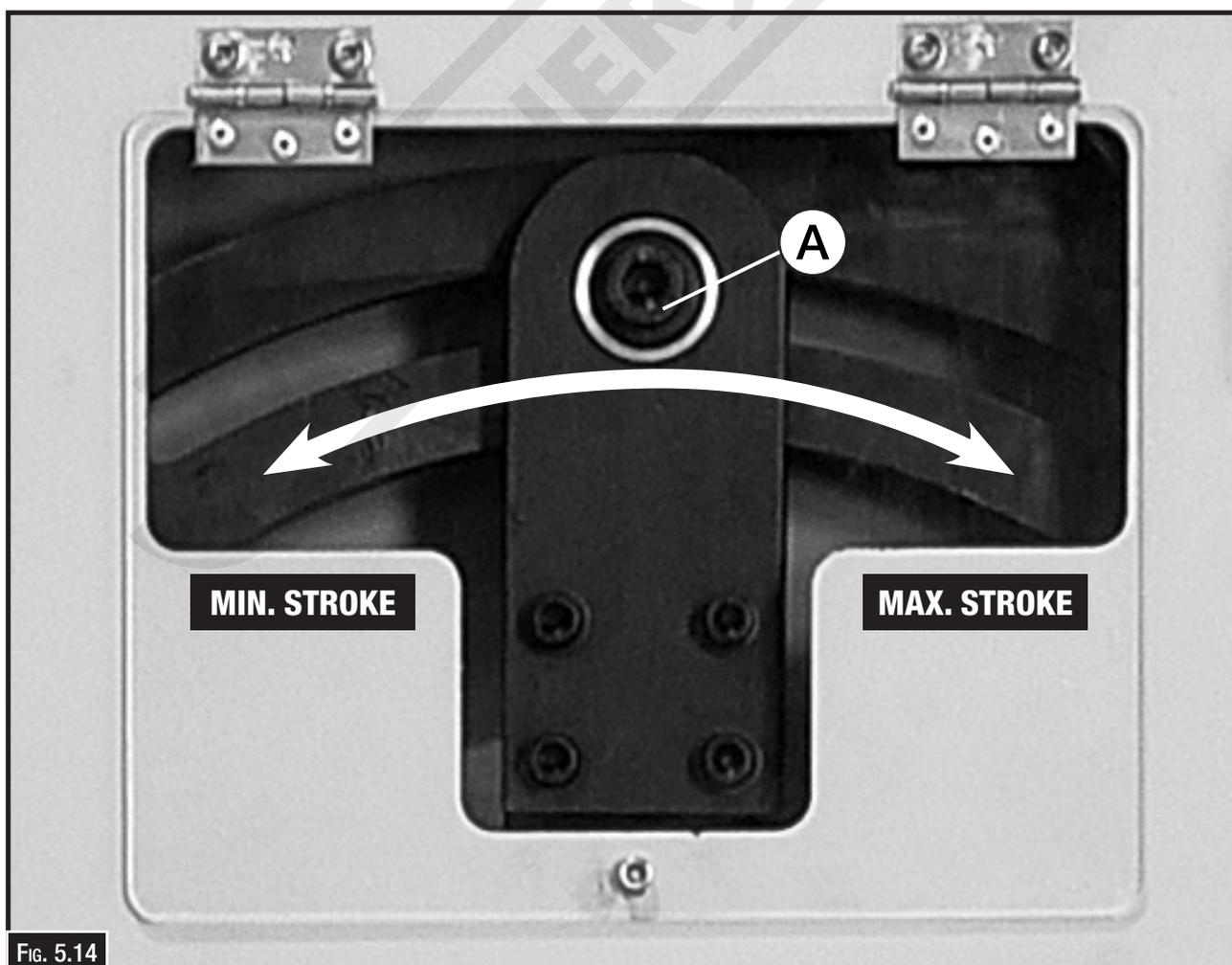


FIG. 5.14

## MICRO STROKE ADJUSTMENT USING HANDWHEEL:

1. **Raise the upper die slide:**  
Turn the stroke handwheel to bring the upper die slide to the top of its stroke (Fig. 5.15).
2. **Install tooling:**  
Install the selected tooling into both the lower and upper collet chucks and lock in position.
3. **Lower the top die:**  
Turn the handwheel on the right side of the frame to bring the top die to the bottom of its travel.
4. **Adjust the bottom die height:**  
Using a "C" spanner, loosen the lock screw (D, Fig. 5.16) and raise the bottom die by rotating the adjuster.
5. **Set the die gap:**  
Turn the collar (F, Fig. 5.16) to raise or lower the bottom die until the gap between the upper and lower dies matches the material thickness.

**NOTE:** The material should fit snugly between the dies but still be removable with light pressure.

6. **Micro Stroke Adjustment via Hand Wheel:**  
Adjust the length stroke as needed to provide the amount of force desired to match the process desired. The longer the stroke, the greater the force generated. (Fig. 5.17)

- NOTE:**
- For **planishing or metal forming**, use a firmer stroke with minimal hammer bounce.
  - For **shrinking or stretching**, allow more hammer bounce for better results.

7. **Secure the collets:**  
After the machine's initial run/test, re-tighten the collets using a C-spanner.

**Warning:** Collets may loosen due to vibration if not re-locked after the first operation.

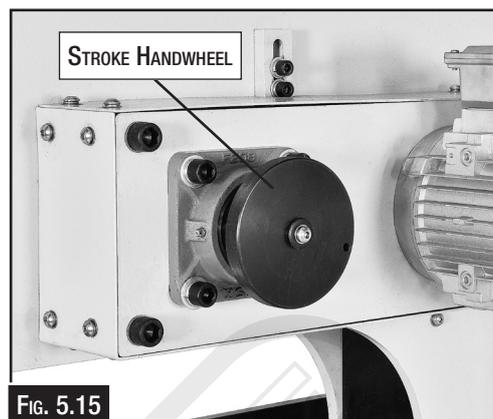


Fig. 5.15

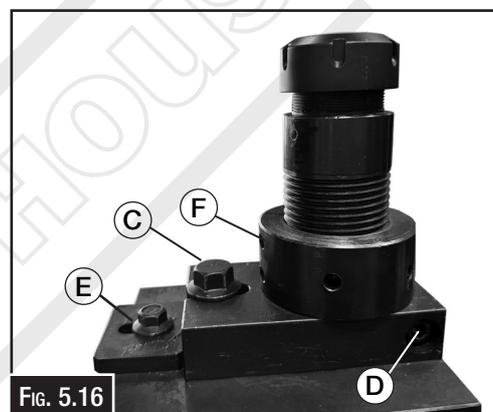


Fig. 5.16



Fig. 5.17



## WARNING!

*Tool contact will damage the machine. Ensure the top and bottom tools never touch.*

## 5.6 STRAIGHT & CONTOUR FENCE SET-UP

### STRAIGHT FENCE

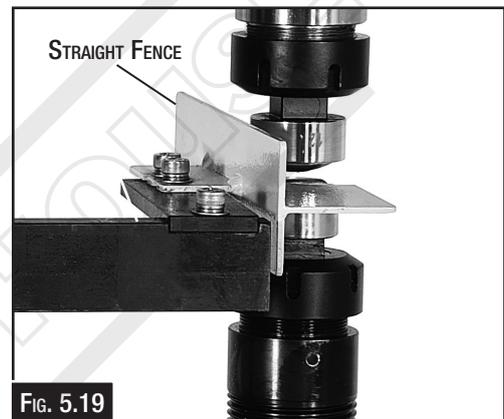
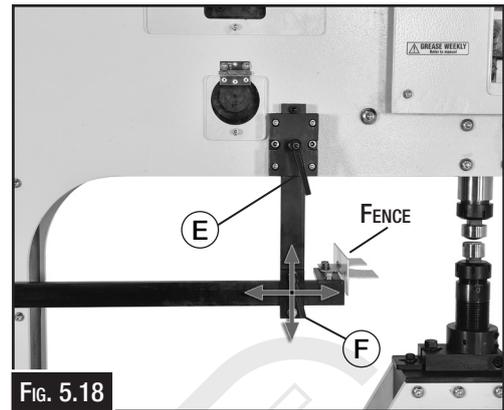
The standard straight fence functions as both a stop and a support for straight-edge work. It can be adjusted vertically (up-down) to support the workpiece and horizontally (in-out) to position the workpiece relative to the tooling.

#### Vertical Adjustment

To support the workpiece properly—without causing it to bow—adjust the fence vertically by loosening the clamp (**E**, Fig. 5.18) located on the side of the frame. Move the fence to the desired height, then re-tighten the clamp to secure it.

#### Horizontal Adjustment

To adjust the position of the workpiece in relation to the tooling, loosen the clamp handle (**F**, Fig. 5.18) on the fence frame. Slide the fence in or out as needed, then re-tighten the handle to lock it in place.

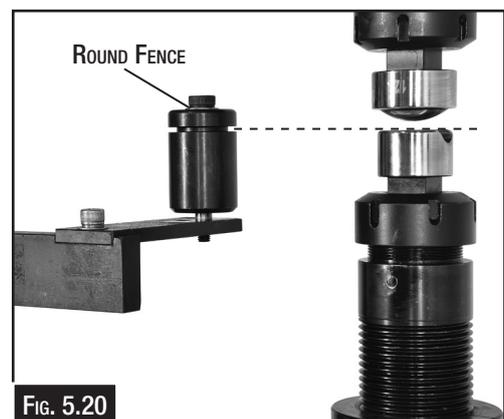


### CONTOUR FENCE

The contour fence is used as a stop for workpieces that require a curved edge.

To switch from the straight fence to the contour fence, remove the straight fence backstop from the support arm and install the contour fence assembly in its place. Adjust the contour fence vertically (**E**, Fig. 5.18) so that the center of the roller aligns with the centerline of the tooling (Fig. 5.20).

Both the up-down and in-out adjustments for the contour fence function the same way as those on the straight fence, allowing precise positioning for curved work.



## 5.7 SHRINKING & STRETCHING DIES SET-UP

Sometimes knowing whether to shrink or stretch the material can be a problem. A paper template with cuts from the high line to the edge of the paper may help with this discussion.

**Thumbnail Shrinking Dies** are used to shrink material and form compound curves (Fig. 5.21).

**Linear Stretching Dies** are used to stretch material. Use the flat "U" as the upper die and Stretching Die "L" as the Lower Die. (Fig. 5.22)

**NOTE:** Proper die gap setup is critical. An incorrect gap can result in machine damage or failure.

Set the machine to **Spring Mode** and load the dies.

1. **Disconnect the machine from power.**
2. **Lower the top die** using the handwheel located in front of the motor, bringing it to the bottom of its stroke.
3. **Set the die gap** by raising the bottom die until the gap matches the material thickness, then lock it in place.
4. **Align the dies** by ensuring the bottom die is centered with the top die, then securely tighten.

**Important:** Always use the handwheel on the side of the machine when setting the tool gap. The gap must match the material thickness to avoid tool damage.

## 5.8 PLANISHING DIES SET-UP (Fig. 5.23)

Planishing is where the dies impact both sides of the material to stretch or smooth the metal. The advantage of planishing dies is that it can work in very tight spaces and affect a precise area on the panel. A more **Spring Mode** should be set for all planishing operations.

Planishing dies can vary from very tight radius to low crown radius, eg. 1" - 36" radius.

All steel & nylon dies. (Fig. 5.24 & 5.25) use the round die holders (Fig. 5.26). Note: Nylon dies are used for non marking applications etc, or on soft materials such as copper, brass or aluminium.

Set machine to **Spring Mode**.



Fig. 5.26

## 5.9 DOME DIES SET-UP (Fig. 5.27)

Dome Dies are used when roughing metal into a dome bowl shape. Use dome dies with the round die holders (Fig.5.26). Set machine to **Spring Mode**.

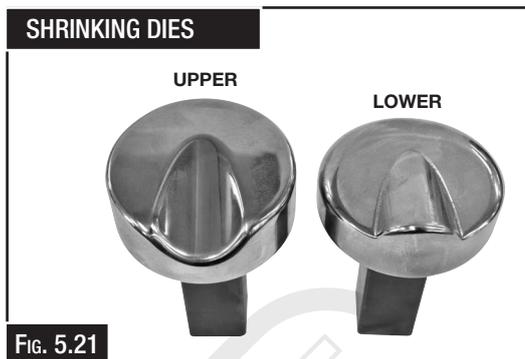


Fig. 5.21



Fig. 5.22



Fig. 5.23



Fig. 5.24

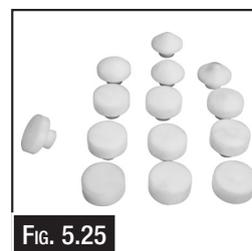


Fig. 5.25



Fig. 5.27

## 5.10 BEADING DIES SET-UP

### TOOL ALIGNMENT. (Fig. 5.28)

From the operator's side, the bead runs left to right. Install the dies with the male beading die as the top die. Use a straight edge to ensure proper alignment:

#### In-Out Alignment:

Place the straight edge across the front diameters of the top and bottom tools. Adjust the bottom die in or out as needed to align with the top die.

#### Side-to-Side Alignment:

Rotate the straight edge 90° and place it along the sides of the dies. Minor side-to-side adjustments can be made to align the bottom die with the top.

**Note:** The primary adjustment is in-out from the operator's view. Align the dies as precisely as possible front to back to prevent metal pinching.

Set the machine to **Rigid Mode** and load the dies once alignment is complete.



FIG. 5.28

## 5.11 LOUVRE DIES SET-UP (Fig. 5.29)

**Important:** Always ensure the die gap is set correctly. An incorrect gap can lead to machine damage or failure.

**Note:** Louvre slots must be pre-cut before forming.

Set the machine to **Rigid Mode** and load the dies.

1. **Disconnect the machine from power.**
2. Using the handwheel in front of the motor, **lower the top die** to the bottom of its stroke.
3. **Raise the bottom die** to set the gap equal to the material thickness, then lock it in place.
4. **Align the bottom die** with the top die and securely tighten.

Always use the **side-mounted handwheel** when setting the tool gap.

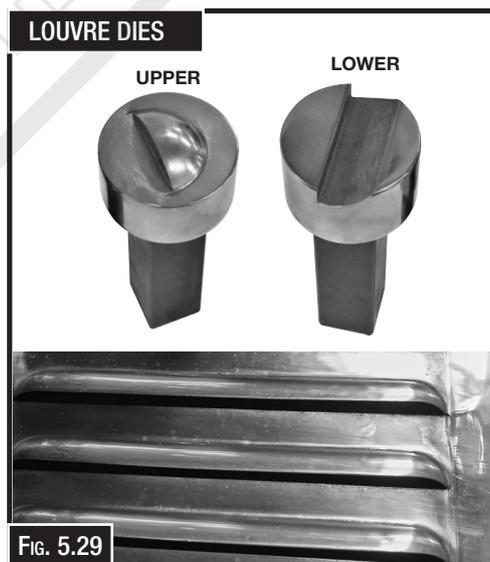


FIG. 5.29

## 5.12 UNIVERSAL DIE HOLDERS SET-UP (Fig. 5.30)

Universal Die Holders are designed to accommodate **custom tooling** made from materials such as **aluminum, plastic, wood, or steel**. You can mount shaped inserts—up to **16 mm thick**—securely using **two grub screws**.

These holders allow you to create custom profiles tailored to specific applications.

Set the machine to **Rigid Mode** before loading the dies.



FIG. 5.30

## 6. OPTIONAL ACCESSORIES

### 6.1 OPTIONAL DIE HOLDERS AND DIES

#### PHT-560FTS - POWER HAMMER FULL TOOLING SET - 16MM SQUARE SHANK (S2298)

This smaller PHT-560FTS Tooling Set is supplied with ER40 collets that have 16mm square holes to adapt this tooling set to suit our HD range of power hammers.

1 x Set of ER Collets to suit 16mm square shank tooling

#### STEEL DIES

1 x Set of Universal holders (16mm opening) for custom tooling

1 x Set of Thumbnail shrinking dies

1 x Set of Louvre dies

3 x Sets of beading dies (1/4", 3/8", 1/2")

1 x Linear stretching die

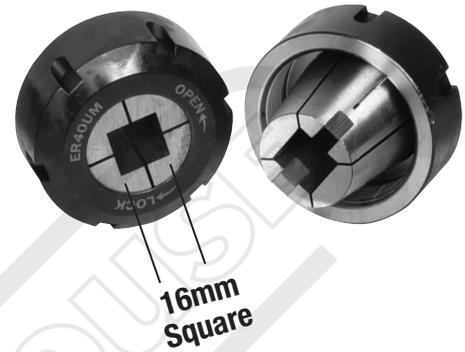
1 x Flat upper hammer die

16 x Radius lower dies - 3/4", 7/8", 1", 1-1/8", 1-1/2", 1-7/8", 2", 3", 4", 5", 6" (1/16" radius edge), 6" radius (1/4" radius edge), 8", 14-1/2", 24", 36"

#### NYLON DIES

1 x Flat upper hammer die

13 x Radius lower dies - 3/4", 7/8", 1-1/8", 1-1/2", 1-7/8", 4", 5", 6" (1/16" radius edge), 6" (1/4" radius edge), 8", 14-1/2", 24", 36"



#### PHT-SMLD (S2290)

Small Louvre  
Die Set  
16mm Square Shank



#### PHT-SMTSD (S2294)

Small Thumbnail  
Die Set  
16mm Square Shank



#### PHT-MDTSD (S2295)

Medium Thumbnail  
Die Set  
16mm Square Shank



#### PHT-MDNYTSD (S2296)

Medium Nylon Thumbnail  
Die Set  
16mm Square Shank



## 7. MAINTENANCE



### WARNING

*Before maintaining or cleaning the machine, turn off the circuit breaker, or disconnect the machine from the power supply. Post a sign to inform other workers that the machine is under maintenance.*

For optimum performance from the machine, it is important that the machine is well cleaned and maintained. Follow the maintenance schedule listed in the following section and refer to any specific instructions given.

### 7.1 SCHEDULE

#### Daily Check

- Loose mounting bolts.
- Worn or damaged wires.
- Check/adjust lubrication.
- Any other unsafe condition.

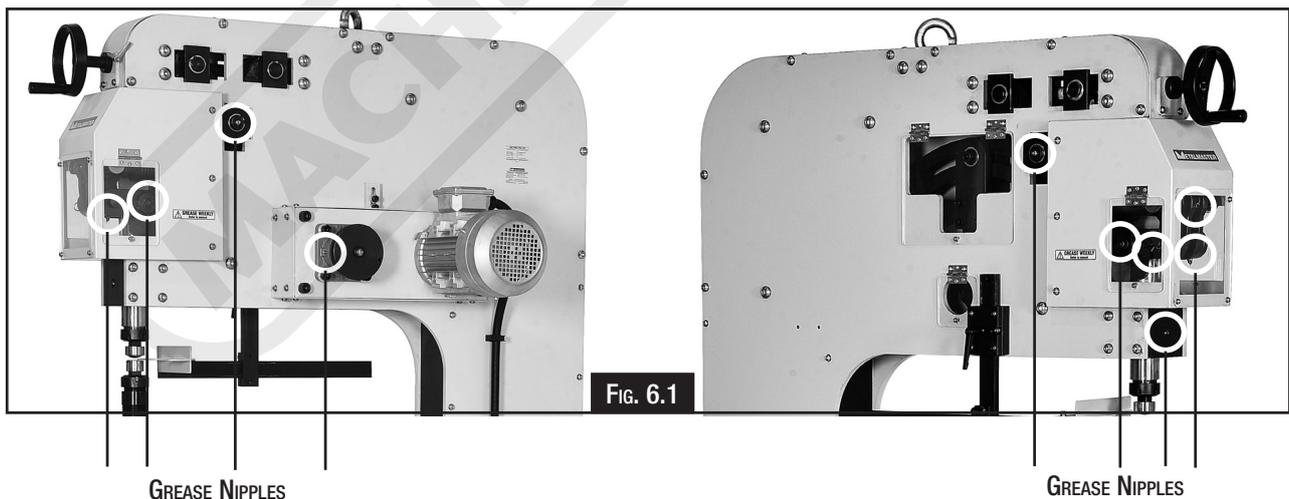
#### Cleaning

Cleaning the machine is relatively easy. Wipe down all unpainted and machined surfaces daily to keep them rust free and in top condition. This includes any surface that is vulnerable to rust if left unprotected. Use ISO 68 machine oil or any other quality metal lubricant.

### 7.2 LUBRICATION

Below are the grease point for the machine (Fig. 6.1) These should be lubricated weekly.

Metalmaster recommends using Super Blue Complex Grease ( Order Code G057 ) machine grease.



**8.0 SPARE PARTS SECTION**

# POWER HAMMER

## PHM-760HD & PHM-940HD

ORDER CODE: (S2285 &amp; S2287)

EDITION : 1.0  
DATE: (01/25)

The following section covers the spare parts diagrams and lists that were current at the time this manual was originally printed. Due to continuous improvements of the machine, changes may be made at anytime without notification.

**HOW TO ORDER SPARE PARTS**

1. Have your machines model number, serial number & date of manufacture on hand, these can be found on the specification plate mounted on the machine
2. A scanned copy of your parts list/diagram with required spare part/s identified.

**NOTE: SOME PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY**

3. Go to [www.machineryhouse.com.au/contactus](http://www.machineryhouse.com.au/contactus) and fill out the inquiry form attaching a copy of scanned parts list.

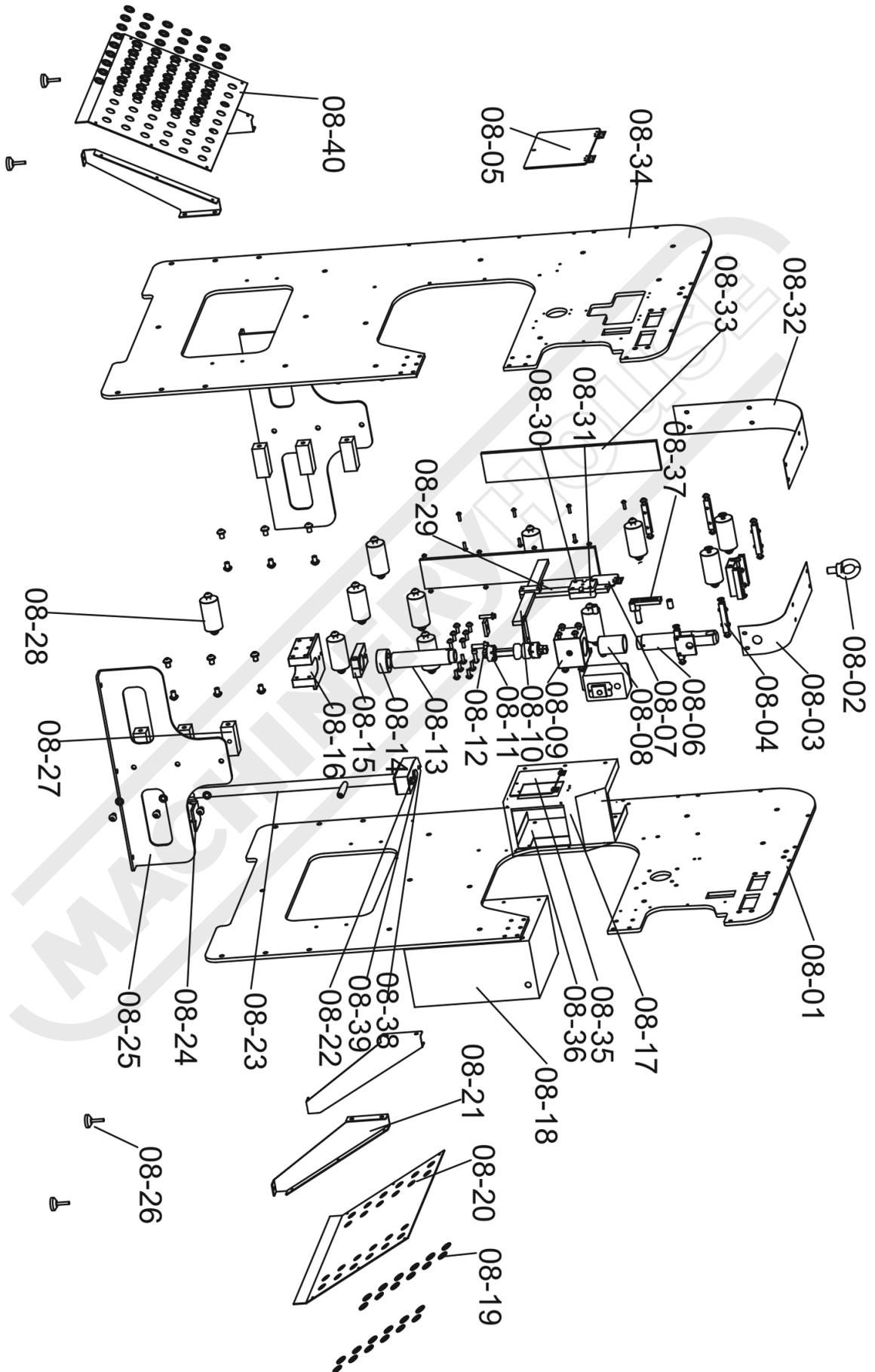
**WARNING!**

*Electricity is dangerous and could cause death  
All electrical work must be carried out by a qualified electrician.*

**CAUTION**

*It is impossible to cover all possible hazards Every workshop environment is different. These are designed as a guide to be used to compliment training and as a reminder to users prior to equipment use. Always consider safety first, as it applies to the individual working conditions.*

## 8.1 FRAME ASSEMBLY PARTS DIAGRAM

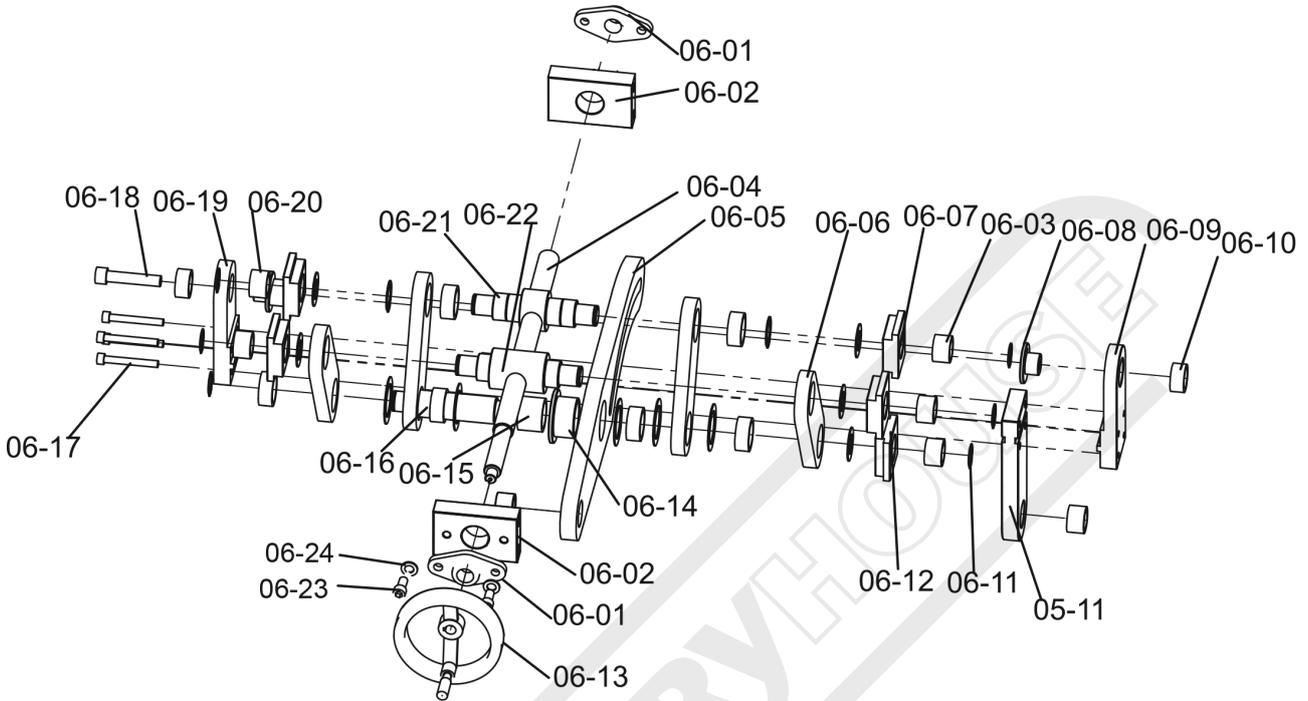


### 8.1 FRAME ASSEMBLY PARTS LIST

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY.
08-01	RIGHT SIDE FRAME	1	08-21	STAND	4
08-02	LIFTING RING	1	08-22	POTENTIOMETER	1
08-03	COVER	1	08-23	CONTROLLER STAND	1
08-04	PLATE SPACER	6	08-24	VARIABLE SPEED FOOT PEDAL	1
08-05	ACRYLIC PLATE	1	08-25	LEG	2
08-06	MAIN RAM	1	08-26	FEET	4
08-07	ACRYLIC PLATE	1	08-27	PLATE SPACER	6
08-08	SLIDE BLOCK BUSHING	1	08-28	PLATE SPACER	11
08-09	TOP POST BASE	1	08-29	ROD	1
08-10	STOP ROD	1	08-30	STOP CLAMP	1
08-11	COLLET NUT	2	08-31	STOP SUPPORT	1
08-12	COLLET	2	08-32	COVER	1
08-13	BOTTOM POST	1	08-33	PLATE	2
08-14	LOCK NUT	1	08-34	LEFT SIDE FRAME	1
08-15	BOTTOM POST BASE	1	08-35	ACRYLIC PLATE	2
08-16	SEAT	1	08-36	ACRYLIC PLATE	1
08-17	SPRING GUARD	1	08-37	IDLER BRACKET	1
08-18	CONTROL BOX	1	08-38	SWITCH	1
08-19	RUBBER SHEATH	78	08-39	EMERGENCY STOP	1
08-20	DIE RACK	1	08-40	DIE RACK	1

**NOTE: SOME INDIVIDUAL PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY**

## 8.2 LEVER ASSEMBLY PARTS DIAGRAM

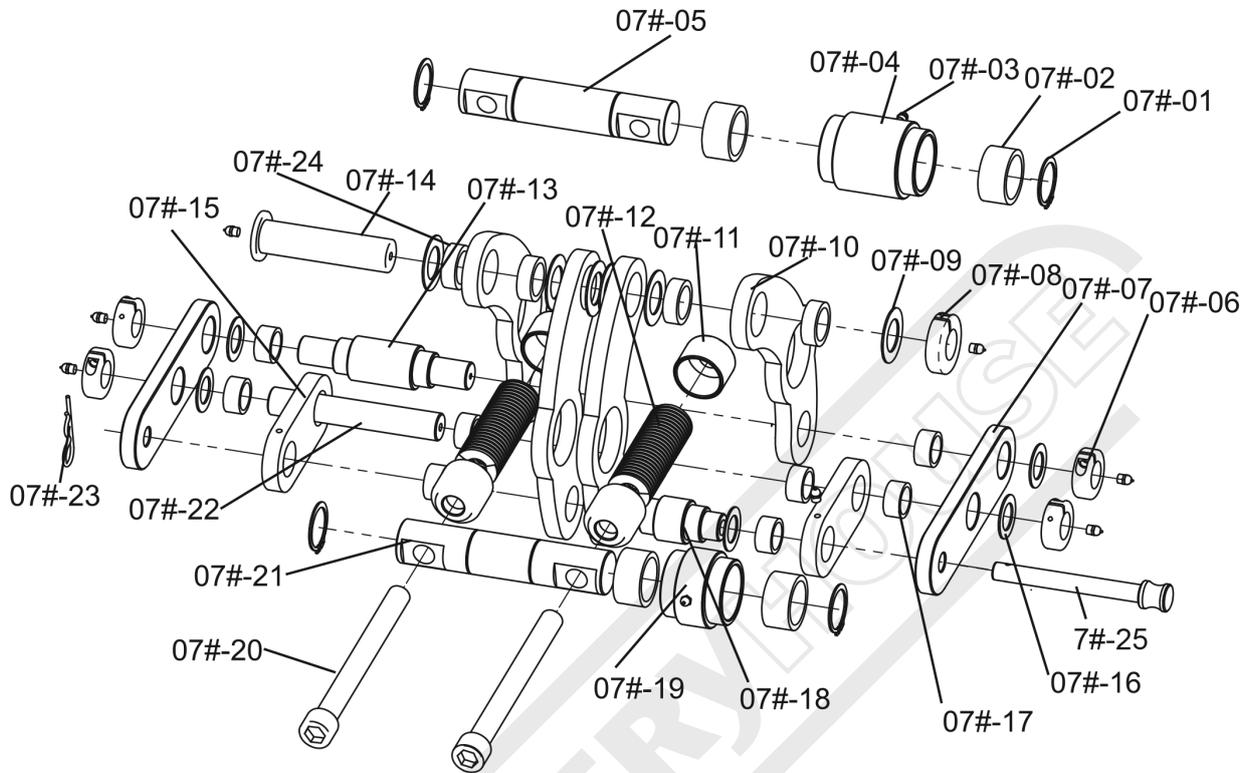


### LEVER ASSEMBLY PARTS LIST

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY.
05-11	DRIVE LEVER	1	06-12	PLATE	2
06-01	BEARING	2	06-13	HAND WHEEL	1
06-02	PLATE	2	06-14	SLIDE STROKE WASHER	1
06-03	BUSHING	7	06-15	BUSHING	1
06-04	SCREW	1	06-16	SHAFT	1
06-05	MAIN LEVER	1	06-17	SCREW	4
06-06	PLATE	4	06-18	SCREW	1
06-07	SEAT	4	06-19	RH SLIDE CAP	1
06-08	SLIDE STROKE WASHER	1	06-20	SLIDE STROKE CLAMP	1
06-09	LH SLIDE CAP	1	06-21	SHAFT	1
06-10	BUSHING	2	06-22	SHAFT	1
06-11	RING	6	06-23	SCREW M12X30	4
			06-24	WASHER 12MM	4

**NOTE: SOME INDIVIDUAL PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY**

### 8.3 SPRING ASSEMBLY PARTS DIAGRAM

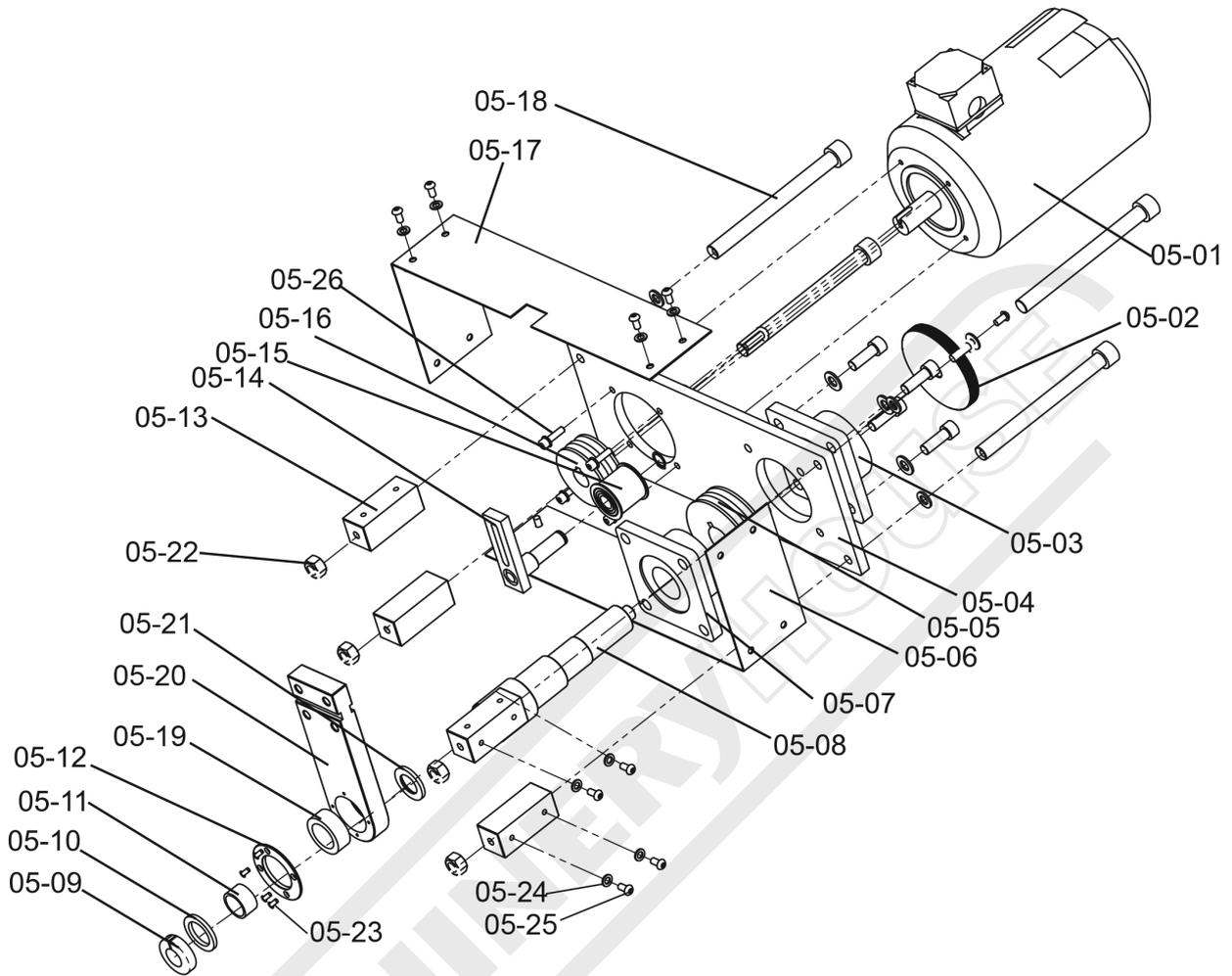


#### SPRING ASSEMBLY PARTS LIST

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY.
07-01	RING 40MM	4	07-13	SHAFT	1
07-02	BUSHING 40X50X25	4	07-14	SHAFT	1
07-03	GREASE CUP M6X1	6	07-15	SHORT ARM	2
07-04	LONG BUSHING	1	07-16	WASHER 25X40X1.5	6
07-05	THREADED SPRING SHAFT	1	07-17	BUSHING 25X32X15	8
07-06	COLLAR 25	4	07-18	SHAFT	1
07-07	LONG ARM	2	07-19	SHORT BUSHING	1
07-08	COLLAR 30	1	07-20	SCREWM20X200	2
07-09	WASHER 30X50X1.5	6	07-21	SPRING SHAFT	1
07-10	TOGGLE ARM	4	07-22	SHAFT	1
07-11	SPRING CUP	4	07-23	R-PIN	1
07-12	SPRING	2	07-24	BUSHING 30X40X15	4
			07-25	SHAFT	1

**NOTE: SOME INDIVIDUAL PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY**

### 8.4 V-BELT ASSEMBLY PARTS DIAGRAM



### V-BELT ASSEMBLY PARTS LIST

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY.
05-01	MOTOR	1	05-14	IDLER BRACKET	1
05-02	HAND WHEEL	1	05-15	IDLER PULLEY	1
05-03	BALL BEARING	1	05-16	VEE PULLEY	1
05-04	MOTOR MTG PLATE	1	05-17	UPPER COVER	1
05-05	VEE PULLEY	1	05-18	SCREW M16X150	4
05-06	LOWER COVER	1	05-19	NEEDLE BEARING	1
05-07	BALL BEARING	1	05-20	DRIVE LEVER	1
05-08	CRANK SHAFT	1	05-21	COPPER WASHER	1
05-09	COLLAR	1	05-22	NUT M16	4
05-10	COPPER WASHER	1	05-23	SCREW M4X10	4
05-11	BUSHING	1	05-24	WASHER 8MM	21
05-12	BEARING MOUNTING WASHER	1	05-25	SCREW M8X16	17
05-13	PLATE SPACER	1	05-26	SCREW M8X30	4

**NOTE: SOME INDIVIDUAL PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY**



# General Machinery Safety Instructions

---

Machinery House  
requires you to read this entire Manual before using this machine.

- 1. Read the entire Manual before starting machinery.** Machinery may cause serious injury if not correctly used.
- 2. Always use correct hearing protection when operating machinery.** Machinery noise may cause permanent hearing damage.
- 3. Machinery must never be used when tired, or under the influence of drugs or alcohol.** When running machinery you must be alert at all times.
- 4. Wear correct Clothing.** At all times remove all loose clothing, necklaces, rings, jewelry, etc. Long hair must be contained in a hair net. Non-slip protective footwear must be worn.
- 5. Always wear correct respirators around fumes or dust when operating machinery.** Machinery fumes & dust can cause serious respiratory illness. Dust extractors must be used where applicable.
- 6. Always wear correct safety glasses.** When machining you must use the correct eye protection to prevent injuring your eyes.
- 7. Keep work clean and make sure you have good lighting.** Cluttered and dark shadows may cause accidents.
- 8. Personnel must be properly trained or well supervised when operating machinery.** Make sure you have clear and safe understanding of the machine you are operating.
- 9. Keep children and visitors away.** Make sure children and visitors are at a safe distance for you work area.
- 10. Keep your workshop childproof.** Use padlocks, Turn off master power switches and remove start switch keys.
- 11. Never leave machine unattended.** Turn power off and wait till machine has come to a complete stop before leaving the machine unattended.
- 12. Make a safe working environment.** Do not use machine in a damp, wet area, or where flammable or noxious fumes may exist.
- 13. Disconnect main power before service machine.** Make sure power switch is in the off position before re-connecting.
- 14. Use the Correct Extension Lead.** Extension leads should be avoided where possible but If required, always use an extension lead that is rated for the power requirements of your machinery. Using an incorrectly rated extension lead can lead to overheating, damage to machinery, or potential fire hazards. Ensure leads are in good condition and free of damage. Replace if faulty.
- 15. Keep machine well maintained.** Keep blades sharp and clean for best and safest performance. Follow instructions when lubricating and changing accessories.
- 16. Keep machine well guarded.** Make sure guards on machine are in place and are all working correctly.
- 17. Do not overreach.** Keep proper footing and balance at all times.
- 18. Secure workpiece.** Use clamps or a vice to hold the workpiece where practical. Keeping the workpiece secure will free up your hand to operate the machine and will protect hand from injury.
- 19. Check machine over before operating.** Check machine for damaged parts, loose bolts, Keys and wrenches left on machine and any other conditions that may effect the machines operation. Repair and replace damaged parts.
- 20. Use recommended accessories.** Refer to instruction manual or ask correct service officer when using accessories. The use of improper accessories may cause the risk of injury.
- 21. Do not force machinery.** Work at the speed and capacity at which the machine or accessory was designed.
- 22. Use correct lifting practice.** Always use the correct lifting methods when using machinery. Incorrect lifting methods can cause serious injury.
- 23. Lock mobile bases.** Make sure any mobile bases are locked before using machine.
- 24. Allergic reactions.** Certain metal shavings and cutting fluids may cause an allergic reaction in people and animals, especially when cutting as the fumes can be inhaled. Make sure you know what type of metal and cutting fluid you will be exposed to and how to avoid contamination.
- 25. Call for help.** If at any time you experience difficulties, stop the machine and call you nearest branch service department for help.



# Power Hammer Safety Instructions

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Machinery House  
requires you to read this entire Manual before using this machine.

- 1. Maintenance.** Make sure the Power Hammer is turned off and disconnect electrical power before any inspection, adjustment or maintenance is carried out.
- 2. Power Hammer Condition.** Power Hammer must be maintained for proper working condition. Never operate a Power Hammer that has damaged or worn parts. Scheduled routine maintenance should be performed on a scheduled basis.
- 3. Leaving a Power Hammer Unattended.** Always turn the Power Hammer off before leaving the Power Hammer. Do not leave Power Hammer running unattended for any reason.
- 4. Hand Hazard.** Keep hands and fingers clear from moving parts. Serious injury can occur if hand or finger tips get pinched between tooling.
- 5. Gloves & Glasses.** Always wear leather gloves and approved safety glasses when using this machine.
- 6. Avoiding Entanglement.** Tie up long hair and use the correct hair nets to avoid any entanglement with moving parts.
- 7. Understand the machines controls.** Make sure you understand the use and operation of all controls.
- 8. Warning Labels.** Take note of any warning labels on the machine and do not remove them.
- 9. Overloading Machine.** Do not exceed the rated capacity of the Power Hammer. Please refer to the manual for capacities.
- 10. Hearing Protection and Hazards.** Always wear hearing protection as noise generated from machine and workpiece vibration can cause permanent hearing loss over time.
- 11. Eye Protection.** Always wear safety glasses when using and cleaning this machine.
- 12. Work Area Hazards.** Keep the area around the Power Hammer clean from oil, tools, chips. Pay attention to other persons in the area and know what is going on around the area to ensure unintended accidents.
- 13. Level Machine.** Level the machine on a flat concrete surface by using a spirit level.
- 14. Call For Help.** If at any time you experience difficulties, stop the machine and call you nearest branch service department for help.

# PLANT SAFETY PROGRAM

## **NEW MACHINERY HAZARD IDENTIFICATION, ASSESSMENT & CONTROL**

### **Power Hammer**

Developed in Co-operation Between A.W.I.S.A and Australia Chamber of Manufactures  
 This program is based upon the Safe Work Australia, Code of Practice - Managing Risks of Plant in the Workplace ( WHSA 2011 No10 )

Item No.	Hazard Identification	Hazard Assessment	Risk Control Strategies <small>(Recommended for Purchase / Buyer / User)</small>
B	CRUSHING	HIGH	Ensure machine is bolted down. Secure & support work material. Wear safety boots.
C	CUTTING, STABBING, PUNCTURING	MEDIUM	Ensure correct tooling clearance is set for each material used. Ensure hand & fingers are clear from moving parts "Tooling Dies" Wear gloves to prevent cuts from sharp material.
D	SHEARING	MEDIUM	Keep hands clear from moving parts.
F	STRIKING	LOW	Power hammer must be used with extreme precaution and in a controlled environment.
O	OTHER HAZARDS, NOISE, DUST.	HIGH MEDIUM	Hearing protection must be worn at all times. Safety gloves, shoes, pants must be worn. Make sure work area is clear from objects to save tripping.

Plant Safety Program to be read in conjunction with manufactures instructions



[www.machineryhouse.com.au](http://www.machineryhouse.com.au)



[www.machineryhouse.co.nz](http://www.machineryhouse.co.nz)

Authorised and signed by:  
 Safety officer: .....

Manager: .....

Revised Date: 25th February 2019





#### **ENVIRONMENT PROTECTION**

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.

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