HAFCO METALMASTER


Bench


Pedestal

Edition : 1
Date: (06/26)

Instruction Manual

VARIABLE SPEED DRILL PRESS
BD/PD-360V, PD-440V, PD-510V

Order Code: (D594V, D596V, D598V, D600V)

MACHINE DETAILS

MACHINE.	Variable Speed Drill Press
MODEL NO.	BD/PD-360V, PD-440V, PD-510V
SERIAL NO.	
DATE OF MANF.	

IMPORTED BY

AUSTRALIA

HARE&FORBES MACHINERYHOUSE

www.machineryhouse.com.au

NEW ZEALAND

MACHINERYHOUSE

www.machineryhouse.co.nz

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 HAFCO 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

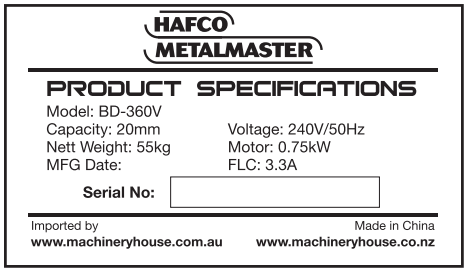
⚠WARNING **Indicates a potentially hazardous situation causing injury or death**

⚠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)

FIG.1



CONTENTS:

1.1 SPECIFICATIONS

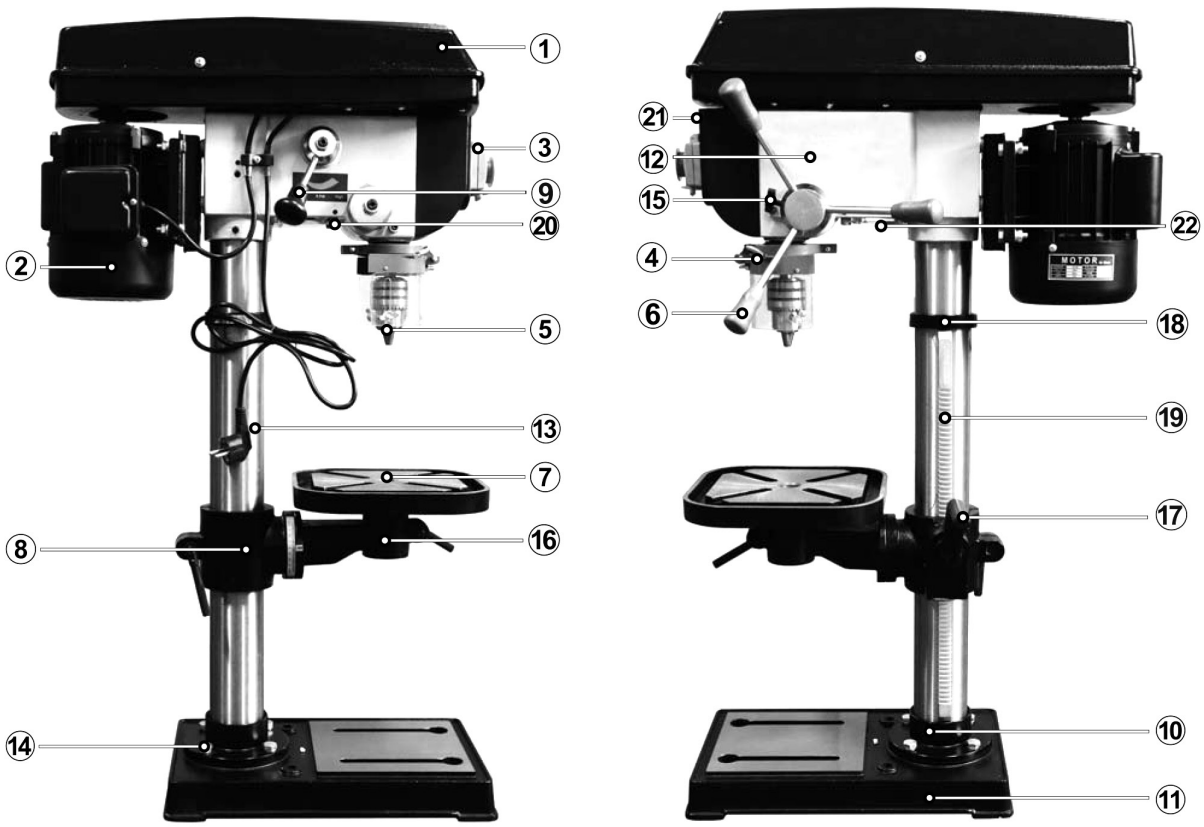
Order Code	D594V	D596V	D598V	D600V
MODEL	**BD-360V**	**PD-360V**	**PD-440V**	**PD-510V**
Type - Bench / Pedestal	Bench	Pedestal	Pedestal	Pedestal
Duty Type	Heavy-Duty			
Drilling Diameter Capacity (mm)	Ø20		Ø28	Ø32
Spindle Taper (mt)	2		3	4
Spindle Travel (mm)	85		120	120
Throat Depth (mm)	180		220	255
Quill Diameter (mm)	47		52	62
Collar Diameter (mm)	55		75	75
Column Diameter (mm)	72		92	92
Spindle To Table (mm)	410	685	765	745
Spindle To Base (mm)	600	1175	1225	1205
Table Size (mm)	290 x 290		350 x 350	420 x 480
Drive Belt Type	CVT variable Speed Belt			
Variable Spindle Speed (rpm)	550 ~ 2500		200 ~ 2400	
Motor Power (kW / hp)	0.75 / 1		1.1 / 1.5	1.8 / 2.4
Voltage / Amperage (V / amp)	240 / 10			
Overall Height (mm)	1000	1600	1710	1710
Nett Weight (kg)	55	66	106	125

1.2 ACCESSORIES INCLUDED

- 16mm keyed drill chuck.
- Drill Chuck arbor.
- Chuck key to suit.
- Drill drift tool to remove drill chuck or taper shank drills.
- Instruction Manual

1.3 BENCH DRILL IDENTIFICATION

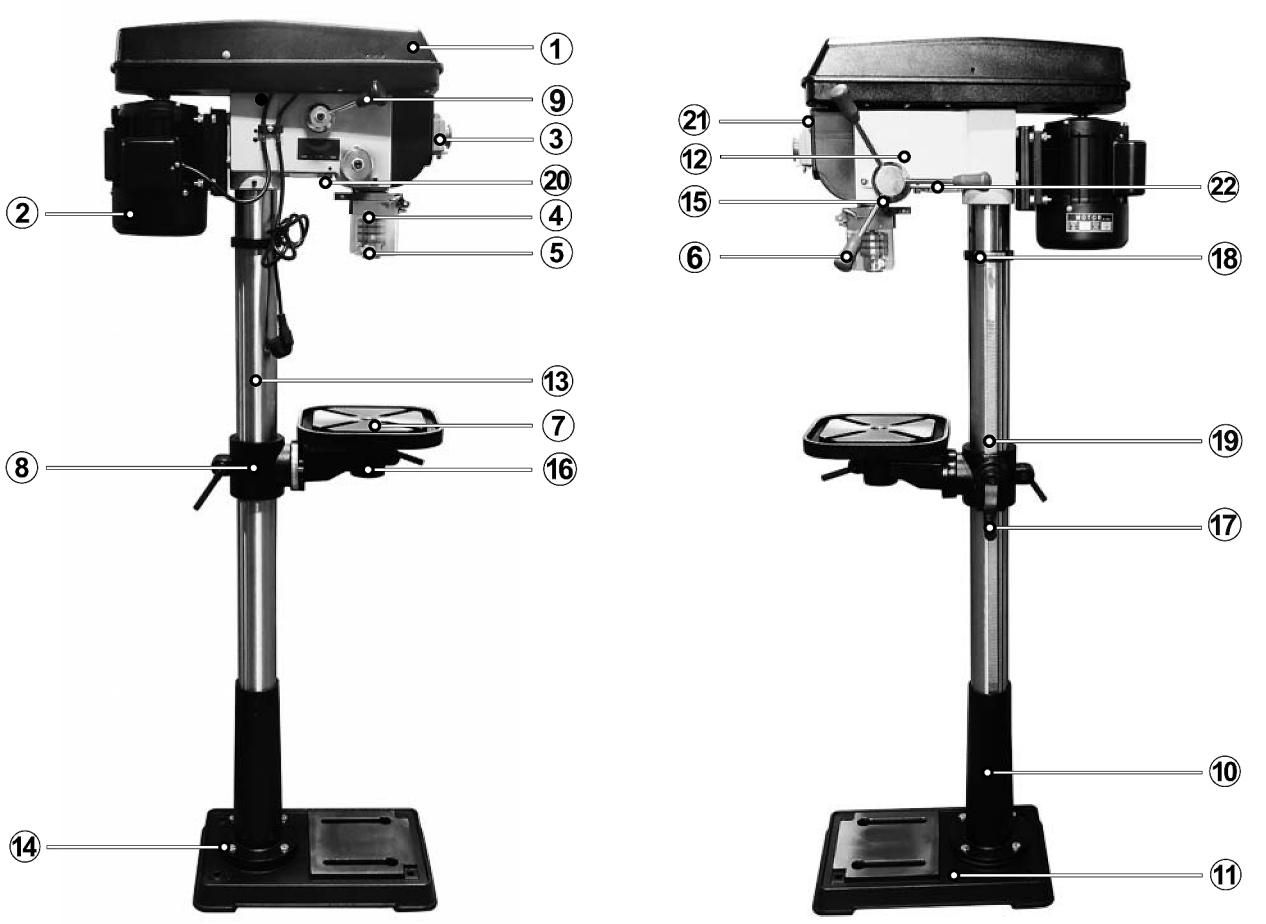
Become familiar with the names and locations of the controls and features shown below to better understand the instructions when mentioned later in this manual.



1	Pulley Cover	9	Variable Speed Handle	17	Table Adjustment Handle
2	Motor	10	Column Support	18	Rack Collar
3	Switch	11	Base	19	Rack
4	Chuck Guard	12	Main Housing	20	Laser
5	Chuck	13	Column	21	Speed Display
6	Feed Handle	14	Bolts	22	Work Light
7	Table	15	Depth Stop Lock Knob		
8	Table Support	16	Table Arm		

1.4 PEDESTAL DRILL 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.



1	Pulley Cover	9	Variable Speed Handle	17	Table Adjustment Handle
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3	Switch	11	Base	19	Rack
4	Chuck Guard	12	Main Housing	20	Laser
5	Chuck	13	Column	21	Speed Display
6	Feed Handle	14	Bolts	22	Work Light
7	Table	15	Depth Stop Lock Knob		
8	Table Support	16	Table Arm		

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 work piece.
- ✓ 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

- × Do not distract an operator. Horseplay can lead to injuries and should be strictly prohibited.
- × Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelery that can become entangled in moving parts. Confine long hair.
- × Do not 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.
- × Do not use rags or wear gloves near moving parts of machines.
- × Do not use compressed air to blow debris from machines or to clean dirt from clothes.
- × Do not force the machine. It will do the job safer and better at the rate for which it was designed.

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.

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 DRILL PRESS

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.


Long and loose hair must be contained.


Gloves must not be worn when using this machine.


Sturdy footwear must be worn at all times in work areas.


Close fitting/ protective clothing must be worn.


Rings and jewellery must not be worn.

PRE-OPERATIONAL SAFETY CHECKS

- ✓ Locate and ensure you are familiar with all machine operations and controls.
- ✓ Ensure all guards are fitted, secure and functional. Do not operate if guards are missing or faulty.
- ✓ Check workspaces and walkways to ensure no slip/trip hazards are present.
- ✓ Ensure the chuck key (if used) has been removed from the drill chuck.
- ✓ Follow correct clamping procedures to ensure work is secure.
- ✓ Erect a barricade if the job obstructs the walkway.
- ✓ Adjust the spindle speed to suit drill or cutter diameter.

OPERATIONAL SAFETY CHECKS

- ✓ Before making adjustments or before cleaning swarf accumulations, switch off and bring the machine to a complete stop
- ✓ Feed downwards at a sufficient rate to keep the drill cutting.
- ✓ Feed with care as the drill breaks through the underside of the work.
- ✓ Use a safe working posture.

ENDING OPERATIONS AND CLEANING UP

- ✓ Switch off the machine when work completed.
- ✓ Leave the machine in a safe, clean and tidy state.

DON'T

- × Do not use faulty equipment. Immediately report suspect equipment.
- × Never leave the machine running unattended.
- × Do not hold the item being drilled with your hands. Use a clamp.

POTENTIAL HAZARDS AND INJURIES

- ❑ Hair/clothing getting caught in moving machine parts.
- ❑ Flying swarf and chips.
- ❑ Eye injuries.
- ❑ Sharp edges and burrs.

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.

3. POWER SUPPLY

3.1 ELECTRICAL REQUIREMENTS

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. To minimize the risk of electrocution, fire, or equipment damage, these machines should be hard wired with installation work and electrical wiring done by a qualified electrician.

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

ELECTRICAL REQUIREMENTS

Nominal Voltage	240V
Cycle	50 Hz
Phase	Single Phase
Power Supply Circuit	10 Amps
Full Load Current	Check 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 can be found on the motor nameplate.

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 work-piece 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

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 ***This machine is very heavy.***

Serious personal injury may occur if safe moving methods are not followed. To be safe, you will need assistance from another person when moving the shipping crate and removing the machine from the crate.

CAUTION

This machine may not appear to be heavy, but damage to the back or legs can occur if lifting practices are not followed. When lifting bend the knees and keep the back straight.

4.5 ANCHORING TO THE FLOOR OR BENCH

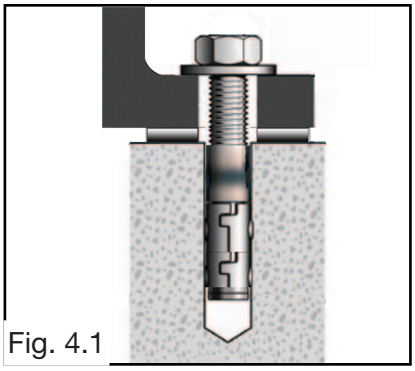


Fig. 4.1

Floor Mount:

The BD-360V tall column 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)

Bench Mount:

The BD-360V bench machine has pre-drilled holes in its base so it can be securely attached to a workbench or other solid surface. This helps prevent the machine from shifting, vibrating, or tipping during use, reducing the risk of injury or equipment damage. (Fig. 4.2)

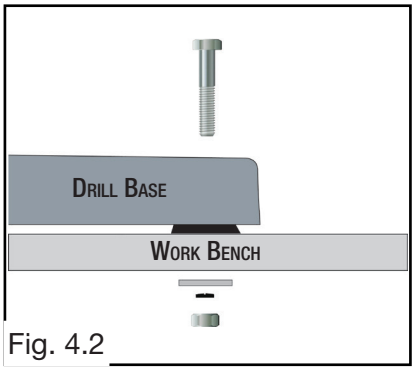


Fig. 4.2

Mounting Method:

1. Position the machine on the workbench.
2. Use the holes in the machine's base as a guide to mark the bench.
3. Drill holes completely through the workbench.
4. Insert hex bolts down through the machine base and the bench.
5. Place a washer and then a hex nut on the underside of each bolt. Tighten the nuts securely.

4.6 MACHINE LEVELLING

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 levelled. 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).

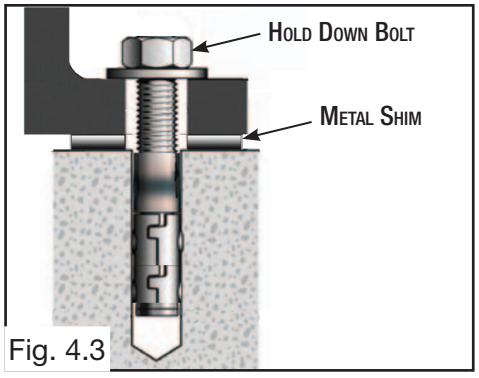


Fig. 4.3

CAUTION

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

WARNING!

Read and understand the instructions in this manual, before operating this machine to reduce the risk of serious injury or even death. Save all warnings and instructions for future reference.

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.

BASE & COLUMN

1. Select the base (Fig. 1) and align the column support over the large hole (Fig. 2).
2. Align the holes in the column support with those in the base and secure in place using the bolts and washers. Using a spanner securely tighten all bolts (Fig. 3).
3. We recommend mounting the base to stable the surface for proper support.
4. Slide the column into the column support (Fig.4). (Floor type Only)

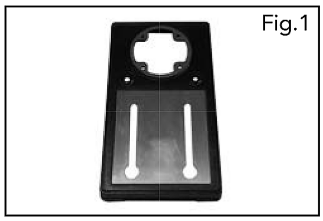


Fig.1


Fig.2

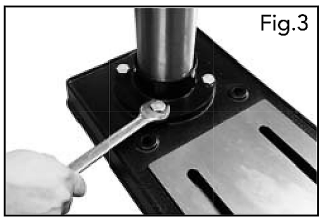


Fig.3

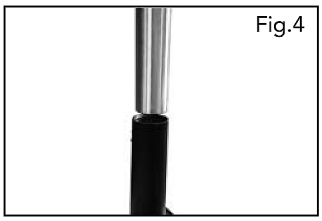


Fig.4

5. Secure in place with 2 grub screws using the hex key (Fig. 5). (Floor type Only)

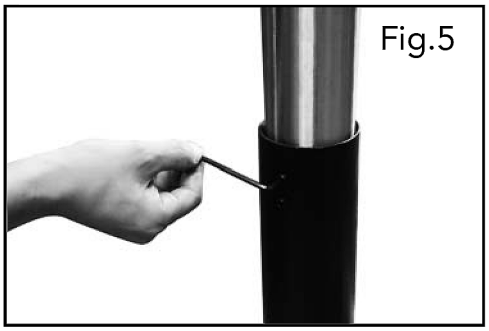


Fig.5

RACK & TABLE

1. Install the rack into the table support as shown (Fig. 6).

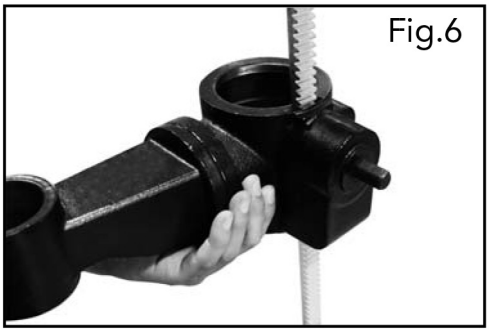


Fig.6

2. Assemble the table support and rack onto the column, ensuring the rack is positioned on the right side of the column (when viewing the machine from the front). (Fig. 7).

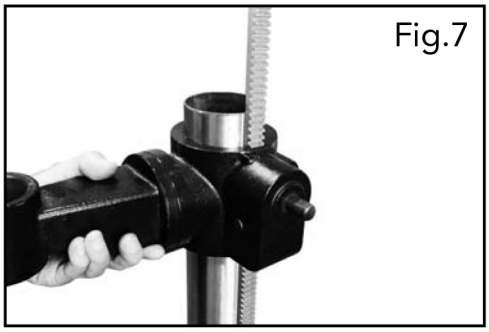


Fig.7

3. Slide the rack all the way down until it locates into the lower column support (Fig. 8). Slide the collar, with the tapered side facing down, over the column until it locates the rack. Tighten the grub screw on the upper collar (Fig. 9).


Fig.8

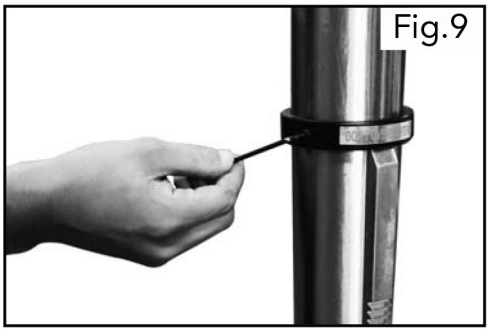


Fig.9

4.7 ASSEMBLY Cont.

4. Fix the table height adjustment handle on the support bracket (Fig. 10).

5. Assemble table onto table support then tighten in place with table lock (Fig. 11).

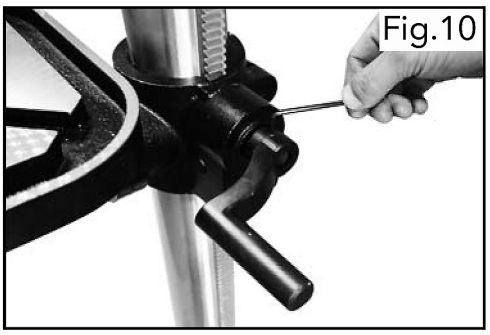


Fig.10


Fig.11

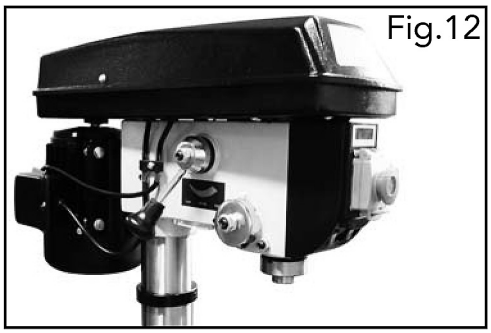


Fig.12

MOUNTING THE HEADSTOCK

1.Lift the headstock and slide it down onto the column as far as it will go (Fig. 12). Before securing the headstock to the column, ensure the spindle aligns with the table and base.

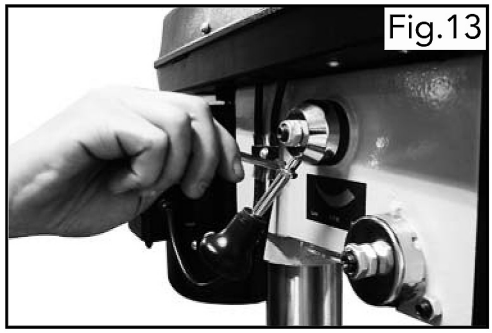


Fig.13

2. To fit the variable speed adjusting handle, screw them into the hub and use a spanner to securely tighten. (Fig. 13).


Fig.14

3. To secure in position tighten the grub screws on the left and right hand sides of the headstock (Fig. 14).

4. To fit the spindle feed handles, screw them into the feed wheel hub (Fig. 15).

5. For some cast aluminum feed handles, tighten the 3 grub screws to wheel hub (Fig.16) then fix the plastic case on cast iron feed handle hub as shown in (Fig. 17).

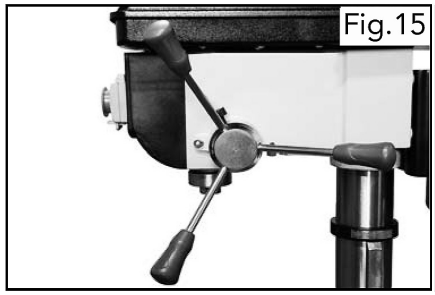


Fig.15

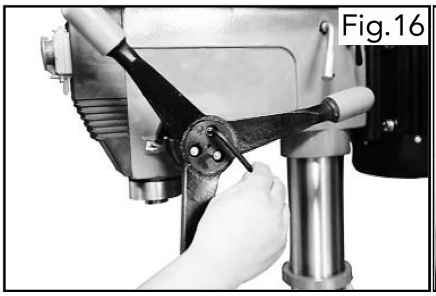


Fig.16

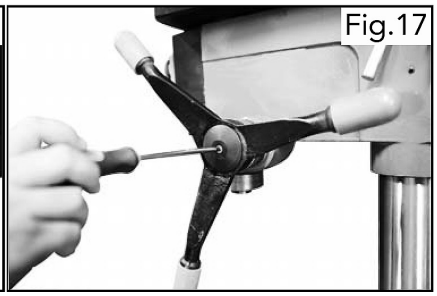


Fig.17

4.7 ASSEMBLY Cont.

CHUCK & ARBOUR

1. Before any assembly, ensure the chuck jaws are wound all the way up (inside the chuck) to prevent them from being damaged during assembly (Fig. 18).


Fig.18

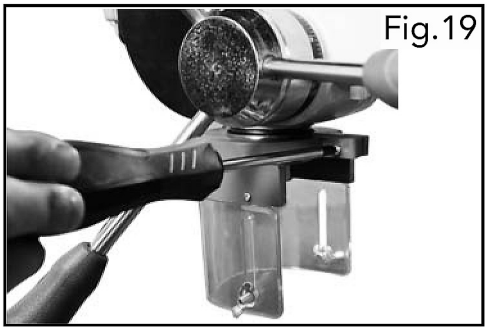


Fig.19

2. Tighten the Philip head screws on the chuck guard to the quill shaft (Fig. 19).

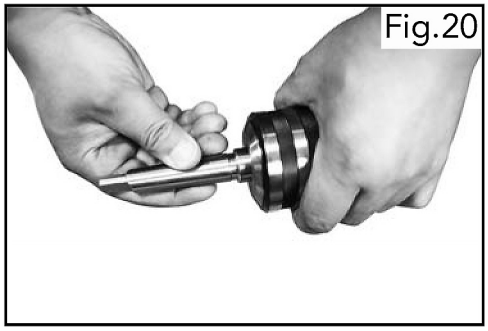


Fig.20

3. Fit the tapered arbour end into the chuck by hand, using reasonable force (Fig. 20).

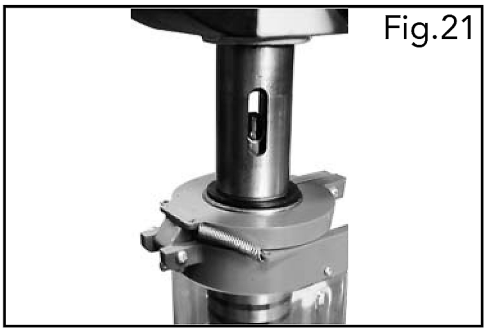


Fig.21

4. The arbour can then be inserted into the spindle, twisting the arbour as you insert to align the tang into the drive slot. It should fit into the spindle with little resistance. (Fig. 21).

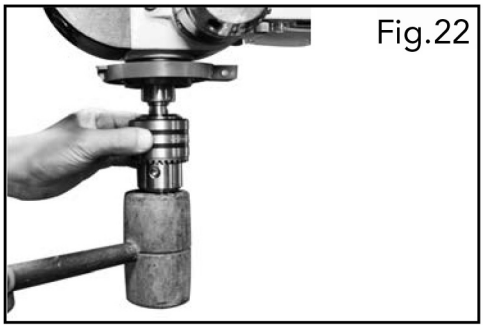


Fig.22

5. Once it is located a firm tap on the underside of the chuck with a soft face hammer is required to secure it. The chuck and arbour are installed correctly when they cannot be pulled out with hand force (Fig. 22).

5. OPERATION

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! I **Above all, your safety should come first!**

5.1 OPERATION OVERVIEW

This overview purpose is to provide a novice machine operator with a basic understanding of how the machine is used during operation, and so that if the machine controls or components are mentioned later in this manual, it will be easy to understand. The overview is not intended to be an instructional guide and is only generic in nature. To learn more about the specific operation, read this entire manual and seek additional training from an experienced machine operator. Another source of information may be found in video's on websites or by reading trade magazines.

5.1 OPERATION OVERVIEW Cont.

Below is listed a standard operating procedure for using a drill press.

Typical Drill Press Operation:

1. Inspect the workpiece to ensure it is suitable for drilling.
2. Put on the required personal protective equipment (PPE), including safety glasses and a face shield.
3. Secure the workpiece firmly to the drill press table using a vice or T-slot clamps.
4. Install the correct drill bit for the operation.
5. Adjust the table to the required height and angle, then lock it securely in place.
6. Select the appropriate spindle speed using the drill bit speed chart.
7. Configure the machine for the selected spindle speed range.
8. Connect the machine to the power supply, start the spindle, and set the desired spindle speed.
9. Perform the drilling operation.
10. When the operation is complete, turn the machine off and disconnect it from the power source.

Key Safety Points:

Always wear the required eye and face protection.

Never hold the workpiece by hand; secure it with a vice or clamps.

Verify that the drill bit is properly installed and tightened before starting.

Disconnect power before changing drill bits or making major adjustments.

Wait for the spindle to come to a complete stop before removing the workpiece or making adjustments.

5.2 TABLE ADJUSTMENTS:

1. Loosen the table support lock (Fig. 23).
2. Rotate the table adjustment handle to set the desired table height and tighten the table lock to secure the table in position (Fig. 24).


Fig.23

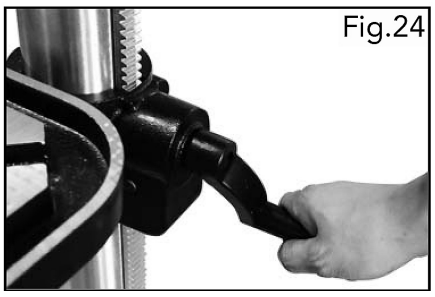


Fig.24

TABLE BEVEL ADJUSTMENT

1. The create a bevel angle the table is adjusted by loosening the bolt that is located underneath table support with a spanner.
2. After tilting the working table (Fig. 25) to the appropriate position, re-tighten the bolt to secure its position.

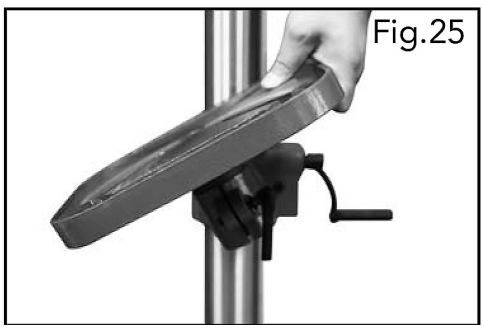


Fig.25

5.3 INSTALLING DRILL BITS

STRAIGHT SHANK DRILLS

1. Using the chuck key, loosen the jaws of the chuck by rotating in an anti-clockwise direction (Fig. 26). Insert the drill bit into the chuck (Fig. 27).
2. Whilst holding the drill bit in one hand rotate the top collar of the chuck in a clockwise direction. Insert the chuck key into 1 of the 3 rotating holes and tighten until drill bit is secure (Fig. 28)

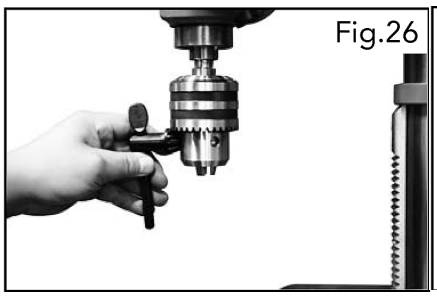


Fig.26

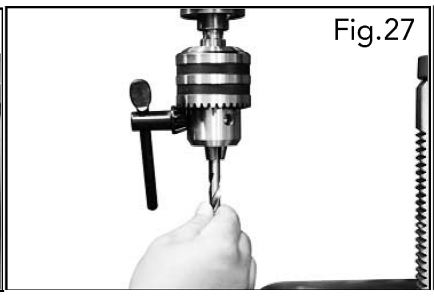


Fig.27

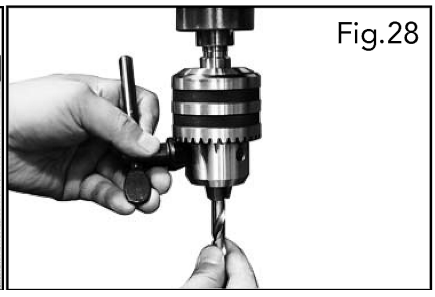


Fig.28

TAPER SHANK DRILLS

To use Morse taper bits, remove the drill chuck and arbour.

1. Clean both the taper on the drill and the taper in the spindle with a clean cloth.
2. Insert the drift key into the slot and tap firmly with a metal hammer until it releases the drill chuck arbour. Ensure the chuck jaws are wound all the way up to prevent damage. (Fig. 30)
3. Insert the taper shank drill into the spindle and rotate the drill until the tang aligns with the drive slot in the spindle (Fig. 29).
4. Place a block of wood on the table and lower the spindle until the tapered bit is firmly into the spindle.

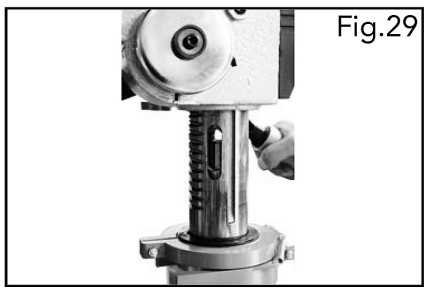


Fig.29

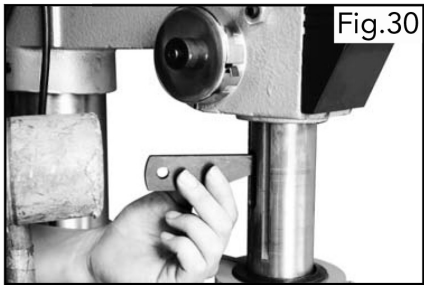


Fig.30

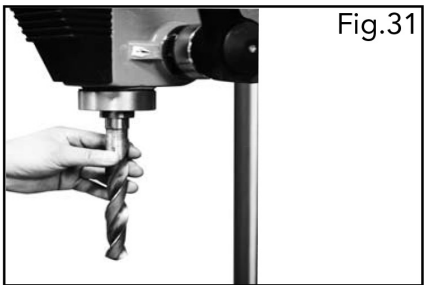


Fig.31

5.4 PRE-SETTING THE DRILLING DEPTH

To stop spindle (and drill bit) at a desired depth:

1. Loosen depth stop lock knob by turning in an anti-clockwise direction (Fig. 32).
2. Rotate depth scale to the desired depth, then tighten half wing bolt (Fig. 33).

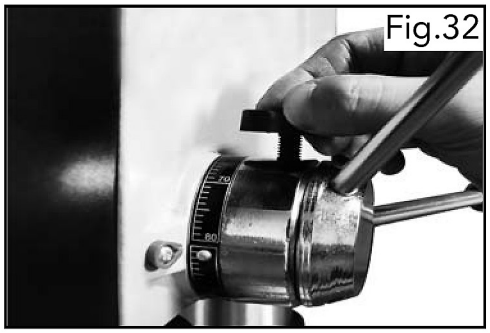


Fig.32


Fig.33

5.5 STOPPING THE SPINDLE AT THE DRILLING DEPTH

To stop spindle (and drill bit) at a desired depth:

1. Loosen depth stop lock knob by turning in an anti-clockwise direction (Fig. 32).
2. Rotate the depth scale to the desired depth, then tighten the half wing bolt (Fig. 33).

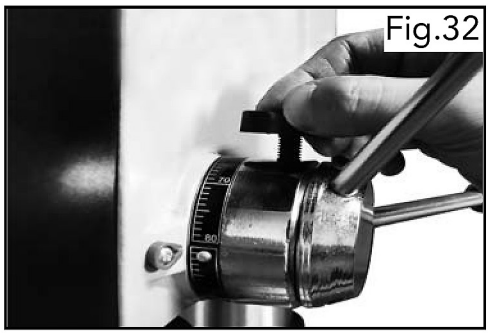


Fig.32


Fig.33

To hold the spindle (and bit} at a desired depth:

1. Loosen depth stop lock knob, turn feed wheel handle to lowest point (Fig.34).
2. Rotate depth scale to desired depth and re-tighten depth stop lock knob. This will hold assembly stationery at desired depth.

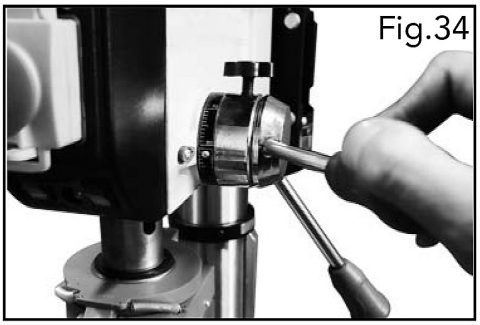


Fig.34

5.6 SETTING THE LASER

The two laser lines on the machine have been set before the machine left the factory, but some times the lasers move during shipping and need to be reset. To adjust the position of laser, loosen the grub screw and rotate the laser until the lines are displayed in the correct place. Once the desired position has been set, the grub screw can been tightened.


Fig.35

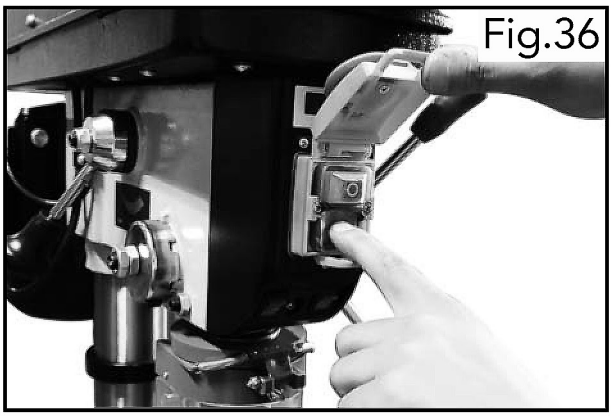


Fig.36

5.7 TURNING ON AND OFF THE DRILL PRESS

Note: The pulley cover must be closed to operate the drill press.

1. Switch the drill press ON by pressing the green (I) button on the switch (Fig.36).
2. Switch the drill press OFF by pressing the red(O) button on the switch.
3. Secure your workpiece to the table if possible,use a vice or clamps.

Note. Ensure that you do not overload the device. If the sound of the motor drops in pitch or stops during operation, it is being overloaded.

WARNING!

Speed adjustments must only be made when the motor is running. Adjustment made while the motor is stationary can damage the belt and pulleys

5.8 SETTING THE SPEED

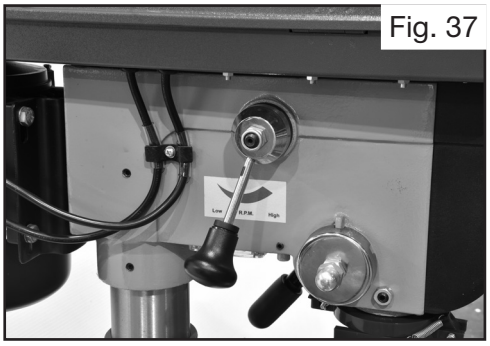


Fig. 37

The operating speed of the machine is infinitely adjustable.

1. Slowly and steadily move the speed control lever on the left side of the headstock, while the machine is running. (Fig. 37)
2. Pull the lever towards the front for higher speeds or push away for a slower speed.
3. The speed is shown in RPM on the digital display on the front of the machine.

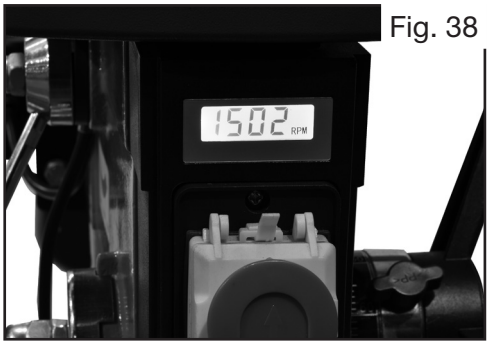


Fig. 38

6. MAINTENANCE

It is very important that regular maintenance of the equipment is carried out. The operators need to follow the daily maintenance procedures.

For optimum performance from this machine, the maintenance schedule listed below in this section must be followed.

To reduce the risk of injury and for proper machine operation, if any of the items below are observed then, switch the machine OFF and immediately, disconnect it from power, and fix the problem before continuing operations.

- ❑ Loose mounting bolts or fasteners.
- ❑ Worn, frayed, cracked, or damaged wires.
- ❑ Emergency STOP button not correctly working.
- ❑ Missing belt guards.
- ❑ Reduction in braking speed or efficiency.
- ❑ Any other unsafe condition.

WARNING!

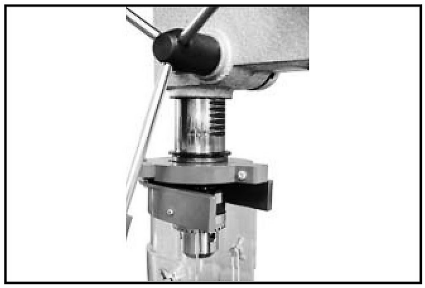
Disconnect all power from the machine before servicing. There may be multiple power sources present. Remove the plug from the power point or remove the fuse if hardwired. Failure to do so may cause death or injury.

6.1 LUBRICATION

Lubrication is very important to maintain bending accuracy and avoid machine troubles. Be sure to appropriately lubricate the machine.

⚠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.***

All bearings are packed with grease at the factory and require no further lubrication. Occasionally, lubricate the quill shaft assembly, keyway spindle and rack with light oil if required.



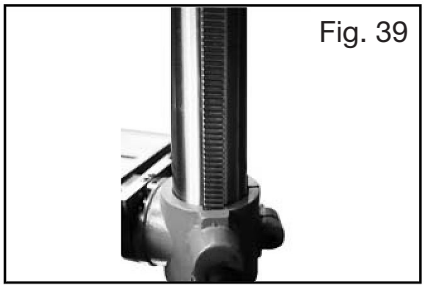


Fig. 39

6.2 CHANGING THE CVT BELT

Before changing the drive belt, ensure the machine is switched OFF, and disconnected from the power supply.

1. Open the pulley cover.
2. Pry the V-belt off of the smaller drive pulley by pulling up the belt on one side and slowly turning the pulleys. (Fig. 40).
3. The drive pulley comprises two disks that are pressed together via a spring. If the V-belt does not exhibit enough play to remove it, gently press the bottom half of the drive pulley down to slacken the V-belt (Fig. 41).
4. Fit one end of the new V-belt to the variable pulley. Fit the other end to the drive pulley by first sliding it into the groove on one side of the drive pulley, then prying the V-belt across the pulley into the groove on the other side (Fig. 42). Pressing down on the bottom disc of the drive pulley will give the V-belt additional slack.
5. Close and secure the pulley cover.

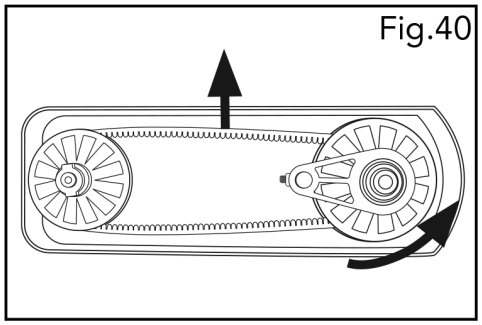


Fig.40

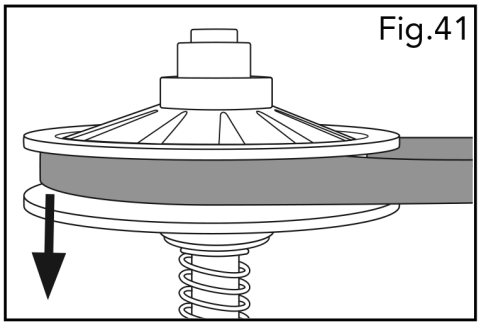


Fig.41

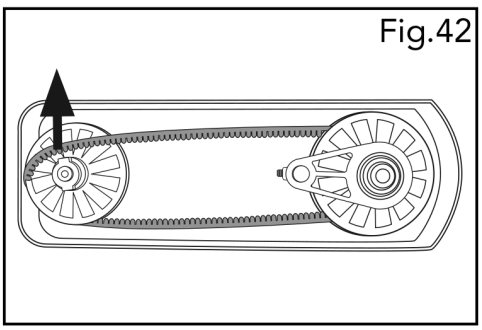
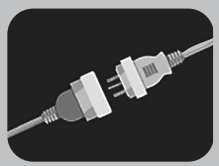


Fig.42



WARNING!

Always disconnect the power to the machine before servicing or doing maintenance to the machine.

6.3 CHANGING THE WORK LIGHT

1. DISCONNECT THE MACHINE FROM THE POWER.
2. Loosen the Philip's head screws of the working light cover plate. (Fig. 43).

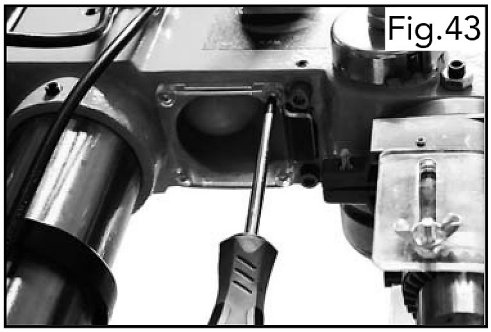


Fig.43


Fig.44

2. Loosen the bulb from the machine. (Fig. 44}
3. The bulb size is E27 and works at local power supply


Fig.45

CAUTION!

Never walk away from the machine while it is still running. Always lock the switch in the Off position and unplug from the power supply when not in use.

6.4 TROUBLESHOOTING

Review the troubleshooting and procedures in this section if a problem develops with your machine. If you need replacement parts then follow the procedure in the beginning of the spare parts section or if additional help with a procedure is required, then contact your distributor.

Note: Make sure you have the model of the machine, serial number,and manufacture date before calling.

Symptoms	Possible Cause	Possible Solution
Noisy operation (under load).	a. Incorrect belt tension. b. Dry spindle. c. Loose pulley. d. Loose belt. e. Worn bearing.	a. Adjust the tension. b. Remove spindle and quill assembly and lubricate. c. Tighten the pulley. d. Adjust the belt tension. e. Replace the bearing.
Excessive drill wobble.	a. Loose chuck. b. Worn spindle or bearing. c. Worn chuck. d. Bent drill bit.	a. Tighten by pressing chuck down on to a block of wood against the table. b. Replace spindle shaft or bearing. c. Replace chuck. d. Renew drill bit.
Motor won't start.	a. Power supply. b. Motor connection. c. Switch connection faulty. d. Faulty switch. e. Motor windings burned. f. Pulley cover not closed. g. Micro switch on cover not operating.	a. Check power cord/fuse. b. Check motor connections. c. Check switch connections. d. Replace switch. e. Replace motor. f. Close pulley cover. g. Check operation of micro switch, and renew/adjust as necessary.
Drill binds in work piece.	a. Excessive feed pressure. b. Loose belt. c. Loose drill. d. Incorrect bit speed. e. Drill angles incorrect for type of material.	a. Apply less pressure. b. Check belt tension. c. Tighten drill with key. d. Adjust the drill speed reasonably. e. Consult a technical manual dealing with materials, drills and cutting angles, and sharpen drill accordingly.
Drill bit burns or smokes.	a. Incorrect speed. b. Swarf is not discharging. c. Dull drill or not proper. clearance for material. d. Needs coolant. e. Excessive feed pressure	a. Adjust drill speed accordingly. b. Clean drill. c. Check sharpness & taper. d. Use coolant whilst drilling. e. Apply less pressure.
Table difficult to raise.	a. Needs lubrication. b. Table lock tightened.	a. Lubricate with light oil. b. Loosen clamp.
Drill runs off centre.	a. Cutting lips or angle not equal. b. Drilled hole off-center. c. Bent drill bit. d. Drill bit not properly installed.	a. Resharpen drill bit correctly. b. Drill a pilot hole first. c. Use a proper drill bit. d. Install drill bit correctly.

VARIABLE SPEED DRILL PRESS
BD/PD-360V, PD-440V, PD-510V

Order Code: (D594V, D596V, D598V, D600V)

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 and fill out the inquiry form attaching a copy of scanned parts list.

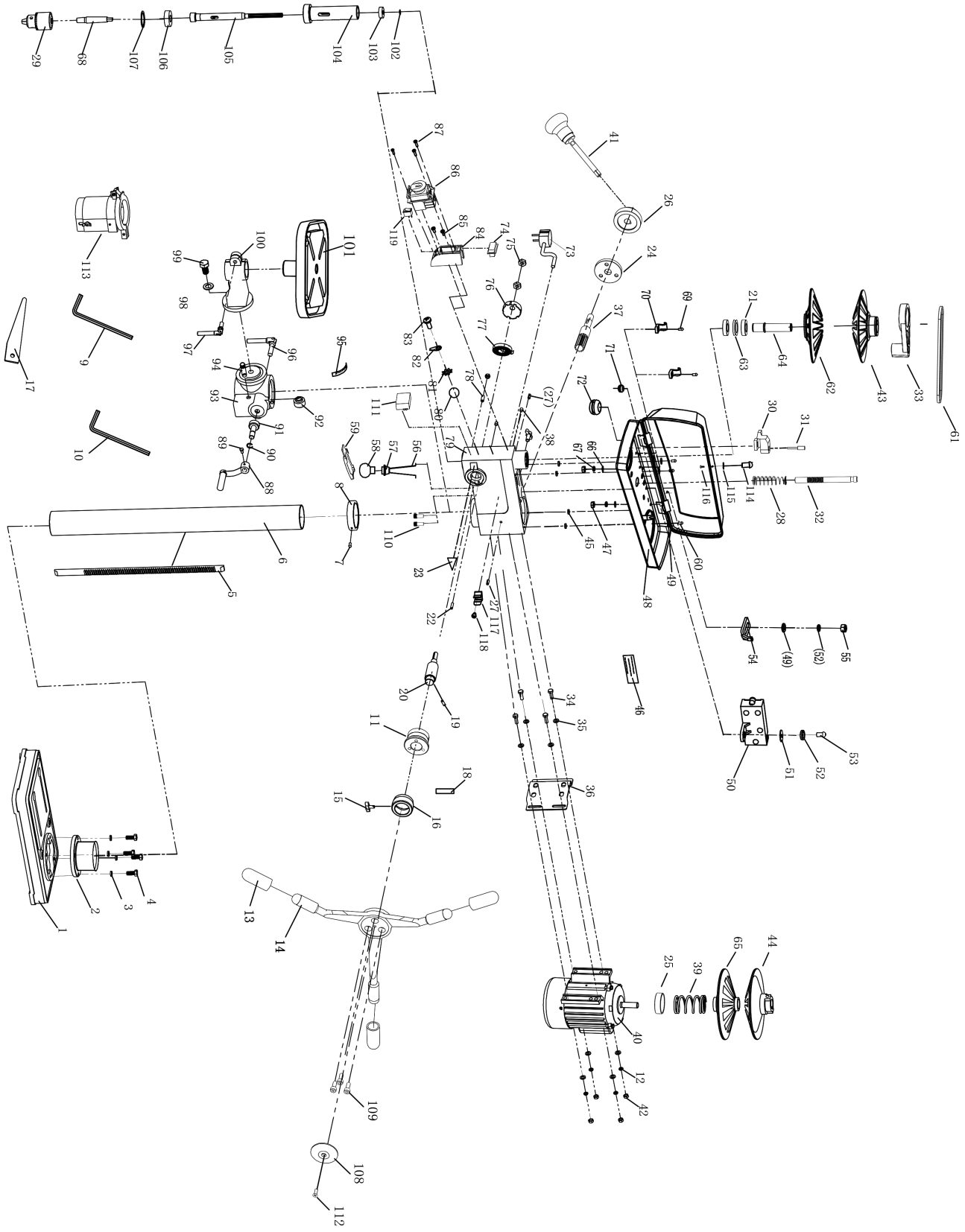
WARNING!

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.

BENCH BD-360V - PARTS DIAGRAM



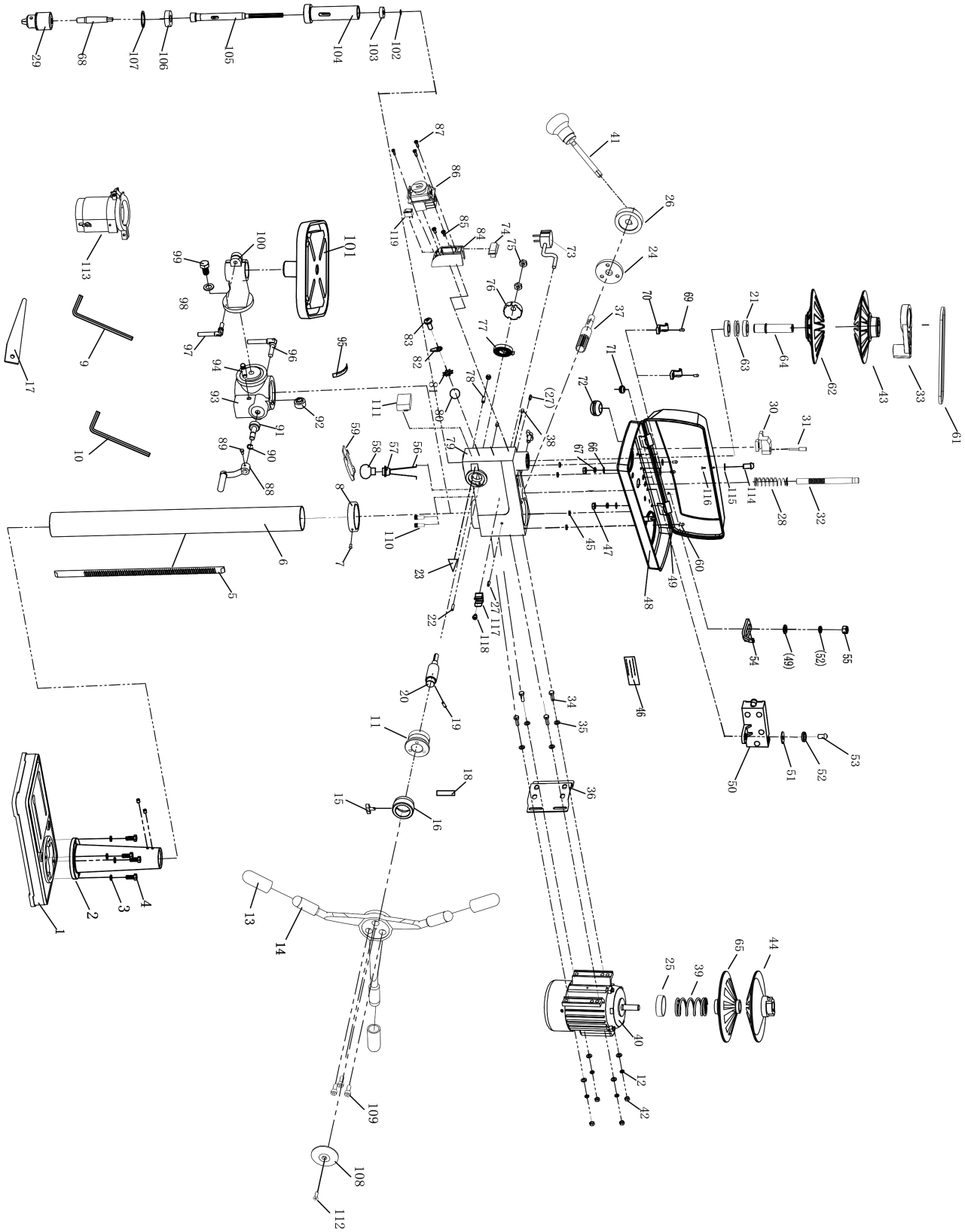
BENCH BD-360V - PARTS LIST

NO.	DESCRIPTION	SPEC.	QTY
1	BASE		1
2	COLUMN FLANGE		1
3	SPRING WASHER	10	4
4	OUTSIDE HEX. BOLT	M10×25	4
5	RACK		1
6	COLUMN		1
7	HEX. SOC SET SCREW	M6×12	3
8	COLLAR RACK		1
9	HEXAGON BAR WRENCH	4	1
10	HEXAGON BAR WRENCH	6	1
11	CONNECTION LOOP		1
12	SPRING WASHER	8	4
13	HANDLE SHEATH		3
14	HANDLE		1
15	WING KNOB	M8	1
16	DIAL SCALE		1
17	THICK BRAKE IRON		1
18	CALIBRATION LABEL		1
19	ROLL PIN	5×18	1
20	GEAR SHAFT		1
21	BEARING	6005	2
22	ROLL PIN	M6×18	1
23	INDICATOR		1
24	DAMPER		1
25	SPRING SEAT		1
26	REGULATING HANDLE SEAT		1
27	ROLL PIN	6×18	2
28	LIFTING SPRING		1
29	CHUCK		1
30	HALL BRACKET		1
31	HALL SENSOR		1
32	LIFTING SHAFT		1
33	LIFTING SEAT		1
34	OUTSIDE HEX. BOLT	M8×25	4
35	FLAT WASHER	8	8
36	MOTOR CONNECTION PLATE		1
37	LIFTING SHAFT		1
38	HEX. SOC SET SCREW	M8×10	2
39	MOTOR PULLEY SPRING		1
40	MOTOR		1
41	REGULATING HANDLE		1
42	NUT	M8	5
43	LOOSE PULLEY		1
44	MOTOR TIGHT PULLEY		1
45	DAMPING WASHER		4
46	SPEED LABEL		1
47	NUT	M5	3
48	PULLEY COVER		1
49	FLAT WASHER	6	7
50	MICRO SWITCH BOX		1
51	BIG FLAT WASHER	6	1
52	SPRING WASHER	6	1
53	PAN HEAD SCREW MICRO	M6×16	1
54	SWITCH PRESSING CLAW		1
55	NUT	M6	1

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

NO.	DESCRIPTION	SPEC.	QTY
56	LAMP-BRACKET		1
57	LAMP-SOCKET		1
58	LAMP		1
59	LIGHT LAMP		1
60	PAN HEAD SCREW	M6×12	4
61	TOOTHED BELT	10X1050LA	1
62	ACTIVE FIXED PULLEY		1
63	DAMPING WASHER		1
64	KEYWAY SPINDLE		1
65	MOTOR SLIDING PULLEY		1
66	FLAT WASHER	5	3
67	SPRING WASHER	5	3
68	TAPER SPINDLE		1
69	PAN HEAD SCREW	M5×16	3
70	CORD CLAMP		3
71	PROTECTOR RING	10	2
72	PROTECTOR RING	22	1
73	PLUG WITH CABLE		1
74	DIGITAL DISPLAY		1
75	NUT	M12×1.75	2
76	SPRING COVER		1
77	SPRING		1
78	A WORD HEAD SCREW		1
79	HOUSING		1
80	LABEL		1
81	TOOTH LOCK WASHER	4	2
82	GROUNDED PARTS	4	2
83	CROSS HEAD SCREW	M4×6	2
84	SWITCH BOX		1
85	CROSS HEAD SCREW	M5×12	2
86	SWITCH		1
87	CROSS HD. TAPPING SCREW	ST3×10	2
88	CRANK		1
89	HEX. SOC SET SCREW	M6×10	1
90	CIRCLIP FOR BEARING	14	1
91	WORM		1
92	WORM GEAR		1
93	TABLE SUPPORT		1
94	WORM PIN		1
95	ANGLE LABEL		1
96	LOCKING HANDLE	M12	1
97	LOCKING HANDLE	M10	1
98	SPRING WASHER	16	1
99	OUTSIDE HEX. BOLT	M16×30	1
100	TABLE ARM		1
101	WORKING TABLE		1
102	CIRCLIP FOR BEARING	12	1
103	BEARING	6203	1
104	SPINDLE SOCKET		1
105	MAIN SPINDLE	MT3	1
106	BEARING	6006	1
107	WASHER		1
108	CAP HANDLE		1
109	HEX. SOC HD CAP SCREW	M8×20	3
110	LASER		1
111	ADAPTOR		1
112	COUNTERSUNK HD SCREW	M6×16	1
113	CHUCK GUARD		1
114	PULLEY COVER KNOB		1
115	BIG FLAT WASHER	4	1
116	PAN HEAD SCREW	M4×10	1
117	HOOP FOR KEY WRENCH		1
118	PAN HEAD SCREW	M5×10	1
119	LIGHT SWITCH		2

PEDESTAL PD-360V - PARTS DIAGRAM



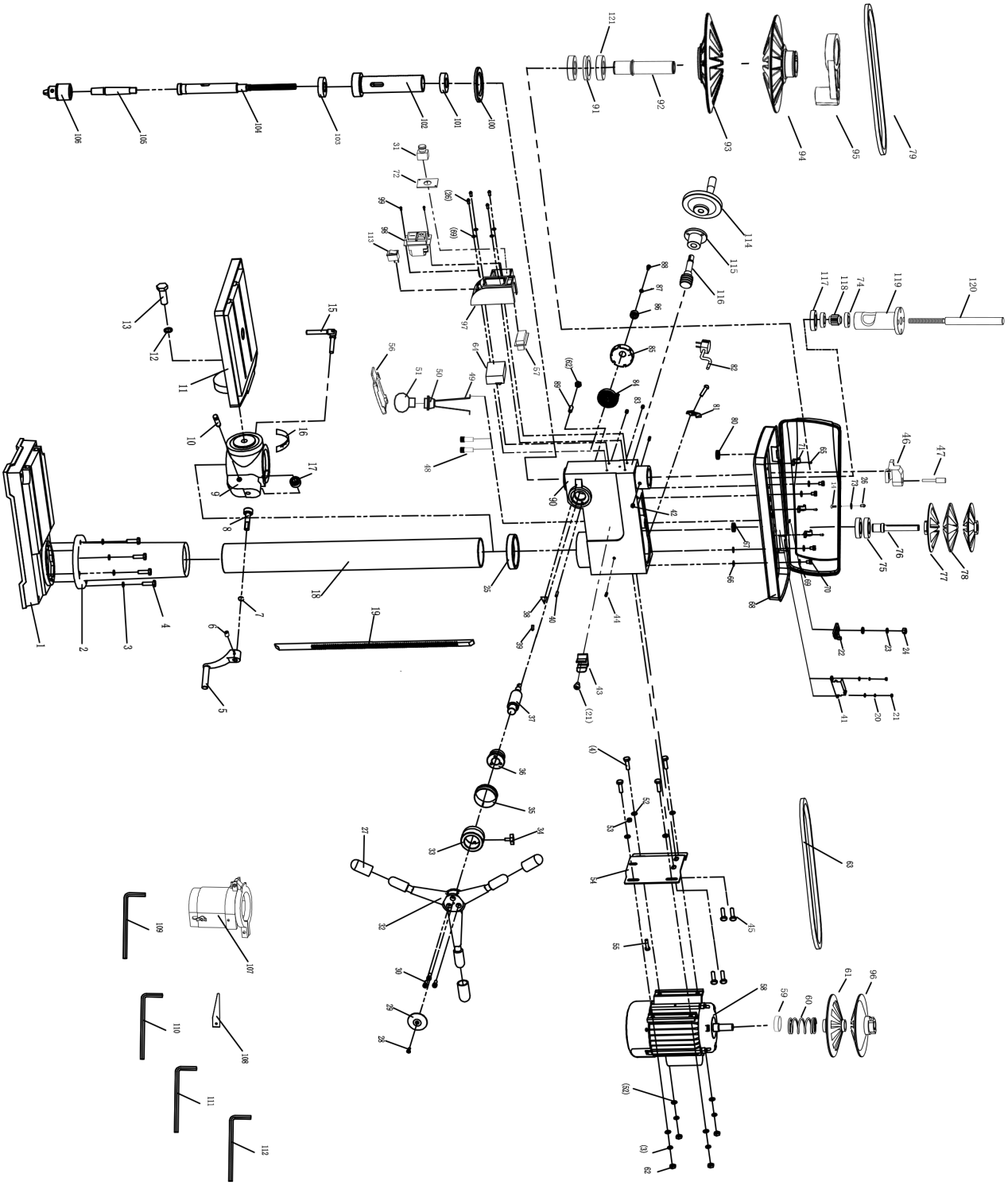
PEDESTAL PD-360V - PARTS LIST

NO.	DESCRIPTION	SPEC.	QTY
1	BASE		1
2	HIGH COLUMN FLANGE		1
3	SPRING WASHER	10	4
4	OUTSIDE HEX. BOLT	M10×25	4
5	RACK		1
6	COLUMN		1
7	HEX. SOC SET SCREW	M6×12	3
8	COLLAR RACK		2
9	HEXAGON BAR WRENCH	4	1
10	HEXAGON BAR WRENCH	6	1
11	CONNECTION LOOP		1
12	SPRING WASHER	8	4
13	HANDLE SHEATH		3
14	HANDLE		1
15	WING KNOB	M8	1
16	DIAL SCALE		1
17	THICK BRAKE IRON		1
18	CALIBRATION LABEL		1
19	ROLL PIN	5×18	1
20	GEAR SHAFT		1
21	BEARING	6005	2
22	ROLL PIN	M6×18	1
23	INDICATOR		1
24	DAMPER		1
25	SPRING SEAT		1
26	REGULATING HANDLE SEAT		1
27	ROLL PIN	6×18	2
28	LIFTING SPRING		1
29	CHUCK		1
30	HALL BRACKET		1
31	HALL SENSOR		1
32	LIFTING SHAFT		1
33	LIFTING SEAT		1
34	OUTSIDE HEX. BOLT	M8×25	4
35	FLAT WASHER	8	8
36	MOTOR CONNECTION PLATE		1
37	LIFTING SHAFT		1
38	HEX. SOC SET SCREW	M8×10	2
39	MOTOR PULLEY SPRING		1
40	MOTOR		1
41	REGULATING HANDLE		1
42	NUT	M8	5
43	LOOSE PULLEY		1
44	MOTOR TIGHT PULLEY		1
45	DAMPING WASHER		4
46	SPEED LABEL		1
47	NUT	M5	3
48	PULLEY COVER		1
49	FLAT WASHER	6	7
50	MICRO SWITCH BOX		1
51	BIG FLAT WASHER	6	1
52	SPRING WASHER	6	1
53	PAN HEAD SCREW	M6×16	1
54	MICRO SWITCH CLAW		1
55	NUT	M6	1

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

NO.	DESCRIPTION	SPEC.	QTY
56	LAMP-BRACKET		1
57	LAMP-SOCKET		1
58	LAMP		1
59	LIGHT LAMP		1
60	RECESS PAN HD SCREW	M6×12	4
61	TOOTHED BELT	10X1050LA	1
62	ACTIVE FIXED PULLEY		1
63	DAMPING WASHER		1
64	KEYWAY SPINDLE		1
65	MOTOR SLIDING PULLEY		1
66	FLAT WASHER	5	3
67	SPRING WASHER	5	3
68	TAPER SPINDLE		1
69	RECESSED PAN HEAD SCREW	M5×16	3
70	CORD CLAMP		3
71	PROTECTOR RING	10	2
72	PROTECTOR RING	22	1
73	PLUG WITH CABLE		1
74	DIGITAL DISPLAY		1
75	NUT	M12×1.75	2
76	SPRING COVER		1
77	SPRING		1
78	A WORD HEAD SCREW		1
79	HOUSING		1
80	LABEL		1
81	TOOTH LOCK WASHER	4	2
82	GROUNDED PARTS	4	2
83	CROSS RECESS HEAD SCREW	M4×6	2
84	SWITCH BOX		1
85	CROSS RECESS HEAD SCREW	M5×12	2
86	SWITCH		1
87	RECESS HD TAPPING SCREW	ST3×10	2
88	CRANK		1
89	HEX. SOC SET SCREW	M6×10	1
90	CIRCLIP FOR BEARING	14	1
91	WORM		1
92	WORM GEAR		1
93	TABLE SUPPORT		1
94	WORM PIN		1
95	ANGLE LABEL		1
96	LOCKING HANDLE	M12	1
97	LOCKING HANDLE	M10	1
98	SPRING WASHER	16	1
99	OUTSIDE HEX. BOLT	M16×30	1
100	TABLE ARM		1
101	WORKING TABLE		1
102	CIRCLIP FOR BEARING	12	1
103	BEARING	6203	1
104	SPINDLE SOCKET		1
105	MAIN SPINDLE	MT3	1
106	BEARING	6006	1
107	WASHER		1
108	CAP HANDLE		1
109	HEX. SOC HD CAP SCREW	M8×20	3
110	LASER		1
111	ADAPTOR		1
112	COUNTERSUNK HD SCREW	M6×16	1
113	CHUCK GUARD		1
114	PULLEY COVER KNOB		1
115	BIG FLAT WASHER	4	1
116	PAN HEAD SCREW	M4×10	1
117	HOOP FOR KEY WRENCH		1
118	PAN HEAD SCREW	M5×10	1
119	LIGHT SWITCH		2

PEDESTAL PD-440V - PARTS DIAGRAM

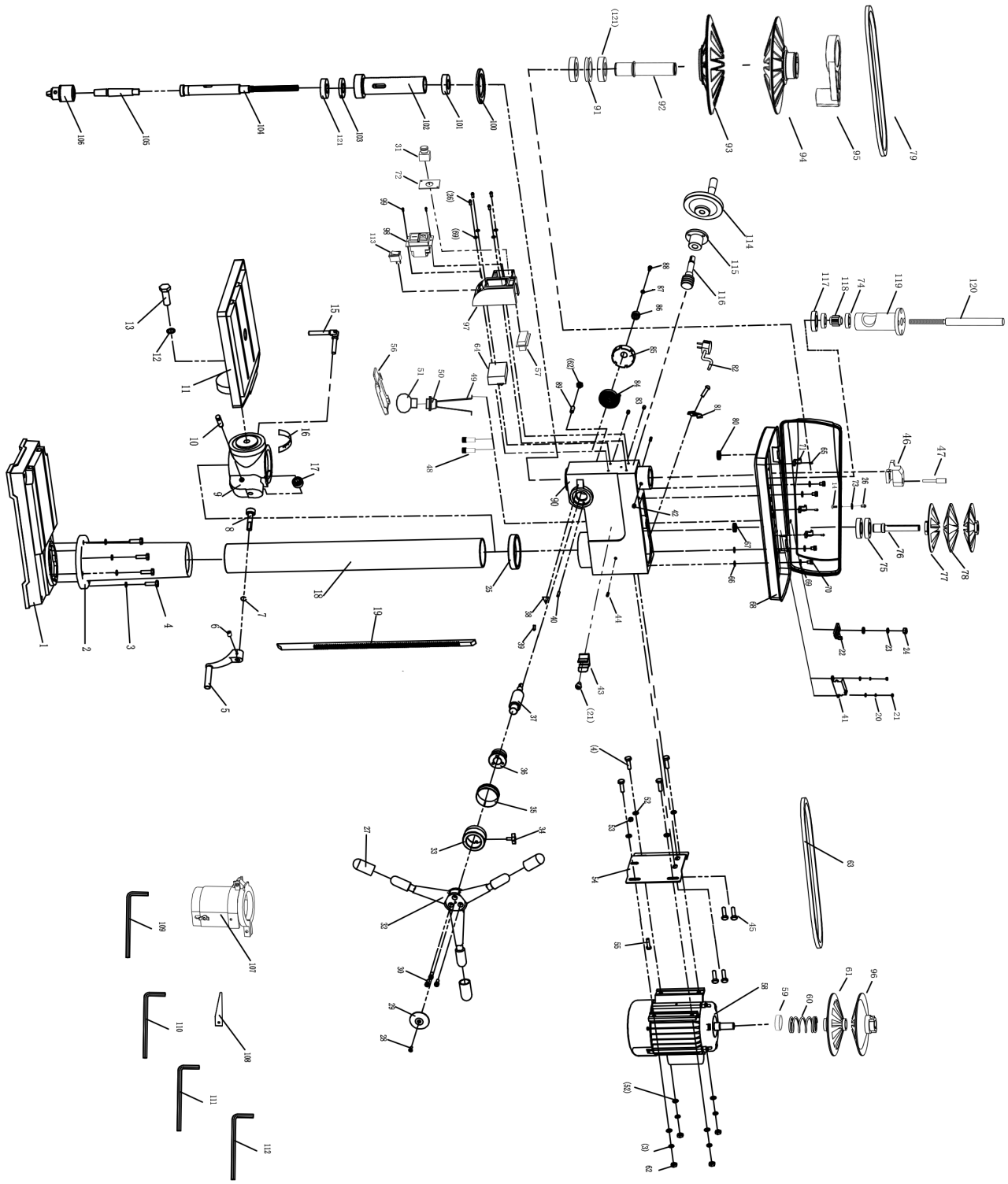


PEDESTAL PD-440V - PARTS LIST

NO.	DESCRIPTION	SPEC.	QTY
1	BASE		1
2	HIGH COLUMN FLANGE		1
3	SPRING WASHER	10	12
4	OUTSIDE HEX. BOLT	M10×35	8
5	CRANK		1
6	HEX. SOC SET SCREW	M6×12	2
7	CIRCLIP FOR BEARING	14	1
8	WORM		1
9	TABLE SUPPORT		1
10	WORM PIN		1
11	WORKING TABLE		1
12	SPRING WASHER	20	1
13	OUTSIDE HEX. BOLT	M20×55	1
14	RECESSED PAN HEAD SCREW	4X10	1
15	LOCKING HANDLE	M12X52	1
16	ANGLE LABEL		1
17	WORM GEAR		1
18	COLUMN		1
19	RACK		1
20	FLAT WASHER	5	5
21	RECESSED PAN HEAD SCREW	5X16	2
22	MICRO SWITCH CLAW		1
23	SPRING WASHER	6	1
24	NUT	M6	1
25	COLLAR RACK		2
26	PULLEY COVER KNOB		1
27	HANDLE SHEATH		3
28	CROSS RECESS HD SCREW	M6×12	2
29	CAP HANDLE		1
30	HEX. SOC HD CAP SCREW	M8×20	3
31	E-STOP SWITCH		1
32	HANDLE		1
33	DIAL SCALE		1
34	LOCKING HANDLE KNOB	M8X18	1
35	CALIBRATION LABEL		1
36	CONNECTION LOOP		1
37	GEAR SHAFT		1
38	INDICATOR		1
39	CLINCH BOLT		1
40	ROLL PIN	5X25	1
41	MICRO SWITCH ASSEMBLY		1
42	HEX. SOC SET SCREW	M10	1
43	HOOP FOR KEY WRENCH		1
44	ROLL PIN	6×18	3
45	HEX. SOC SET SCREW	8X12	4
46	HALL BRACKET		1
47	HALL SENSOR		1
48	LASER		1
49	LAMP-BRACKET		1
50	LAMP-SOCKET		1
51	LAMP		1
52	FLAT WASHER	10	8
53	NUT	M10	1
54	MOTOR CONNECTION PLATE		1
55	OUTSIDE HEX. BOLT	M10×30	1
56	LIGHT LAMP		1
57	DIGITAL DISPLAY		1
58	MOTOR		1
59	SPRING SEAT		1
60	MOTOR PULLEY SPRING		1
61	MOTOR SLIDING PULLEY		1
62	NUT	M10	5
63	BELT	AV13X686LI	1
64	TRANSFORMER		1
65	RECESS PAN HEAD SCREW	M5×16	3
66	DAMPING WASHER		4
67	PROTECTOR RING	10	2
68	PULLEY COVER		1
69	FLAT WASHER	8	4
70	OUTSIDE HEX BOLT	M8×10	4
71	CORD CLAMP		3
72	SWITCH PANEL		1
73	BIG FLAT WASHER	4	1
74	THRUST BALL BEARING	51202	2
75	BEARING	6005	1
76	MIDDLE PULLEY SHAFT		1
77	MIDDLE TIGHT PULLEY		2
78	MIDDLE LOOSE PULLEY		1
79	BELT	AV13X725LI	1
80	PROTECTOR RING	22	1
81	CORD CLAMP		1
82	PLUG WITH CABLE		1
83	HEX. SOC SET SCREW	M10×10	2
84	SPRING		1
85	SPRING COVER		1
86	MILLED NUT		1
87	BIG FLAT WASHER	6	1
88	HEX. SOC HD CAP SCREW	M6×12	1
89	A WORD HEAD SCREW	M10X25	1
90	HOUSING		1
91	DAMPING WASHER		1
92	KEYWAY SPINDLE		1
93	PULLEY		1
94	LOOSE PULLEY		1
95	HEIGHT-ADJUSTABLE BASE		1
96	MOTOR TIGHT PULLEY		1
97	SWITCH BOX		1
98	SWITCH		1
99	RECESS HD TAPPING SCREW	ST3.2×12	2
100	WASHER		1
101	BEARING	6203	1
102	SPINDLE SOCKET		1
103	BEARING	6206	1
104	MAIN SPINDLE		1
105	TAPER SPINDLE		1
106	CHUCK		1
107	CHUCK GUARD		1
108	THICK BRAKE IRON		1
109	HEXAGON BAR WRENCH	3	1
110	HEXAGON BAR WRENCH	4	1
111	HEXAGON BAR WRENCH	5	1
112	HEXAGON BAR WRENCH	6	1
113	LIGHT SWITCH		2
114	SPEEDLE HANDLE		1
115	HEIGHT-WORM BASE		1
116	HEIGHT-WORM		1
117	WORM GEAR SPACER RING		1
118	WORM GEAR		1
119	WORM FIXING BASE		1
120	LIFTING SHAFT		1
121	BEARING	6205	2

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

PEDESTAL PD-510V - PARTS DIAGRAM



PEDESTAL PD-510V - PARTS LIST

NO.	DESCRIPTION	SPEC.	QTY
1	BASE		1
2	HIGH COLUMN FLANGE		1
3	SPRING WASHER	10	12
4	OUTSIDE HEX. BOLT	M10×35	8
5	CRANK		1
6	HEX. SOC SET SCREW	M6×12	2
7	CIRCLIP FOR BEARING	14	1
8	WORM		1
9	TABLE SUPPORT		1
10	WORM PIN		1
11	WORKING TABLE		1
12	SPRING WASHER	20	1
13	OUTSIDE HEX. BOLT	M20×55	1
14	RECESSED PAN HEAD SCREW	4X10	1
15	LOCKING HANDLE	M12X52	1
16	ANGLE LABEL		1
17	WORM GEAR		1
18	COLUMN		1
19	RACK		1
20	FLAT WASHER	5	5
21	RECESSED PAN HEAD SCREW	5X16	2
22	MICRO SWITCH CLAW		1
23	SPRING WASHER	6	1
24	NUT	M6	1
25	COLLAR RACK		2
26	PULLEY COVER KNOB		1
27	HANDLE SHEATH		3
28	CROSS RECESS HD SCREW	M6×12	2
29	CAP HANDLE		1
30	HEX. SOC HD CAP SCREW	M8×20	3
31	E-STOP SWITCH		1
32	HANDLE		1
33	DIAL SCALE		1
34	LOCKING HANDLE KNOB	M8X18	1
35	CALIBRATION LABEL		1
36	CONNECTION LOOP		1
37	GEAR SHAFT		1
38	INDICATOR		1
39	CLINCH BOLT		1
40	ROLL PIN	5X25	1
41	MICRO SWITCH ASSEMBLY		1
42	HEX. SOC SET SCREW	M10	1
43	HOOP FOR KEY WRENCH		1
44	ROLL PIN	6×18	3
45	HEX. SOC SET SCREW	8X12	4
46	HALL BRACKET		1
47	HALL SENSOR		1
48	LASER		1
49	LAMP-BRACKET		1
50	LAMP-SOCKET		1
51	LAMP		1
52	FLAT WASHER	10	8
53	NUT	M10	1
54	MOTOR CONNECTION PLATE		1
55	OUTSIDE HEX. BOLT	M10×30	1
56	LIGHT LAMP		1
57	DIGITAL DISPLAY		1
58	MOTOR		1
59	SPRING SEAT		1
60	MOTOR PULLEY SPRING		1
61	MOTOR SLIDING PULLEY		1
62	NUT	M10	5
63	BELT	AV13X762LI	1
64	TRANSFORMER		1
65	RECESS PAN HEAD SCREW	M5×16	3
66	DAMPING WASHER		4
67	PROTECTOR RING	10	2
68	PULLEY COVER		1
69	FLAT WASHER	8	4
70	OUTSIDE HEX BOLT	M8×10	4
71	CORD CLAMP		3
72	SWITCH PANEL		1
73	BIG FLAT WASHER	4	1
74	THRUST BALL BEARING	51202	2
75	BEARING	6005	1
76	MIDDLE PULLEY SHAFT		1
77	MIDDLE TIGHT PULLEY		2
78	MIDDLE LOOSE PULLEY		1
79	BELT	AV13X737LI	1
80	PROTECTOR RING	22	1
81	CORD CLAMP		1
82	PLUG WITH CABLE		1
83	HEX. SOC SET SCREW	M10×10	2
84	SPRING		1
85	SPRING COVER		1
86	MILLED NUT		1
87	BIG FLAT WASHER	6	1
88	HEX. SOC HD CAP SCREW	M6×12	1
89	A WORD HEAD SCREW	M10X25	1
90	HOUSING		1
91	DAMPING WASHER		1
92	KEYWAY SPINDLE		1
93	PULLEY		1
94	LOOSE PULLEY		1
95	HEIGHT-ADJUSTABLE BASE		1
96	MOTOR TIGHT PULLEY		1
97	SWITCH BOX		1
98	SWITCH		1
99	RECESS HD TAPPING SCREW	ST3.2×12	2
100	WASHER		1
101	BEARING	6005	1
102	SPINDLE SOCKET		1
103	BEARING	51107	1
104	MAIN SPINDLE		1
105	TAPER SPINDLE		1
106	CHUCK		1
107	CHUCK GUARD		1
108	THICK BRAKE IRON		1
109	HEXAGON BAR WRENCH	3	1
110	HEXAGON BAR WRENCH	4	1
111	HEXAGON BAR WRENCH	5	1
112	HEXAGON BAR WRENCH	6	1
113	LIGHT SWITCH		2
114	SPEED HANDLE		1
115	HEIGHT-WORM BASE		1
116	HEIGHT-WORM		1
117	WORM GEAR SPACER RING		1
118	WORM GEAR		1
119	WORM FIXING BASE		1
120	LIFTING SHAFT		1
121	BEARING	6007	2

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

NOTES:

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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