

HAFCO

METALMASTER



Edition : 1.0
Date: (1/25)

Instruction Manual

INDUSTRIAL GEARED HEAD DRILLING MACHINE GHD-22A

Order Code: (D171)

MACHINE DETAILS

MACHINE.

DRILLING MACHINE

MODEL NO.

GHD-22A

SERIAL NO.

DATE OF MANF.

IMPORTED BY

AUSTRALIA



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)

PRODUCT SPECIFICATIONS	
Model: GHD-22A	Voltage: 415V/3Ph-50Hz
Capacity: 31.5mm	Motor: 0.9kW
Nett Weight: 210kg	FLC: 2.3A
MFG Date:	
Serial No:	<input type="text"/>
Imported by www.machineryhouse.com.au	Made in China www.machineryhouse.co.nz

FIG.1

CONTENTS:

1. GENERAL MACHINE INFORMATION	
1.1 Specifications.....	4
1.2 Included Accessories.....	4
1.3 Identification.....	5
1.4 Outline Dimesions.....	6
2. SAFETY	
2.1 General Metalworking Machine Safety.....	7
2.2 Specific Safety For Drill Press.....	10
3. POWER SUPPLY	
3.1 Electrical Installation.....	11
3.2 Full Load Current.....	11
4. SETUP	
4.1 Unpacking.....	12
4.2 Clean Up.....	12
4.3 Site Preparation.....	12
4.4 Lifting Instructions.....	13
4.5 Anchor To The Floor.....	13
4.6 Assembly.....	13
4.7 Controls.....	14
4.8 Test Run.....	16
5. OPERATION	
5.1 Positioning The Table.....	17
5.2 Positioning The Head.....	17
5.3 Setting The Spindle Speed.....	18
5.4 Automatic Drill Ejector.....	19
5.5 Tapping Operation.....	19
6. MAINTENANCE	
6.1 Schedule.....	20
6.2 Spindle Adjustment.....	20
6.3 Troubleshooting.....	21
SPARE PARTS.....	22
Drill Head.....	23
Gearbox.....	24
Motor Shaft.....	25
Gearbox 2nd & 3rd Shafts.....	26
Column, Table & Spindle.....	28
Electrical Diagram.....	32
Risk Assessment Sheets.....	35

1.1 SPECIFICATIONS

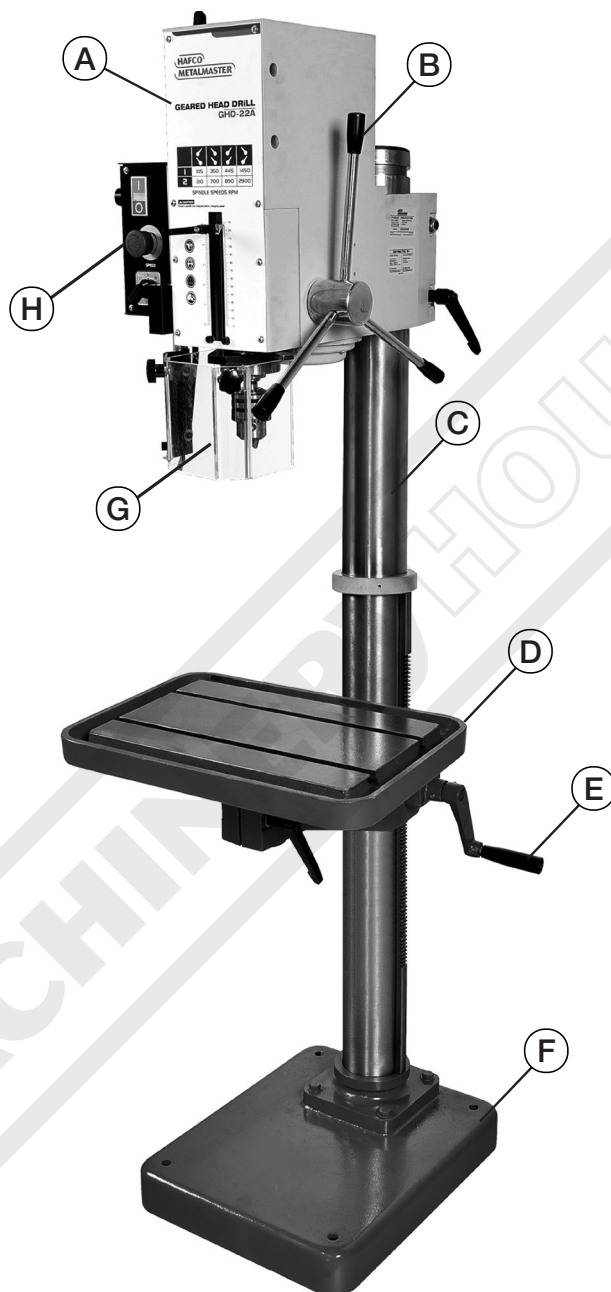
Order Code	D171
Model	GHD-22A
Drilling Capacity (mm)	Ø25
Spindle Taper (MT)	3
Spindle Travel (mm)	125
Throat Depth (mm)	255
Quill Diameter (mm)	55
Column Diameter (mm)	100
Spindle To Table (mm)	830
Spindle To Base (mm)	1220
Tapping Capacity In Steel (mm)	10
Tapping Capacity In Cast Iron (mm)	16
Table (Type)	Rectangle
Table Size (mm)	340 x 500
T-Slot Size (mm)	14
Spindle Speed Steps (No.)	8
Spindle Speed Range (rpm)	105 ~ 2900
Motor Power (kW / hp)	0.9 / 1.2
Footprint (mm)	600 x 350
Full Height (mm)	1710
Voltage (V)	415
Amperage (amp)	10
Nett Weight (kg)	190

1.2 ACCESSORIES

- 16mm keyed drill chuck and arbor
- Chuck key to suit
- Drill drift tool to remove drill chuck or taper shank drills
- Interlocked spindle safety guard

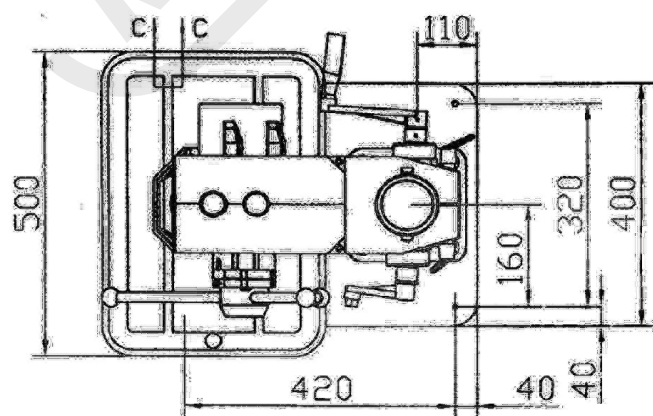
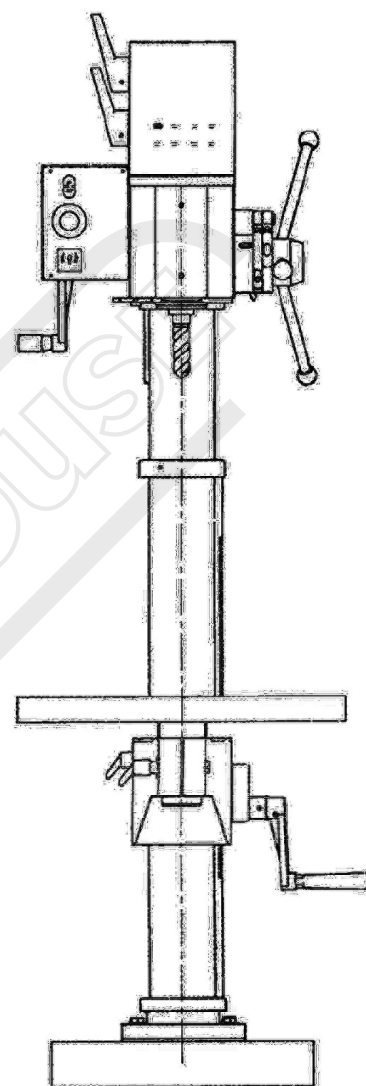
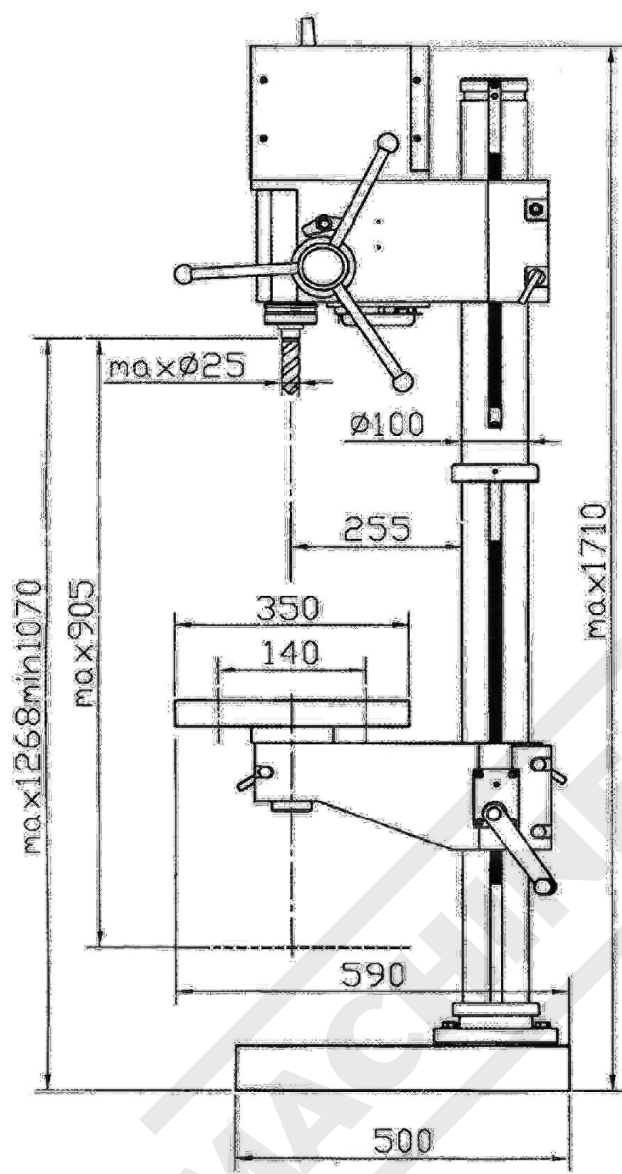
1.3 IDENTIFICATION

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.

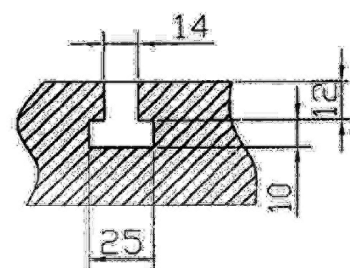


A	Head and Motor	E	Table Height Crank Handle
B	Spindle Handles	F	Base
C	Column	G	Spindle Safety Shield
D	Table	H	Control Panel

1.4 OUTLINE DIMENSIONS



Vy C-C
skala 0.5



2. IMPORTANT INFORMATION

2.1 GENERAL METALWORKING MACHINE SAFETY

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



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.
- ✓ DISCONNECTION 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 jewellery 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 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 spindle to a 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

- | | |
|--|---|
| <input type="checkbox"/> Hair/clothing getting caught in moving machine parts. | <input type="checkbox"/> Eye injuries. |
| <input type="checkbox"/> Flying swarf and chips. | <input type="checkbox"/> Sharp edges and burrs. |



CAUTION

It is impossible to cover all possible hazards. All workshop environments are 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 415V. 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.....	415V
Cycle.....	50 Hz
Phase.....	Three Phase
Power Supply Circuit.....	10 Amps
Full Load Current.....	5.2 Amps

(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 this 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.

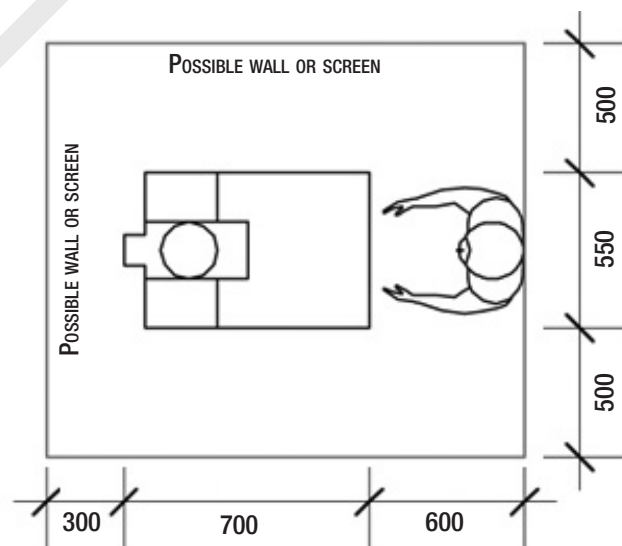
4.3 SITE PREPARATION

When selecting the site for the machine, consider the largest size of 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.

Safe Working Area



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.

4.5 ANCHORING TO THE FLOOR

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)

WARNING	
SAFETY FIRST 	<p><i>The safety instructions given in this manual can not be complete. The environment in every shop is different. Always consider your safety first as it applies to your individual working conditions.</i></p>

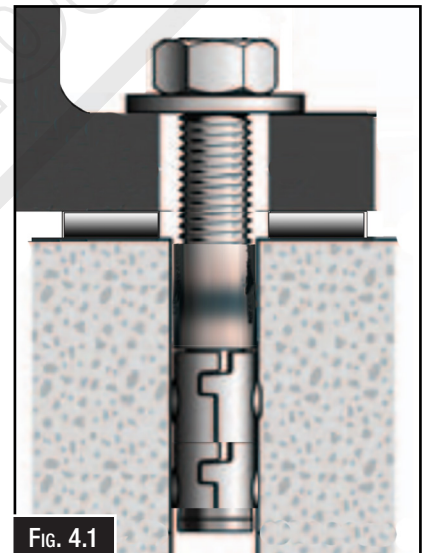


Fig. 4.1

4.6 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.

SPINDLE HANDLES

Spindle Handle (1 of 3): Moves the spindle down when pulled down. The Spindle automatically returns to top position when released.

Screw the 3 spindle handles into the spindle hub.(Fig. 4.2)

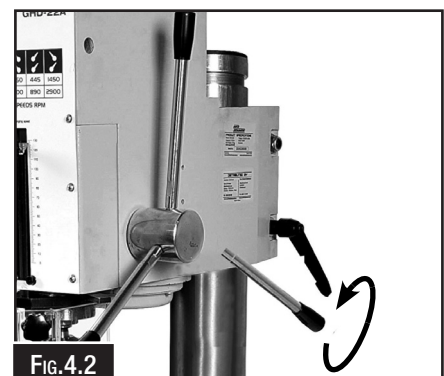


Fig.4.2

TABLE HEIGHT CRANK

Table Height Crank: Raises/lowers the table on the column. Slide the crank handle onto the shaft and secure with the grub screw. (Fig. 4.3)

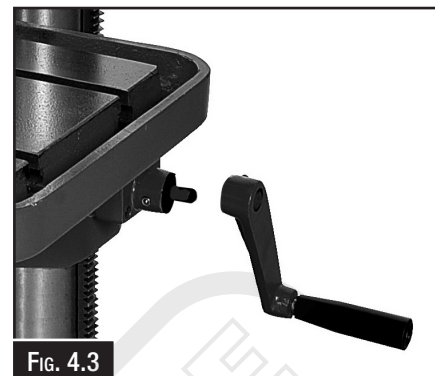


FIG. 4.3

4.7 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/OFF Buttons:** Switches the motor ON or OFF. (Fig. 4.4)
- B. **Emergency Stop Button:** When pressed disconnects power to the motor. The power remains disconnected until the button is reset and the ON button is pressed again.
- C. **High/Low Speed Switch:** Switches the motor between High and Low speed, and forward or reverse.
- D. **Depth Stop Lever:** The lever adjusts the position of the spindle depth stop.
- E. **Safety Guard Clamp:** Used to set the height of the safety guard then clamps it in the position.

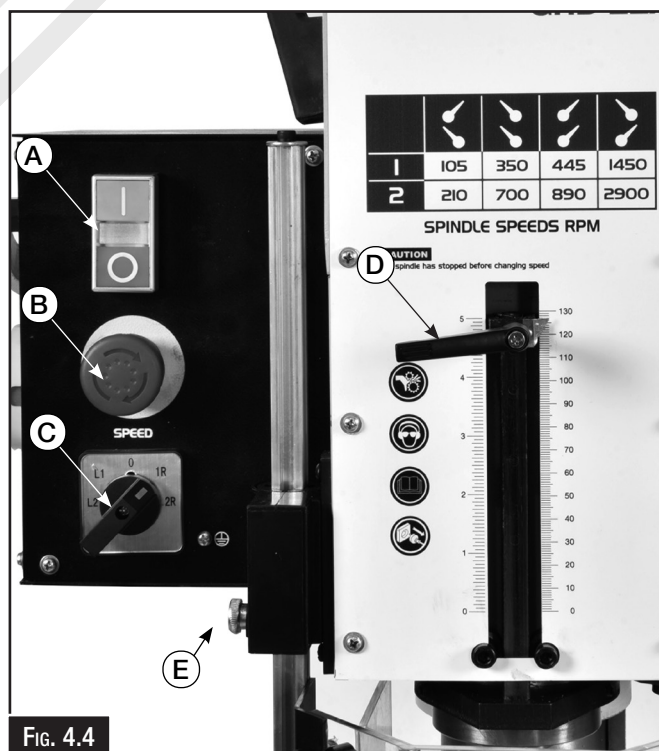


FIG. 4.4

4.7 CONTROLS Cont.

- F. Gearbox Speed Levers:** Sets the speed of the spindle gearbox (Fig. 4.5)
- G. Main Isolating Switch:** Isolates the power from the machine.
- H. Head Crank Handle:** After the head clamps are loosen, moves the head up and down on the rack.
- I. Spindle Operating Levers:** Used to move the spindle up and down. (Fig. 4.6)
- J. Head Clamping Lever:** Clamps the head to the column. Should be used after the head is moved.
- K. Table Swivel Clamp:** When loosened allows for the table to be swivelled by hand.
- L. Table Crank Handle:** After the table clamps are loosened, moves the table up and down on the rack.

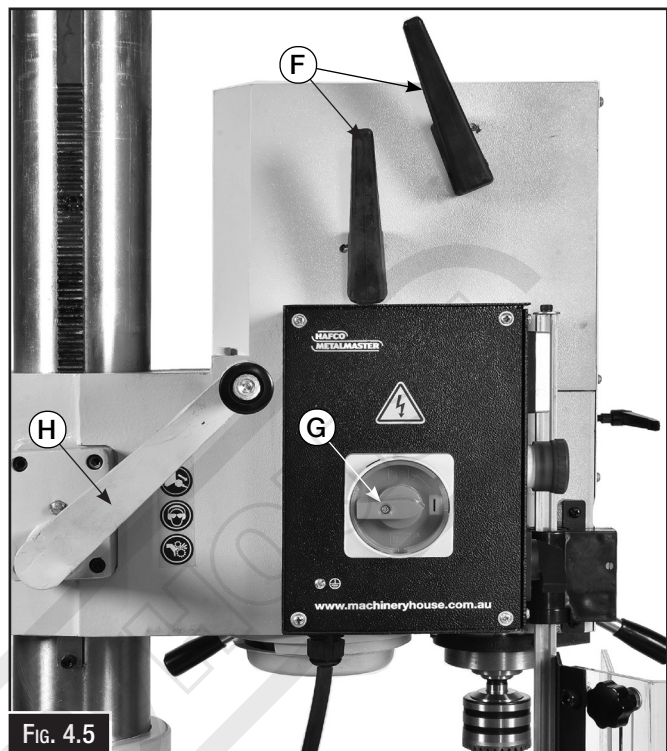


FIG. 4.5

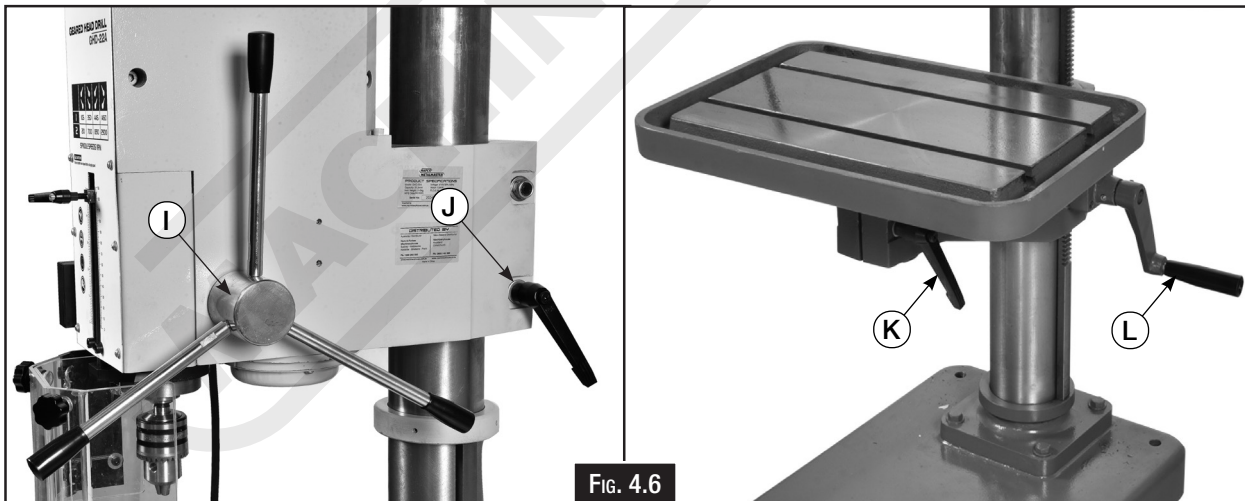


FIG. 4.6



WARNING

DO NOT operate any machine before it is fully assembled and all guards have been fitted and secured. Failure to do so may cause death or injury.

4.8 TEST RUN

Once assembly is complete, test run the machine to ensure it is properly connected to the power and safety components are functioning correctly. Check that the direction of the motor is correct and make sure that the machine rotates in the correct direction.

If the direction is incorrect, isolate the machine and have the electrician make changes to the wiring.

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. The Troubleshooting table in the Maintenance section of this manual may be able to help. If the problem persists then contact your dealers service technician.

To test run the machine:

1. Connect the machine to the power supply.
2. Make sure that the manual has been read and that the safety instructions at the beginning of the manual are understood. Make sure the machine has been setup correctly
3. Make sure all tools and objects used during set up have been cleared away from the machine.
4. Turn the machine ON.
5. Make sure that the machine is travelling in the correct direction, according to the High Low switch, and the forward and reverse settings.
6. Listen to and watch for abnormal noises or actions. The machine should run smoothly with little or no vibration or rubbing noises.
7. Any strange or unusual noises should be investigated and corrected before operating the machine again. Always disconnect the machine from power supply when investigating or correcting potential problems. The troubleshooting chart in the maintenance section may be helpful in rectifying a problem.

Testing The Emergency Stop Button

Make sure that the emergency button is working correctly

1. Twist the top of the Emergency Stop button to ensure that it is in the raised position.
2. Start the machine and then press the emergency stop button. The machine should stop and the power should be cut off. If the machine cannot be started then the emergency stop is working correctly.
3. To reset the Emergency Stop twist the red top until it pops up. The machine should now work again.



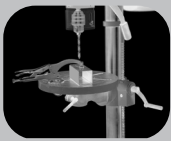
5. OPERATION

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!

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!



WARNING

Make sure the work piece has been securely clamped before commencing to drill. Use leather gloves when handling swarf. Cuttings are sharp and can cause deep cuts.

5.1 POSITIONING THE TABLE

The table for the GHD-22A drill press moves vertically and the table rotates 360 degrees. The table also rotates around the column to accommodate larger workpieces.

Raising or Lowering the table

1. Remove all tools from the table surface.
2. Loosen the lock handle. (A in Fig. 5.1)
3. Adjust table height by rotating height adjustment crank. (B in Fig. 5.1)

Rotating The Table.

1. Loosen the table lock handle. (C in Fig. 5.1)
2. Rotate the table by hand until the required position is reached.
3. Lock the table lock.

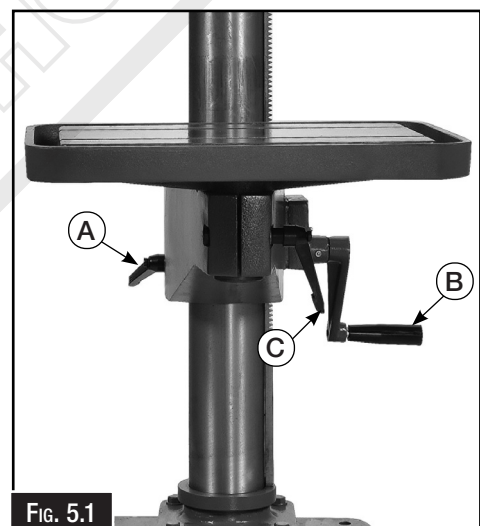


Fig. 5.1

5.2 POSITIONING THE HEAD

The head for the GHD-22A drill press moves vertically allowing the cutter to be positioned closer to the workpiece.

Raising or Lowering the head

1. Loosen the head lock handle. (D in Fig. 5.2)
2. Adjust head height by rotating height adjustment crank. (E in Fig. 5.2)
3. Lock the head lock handle.

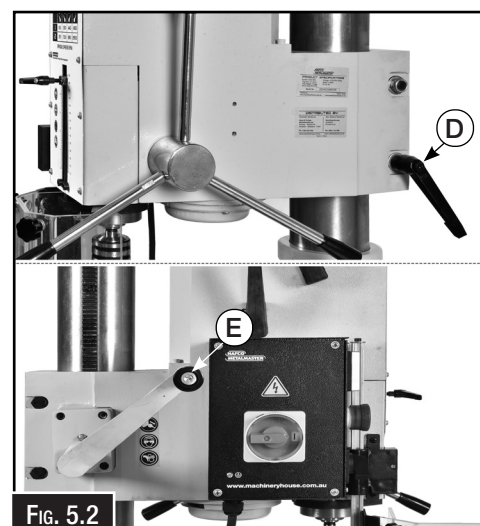


Fig. 5.2

5.3 SETTING THE SPINDLE SPEED

Drill speed, also known as spindle speed or cutting speed, is a key factor in how fast materials are removed and the quality of the drilling.

Choosing the right drill speed can make tools last longer, improve hole quality, and boost the productivity. This works for materials like mild steel and aluminium. A typical drill press often has an RPM limitations. If the drill chart specifies a higher RPM than your machine is capable of, it should not cause a problem to run at a lower RPM. For instance, many people drill 1.5mm holes at less than 10,000 RPM with no problems.

Note: The speeds in the table below are only suggestions and may be change subject to different conditions

Drill Dia. (mm)	Drill Speed (rpm)			
	Steel	Cast Iron	Iron	Alum. & Copper
3	1580	2580	2580	2580
4	1350	2180	2180	2580
5	1290	1580	1580	2580
6	830	1350	1350	2580
7	830	1290	1290	2580
8	830	1290	1290	2580
9	540	830	830	2180
10	500	830	830	2180
11	500	830	830	1580
12	420	830	540	1580
13	420	540	540	1350
14	420	540	500	1350
16	320	500	500	1290
18	320	420	420	1290
20	280	320	320	1290
22	210	320	280	830
25	210	280	210	830



FIG. 5.3

To select 105 rpm move the top lever to the right (F in Fig. 5.3) and the bottom lever to the left position. (G in Fig. 5.3)

Move the High Low switch to the right (R1 in Fig. 5.4) This rotates the spindle to the right when viewed from the top of the machine.

To turn the spindle to the left (reverse as viewed from the top of the machine.) then move the switch to L1 in Fig. 5.4.

Note: When selecting speeds pick the speed closest to the speed listed in the chart.

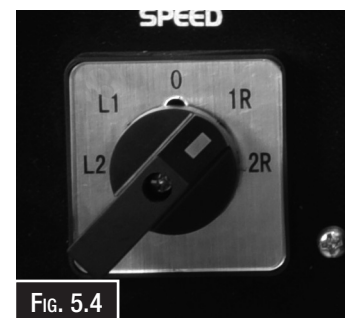


FIG. 5.4

WARNING

To avoid damaging gears, ALWAYS make sure the spindle is completely stopped BEFORE moving the spindle speed levers.

STOP

1	105	350	445	1450
2	210	700	890	2900

5.4 AUTOMATIC DRILL EJECTOR

When the drill needs to be ejected, the pivoting finger stop can be swung outward away from the spindle by pressing the short extended section,

This allows the quill unit to be raised an extra 6mm. The drill or chuck shank is then ejected from out of the spindle by giving a light jerk on the feed handle.

The pivoting finger stop is in the "IN" position, (H in Fig. 5.5) prevents the quill unit from returning completely into the quill housing. This prevents the tang on the drill shank from contacting the drill ejector during normal use.

It sometimes occurs that the drill or chuck shank may stick in the taper socket, making it difficult to eject. Do not use force to loosen it, as this may damage both the spindle shaft and the bearing. In such cases use the standard type of drill drift by lowering the spindle until the drift slot is below the spindle housing.

It is essential for efficient use of the built-in drill ejector, that drills and chuck shanks are provided with standard tapers and tangs. If the tang is too short the drill can only be removed by using a drift by the method listed above. If the tang is longer than normal, the drill will be removed even if the pivoting finger stop is in the "IN" position. This can, however, be easily remedied by grinding down the head of the tang until it clears the ejector.

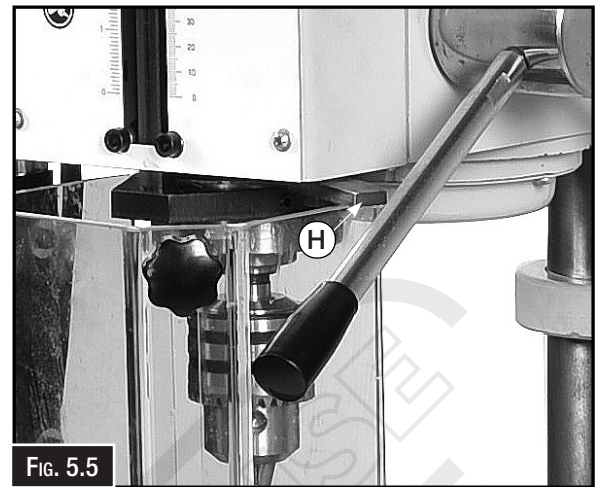
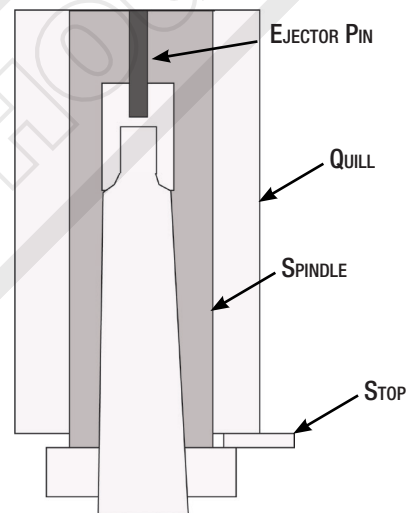


FIG. 5.5



5.5 TAPPING OPERATION

The GHD-22A drill press can be used for manual tapping operations. The machine **WILL NOT** auto reverse the spindle at the end of the stroke but needs to be manually reversed with the switch. It is not recommended that blind hole tapping operation are attempted unless using a holder fitted with a clutch. For through hole tapping please use a fixed tapping holder such as (T004B).



3 MT FIXED TAPPING CHUCK
ORDER CODE (T004B)



WARNING

Always check the capacity of the machine. Exceeding the capacity of the machine may result in sudden breakage that ejects dangerous metal debris at the operator or bystanders

6. 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.

6.1 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.

6.2 SPINDLE ADJUSTMENT

The spindle is mounted in the quill by a taper roller bearing at the bottom and by a radial ball bearing at the top. At the top end of the spindle there is a nut where any play in the taper bearing can be adjusted. This nut can be reached, when the quill is removed from the machine.

Hold the spring housing by co-locating a hex key in the centre of the housing and loosen the screw in the housing to relieve the pressure on the spring. The quill will then automatically go to its lowest position.

Remove the stop and loosen the screw, which keeps the feed shaft in its position. Hold the quill with one hand and push the feed drive shaft so far to the right to disengage the teeth from the quill feed rack. Then remove the quill.

When re-assembling, the keys on the spindle are to coincide with the key ways in the spindle shaft. Take care to avoid damaging the keys when sliding the quill into position.



WARNING

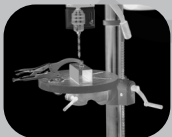
*Disconnect all power from the machine before servicing.
There may be multiple power sources present.
Remove the plug from the power point or remove the fuse if
hardwired. Failure to do may cause death or injury.*

6.3 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 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.

Symptom	Possible Cause	Possible Solution
Excessive Vibration.	1. Motor out of balance. 2. Faulty Motor.	1. Balance or replace motor. 2. Replace faulty motor.
Motor Stalls.	1. Feed too great. 2. Dull drill. 3. Motor not building up to running speed. 4. Faulty motor.	1. Reduce feed rate. 2. Sharpen the drill or replace. 3. Replace or repair motor. Check fuses on each leg of the power. 4. Replace Motor.
Noisy Operation.	1. Excessive vibration. 2. Improper quill adjustment. 3. Noisy spline. 4. Noisy motor.	1. Find vibration and correct condition. 2. Adjust quill. 3. Lubricate spline. 4. Check motor bearings or loose fan.
Drill or Tool heats up or burns work.	1. Excessive speed. 2. Chips not clearing the hole. 3. Dull drill. 4. Feed rate too slow. 5. Rotation of drill incorrect. 6. Lack of cutting oil or coolant.	1. Reduce the spindle speed. 2. Use pecking operation to clear chips. 3. Sharpen tool or replace. 4. Increase feed rate enough to clear chips. 5. Reverse spindle rotation. 6. Use cutting oil or coolant. (Steel)
Drill leads off.	1. No spot drill. 2. Cutting lips on the drill off centre. 3. Quill loose in head. 4. Bearing play.	1. Centre punch or centre drill the workpiece. 2. Regrid the drill. 3. Tighten the quill. 4. Adjust or replace spindle bearings.
Excessive drill run-out or wobble.	1. Failure to clamp the workpiece. 2. Drill bent. 3. Dirt in the spindle taper.	1. Clamp the workpiece to the table. 2. Replace the drill. 3. Eject drill and clean the spindle and drill taper.
Workpiece comes loose or spins.	1. Workpiece not clamped correctly. 2. Drill jamming.	1. Securely clamp the workpiece to the table. 2. Ensure the drill is sharpen and the hole is not running off centre.



WARNING

Make sure the work piece has been securely clamped before commencing to drill. Use leather gloves when handling swarf. Cuttings are sharp and can cause deep cuts.



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.

DRILLING MACHINE

GHD-22A

Order Code: (D171)

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



WARNING!

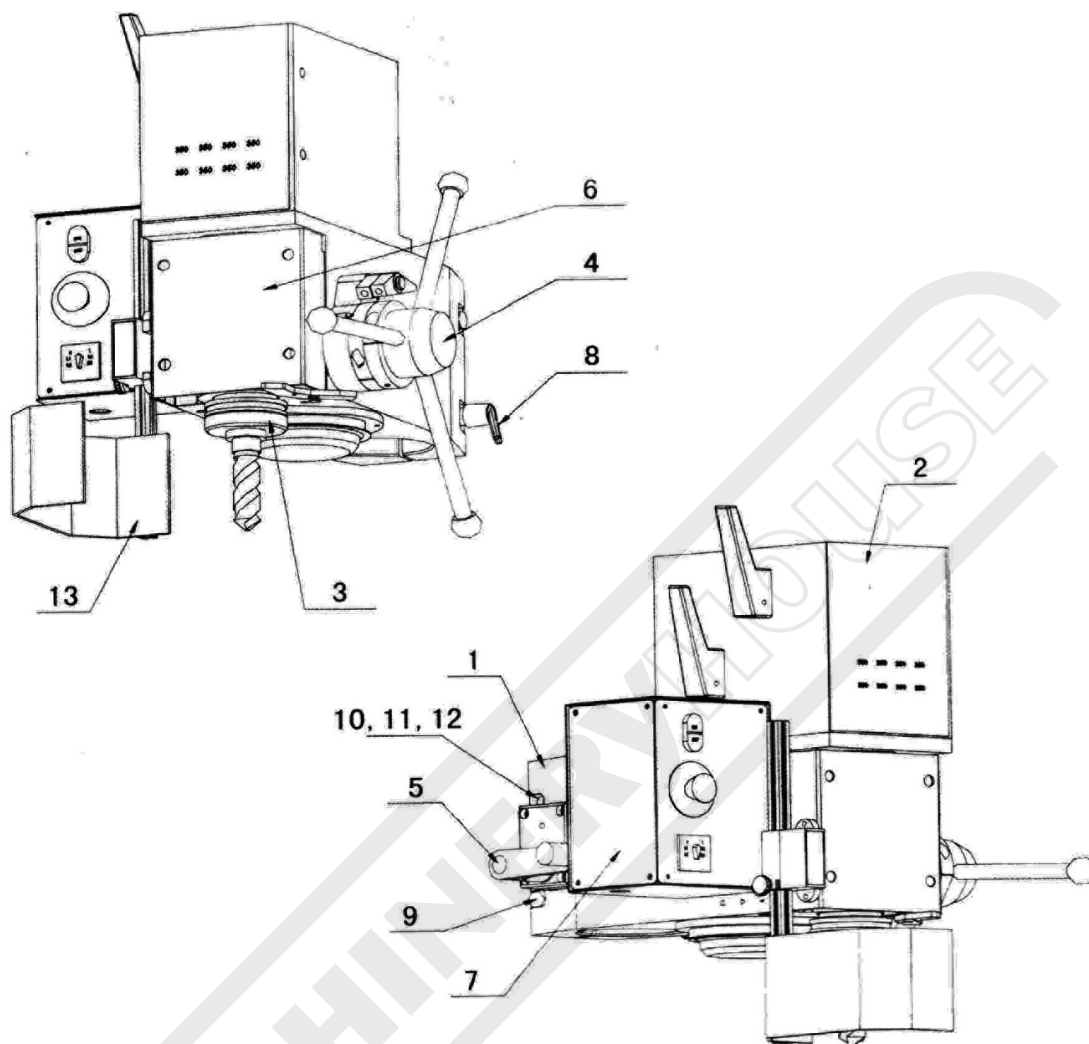
*Electricity is dangerous and could cause death.
All electrical work must be carried out by a qualified electrician.*



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.

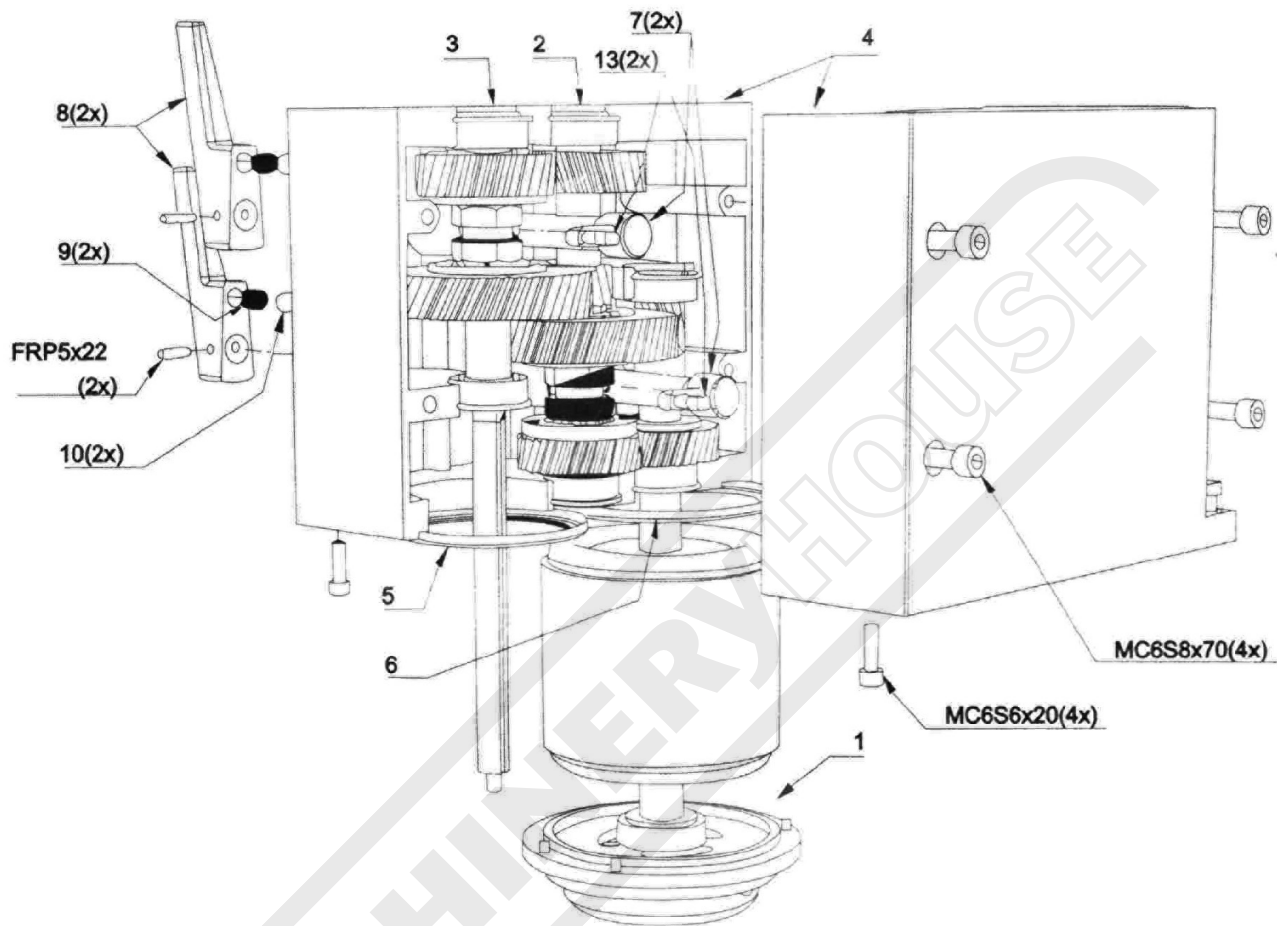
DRILL HEAD SPARE PARTS



Item	Fig. No.	Description	Spec.
1.	T25-2020	Spindle housing	
2.	2X08404	Gearbox	
3.	2X08719	Spindle sleeve	
	T25A	Spindle sleeve	
4.	2X08740-5	Feedshaft compl.	
	T25A	Feedshaft compl.	
5.	2X08720	Worm unit	
6.	T251-1002	Front cover	
	T25A-3027	Front cover	
7.	T25-4000	Electric box cover	
8.	3R00014	Locking lever	
9.	3S02556	Screw	M12 x 130
10.	3S02558	Screw	M12 x 120
11.	3M09122	Locking Nut	M12
12.	3804178	Washer	M12
13.		Protection	

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

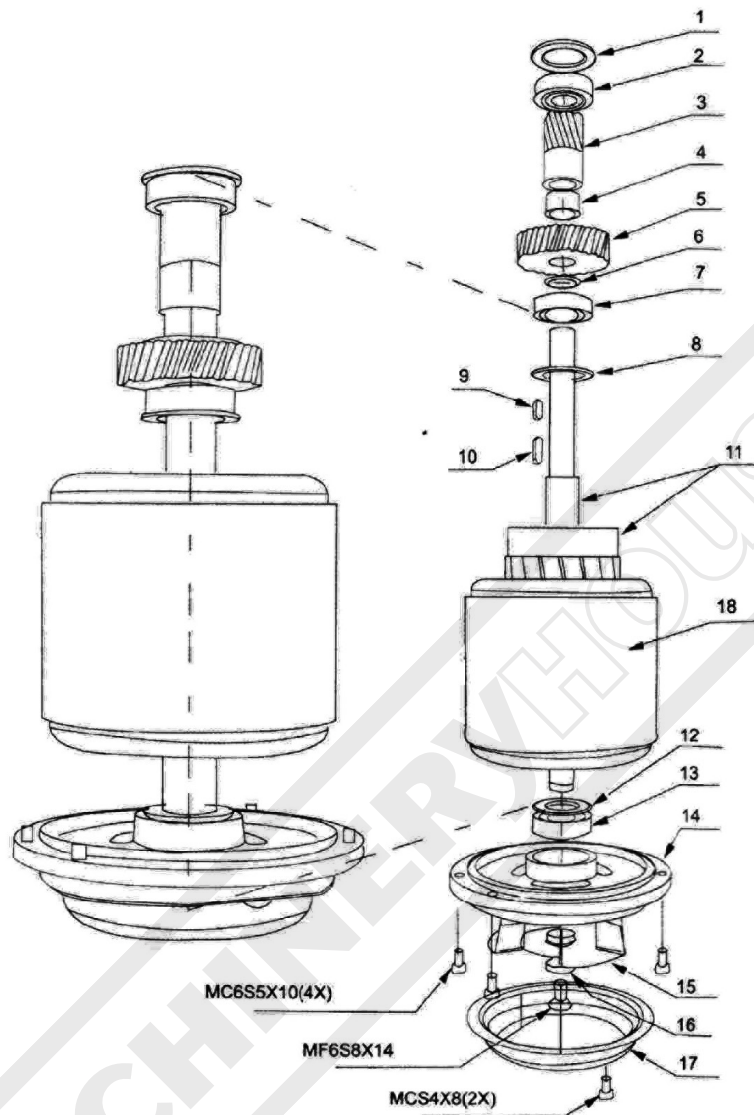
GEARBOX SPARE PARTS



Item	Fig. No.	Description	Spec.
1.		Rotor Shaft	
2.	2X08404-2	2nd Shaft complete	
3.	2X08404-3	3rd Shaft complete	
4.	2X08422	Gear box complete	
5.	4B00174	Ring	
6.	4B00173	Ring	
7.	2X08536	Gear selector arm	
8.	4RS0653-I	Gear lever	
9.	4(02921	Gear	
10.	3T04028	Steel ball	
13.	4T04168	Shift pin	

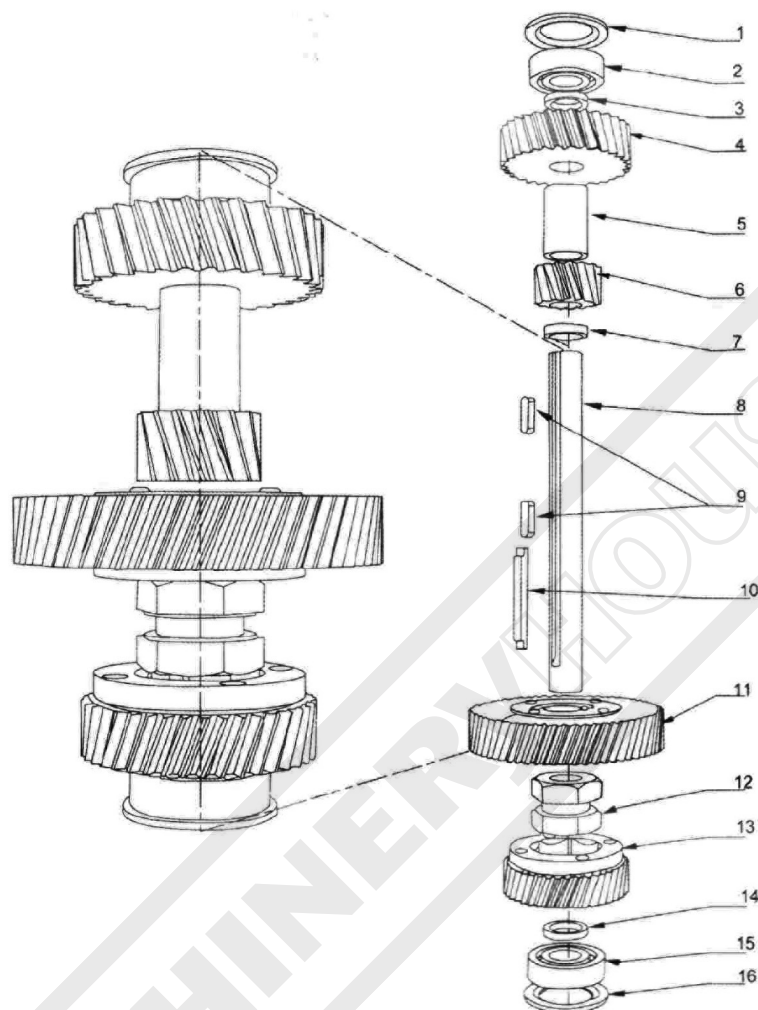
NOTE: SOME INDIVIDUAL PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY

MOTOR SHAFT SPARE PARTS



Item	Fig. No.	Description	Spec.
1	4800137	Washer	
2	3LI 1003	Ball bearing	6203
3	2H07969	Gear	15-1,5
4	2D17014	Spacing sleeve	17x14
5	2H07972	Gear	39-1,5
6	2D17002	Spacing sleeve	17x2
7	3LI 1003	Ball bearing	6203
8	4800137	Washer	
9	3K00184	Key	5x5x14
10	3K00187	Key	5x5x20
11	2X08405	Rotor shaft	
12	4F06203	Washer	FB 6203
13	3LII003	Ball bearing	6203
14	2N01889	Bearing cover	8-18 9
15	4800175	Fan	8-175
16	2803449	Washer	C-3449
17	4801890	Fan cover	C-1890
18	3E80103	Stator 80/2-4-70	380-440

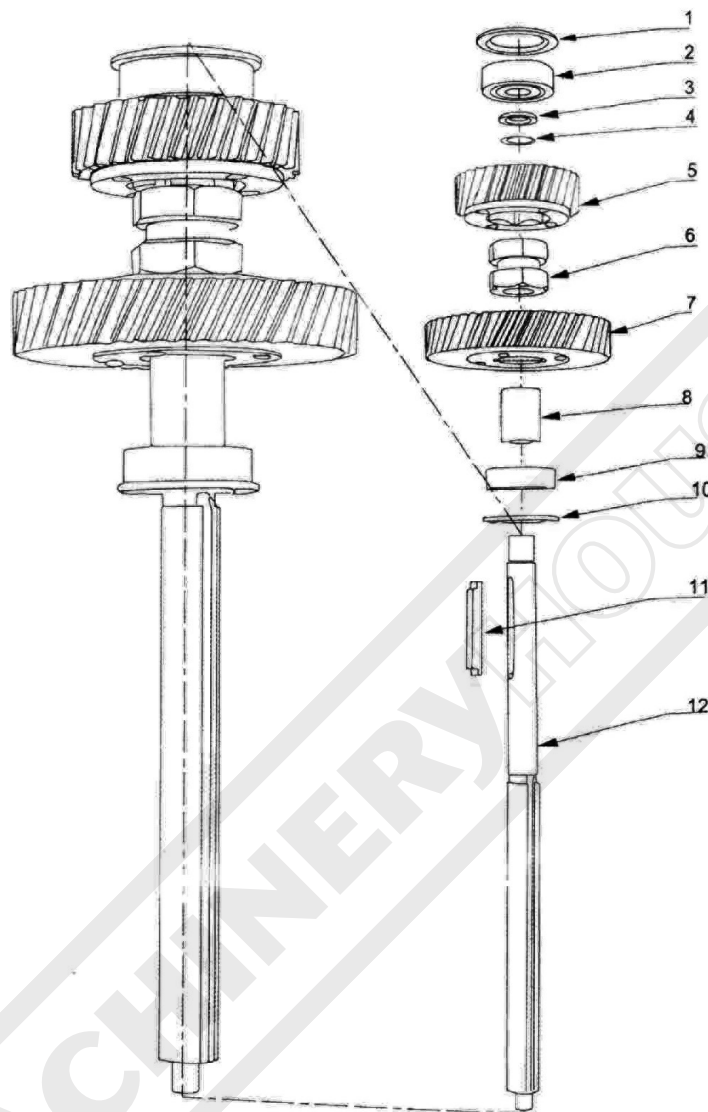
2ND SHAFT GEARBOX SPARE PARTS



Item	Fig. No.	Description	Spec.
1	4B00138	Washer	C-138
2	3LI 1003	Ball bearing	6203
3	2D00009	Spacing sleeve	17x3.5
4	2H07971	Gear	32-2
5	2D17038	Spacing sleeve	17x38
6	2H07970	Gear	15-2
7	2D17005	Spacing sleeve	17x5
8	2A04871	2nd Shaft	C-4871
9	3K00187	Key	5x5x20
10	2T06615	Key	C-6615
11	2X08408	Gear complete	64-1,5
12	2T04254	Clutch	C-4254
13	2X08406	Gear complete	40-1,5
14	2D00009	Spacing sleeve	17x3,5
15	3LI 1003	Ball bearing	6203
16	4B00138	Cover	C-138

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

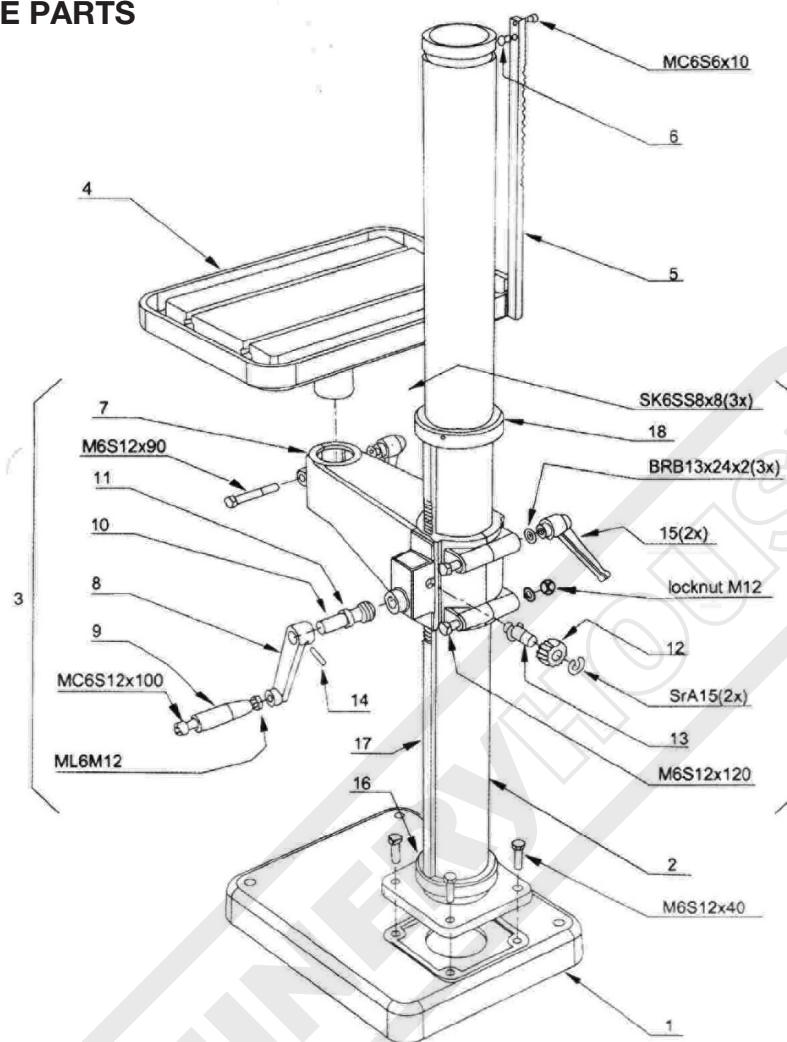
3RD SHAFT GEARBOX SPARE PARTS



Item	Fig. No.	Description	Spec.
1.	4800138	Cover	C-138
2.	3LI6002	Ball bearing	6302
3.	3D15002	Spacing sleeve	15x2
4.	3C01117	Cir-clip	SgA 15
5.	2X08413	Gear complete	32-2
6.	2T04254	Clutch	C 4254
7.	2X08411	Gear complete	49-2
8.	2D00006	Spacing sleeve	17x31,5
9.	3LI 1003	Ball bearing	6203
10.	4800137	Cover	C-137
11.	2T06615	Key	C-6615
12.	2A08410	3rd Shaft	B- 410

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

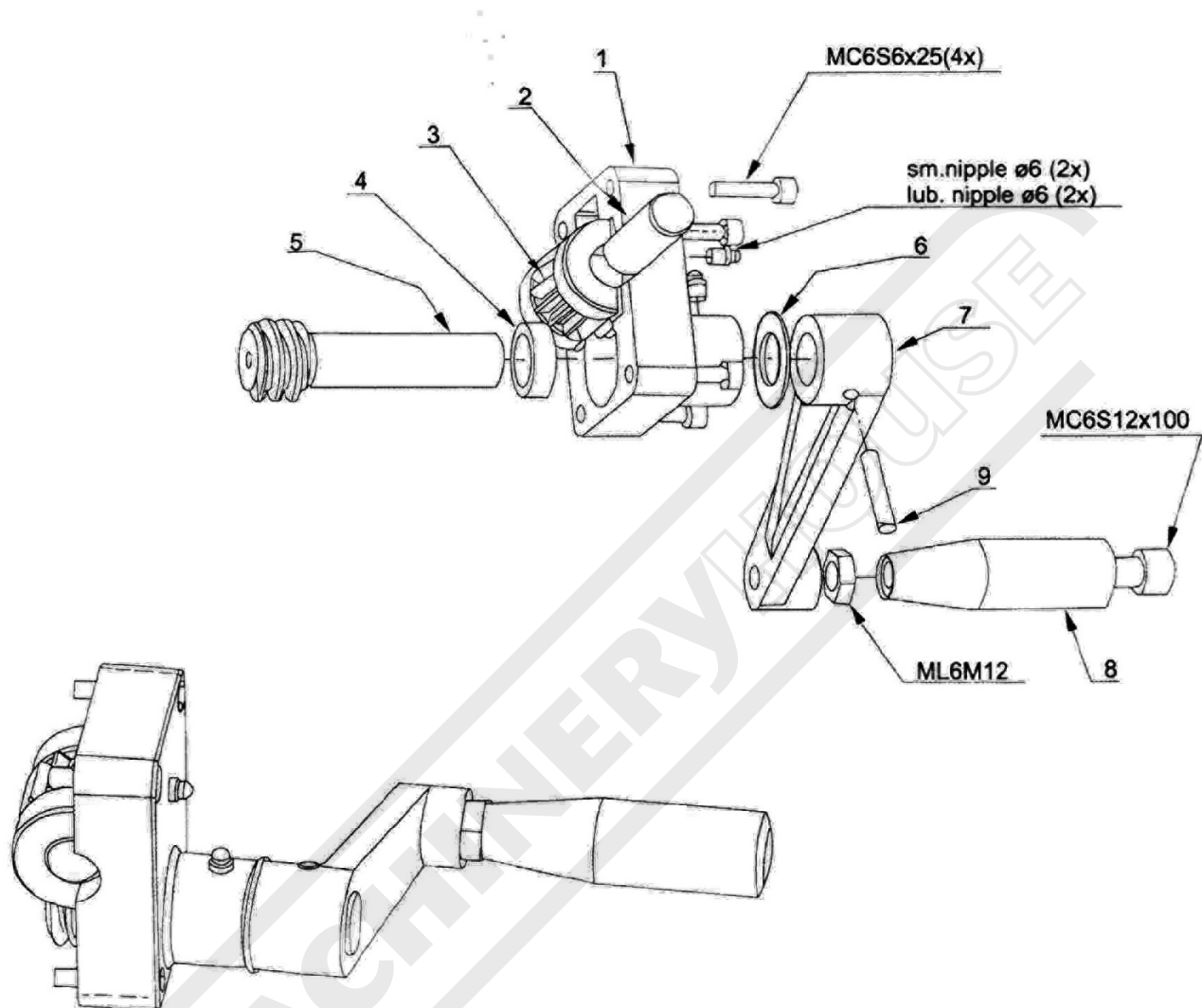
COLUMN SPARE PARTS



Item	Fig. No.	Description	Spec.
1 w	2W07802	Base plate	L=1500
	4X08300	Column	
	2X08723	Table arm complete	SK6SS 8x8
	2WSI231	Table	
	2X08445	Rack	
	2107146	Pm	
	2Y08723	Table arm	
	2X08"20-I	Worm gear complete	
	2RSI 182	Crank handle	
	3R0II06	Handle	
	2ISI203	Worm shaft	
	2020008	Spacer	
	2HSI201	Gear	
	2AS1202	Shaft	
	3S04444	Stop screw	
	3R00014	Locking handle	
	2N00186	Lower ring	
	2103598	Rack	
	2N03668	Cpper ring	

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

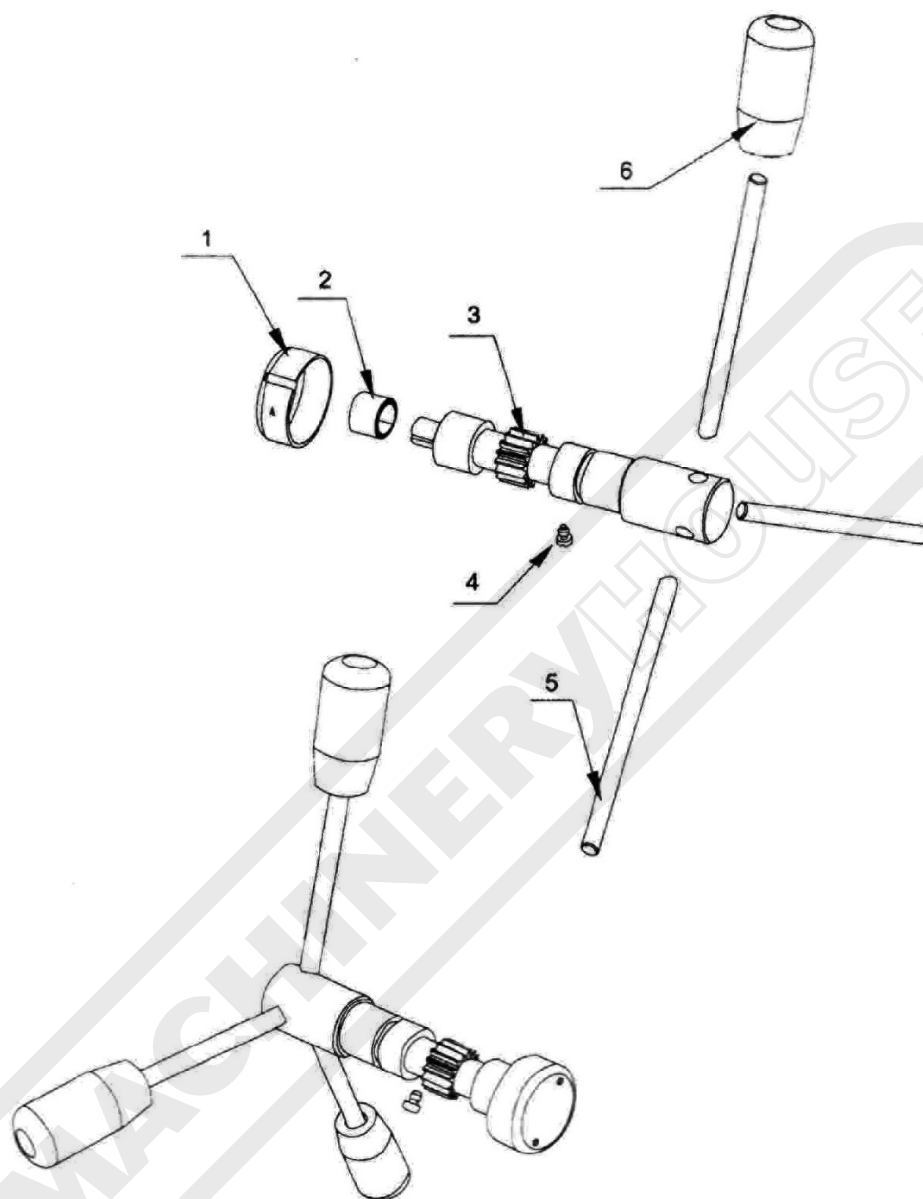
CRANK ASSEMBLY SPARE PARTS



Item	Fig. No.	Description	Spec.
1	2N08720	Worm gear box	20x8
2	2AS1202	Shaft	
3	2HS1201	Gear	
4	2D20008	Spacer	
5	21S1203	Worm shaft	
6	3L00021	Washer	SK6SS 8x8
7	2RS1182	Crank	
8	3R01106	Handle	
9	3S0444	Screw	

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

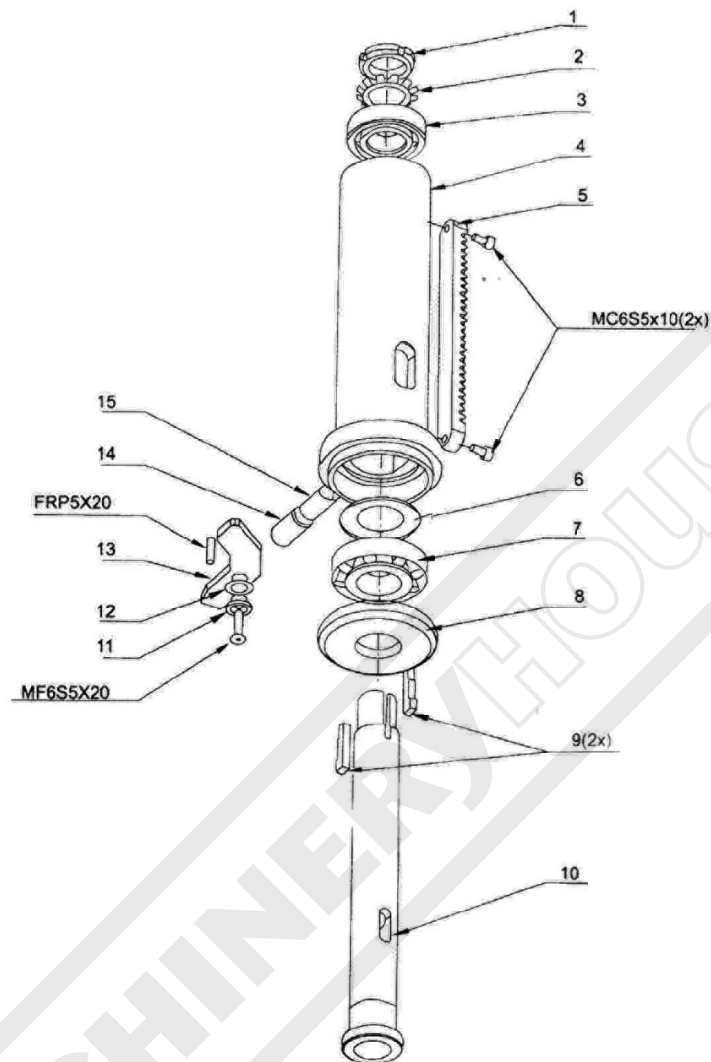
FEED SHAFT SPARE PARTS



Item	Fig. No.	Description	Spec.
1.	4T08715	Spring housing	
2.	4C03026	Spring	
3.	2108708	Feed shaft	
4.	4S04211	Screw	
5.	2E08722	Feed lever	
6.	3R02003	Handle ball	

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

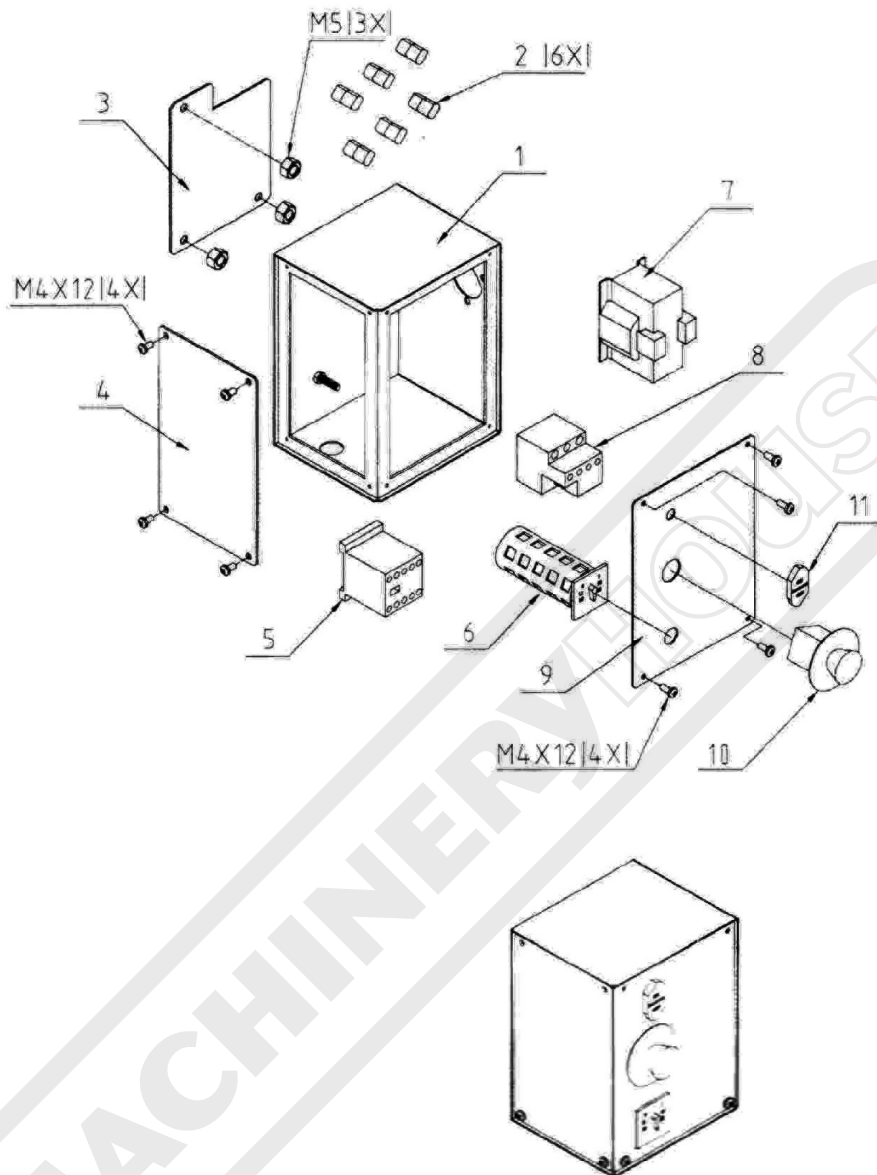
SPINDLE SLEEVE SPARE PARTS



Item	Fig. No.	Description	Spec.
1	3M06005	Nut	MKS
2	4800155	Locking washer	
3	3LI 1005	Ball bearing	6205
4	2G08709	Spindle sleeve	
5	2I08420	Rack	
6	4803769	Washer	
7	3L51006	Taper roller bearing	30206
8	2TSII06	Roller bearing cover	
9	2T08386	Key	
10	2A08418-I	Spindle	
11	2T08593	Spacing sleeve	
12	3B06003	Washer	
13	4T08547	Stop	
14	3S08622	Screw	p6s 16x 25
15	4T08714	Collet jaw	

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

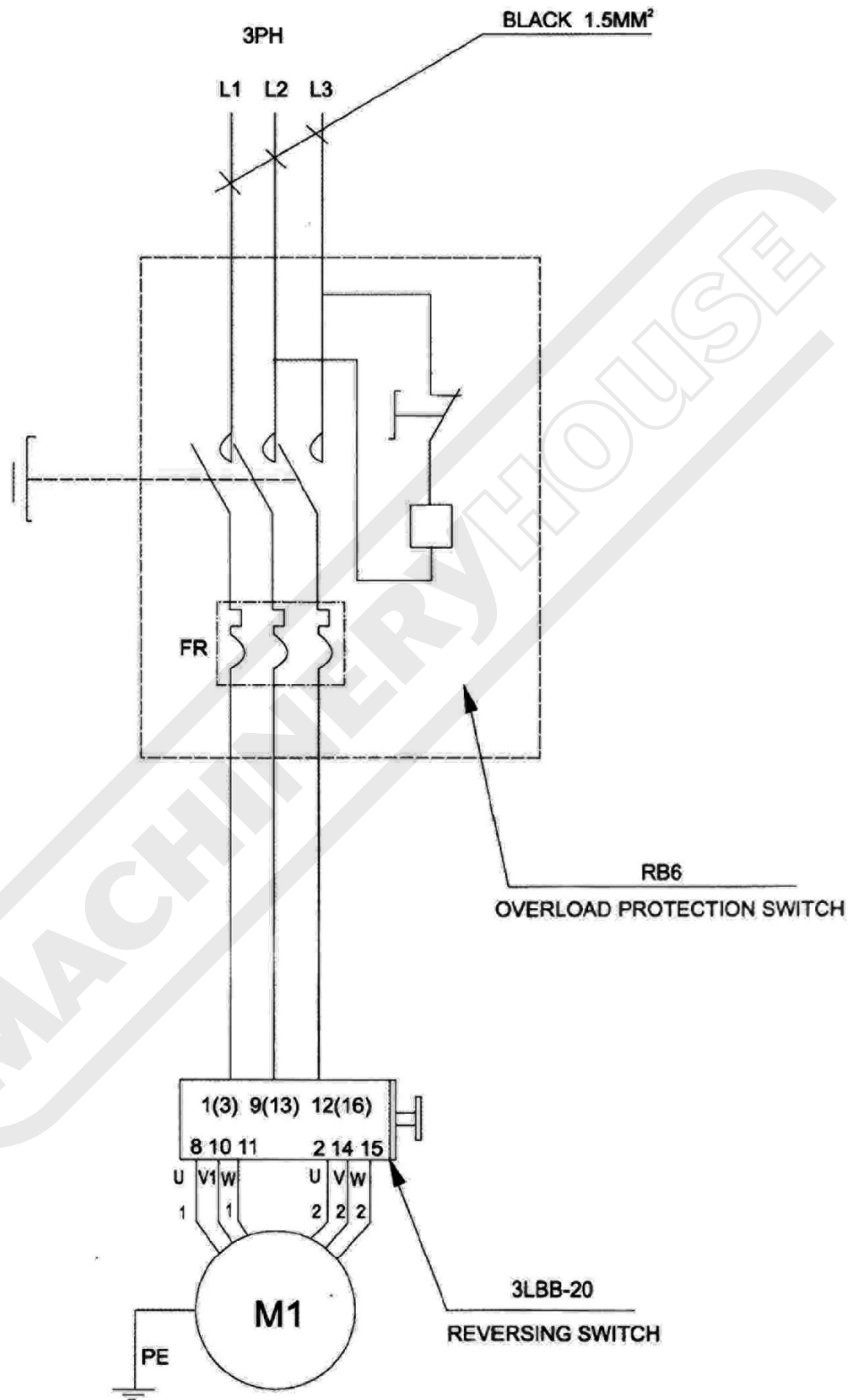
ELECTRICAL BOX SPARE PARTS



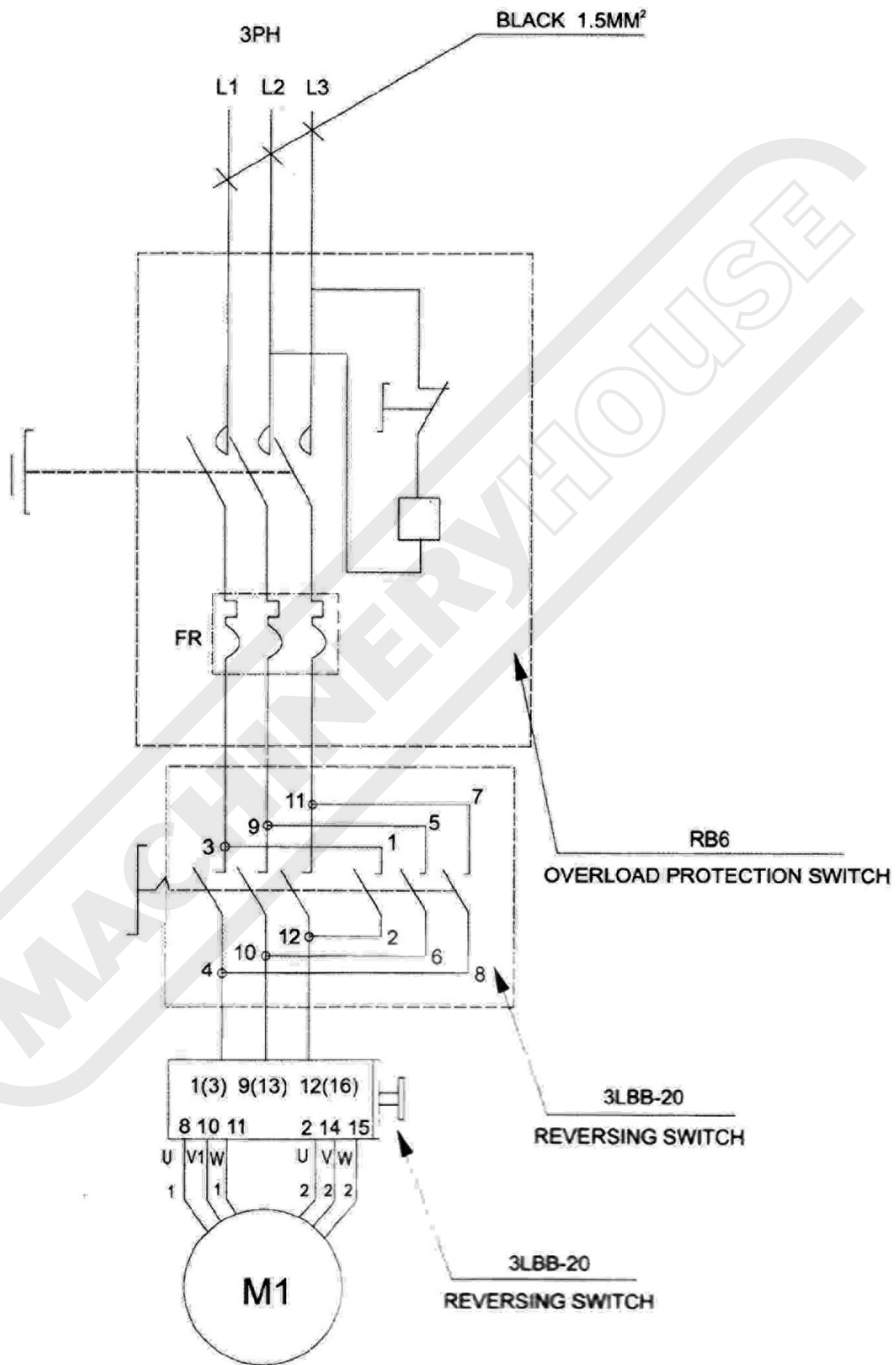
Item	Fig. No.	Description	Spec.
1.	T251-4001	Electric Box cover	
2.		Fuse wire	
3.	T251-4004	Motor Protection	
4.	T25-4002	Side cover	
5.		A.C. contactor	
6.		Change over switch (Three types)	
7.		Transformer	
8.		Thermo relay	
9.	T25-4003	Plate	
10.		Emergency Stop Switch	
11.		ON OFF Switch	

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

ELECTRICAL DIAGRAM



ELECTRICAL DIAGRAM 2



WARNING

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 correct amperage extension cords.** Undersized extension cords overheat and lose power. Replace extension cords if they become damaged.
- 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.

WARNING

Drilling Machine Safety Instructions

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

- 1. Maintenance.** Make sure the Drill is turned off and disconnect from the main power supply and make sure all moving parts have come to a complete stop before any inspection, adjustment or maintenance is carried out.
- 2. Drill Condition.** Drill must be maintained for a proper working condition. Never operate a Drill that has damaged or worn parts. Scheduled routine maintenance should be performed on a scheduled basis.
- 3. Leaving a Drill Unattended.** Always turn the Drill off and make sure all moving parts have come to a complete stop before leaving the Drill. Do not leave Drill running unattended for any reason.
- 4. Avoiding Entanglement.** Remove loose clothing, belts, or jewelry items. Never wear gloves while machine is in operation. Tie up long hair and use the correct hair nets to avoid any entanglement with the Drill spindle or moving parts.
- 5. Chuck key & wrench safety.** Always remove chuck keys, wrenches and any service tools immediately after use. Chuck keys left in the chuck can cause serious injury.
- 6. Understand the machines controls.** Make sure you understand the use and operation of all controls.
- 7. Drill bit selection.** Always use the correct Drill bit for the job you are Drilling. Make sure you use the correct shank drill bit for your drilling machine.
- 8. Secure the Drill Bit.** Properly tighten and securely lock the drill bit in the chuck.
- 9. Cutting Tool inspection.** Inspect Drill for sharpness, chips, or cracks before use. Replace any cutting tools immediately if dull, chipped or cracked. Handle new cutting tools with care. Cutting edges are very sharp and can cause lacerations.
- 10. Reversing the spindle.** Make sure the spindle has come to a complete stop before changing the direction of the spindle.
- 11. Stopping the spindle.** Do not slow or stop the spindle by using your hand.
- 12. Speed selection.** Select the appropriate speed for the type of work, material, and tool bit. Allow the Drill to reach full speed before beginning a cut.
- 13. Changing Belts for speed selection.** Always allow the machine to come to a complete stop and turn power off before changing belts. Not turning power off when changing belts can cause serious injury.
- 14. Clearing chips.** Always use a brush to clear chips. Never clear chips when the drill is running.
- 15. Power outage.** In the event of a power failure during use of the drill, turn off all switches to avoid possible sudden start up once power is restored.
- 16. Clean work area.** Keep the area around the drill clean from oil, tools, chips.
- 17. Surface/workpiece area.** Before turning the drill on, make sure the table is clear of any objects (tools, scraps, off-cuts etc.) Do not drill material that does not have a flat surface, unless a suitable support is used.
- 18. Table Lock.** Make sure the table is tightened before starting the drill.
- 19. For - Radial Drill Arm Lock.** Make sure the arm is locked before leaving or starting a radial arm drill. An unlocked radial drill arm can swing and cause serious injury.
- 20. Drilling Sheet metal.** All sheet metal should be clamped to the table before drilling.
- 21. Mounting workpieces.** Use clamps or vices to secure workpiece before drilling. Position work so you avoid drilling into table.
- 22. Guarding.** Do not operate the drill when chuck guard is removed.
- 23. Eye and hand protection.** A face shield with safety glasses is recommended. Always keep hands and fingers away from the drill bit. Never hold a workpiece in your hand while drilling. Do not wear gloves while operating the drill.
- 24. Drill operation.** Never start the drill with the drill bit pressed against the workpiece. Feed the drill evenly into the workpiece. Back the drill out of deep holes. Turn the machine off and clear chips and scrap pieces with a brush. Turn power off, remove drill bit, and clean the table before leaving the machine.
- 25. Call for help.** If at any time you experience difficulties, stop the machine and call your nearest branch service department for help.

PLANT SAFETY PROGRAM

NEW MACHINERY HAZARD IDENTIFICATION, ASSESSMENT & CONTROL

Drilling Machine

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>
A	ENTANGLEMENT	HIGH	Eliminate, avoid loose clothing / Long hair etc.
B	CRUSHING	LOW	Secure & support work material on drill table.
C	CUTTING, STABBING, PUNCTURING.	MEDIUM	Isolate power to machine prior to any checks or maintenance being carried out. Do not adjust or clean until the machine has fully stopped.
D	SHEARING	MEDIUM	Isolate power to machine when changing speeds or maintenance is being carried out. Make sure all guards are secured shut when machine is on.
F	STRIKING	MEDIUM	Ensure workpieces are tightly secured on machine. Wear safety glasses. For Radial Arm Drills ensure that arm is locked before drilling. Ensure correct spindle direction when drilling..
H	ELECTRICAL	MEDIUM	All electrical enclosures should only be opened with a tool that is not to be kept with the machine. Never clean or dust machine when power is on. Machine should be installed & checked by a Licensed Electrician.
M	HIGH TEMPERATURE	LOW	Wear appropriate protective clothing to prevent hot swarf.
O	OTHER HAZARDS, NOISE.	LOW	Wear hearing protection as required.
Plant Safety Program to be read in conjunction with manufactures instructions			



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Authorised and signed by:
Safety officer: 
Manager: 

Revised Date: 12th March 2012



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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