



Established 1930

Distributors of new & used workshop Equipment

D154

RPD-20 RADIAL DRILL

INSTRUCTION & PARTS MANUAL

30-6-10

WARNING

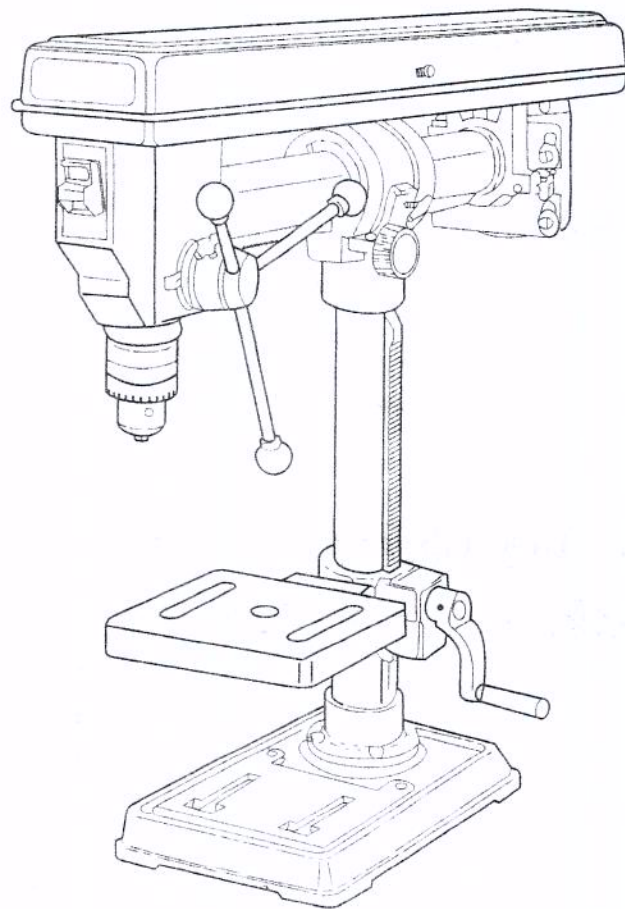
BEFORE USING THIS MACHINE ENSURE IT IS SECURELY
BOLTED TO THE FLOOR

(BOLTS NOT SUPPLIED)

DO NOT OVER TIGHTEN BOLTS AS THIS MAY CRACK
THE BASE CASTING

16MM (34") RADIAL DRILL PRESS

MODEL NO. 16R



FOR YOUR SAFETY: READ ALL INSTRUCTIONS CAREFULLY
RETAIN THIS MANUAL FOR FUTURE REFERENCE.

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I MAIN SPECIFICATION

Swing	864mm(34")
Spindle Taper	JT33, JT6, B16, JT3, B18, MT2
Chuck	13, 16mm
Spindle Travel	60mm
Speed	5
Speed Of Spindle 50Hz/60Hz(R.P.M.)	460-2480/570-3050
Motor	1 HP
Throat	120/432mm
Chuck to Table/Base	435/550mm
Head Tilt	50° ccw 90° cw
Size Of Table	197×198 (mm)
Size Of Base	348×210 (mm)
Overall Height	940mm
Column	59.5mm
Net Weight	35KGS
Gross Weight	38KGS
Cuft	0.1168m ³
20' Fel	224

II GENERAL SAFETY INSTRUCTIONS FOR POWER TOOLS

1. KNOW YOUR POWER TOOL

Read and understand the owner's manual and labels affixed to the tool. Learn its application and limitations as well as the specific potential hazards peculiar to this tool.

2. GROUND ALL TOOLS

This tool is equipped with and approved 3-conductor cord and a 3-prong grounding type plug to fit the proper grounding type receptacle. The green conductor in the cord is the grounding wire. Never connect the green wire to a live terminal.

3. KEEP GUARDS IN PLACE

In working order, and in proper adjustment and alignment.

4. WEAR PROPER APPAREL

Do not wear loose clothing, gloves, neckties, or jewelry (rings, wrist watches) to get caught in moving parts. Wear protective hair covering to contain long hair. Roll long sleeves above the elbow.

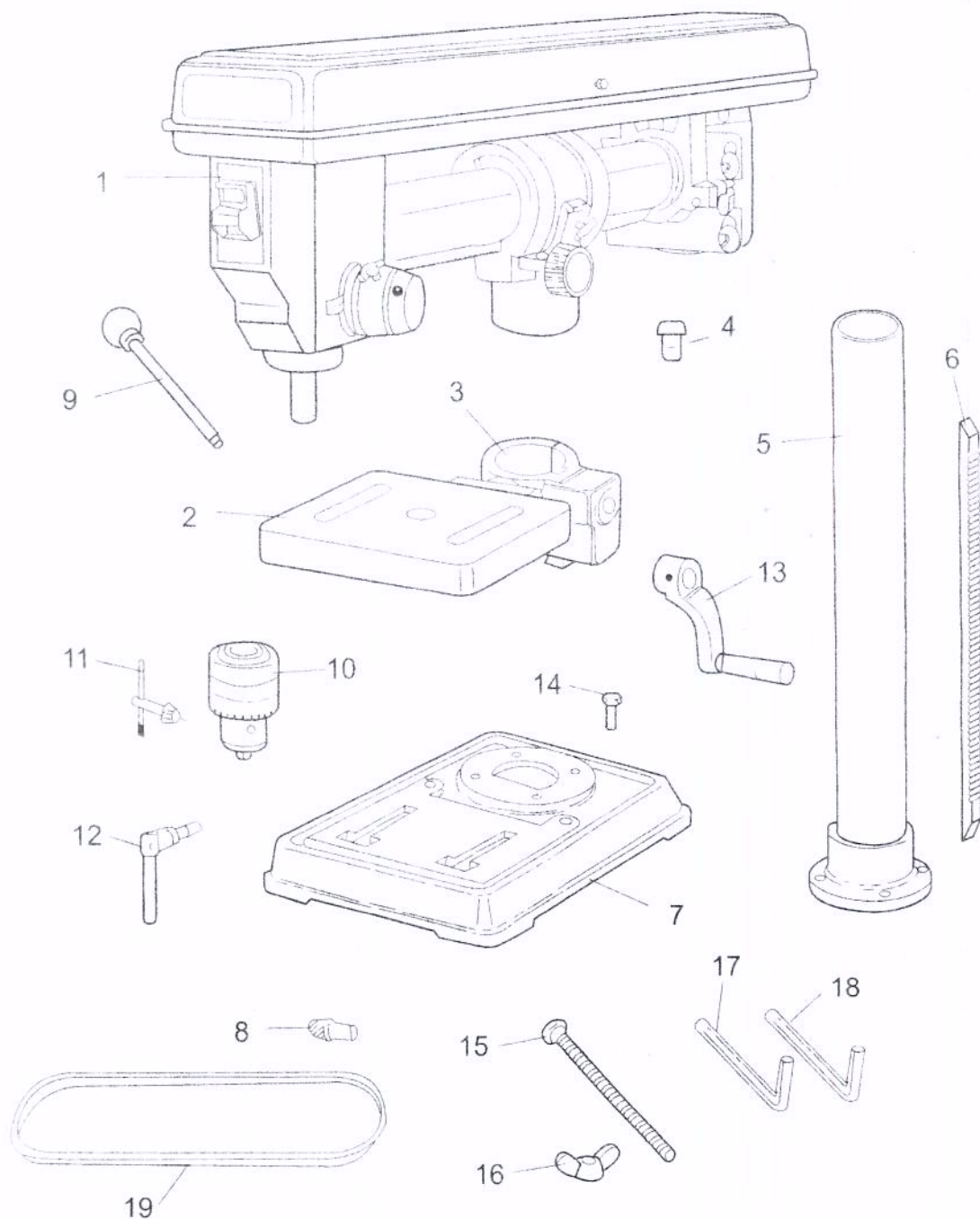
5. USE SAFETY GOGGLES

6. KEEP WORK AREA CLEAN

Cluttered areas and benches invite accidents. Floor must not be slippery due to wax or sawdust.

7. KEEP CHILDREN AWAY

III. UNPACKING AND CHECKING CONTENTS



1.Head Assembly

4.Switch Key

7.Base

10.Chuck

13.Crank

16.Nut M12

19.V-Belt

2.Table

5.Column Assembly

8.Worm Gear

11.Chuck Key

14.Hex Screw M8×20

17.3mm Hex "L" Wrench

3.Table Support

6.Rack

9.Feed Handle (3)

12.Column Clamp

15.Hex Head Screw M12×90

18.4mm Hex "L" Wrench

IV. LOCATION AND FUNCTION OF CONTROLS

1. BELT TENSION LOCK HANDLES...

Tightening handles locks motor bracket support and BELT TENSION HANDLE to maintain correct belt distance and tension.

2. FEED HANDLE... For moving the chuck up or down. One or two of the handles may be removed if necessary whenever the workpiece is of such unusual shape that it interferes with the handles.

3. TABLE CRANK... Turn clockwise to elevate table. Support lock must be released before operating crank.

4. CHUCK KEY... Used to tighten drill in the chuck and also to loosen the chuck for drill removal.

5. CHUCK... Holds drill bit or other recommended accessory to perform desired operations.

6. DEPTH SCALE... Allows operator to

adjust drill press to drill to a desired depth.

7. DRILL "ON-OFF" SWITCH... Turns drill press on and off ...also used to lock drill press in off position.

8. DEPTH SCALE LOCK... Locks the depth scale at selected position.

9. SPRING CAP... Provides means to adjust quill spring tension.

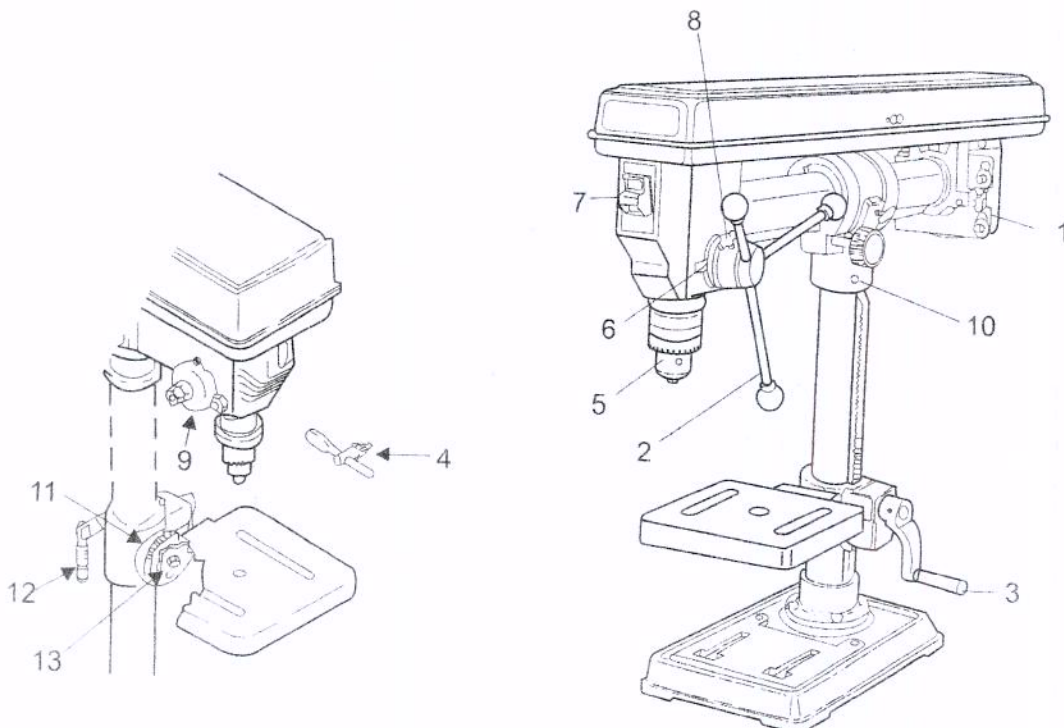
10. HEAD LOCKS... Locks the head to the column. ALWAYS have them locked in place while operating the drill press.

11. BEVEL SCALE... Shows degree table is tilted for bevel operations.

12. SUPPORT LOCK HANDLE...

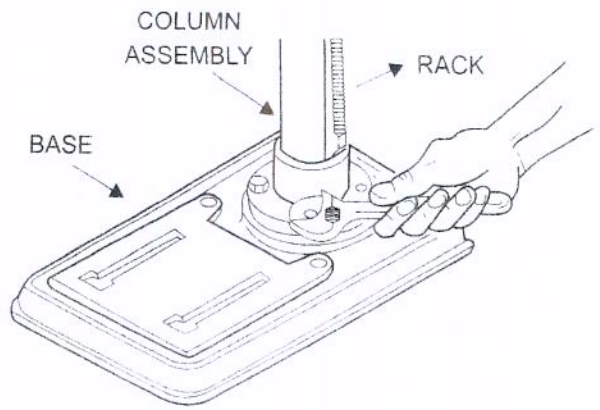
Tightening locks table support to column. Always have it locked in place while operating the Drill Press.

13. TABLE BEVEL LOCK... Locks the table in any position from 0° — 45°.

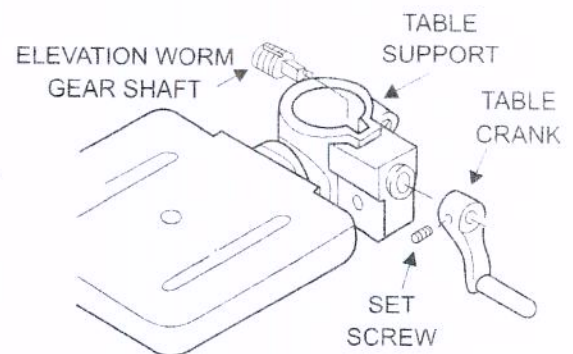


V. ASSEMBLY OF BASE/COLUMN

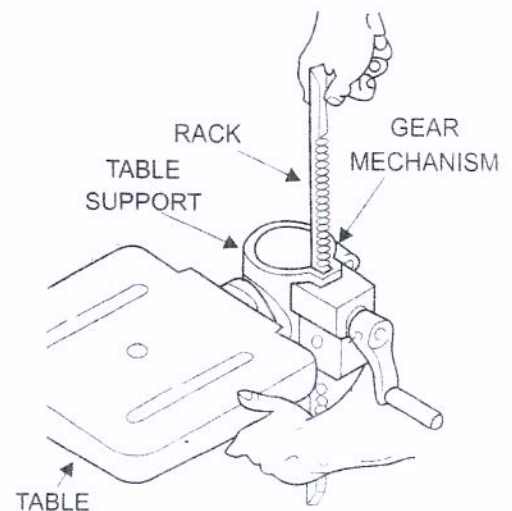
1. Position base on floor.
2. Remove protective sleeve from column tube and discard. Place column assembly on base, and align holes in column support with holes in base.
3. Locate four (4) 8mm Dia. $\times$ 20mm long bolts among loose parts bag.
4. Install a bolt in each hole through column support and base and tighten with adjustable wrench.



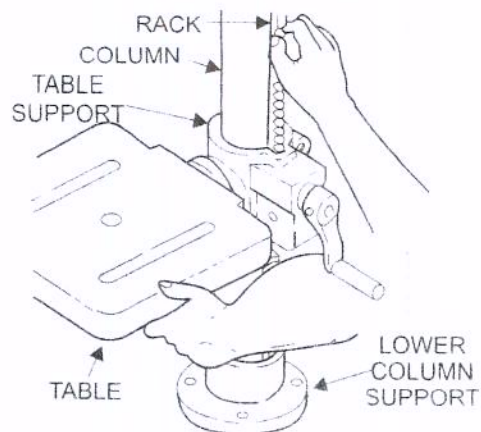
5. Find elevation worm gear shaft in the loose parts bag. Insert the elevation shaft into the table support and extend the shaft through the opening as far as possible. The crank is to be installed on the elevation worm gear shaft, the set screw is to be aligned with the flat portion of the shaft. The crank is to be positioned as close to the arm support as possible, then tighten set screw. See illustration.



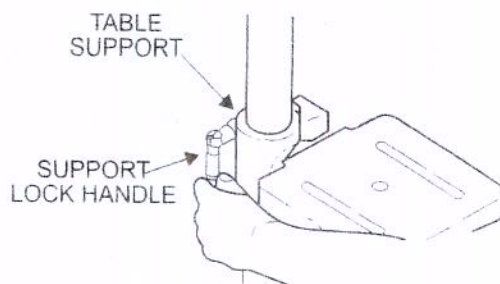
6. With long smooth end of rack pointing upward, slide rack down through large round opening in table support. Engage rack in gear mechanism found inside opening of table support.



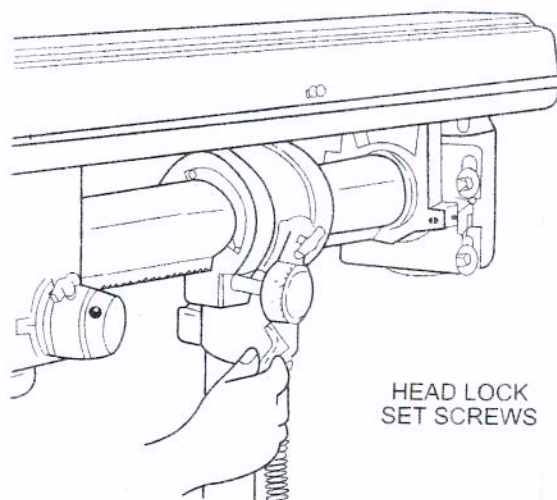
7. While holding rack and table support in an engaged position slide both down over column. Slide rack down column until rack is positioned against lower column support.



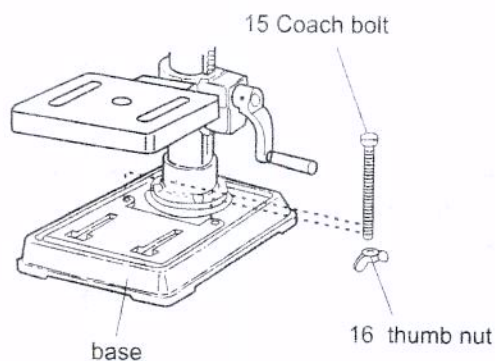
8. Locate support lock handle in loose parts bag and tighten by hand.
9. To minimize crank backlash; tighten the support lock and rotate elevation worm shaft clockwise with the crank. Loosen the set screw in the crank and reposition the crank as close to the table support as possible. Tighten the set screw in the crank.



10. Using a 4 mm Hex "L" wrench tighten the head lock set screws on the right side of the head.



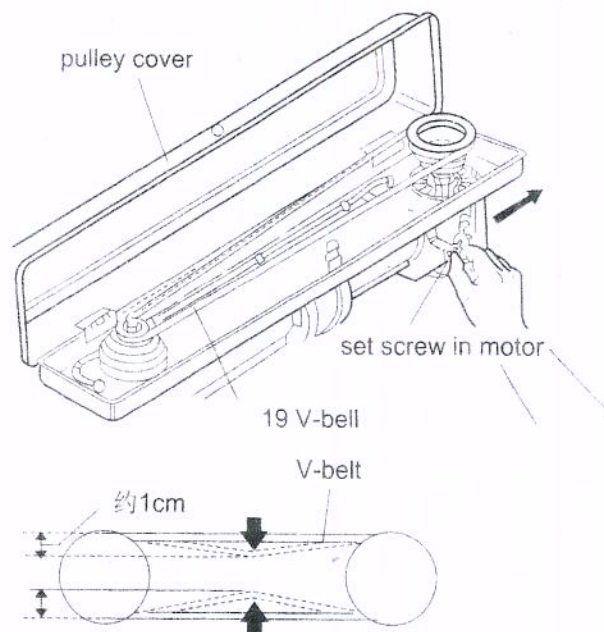
11. The drill press can not be used until fix it on the work bench with attached coach bolt (15) and thumb nut (16) .



VI. ADJUSTMENTS

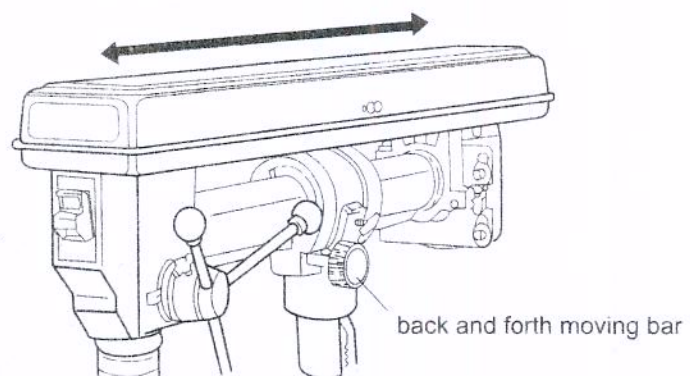
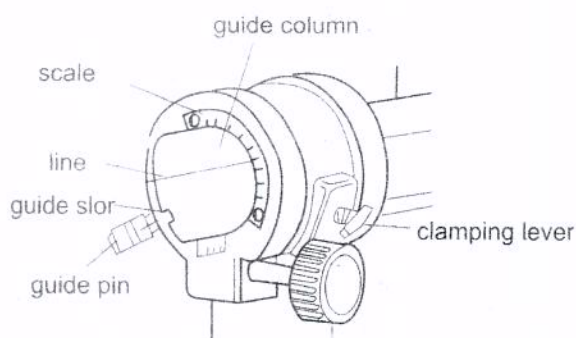
1) Pulley Adjustments

- Open the pulley cover and loosen the set screw on motor side.
- Refer to the speed level, choose one speed and put on the v-belt on the pulley.
- Push the motor backward, tense the v-belt between the two pulleys, then tighten the set screw on the motor side.
- To loose the v-belt, loosen the set screw on motor side, then push the motor ahead.
- Correct tension is obtained when the belt can be flexed 1cm out of line midway between the pulleys using finger pressure.
- V-belt should be put off when your drill press is not in use for a long time.



2) Head Tilting

- Head can be tilted by 45° clockwise and 90° counterclockwise. To adjust the angle, loosen the right clamping lever on the front first, then pull out the guide pin on the left and turn it by 90° . To tilt the head, mark line on the guide column should be aligned with that required on the degree scale, then tighten the clamping lever again.
- Loosen the clamping lever, move the head to its original operation. Place the guide pin into the guide slot, then the head returns its vertical position.



3) Horizontal Rotation of the Head.

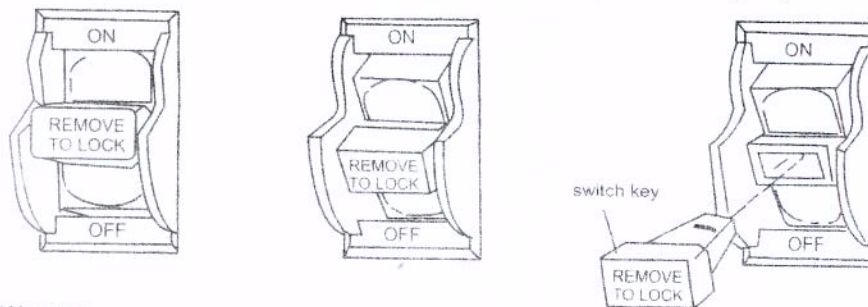
- Loosen the right clamping lever on the front of the head, rotate the head within 360° horizontally the desired position, then fasten the clamping lever.

4) Move the Head Back and Forth

- Loosen the right clamping lever on the head, turn back and forth moving bar. Place the head to a desired position, then tighten the clamping lever again.

VII. DRILL "ON-OFF" SWITCH

- The switch is on the front of the body. Push it upwards, it will work; push it downwards, it will be locked.
- For your safety, the best way is to use the switch with key. See figure below, remove the key, the switch will be locked. Always remove the key when the machine is not in use. (please take care of your switch key.)
- Remove the switch key before changing the chuck or processing adjustments.



To turn drill ON...

Insert finger under switch lever and pull.

To turn drill OFF...Push lever in.

In an emergency: If the drill bit BINDS...STALLS...STOPS...or tends to tear the workpiece loose...you can QUICKLY turn the drill OFF by hitting the switch with the palm of your hand.

WARNING: For your own safety, always push the switch "OFF" when drill press is not in use...remove key and keep it in a safe place...also...in the event of a power failure (all of your lights go out) or blown fuse or tripped circuit breaker, turn switch off...lock it and remove the key. This will prevent the drill press from starting up again when the power comes back on.

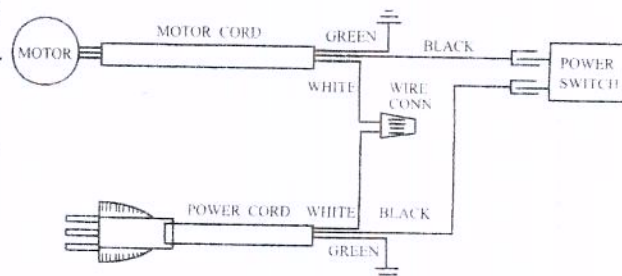
VIII. MAINTENANCE

WARNING: For your own safety, turn switch "OFF" and remove plug from power source outlet before maintaining or lubricating your drill press.

Frequently blow out any dust that may accumulate inside the motor.

A coat of automotive type paste wax applied to the table and column will help to keep the surfaces clean.

WARNING: To avoid shock or fire hazard, if the power cord is worn or cut, or damaged in any way, have it replaced immediately.

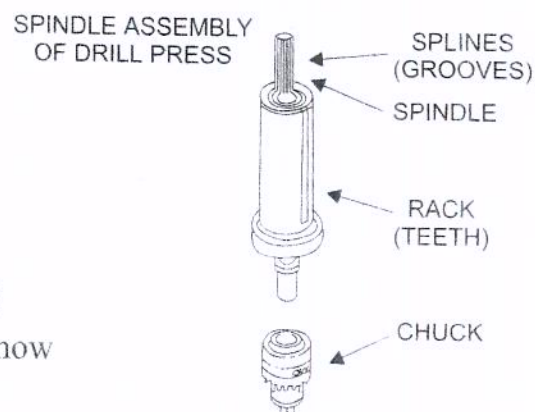


Wiring Diagram

IX. LUBRICATION

All of the BALL BEARINGS are packed with grease at the factory. They require no further lubrication.

Periodically lubricate the table elevation mechanism, the SPLINES (grooves) in the spindle, and the RACK (teeth of the quill), See "Getting to know your drill press."

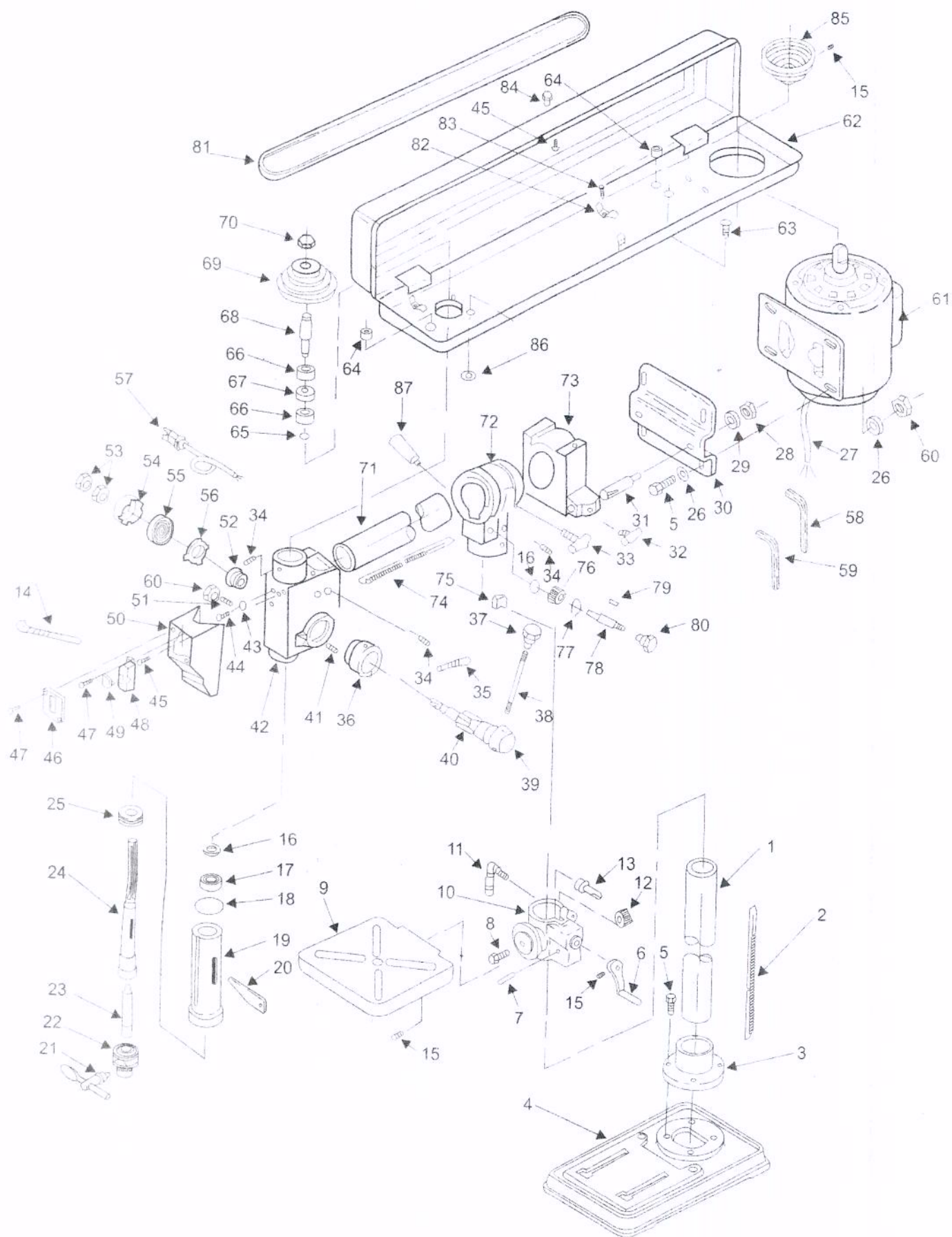


X. TROUBLE SHOOTING

WARNING: For your own safety, turn switch "OFF" and always remove plug from power source outlet before trouble shooting.

TROUBLE	PROBABLE CAUSE	REMEDY
Noisy Operation.	1. Incorrect belt tension. 2. Dry Spindle. 3. Loose spindle pulley. 4. Loose motor pulley.	1. Adjust tension. See section "ASSEMBLY-TENSIONING BELT" 2. Lubricate spindle. See "Lubrication" section. 3. Checking tightness of retaining nut on pulley, and tighten if necessary. 4. Tighten setscrews in pulleys.
Drill bit burns.	1. Incorrect speed. 2. Chips not coming out of hole. 3. Dull Drill bit. 4. Feeding too slow. 5. Not lubricated.	1. Change speed. See section "Getting To Know Your Drill Press" ...DRILLING SPEED. 2. Retract drill bit frequently to clear chips. 3. Resharpen drill bit. 4. Feed fast enough...allow drill bit to cut. 5. Lubricate drill bit. See "Basic Drill Press Operation" section.
Drill bit leads off hole not round.	1. Hard grain in wood or lengths of cutting lips and/or angles not equal. 2. Bent drill bit.	1. Resharpen drill bit correctly. 2. Replace drill bit.
Wood splinters on underside.	1. No "back-up material" under workpiece.	1. Use "back-up material"...See "Basic Drill Press Operation" section.
Workpiece torn loose from hand.	1. Not supported or clamped properly.	1. Support workpiece or clamp it...See "Basic Drill Press Operation" section.
Drill bit binds in workpiece.	1. Workpiece pinching drill bit or excessive feed pressure. 2. Improper belt tension.	1. Support workpiece or clamp it...See "Basic Drill Press Operation" section. 2. Adjust tension...See section "ASSEMBLY-TENSIONING BELT."
Excessive drill bit runout or wobble.	1. Bent drill bit. 2. Worn spindle bearings. 3. Drill bit not properly installed in chuck. 4. Chuck not properly installed.	1. Use a straight drill bit. 2. Replace bearings. 3. Install drill bit properly...See "Basic Drill Press Operation" section. 4. Install chuck properly...refer to "Unpacking and Assembly Instructions...INSTALLING THE CHUCK"
Quill Returns too slow or too fast.	1. Spring has improper tension.	1. Adjust spring tension...See section. "Adjustments-Quill Return Spring."
Chuck will not stay attached to spindle it falls off when trying to install it.	1. Dirty, grease, or oil on the tapered inside surface of chuck or on the spindles tapered surface.	1. Using a household detergent-clean the tapered surface of the chuck and spindle to remove all dirt, grease and oil.

XI.REPAIR PARTS



SPARE PARTS FOR DRILL PRESS

NO.	DESCRIPTION	PART No.	Q'TY	NO.	DESCRIPTION	PART No.	Q'TY
1	COLUMN TUBE	13201003A	1	44	SCREW GB818-85	M5×6	2
2	RACK	13201010A	1	45	SCREW GB818-85	M5×12	3
3	SUPPORT COLUMN	13201002	1	46	SWITCH PLATE COVER	13202009	1
4	BASE	13201001	1	47	PAN CROSS SCREW GB845-85	ST4.2×9.5	2
5	HEX.HD SCREW GB5781-86	M8×20	8	48	LOCK SWITCH	J-9301A	1
6	CRANK	13201009	1	49	SWITCH KEY		1
7	GEAR PIN	13201007	1	50	SPRING BOX	13202008	1
8	HEX.HD SCREW GB5781-86	M12×22	1	51	SCR.XC.SET FL	13202021	1
9	TABLE ROUND	13201014A	1	52	SPRING SEAT	13204006	1
	TABLE SQUARE	13201014	1	53	HEX NUT GB6172-86	M12	2
10	TABLE SUPPORT	13201004	1	54	CAP SPRING	13104008	1
11	COLUMN CLAMP	16101013	1	55	SPRING	13104009	1
12	GEAR HELICAL	13201006	1	56	RETAINING SPRING	13104007	1
13	WROM	13201008	4	57	POWER CORE	13202015	1
14	TIE WIRE	16102017	1	58	HEX WRENCH GB5356-86	3	
15	HEX. SOC SCREW GB80-85	M6×10	2	59	HEX WRENCH GB5356-86	4	1
16	RETAINING RING GB894.1-86	11	2	60	HEX NUT GB6170-86	M8	5
17	BALL BEARING	60201	2	61	MOTOR	13202020	1
18	QUILL GASKET	13303006	1	62	GUARD	C13205000	1
19	QUILL TUBE	13203002B	1	63	WASHER SCREW GB9074.1-86	M6×12	4
20	KEY-DRIFT	16103008	1	64	BUSHING -RUBBER	20105010	2
21	CHUCK KEY	13303009-2	1	65	REATAINING RING GB894.1-86	17	1
22	CHUCK	13303009-1	1	66	BALL BEARING	60203	2
23	ARBOR	16103007	1	67	SPACER	13302023	1
24	SPINDLE	13203001D	1	68	PULLEY INSERT	13302022	1
25	BALL BEARING	80204	1	69	PULLEY SPINDLE	C13205006	1
26	WASHER GB97.2-85	8	8	70	NUT-PULLEY	13302025	1
27	MOTOR CORD	13202016	1	71	CROSS TUBE COLUMN	C13202003	1
28	HEX NUT GB6170-86	M10	2	72	CROSS SUPPORT	C13201004	1
29	LOCK WASHER GB93-87	10	2	73	TAIL SUPPORT	C13201015	1
30	MOTOR MOUNT	13202007	1	74	RACK	C13201010	1
31	MOTOR SUPPORT	13202002	2	75	LOCKING PIECE	C13202016	
32	KNOB MOTOR ADJUSTING	13102005	2	76	GEAR HELICAL	C13201006	1
33	KONB ADJUSTING	C13202005	1	77	RETAINING RING GB894.1-86	14	1
34	HEX SOC SCREW GB80-85	M8×8	5	78	SHAFT	C13201007	1
35	DEPTH SCREW LOCK	16104012	1	79	KEY GB1096-79	4×4×10	1
36	DEPTH STOP RING	13304003	1	80	KNOB	15504010	1
37	KNOB	13204011	3	81	V BELT GB1171-74	0-1400	1
38	ROD	13204005	3	82	CLAMP-CORD	16102014	2
39	HUB	13304001	1	83	SCREW GB818-85	M5×16	2
40	SHAFT-PINION	13204002	1	84	KNOB	16105008	1
41	PIN STOP	13304010	1	85	PULLY MOTOR	C13205005	1
42	HEAD	C13202001	1	86	FOAM WASHER	13105009	4
43	LOCK WASHER GB862.1-87	5	2	87	GUIDE PIN	C13201017	1

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 Australian Worksafe Standard for Plant(NOHSC:1010-1994)

Item No.	Hazard Identification	Hazard Assessment	Risk Control Strategies (Recommended for Purchase / Buyer / User)
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:


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