AXMINSTER WORKSHOP

AW285PD Code 107690
AW315PD Code 107691
AW220RD Code 107692
AW680RD Code 107693

Original Instructions

# Pillar Drills

## User manual

AW285PD

AW315PD

AW220RD

AW680RD

AXMINSTER THREE YEAR GUARANTEE

AT: 18/12/2023
BOOK VERSION: 05

# INDEX OF CONTENTS



# EU DECLARATION OF CONFORMITY

**Cert No: Drill Press**

Axminster Tool Centre Ltd
Axminster Devon
EX13 5PH UK
**axminstertools.com**

declares that the machinery described:-

| | |
|---|---|
| Type | **Pillar Dills** |
| Model | **AW285PD, AW315PD, AW220RD, AW680RD** |

Signed 

**Andrew Parkhouse**
Operations Director Date: **09/01/2018**

**EU Declaration of Conformity**

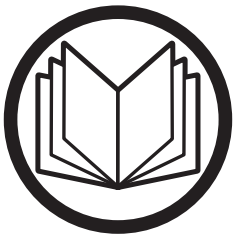
**This machine complies with the following directives:**

| | |
|---|---|
| 2006/42/EC | EN 61000-3-2:2014 |
| 2006/95/EC | EN 61000-3-3:2013 |
| EN 55014-1:2017 | EN 55014-1:2006+A1+A2 |
| EN 55014-2:2015 | EN 55014-2:1997+A1+A2 |

conforms to the machinery example
for which the EC Type-Examination Certificate No AE 50397160, AE 50397197
has been issued by **Laizhou Planet Machinery Co., Ltd.**
at: Yutai West Street Laizhou 261400 Shandong China (Mainland)

and complies with the relevant essential health and safety requirements.

**The symbols below advise the correct safety procedures when using this machine.**



**Fully read manual and safety instructions before use**

**Ear protection should be worn**

**Eye protection should be worn**

**Dust mask should be worn**

**HAZARD**

**Model Number** **AW285PD (ZQJ4113A)**

| Quantity | Item | Part |
|---|---|---|
| 1 | Small Bench Pillar Drill | A |

**Model Number** **AW220RD (ZQJ3116)**

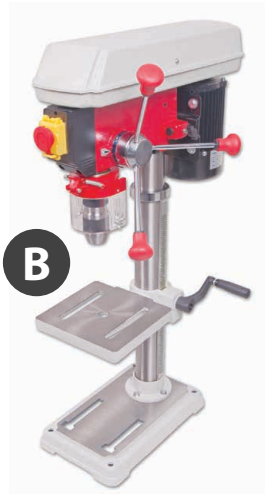
| Quantity | Item | Part |
|---|---|---|
| 1 | Bench Radial Drill | C |

**Model Number** **AW315PD (ZQJ4116Q)**

| Quantity | Item | Part |
|---|---|---|
| 1 | Medium Bench Pillar Drill | B |

**Model Number** **AW680RD (ZQJ3116A)**

| Quantity | Item | Part |
|---|---|---|
| 1 | Floor Radial Drill | D |

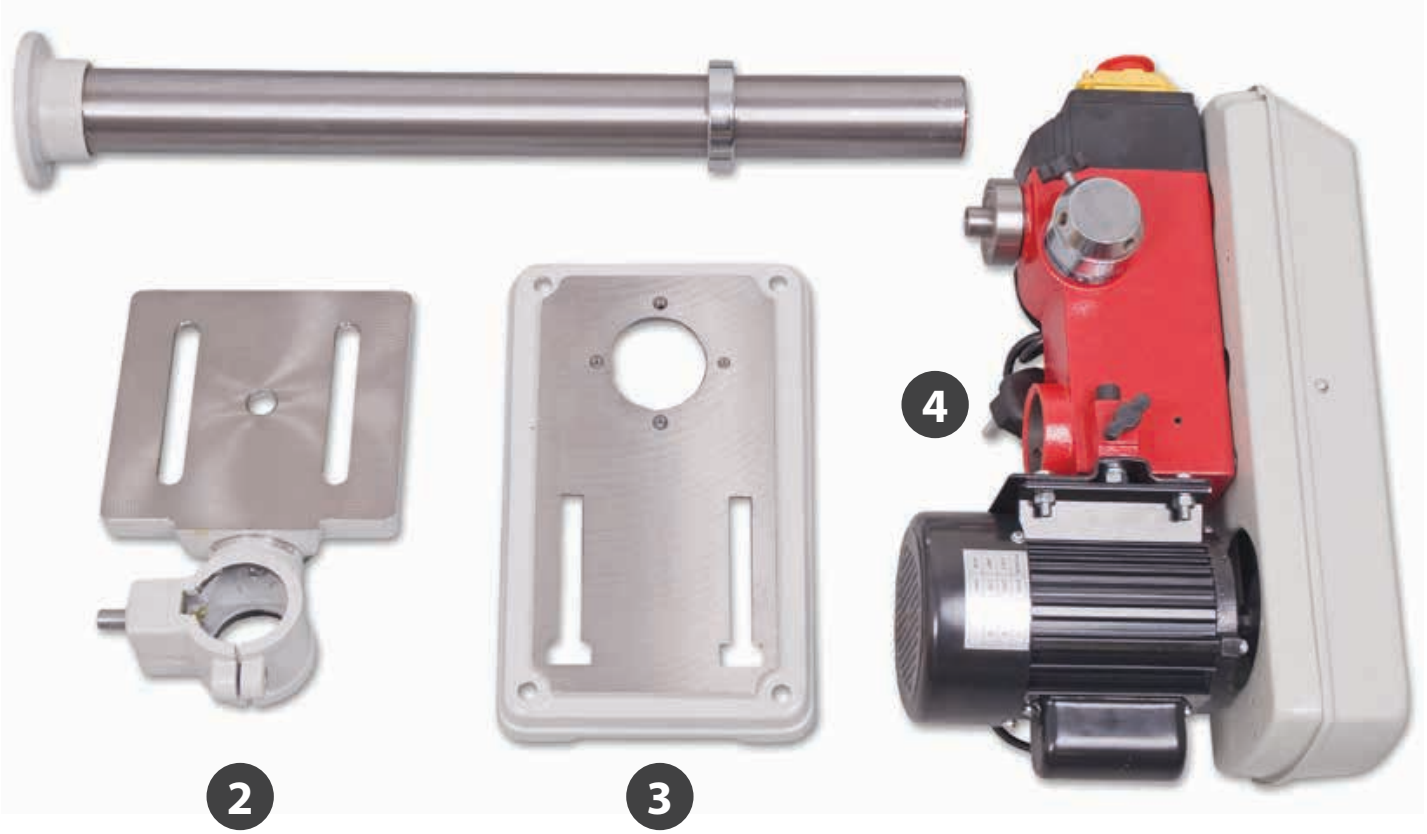



**Box Containing:**

| | | | |
|---|---|---|---|
| 1 | Pillar for drill head complete with mounting flange, rise and fall rack and retaining ring | **1** | |
| 1 | Drill table with mounting flange | **2** | (107691 ONLY) |
| | | **2a** | (107690 ONLY) |
| 1 | Drill table extension bracket arm | **2b** | (107693 ONLY) |
| | | **2c** | (107692 ONLY) |
| 1 | Extension bracket arm | **2d** | (107692 and 107693 ONLY) |
| 1 | Drill table square | **2e** | (107692 ONLY) |
| | Drill table round | **2f** | (107693 ONLY) |
| 1 | Base | **3** | |
| 1 | Pillar drill head | **4** | |
| 1 | Radial drill head with spacer block | **4a** | (107692 and 107693 ONLY) |
| 1 | Drill guard assembly | **5** | |
| 3 | Lever feed handles | **6** | |
| 1 | Keyless chuck | **7** | |
| 1 | Morse taper arbor for chuck assembly | **8** | |
| 1 | Crank handle for table rise and fall mechanism | **9** | |
| | Lift and shift handle clamps for the rise and fall mechanism, drill table and radial drill head column clamps | **10** | |
| 1 | Morse taper drift | **11** | |
| 4 | M8 x 20mm + washers | **12** | (107691 and 107692 ONLY) |
| 4 | M8 x 35mm +washers | **12** | (107693 ONLY) |
| 3 | M8 x 20mm + washers | **12** | (107690 ONLY) |
| 2 | Hex Keys 3-4mm | **13** | |
| 2 | Table clamping threaded bolts washers and wing nuts | **14** | (107693 ONLY) |

## WHAT'S INCLUDED

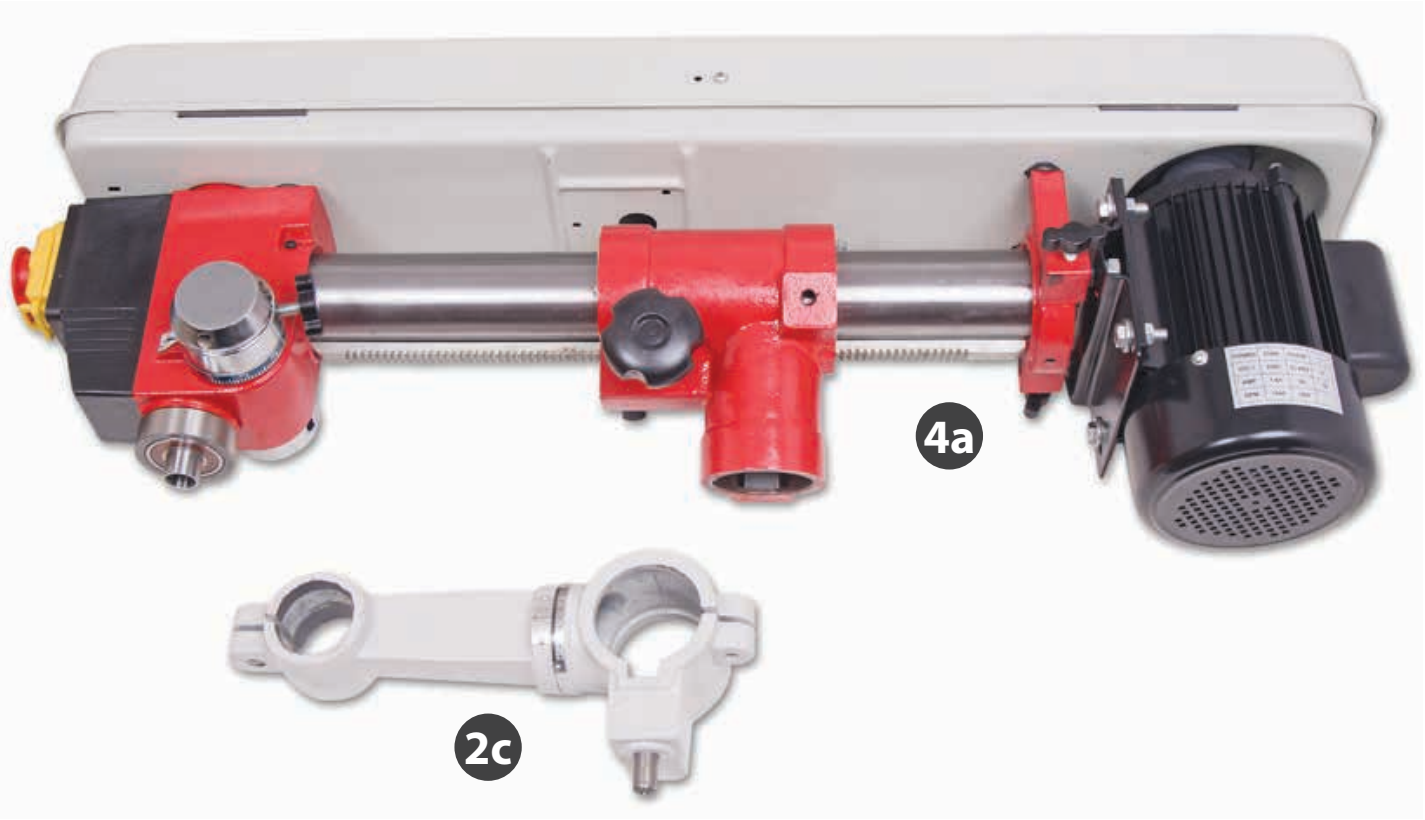
1

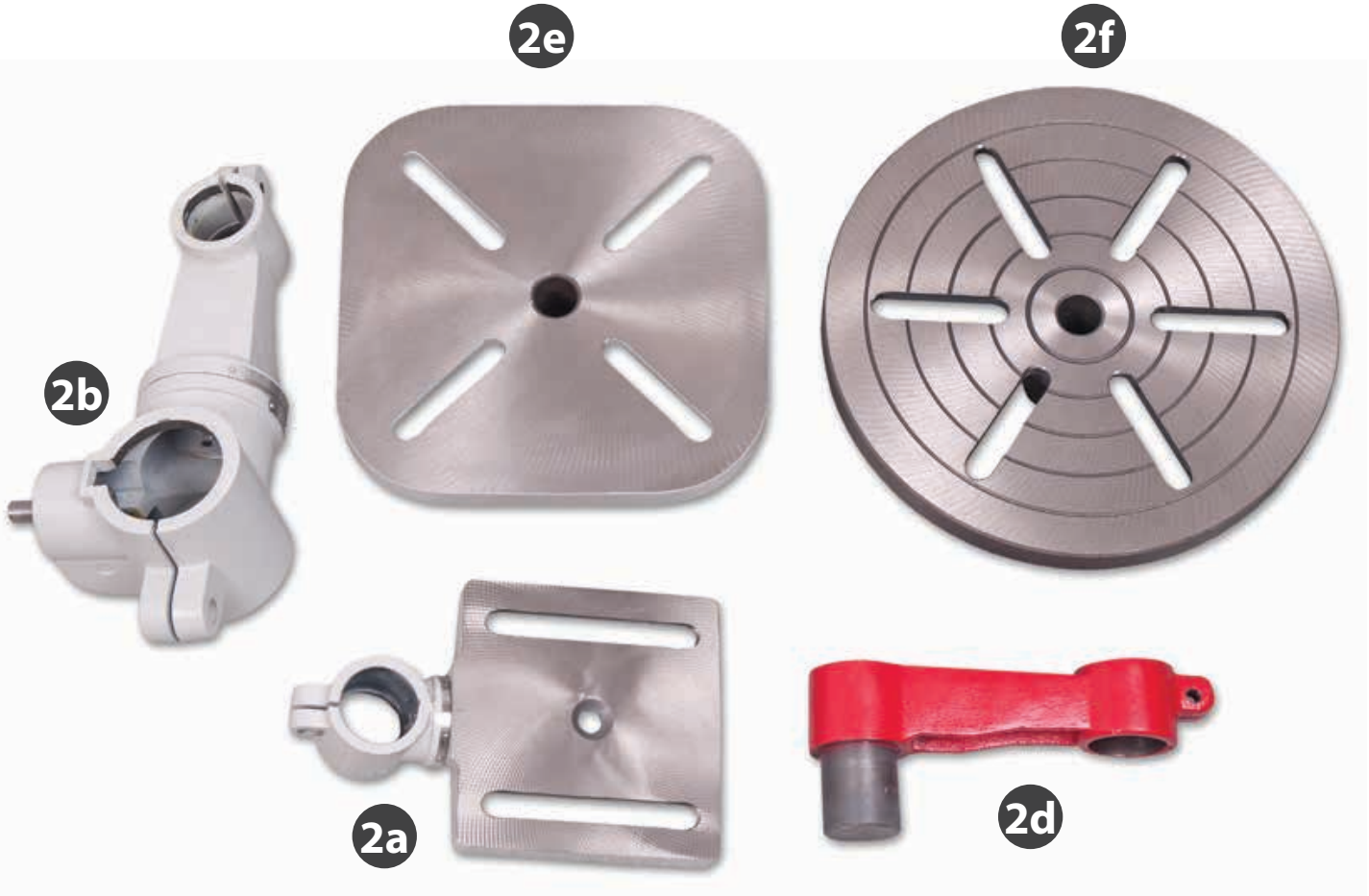


2

3

4


4a
2c


2e
2f
2b
2a
2d

## WHAT'S INCLUDED


# GENERAL SAFETY INSTRUCTIONS FOR 230V MACHINES

The following will enable you to observe good working practices, keep yourself and fellow workers safe and maintain your tools and equipment in good working order.

**WARNING!! KEEP TOOLS AND EQUIPMENT OUT OF REACH OF YOUNG CHILDREN**

**KEEP WORK AREA AS UNCLUTTERED AS IS PRACTICAL. UNDER NO CIRCUMSTANCES SHOULD CHILDREN BE ALLOWED IN WORK AREAS.**

**Mains Powered Tools**

- Tools are supplied with an attached 13 Amp UK 3 pin plug, fitted with 13 amp fuse.
- Inspect the cable and plug to ensuree that neither are damaged. Repair if necessary by a suitably qualified person.
- Do not use when or where it is liable to get wet.

**Workplace**

- Do not use 230V a.c. powered tools anywhere within a site area that is flooded.
- Keep machine clean.
- Leave machine unplugged until work is about to commence.
- Always disconnect by pulling on the plug body and not the cable.
- Carry out a final check e.g. check the cutting tool is securely tightened in the machine and the correct speed and function set.
- Ensure you are comfortable before you start work, balanced, not reaching etc.
- Wear appropriate safety clothing, goggles, gloves, masks etc. Wear ear defenders at all times.
- If you have long hair wear a hair net or helmet to prevent it being caught up in the rotating parts of the machine.
- Consideration should be given to the removal of rings and wristwatches.
- Consideration should also be given to non-slip footwear etc.
- If another person is to use the machine, ensure they are suitably qualified to use it.
- Do not use the machine if you are tired or distracted
- Do not use this machine within the designated safety areas of flammable liquid stores or in areas where there may be volatile gases.
- Check cutters are correct type and size, are undamaged and are kept clean and sharp, this will maintain their operating performance and lessen the loading on the machine.
- **OBSERVE....** make sure you know what is happening around you and **USE YOUR COMMON SENSE.**

# GENERAL SAFETY INSTRUCTIONS FOR DRILLING MACHINES

**1. DO NOT** operate the machine without a preliminary inspection.

**2. CHECK** that the speed is correct for the operation, and upper drive belt cover is closed and fastened.

**3. CHECK** the drill bit is the correct size and type, is correctly fitted and tightened in the chuck.

**4.** Make sure that the drillhead, the table bracket arm, the table tilt and the table swivel clamps are all locked before any drilling.

**5. DO NOT** attempt to carry out any drilling operation on material that has not been secured to the drill table, either by vice or clamp.

**6.** Remove any tools (chuck key, spanners etc), that may have been used in setting up operations and put them away.

**7.** Arrange the drilling operation so that the drill tip does not come in contact with the table.

**8. ALWAYS** allow the drill to stop before removing drills or swarf from around the job or the table.

**9. NEVER** remove 'flying' swarf strands from the drill whilst it is turning.

**10.** It is a good precaution to wear eye protection when drilling, especially using small drills, or very hard material.

**11.** Avoid wearing gloves when operating a drill press.

**12.** After the job is completed, remove all tool accessories, check that drill bits are still sharp and re-use able.

**13.** Clean the machine thoroughly, including removing coolant cutting compound.

**14.** Lightly coat all metal surfaces with a light oil.

**15.** Disconnect the machine from the supply. Secure the cable/ plug clear of the floor.

# SPECIFICATION

| Code | 107690 |
|---|---|
| Model | AW285PD |
| Rating | Workshop |
| Power | 350W 50Hz (230V 1ph) |
| Speed Range | (5) 600 - 2,500 rpm |
| Swing | 210 mm |
| Chuck Size / Type | 1-13 mm / Keyless |
| Chuck Travel | 50 mm |
| Diameter of Column | 46 mm |
| Max Chuck to Table | 285 mm |
| Max Chuck to Base | 380 mm |
| Table Tilt | -45˚ to +45˚ |
| Base Size | 285 x 185 mm |
| Collar Diameter | 40 mm |
| Quill Diameter | 45 mm |
| Table Size | 165 x 165 mm |
| Overall L x W x H | 500 x 280 x 735 mm |
| Weight | 26 kg |

| Code | 107691 |
|---|---|
| Model | AW315PD |
| Rating | Workshop |
| Power | 550W 50Hz (230V 1ph) |
| Speed Range | (12) 210-2,580rpm |
| Swing | 254mm |
| Chuck Size / Type | 1-16 mm / Keyless |
| Throat | 127 mm |
| Taper | 2 MT |
| Chuck Travel | 60 mm |
| Diameter of Column | 60 mm |
| Collar Diameter | 60 mm |
| Max Chuck to Table | 315 mm |
| Max Chuck to Base | 430 mm |
| Table Tilt | -45˚ to +45˚ |
| Base Size | 340 x 210 mm |
| Quill Diameter | 40 mm |
| Table Size | 240 x 240 mm |
| Overall L x W x H | 530 x 280 x 840 mm |
| Weight | 37 kg |

| Code | 107692 |
|---|---|
| Model | AW220RD |
| Rating | Workshop |
| Power | 550W 50Hz (230V 1ph) |
| Speed Range | (5) 500-2,450 rpm |
| Swing | 840 mm |
| Chuck Size / Type | 1-16 mm / Keyless |
| Throat | 420 mm |
| Taper | 2 MT |
| Chuck Travel | 80 mm |
| Horizontal Arm Travel | 320 mm |
| Diameter of Column | 60 mm |
| Max Chuck to Table | 220 mm |
| Max Chuck to Base | 375 mm |
| Table Tilt | -45˚ to +45˚ |
| Base Size | 215 x 340 mm |
| Quill Diameter | 40 mm |
| Table Size | 230 x 210 mm |
| Overall L x W x H | 840 x 320 x 790 mm |
| Weight | 37 kg |

| Code | 107693 |
|---|---|
| Model | AW680RD |
| Rating | Workshop |
| Power | 550W 50Hz (230V 1ph) |
| Speed Range | (5) 500-2,450 rpm |
| Swing | 840 mm |
| Chuck Size / Type | 1-16 mm / Keyless |
| Throat | 420 mm |
| Taper | 2 MT |
| Chuck Travel | 80 mm |
| Horizontal Arm Travel | 320 mm |
| Diameter of Column | 70 mm |
| Max Chuck to Table | 680 mm |
| Max Chuck to Base | 1,180 mm |
| Table Tilt | -45˚ to +45˚ |
| Base Size | 450 x 270 mm |
| Quill Diameter | 40 mm |
| Table Size | 310 mm diameter |
| Overall L x W x H | 820 x 320 x 1,630 mm |
| Weight | 61 kg |

Having unpacked your machine and accessories, check the contents against the equipment list "What's Included", if there are any discrepancies, please contact Axminster Tool Centre using the guide on our website.

**PLEASE DISPOSE OF THE PACKAGING RESPONSIBLY; MUCH OF THE MATERIAL IS RECYCLABLE**

The machine and its accessories arrive coated with heavy corrosion preventative grease and wax paper or plastic wrapping. These will need to be cleaned from the machine, its components and accessories prior to it being set up and commissioned. Use water soluble degreaser to remove. Be warned, it will stain if you splash clothing etc. After cleaning, lightly coat exposed metal.

**WARNING! WEAR OVERALLS AND EYE PROTECTION!**

surfaces of the machine with a thin layer of light machine oil. N.B If you used water soluble de greaser make sure you apply this thin film swiftly.

**Please read the Instruction Manual prior to using your new machine; as well as the installation procedure, there are daily and periodic maintenance recommendations to help you keep your machine in good condition and prolong life. Keep this instruction manual accessible for others who may also be required to use the machine.**

**Please read through the section entitled Illustration and parts description, to identify the parts easily.**

**WARNING! THE DRILL HEAD IS A HEAVY PIECE OF MACHINERY, YOU ARE ADVISED TO HAVE HELP TO LIFT IT CLEAR OF THE BOX AND TO FIT.**

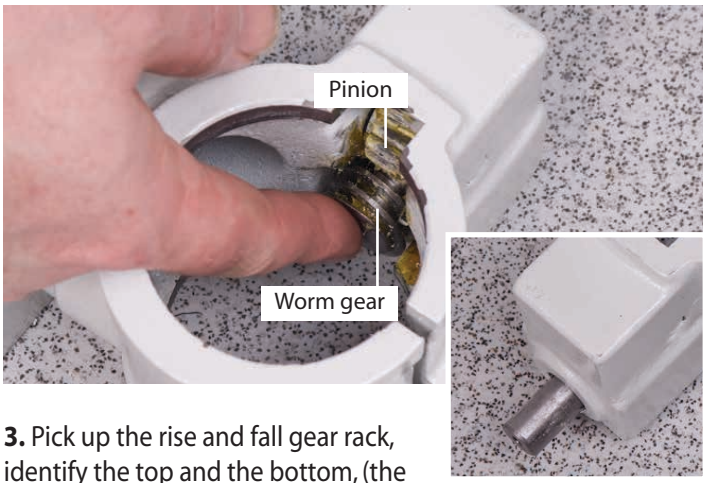
**1.** Place the base (3) on the bench or floor and place the mounting flange of the column (1) onto the seating flange of the base, align the holes. Use the four Hex bolts and secure the column to the base, see fig 1. Loosen the grub screw holding the chamfered retaining collar on the column with the supplied Hex key, place it and the rise and fall rack assembly aside, see fig 2.

## Fig 01


## Fig 02

**2.** Take the drill table mounting bracket arm (2,2a,2b,2c) and twist the worm drive shaft with your fingers so that the whole shaft protrudes from the casting and the worm gear itself is clear of the square recess in the main body of the casting (see fig 3).

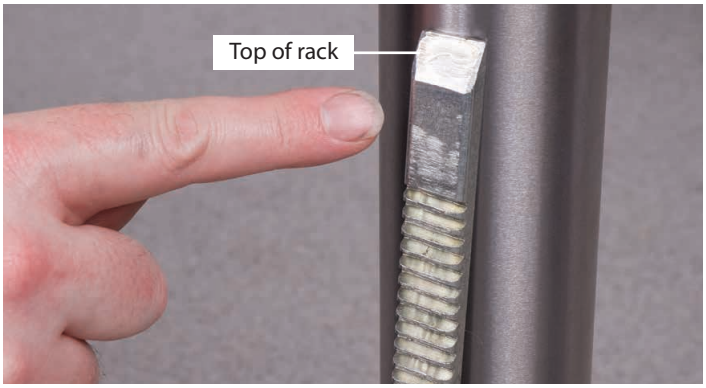
## Fig 03-04




Worm gear shaft

**3.** Pick up the rise and fall gear rack, identify the top and the bottom, (the rack gearing is cut asymmetrically, with the gear cut extending closer to the bottom), make sure you have the rack the right way up, as it will allow you to drive the drill table up and down over its full range, see fig 5.

## Fig 05




**4.** Fit the rise and fall rack into the square recess in the mounting body casting, ensure that it is engaged with the pinion, see figs 6 and lower the combined mechanism over the column (1). Allow it to slide down the column until the rise and fall rack is located in the cup chamfer in the top of the mounting flange, see figs 7. Replace the cup chamfered retaining

Continues Over....

collar over the column and slide it down onto the top of the rack. Lock it in place with the grub screw, ensuring that it has captured the upper end of the rack securely, but not too tight that the rack cannot be swivelled around the pillar see fig 8 .

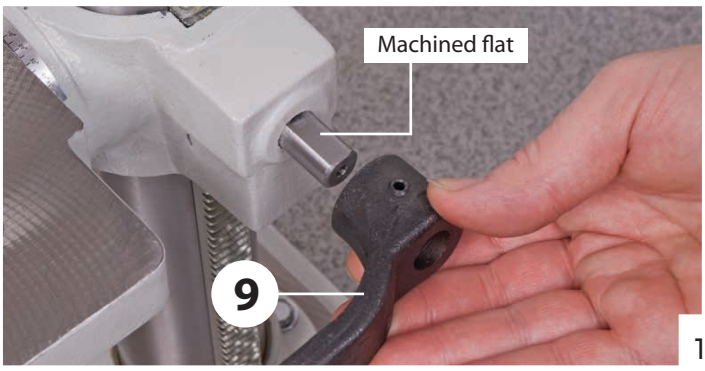
## Fig 06-07



## Fig 08

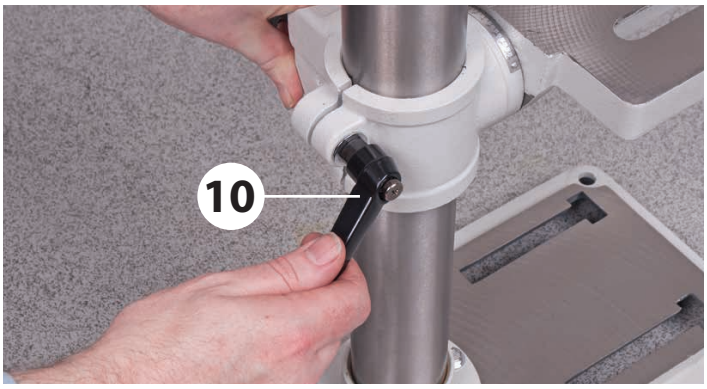
**5.** Locate and fit the crank handle (9) to the shaft, ensuring that you tighten the grub screw onto the machined flat on the shaft, this will keep the worm gear in position, see figs 9-10.

## Fig 09




**6.** Check that the bracket can be driven up and down the column and can swivel around the pillar. Locate the lift and shift clamping handle (10) and screw it into the threaded hole to the rear of the mounting bracket arm (2) and tighten, see fig 11. Check it has 'pinched' up on the column and the bracket is immobile; both in its up and down travel and swivel movement.

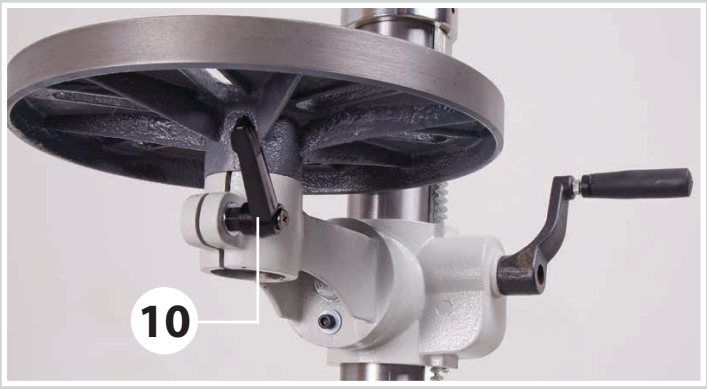
## Fig 11




**Radial Standing Drill Only**

**7.** Slot the drill table (2e or 2f) into the machined hole to the front of the mounting arm (2b and 2c) and screw a lift and shift clamping handle (10) into to the threaded hole beneath the table and tighten, see figs 12-13. Check it has 'pinched' up on the drill table spigot and the drill table is immobile.

## Fig 12-13-14


**Note: On the two radial drills fit the extension arm (2d) into the mounting arm (2b and 2c) then the tables, see figs 14-15-16.**

## Fig 15-16



### Mounting the Drill Head

**1.** Ensure that the two hex socket grub screws that lock the head in place on the column are withdrawn and will not foul the column (1) when the head is fitted, see fig 17. Put the lower assembly (you have just been working on) in the designated position, make sure it is stable and lift the drillhead (4) over the column (1) and let it drop into place, see fig 18. Set the drill head approximately fore and aft and lock in position using the two cap head grub screws mentioned earlier, see fig 19. Check that the drillhead is immobile. Everything on the drilling machine is now secured.

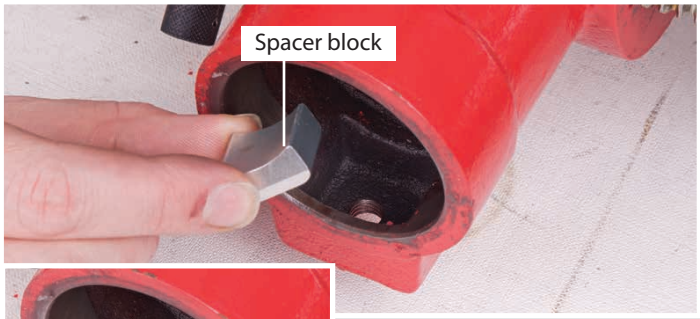
## Fig 17-18-19



### Radial Pillar Drill Head Only

**2.** Lay the drill head on its side, locate the column spacer block and insert it into machined recess inside the base of the drill head, see fig 20. Lift the drill head onto the column as described above and secure using a lift and shift handle (10), see figs 21.

## Fig 20

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**NOTE: Make sure the spacer block does not come out when lifting the drill head onto the column!**

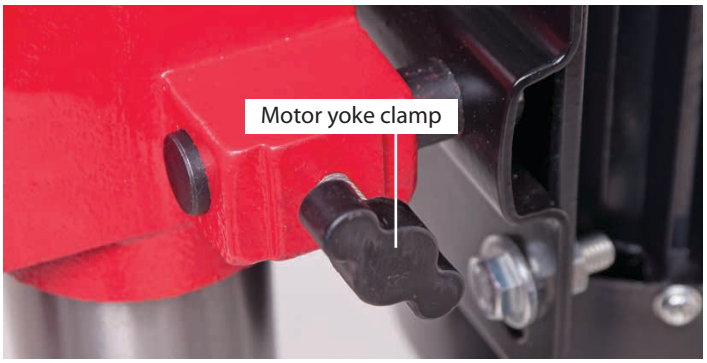
## Fig 21


**3.** Locate another lift and shift handle (10) and screw it into the threaded hole for the Horizontal clamp assembly, see fig 22.

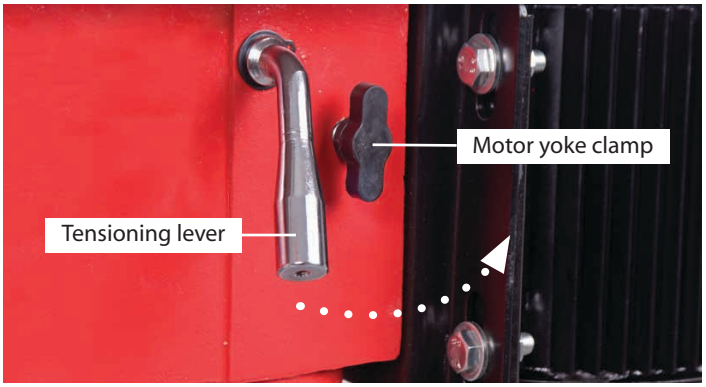
## Fig 22


**4.** Open the pulley cover and check to see if the belt has been tensioned. If not, loosen the two motor yoke locks and push the motor back to tension the belt, see fig 23-24-25. For the floor standing pillar drill head, move the tensioning lever back then re-tighten the motor yoke locks to lock the motor in place, see fig 25-26.

## Fig 23-24




## Fig 25-26




**1-13mm Keyless Chuck AW285PD Only**

Locate the chuck (7) and insert up over the morse taper arbor, using a high faced mallet, lightly tap home.

**3-16mm Keyless Chuck**

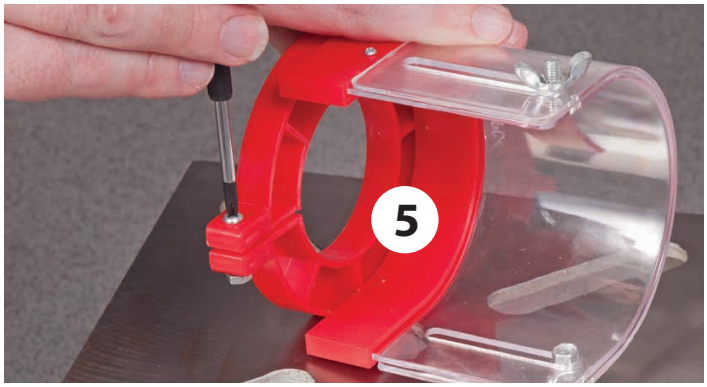
Locate the morse taper arbor (8), insert the arbor into the keyless chuck (7) then slot the assembly up into the quill. Using a high faced mallet, lightly tap home, see fig 27-28.

## Fig 27-28


### Drill Guard

Locate the drill guard assembly (5), loosen the Phillips screw and nut to the rear of the guard, see fig 29 insert the assembly up over the lower bearing flange of the quill until the assembly is up against the drill casting, re-tighten the screw and nut to lock the guard assembly in place, see fig 30.

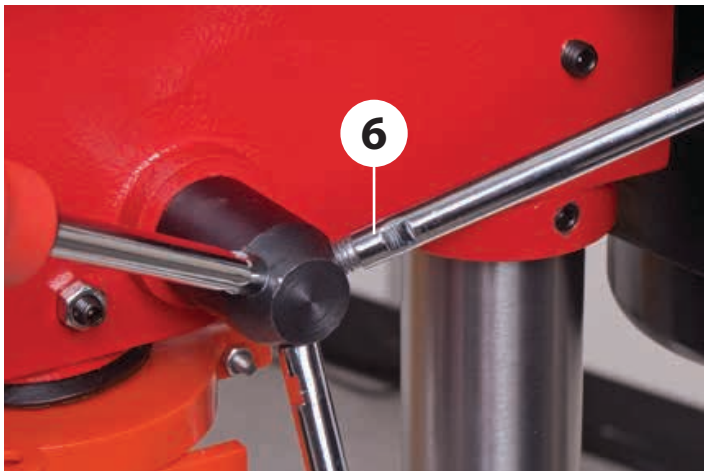
## Fig 29-30



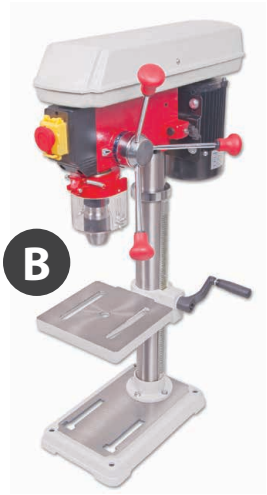

### Lever Feed Handles

Locate the three lever feed handles (6) and screw them into the threaded holes on the depth stop ring, see fig 31-32.

## Fig 31-32

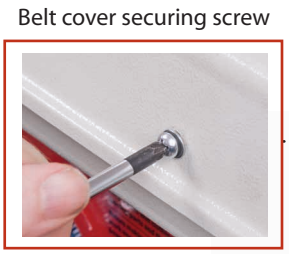







| Model | Letter |
|---|---|
| AW285PD | A |
| AW315PD | B |
| AW220RD | C |
| AW680RD | D |

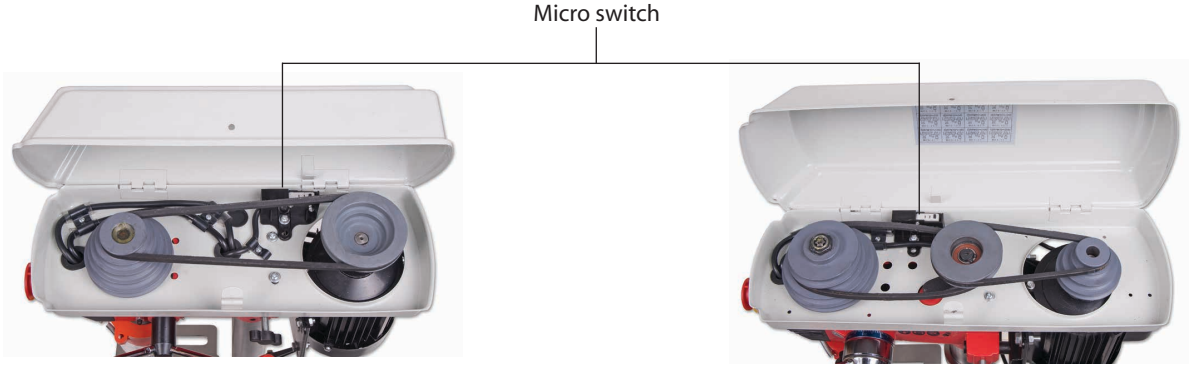
# ILLUSTRATION AND PARTS DESCRIPTION





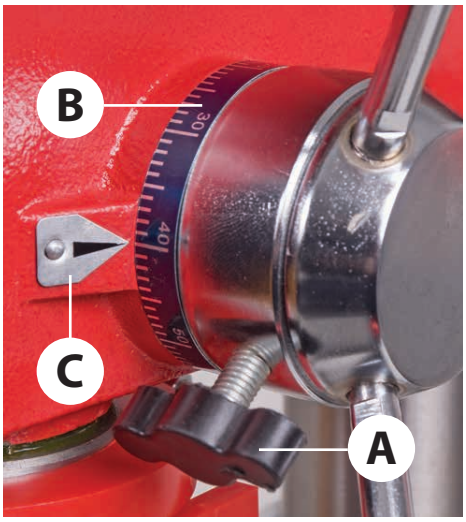
**107690** AW285PD

**107691** AW315PD

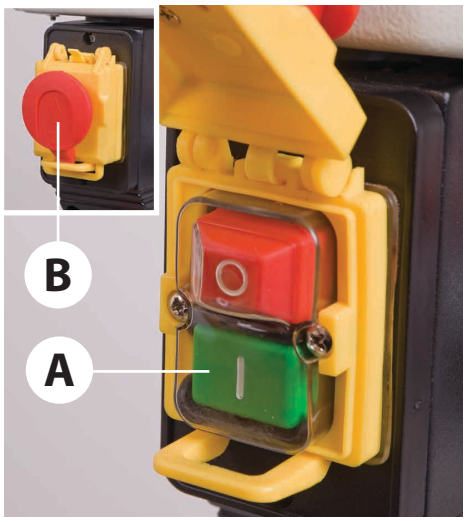



**107690** Drive Pulley

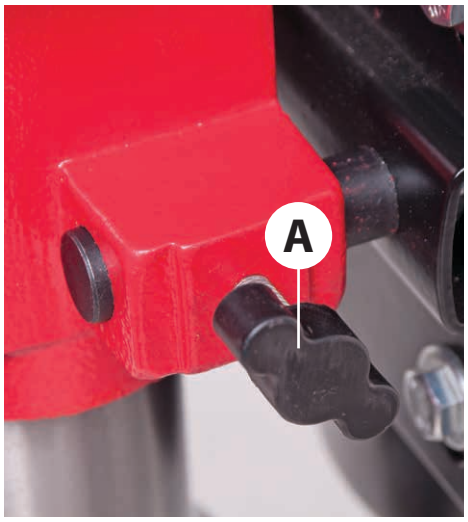
**107691** Drive Pulley




Depth stop clamp (A)
Depth scale (B), Depth scale pointer (C)



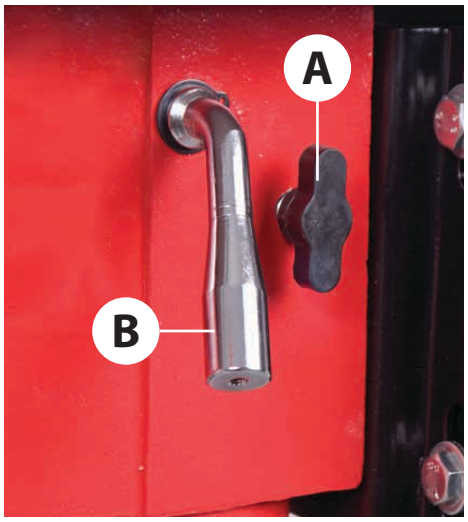

ON/OFF switch (A)
Emergency stop button (B)




Motor yoke clamp (A)

Table tilt locking bolt

90˚ Locking bolt




Motor yoke clamp (A)
Drive belt tensioning lever (B)

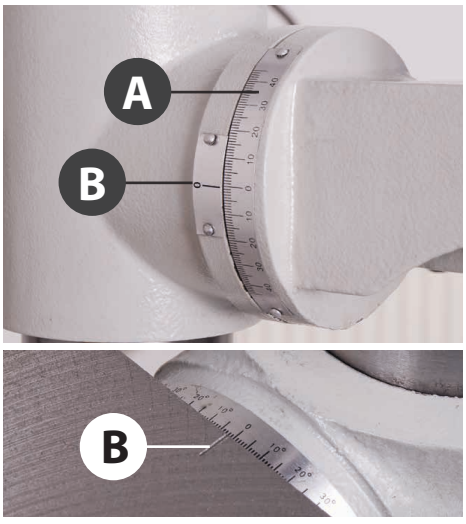
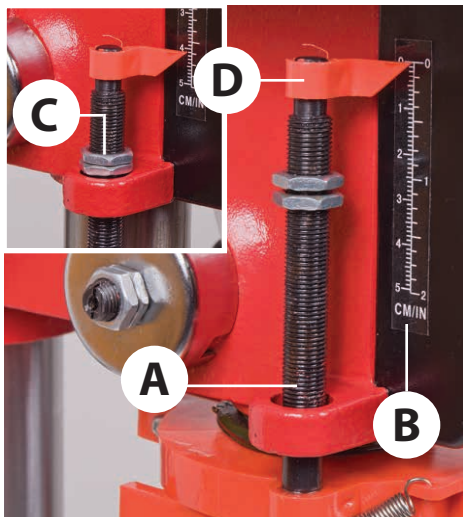
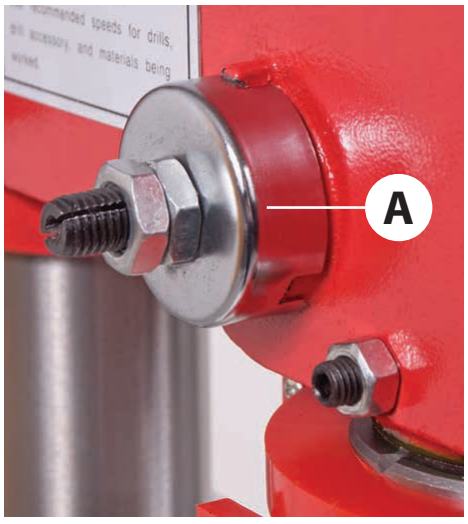



Table tilt scale (A)
Table tilt pointer (B)



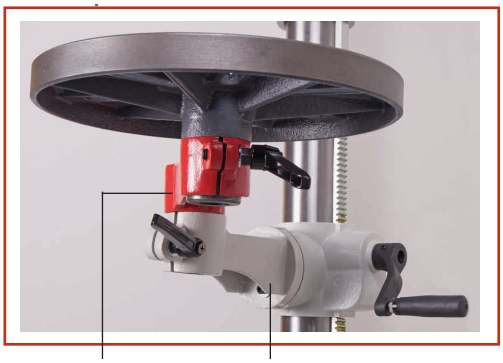

Depth stop assembly (A)
Depth stop scale (B), Depth stop nuts (C)
Pointer (D)

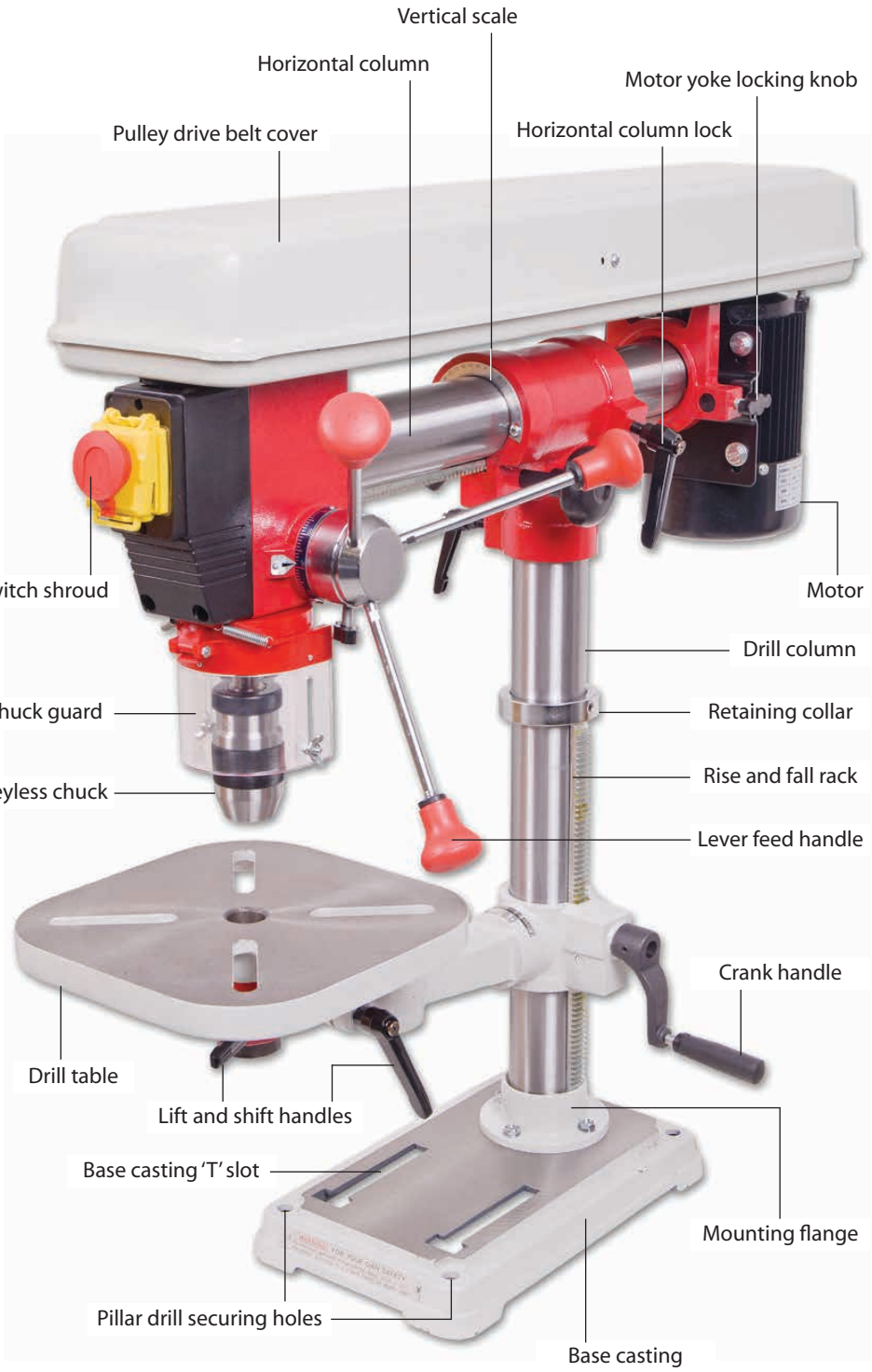



Quill rise and full return spring (A)

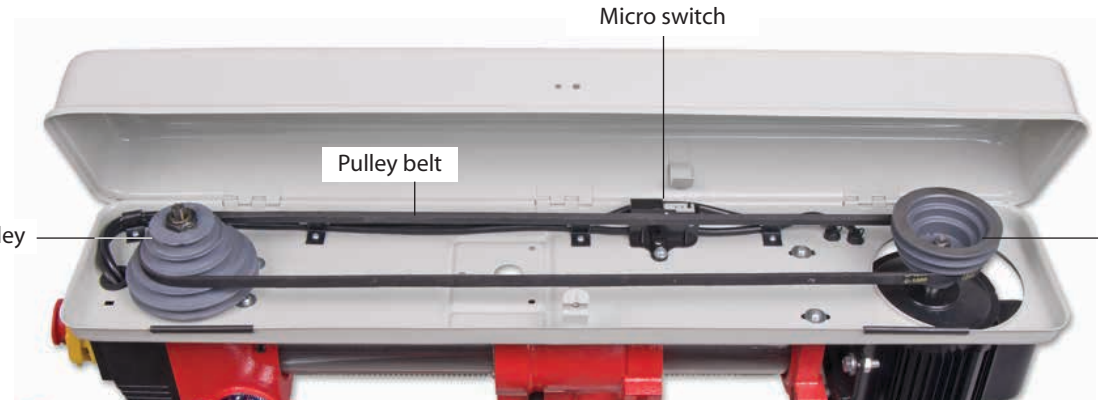
# ILLUSTRATION AND PARTS DESCRIPTION

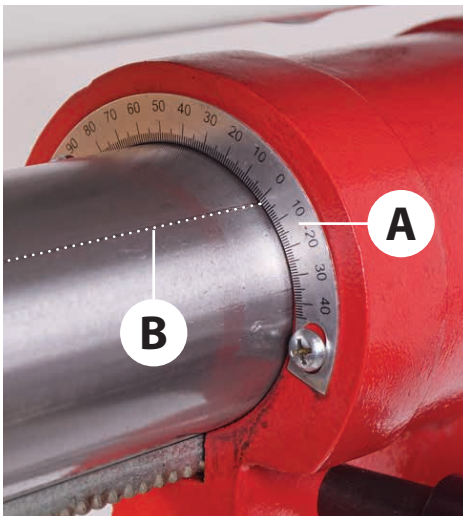
**107693** AW680RD



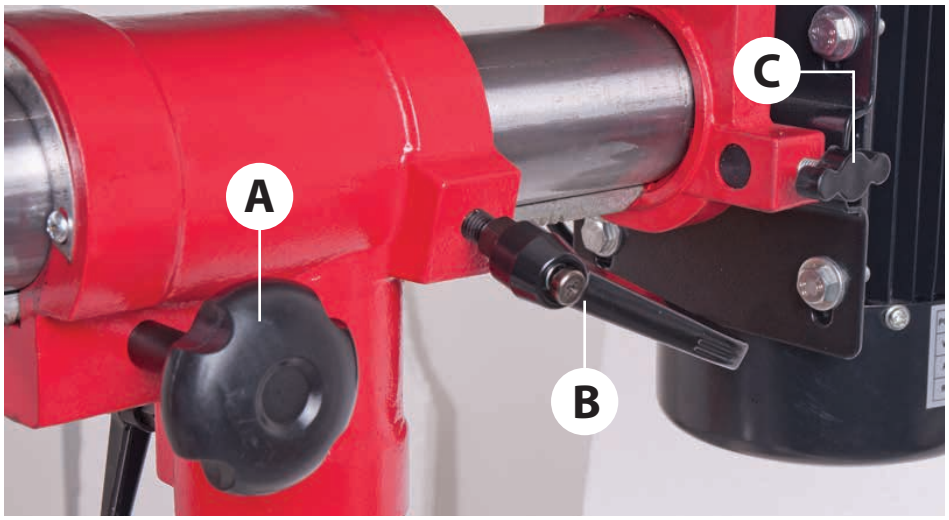




**107692** AW220RD






Vertical scale (A)
Column pointer (B)




Horizontal column adjusting knob (A)
Horizontal column clamping handle (B), Motor yoke clamp (C)

Turn the horizontal adjusting knob anti-clockwise to move the column forward

Turn the horizontal adjusting knob clockwise to move the column back

Vertical locking pin

Loosen the horizontal column clamping handle (B). Pull out the vertical locking pin to un-lock the drill head column. Rotate + or - to the appropriate angle using the tilt pointer on the column then retighten the horizontal clamping handle to lock the head in position.

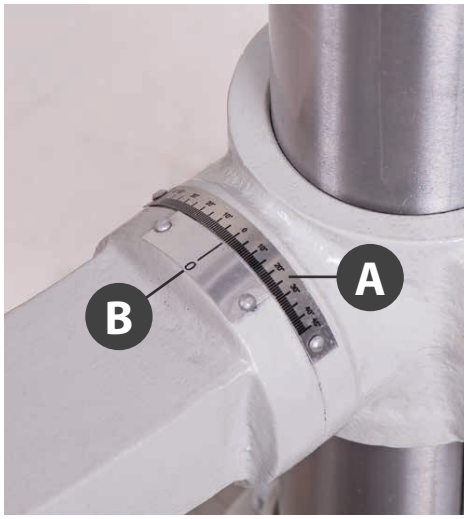



Table tilt scale (A)
Table tilt pointer (B)

**WARNING! DISCONNECT THE PILLAR DRILL FROM THE MAINS SUPPLY BEFORE CONTINUING!**

To release the tension, loosen the two motor yoke locks on either side of drilll head, push the motor assembly up against the drill head casting, thus releasing the tension on the pulleys, see figs 33-34.

Refer to the (speed select table on page 21) and ascertain the belt positions for speed required.

## Fig 33-34

AW285PD Drive Pulley

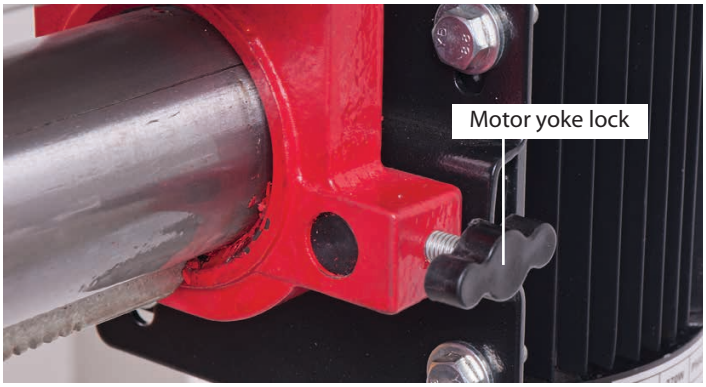
AW315PD Drive Pulley

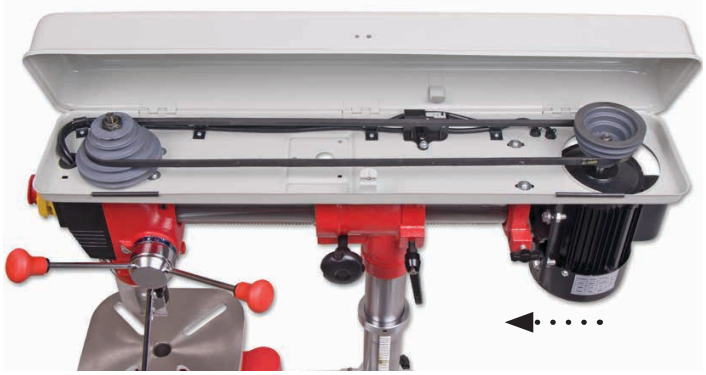
**WARNING! TAKE CARE NOT TO TRAP YOUR FINGERS WHEN REPOSITIONING THE BELT ON THE PULLEYS!**

**Radial Drills**

To release the tension, loosen the motor yoke tensioning locks, push the motor up against the drillhead casting, thus releasing the tension on the pulleys, see fig 35-36.

## Fig 35-36



**WARNING! TAKE CARE NOT TO TRAP YOUR FINGERS WHEN REPOSITIONING THE BELT ON THE PULLEYS!**

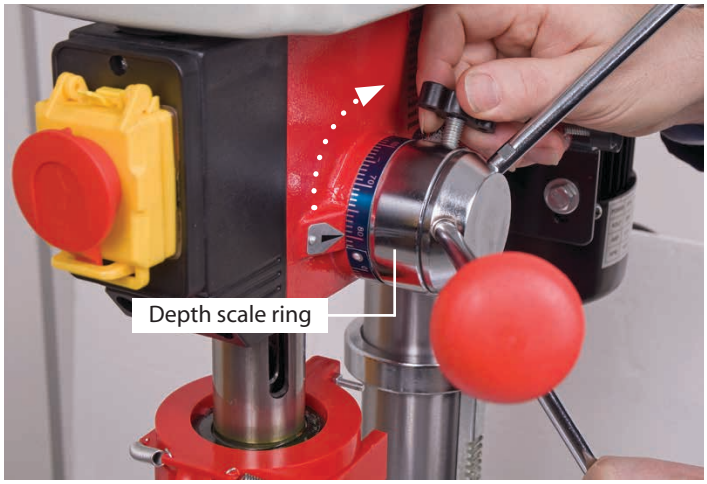
Turn the pulleys to check the belts move freely. Tension the pulleys by pushing the motor assembly out and securing the motor yoke butterfly knob to lock the motor assembly in position. Lower the belt and pulley cover carefully, (remember the micro switch).

**RE-CONNECT THE SUPPLY AND SWITCH ON. CHECK THE DRILL RUNS SMOOTHLY, NO HARD VIBRATION.**

If all seems satisfactory, recommence drilling operations.

**1.** Lower the quill to its maximum depth by turning the lever feed handle. While holding the handle turn the depth scale ring (A) fully round and then tighten the butterfly depth stop clamp (B) to lock the quill in position, see fig 37.

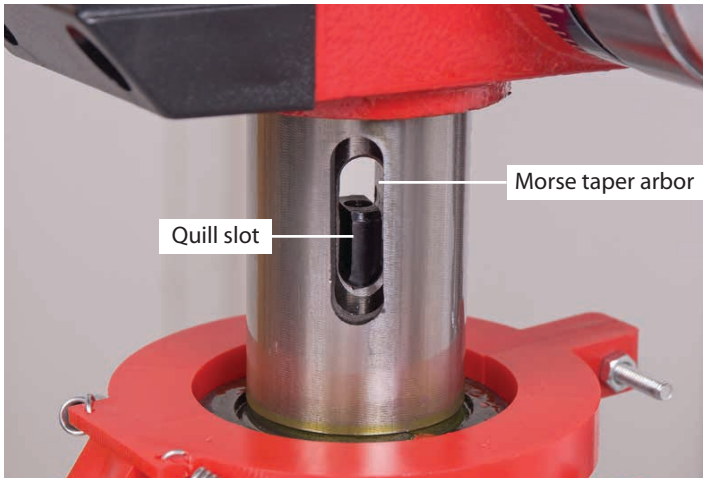
## Fig 37




**2.** Place a piece of timber on the drill table to prevent the chuck from being damaged.

**3.**While holding the handle in place turn the chuck to line up the morse taper arbor in the quill's machined slot, see fig 38. Insert the morse taper drift (11) in the quill's slot, thus pushing the morse taper down and releasing the chuck, see fig 39-40.

## Fig 38-39-40





**WARNING! DISCONNECT THE MACHINE FROM THE MAINS SUPPLY BEFORE CONTINUING!**

### Cleaning

Excessive dust in the motor can cause heat to develop. Every effort should be made to prevent foreign material from entering the motor.

Where you may find accumulations of dust, dirt or waste, a visual inspection should be made at frequent intervals. Accumulations of dry dust can usually be blown out.

**Caution: To avoid eye injury or adverse reaction to dust, high pressure hoses should not be used especially in poorly ventilated areas.**

After cleaning apply a light coat of machine oil on the quill and chuck.

If the machine is going to stand idle for any length of time, a light coat of spray or machine oil over the column and table will prevent rusting. Place a dust sheet over the drill.

### Electric

**WARNING! DO NOT USE THE MACHINE IF THE POWER CABLE HAS BECOME DAMAGED**

If any servicing (other than the cleaning above) becomes necessary, the unit should be returned to Axminster Tool Centre for repair by one of our qualified electricians. Contact our customer sales department for further assisance on:

**Call: 03332 406406**

**(+441297 33666)**

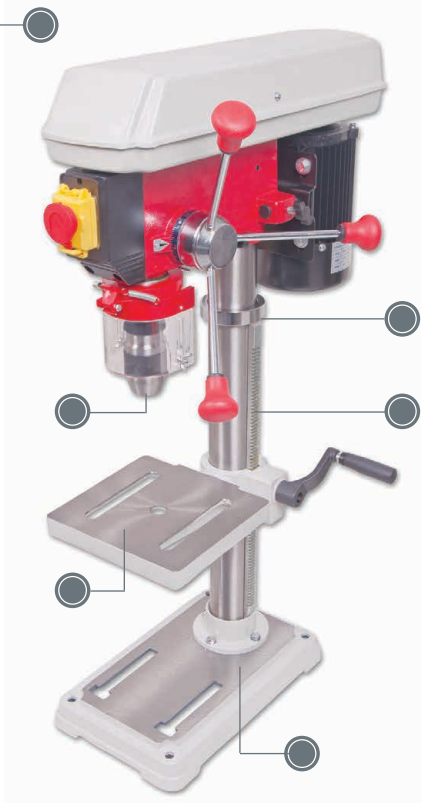
**Email: cs@axminstertools.com**

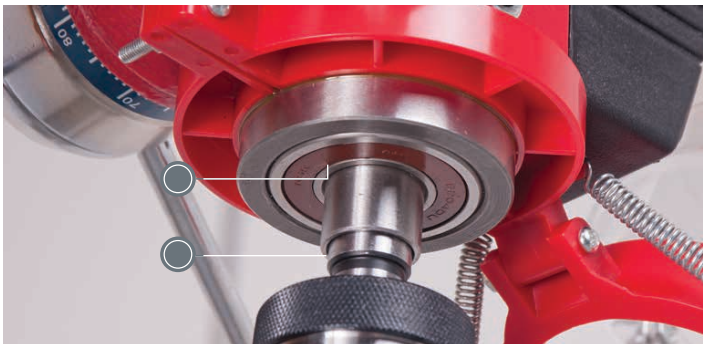
**WARNING! DO NOT ATTEMPED TO REPAIR IT YOURSELF CONTACT OUR TECHNICAL SALES TEAM FOR ASSISTANCE!**

### Motor speed

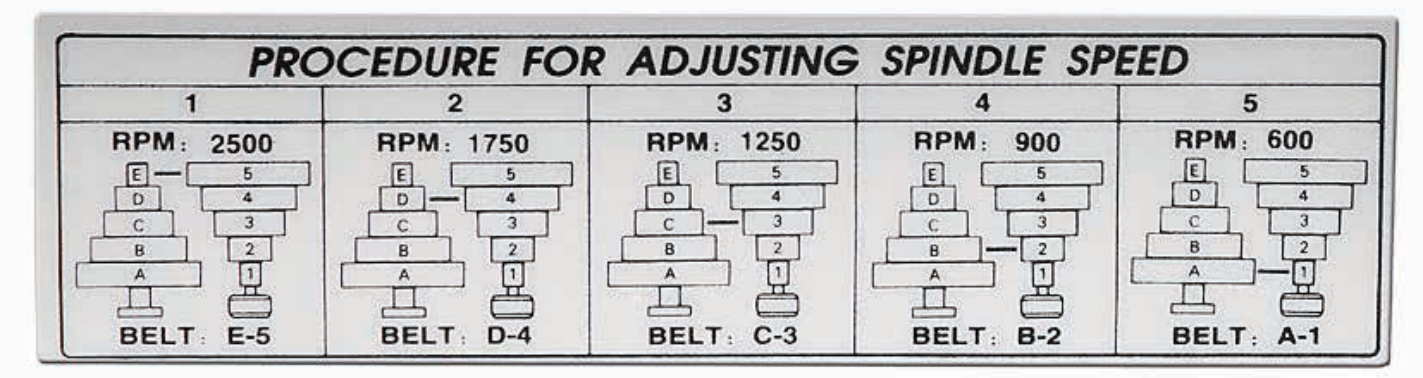
The speed of the motor cannot be regulated or changed - no adjustment is necessary.

**Oil Points**

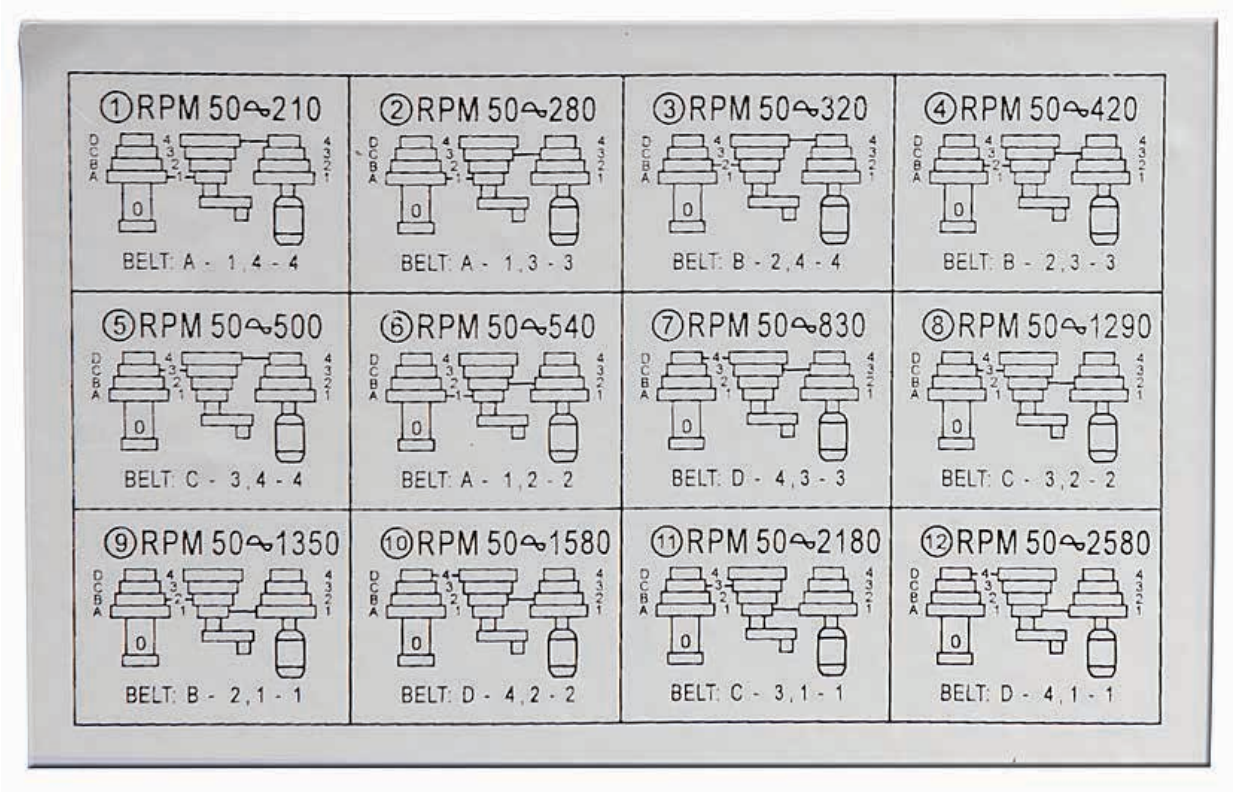




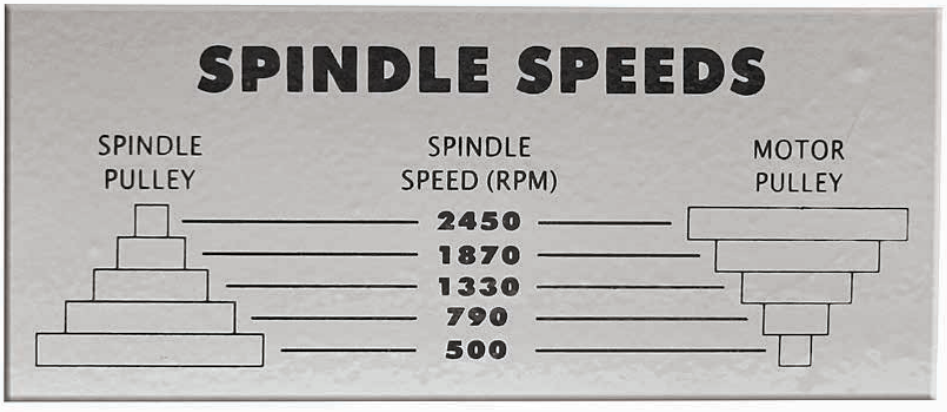
(5 Speed) **107690** AW285PD Bench Pillar Drill




(12 Speed) **107691** AW315PD Bench Pillar Drill

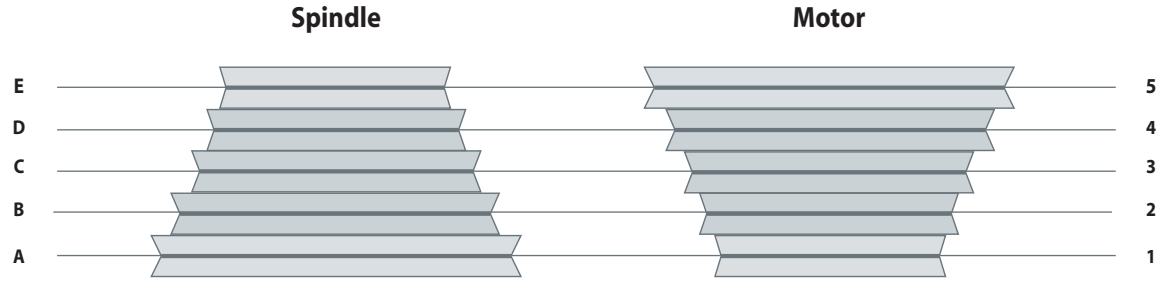



(5 Speed) **107692**AW220RD Bench Radial Pillar Drill **107693** AW680RD Floor Radial Pillar Drill

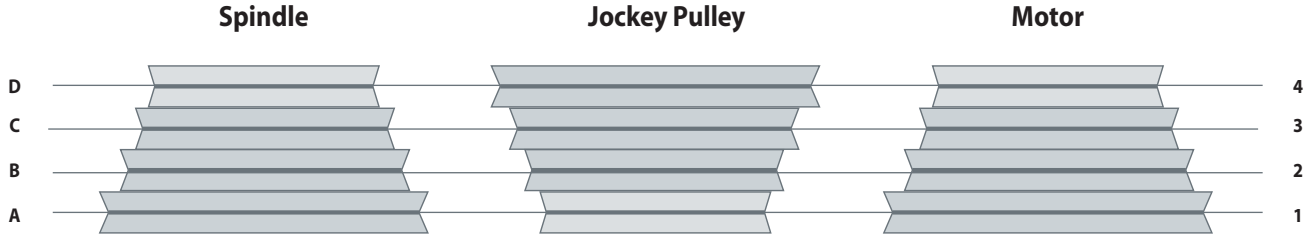


# DRILL SPEED MATERIAL TABLE

## 5 Speed




## 12 Speed

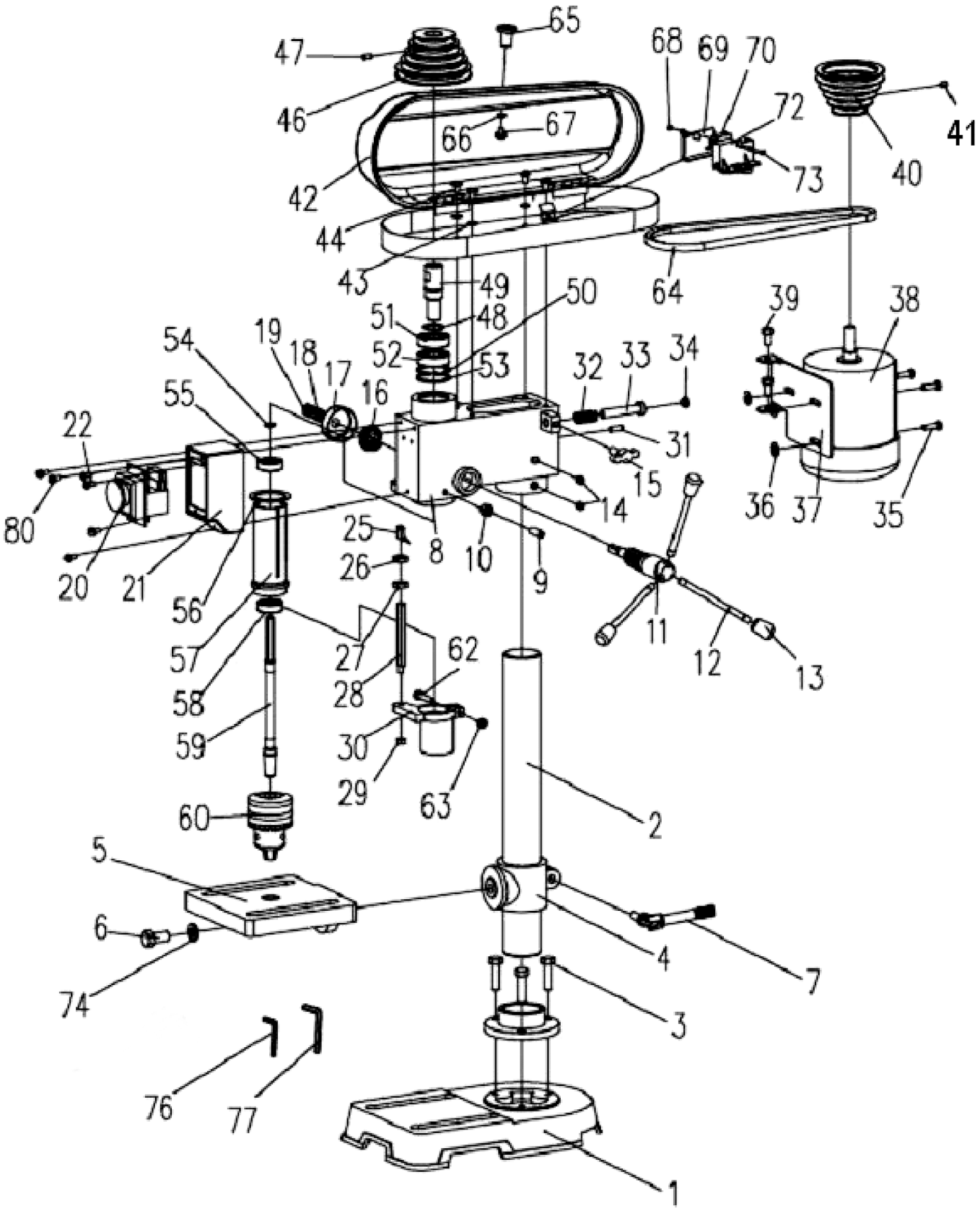



## Recommended Drill Size per Material

| Average Guide Speed | Wood | | Zinc Diecast | | Aluminium or Brass | | Plastic | | Cast Iron and Bronze | | Steel Mild and Malleable | | Steel Cast and Carbon | | Steel Stanless and Tool | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50Hz | inches | mm | inches | mm | inches | mm | inches | mm | inches | mm | inches | mm | inches | mm | inches | mm |
| 2450-2500-2580 rpm | 5/16" | 7.9 | 3/16 | 4.8 | 11/64 | 4.4 | 5/32 | 4.0 | 7/16 | 2.8 | 3/32 | 2.4 | 1/16 | 1.6 | 1/32 | 0.8 |
| 1580-1750-1870 rpm | 3/8 | 9.5 | 1/4 | 6.4 | 7/32 | 5.6 | 3/16 | 4.8 | 1/8 | 3.2 | 3/32 | 2.4 | 1/16 | 1.6 | 3/64 | 1.2 |
| 1250-1290-1330 rpm | 5/8 | 15.9 | 3/8 | 9.5 | 11/32 | 8.7 | 5/16 | 7.9 | 1/4 | 6.4 | 5/32 | 4.0 | 1/8 | 3.2 | 1/16 | 1.6 |
| 790-830-900 rpm | 7/8 | 22.2 | 1/2 | 12.7 | 15/32 | 11.9 | 7/16 | 11.1 | 11/32 | 8.7 | 1/4 | 6.4 | 3/16 | 4.8 | 1/8 | 3.2 |
| 500-540-600 rpm | 1 1/4 | 31.8 | 3/4 | 19 | 11/16 | 17.5 | 5/8 | 15.9 | 1/2 | 12.7 | 3/8 | 9.5 | 5/16 | 7.9 | 1/4 | 6.4 |

| TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|
| **Noisy Operation** | 1. Incorrect belt tension<br>2. Dry spindle<br>3. Loose spindle pulley<br><br>4. Loose motor pulley | 1. Adjust the tension<br>2. Lubricate spindle<br>3. Checking tightness of retaining nut on pulley, and tighten if necessary<br>4. Tighten set screws in pulleys |
| **Drill bit burns** | 1. Incorrect speed<br>2. Chips not coming out of hole<br><br>3. Dull drill bit<br>4. Feeding too slow<br><br>5. Not lubricated | 1. Change speed<br>2. Retract drill bit frequently to clear chips<br>3. Resharpen drill bit<br>4. Feed fast enough-allow drill bit to cut.<br>5. Lubricate drill bit |
| **Drill bit leads off hole not round** | 1. Hard grain in wood or lengths of cutting tips and/or angles not equal<br><br>2. Bent drill bit | 1. Resharpen drill bit correctly<br><br>2. Replace drill bit |
| **Wood splinters on underside** | 1. No "back-up material" under workpiece | 1. Use "back-up material" |
| **Workpiece torn loose from hand** | 1. Not supported or clamped properly | 1. Support workpiece or clamp it |
| **Drill bit binds in workpiece** | 1. Workpiece pinching drill bit or excessive feed pressure<br><br>2. Improper belt tension | 1. Support workpiece or clamp it<br><br>2. Adjust tension |
| **Excessive drill bit runout or wobble** | 1. Bent drill bit<br>2. Worn spindle bearings<br>3. Drill bit not properly installed in chuck<br>4. Chuck not properly installed | 1. Use a straight drill bit<br>2. Replace bearings<br>3. Install drill bit properly<br><br>4. Install chuck properly |
| **Quill returns too slow or too fast** | 1. Spring has improper tension | 1. Adjust spring tension |
| **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. Make sure all surfaces are free of dust and grease |

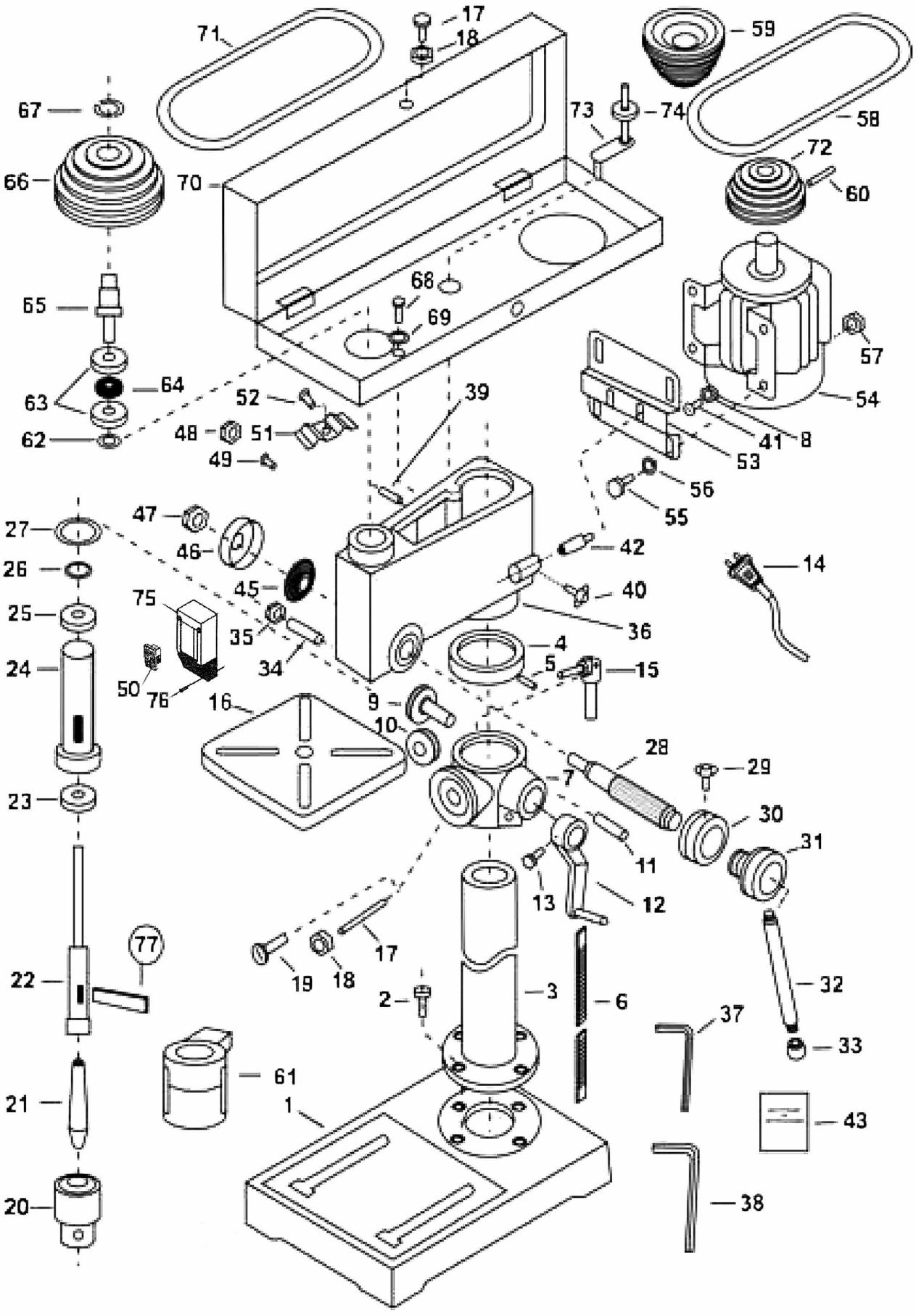
**AW285PD Bench Pillar Drill (ZQJ4113A)**



## AW285PD Bench Pillar Drill (ZQJ4113A)

| NO | DESCRIPTION | QTY |
|---|---|---|
| 1 | BASE | 1 |
| 2 | COLUMN | 1 |
| 3 | BOLT M8X20 | 3 |
| 4 | TABLE BRACKET | 1 |
| 5 | SQUARE TABLE | 1 |
| 6 | BOLT M12x25 | 1 |
| 7 | CLAMPING LEVER | 1 |
| 8 | BODY | 1 |
| 9 | SCREW M6x18 | 1 |
| 10 | NUT M6 | 1 |
| 11 | FEED SHAFT | 1 |
| 12 | HANDLE BAR | 3 |
| 13 | KNOB | 3 |
| 14 | HEADLESS SET SCREW | 2 |
| 15 | SHIFTER BAR | 1 |
| 16 | SPRING SEAT | 1 |
| 17 | SPRING CAP | 1 |
| 18 | NUT | 1 |
| 19 | NUT | 1 |
| 20 | SWITCH | 1 |
| 21 | SWITCH BOX | 1 |
| 22 | SCREW | 3 |
| 25 | POINTER | 1 |
| 26 | NUT | 1 |
| 27 | NUT | 1 |
| 28 | LIMIT BOLT | 1 |
| 29 | NUT | 1 |
| 30 | CHUCK GUARD | 1 |
| 31 | PINS | 1 |
| 32 | SPRING | 1 |
| 33 | ADJUSTING BAR | 1 |
| 34 | RUBBER PAD | 1 |
| 35 | BOLT | 3 |
| 36 | WASHER | 3 |
| 37 | MOTOR MOUNTING PLATE | 1 |
| 38 | MOTOR | 1 |
| 39 | BOLT M8x16 | 2 |
| 40 | MOTOR PULLEY | 1 |
| 41 | HEADLESS SET SCREW | 1 |
| 42 | PULLEY COVER | 1 |
| 43 | WASHER | 4 |
| 44 | SCREW M6X10 | 4 |
| 46 | SPINDLE PULLEY | 1 |
| 47 | HEADLESS SET SCREW | 1 |
| 48 | RETAIN RING | 1 |
| 49 | INTERNAL SPLINE SLEEVE | 1 |
| 50 | RETAIN RING | 1 |
| 51 | BALL BEARING 6203-2RZ/Z1 | 1 |
| 52 | BALL BEARING 6203-2RZ/Z1 | 1 |
| 53 | RETAIN RING | 1 |
| 54 | RETAIN RING | 1 |
| 55 | BALL BEARING 6201-2RZ-Z1 | 1 |
| 56 | WASHER | 1 |
| 57 | SPINDLE SLEEVE | 1 |
| 58 | BALL BEARING 6201-2RZ-Z1 | 1 |
| 59 | SPINDLE | 1 |
| 60 | DRILL CHUCK | 1 |
| 62 | BOLT M6X25 | 1 |
| 63 | NUT | 1 |
| 64 | V-BELT | 1 |
| 65 | HANDLE | 1 |
| 66 | WASHER | 1 |
| 67 | SCREW | 1 |
| 68 | NUT M3 OPTIONAL | 2 |
| 69 | PLATE OPTIONAL | 1 |
| 70 | MICRO SWITCH OPTIONAL | 1 |
| 72 | SUPPORT PLATE OPTIONAL | 1 |
| 73 | SCREW M3X18 OPTIONAL | 2 |
| 74 | SPRING WASHER | 1 |
| | | 1 |
| 76 | HEX KEY 3 mm | 1 |
| 77 | HEX KEY 4 mm | 1 |
| 80 | SCREW M4x10 | 4 |

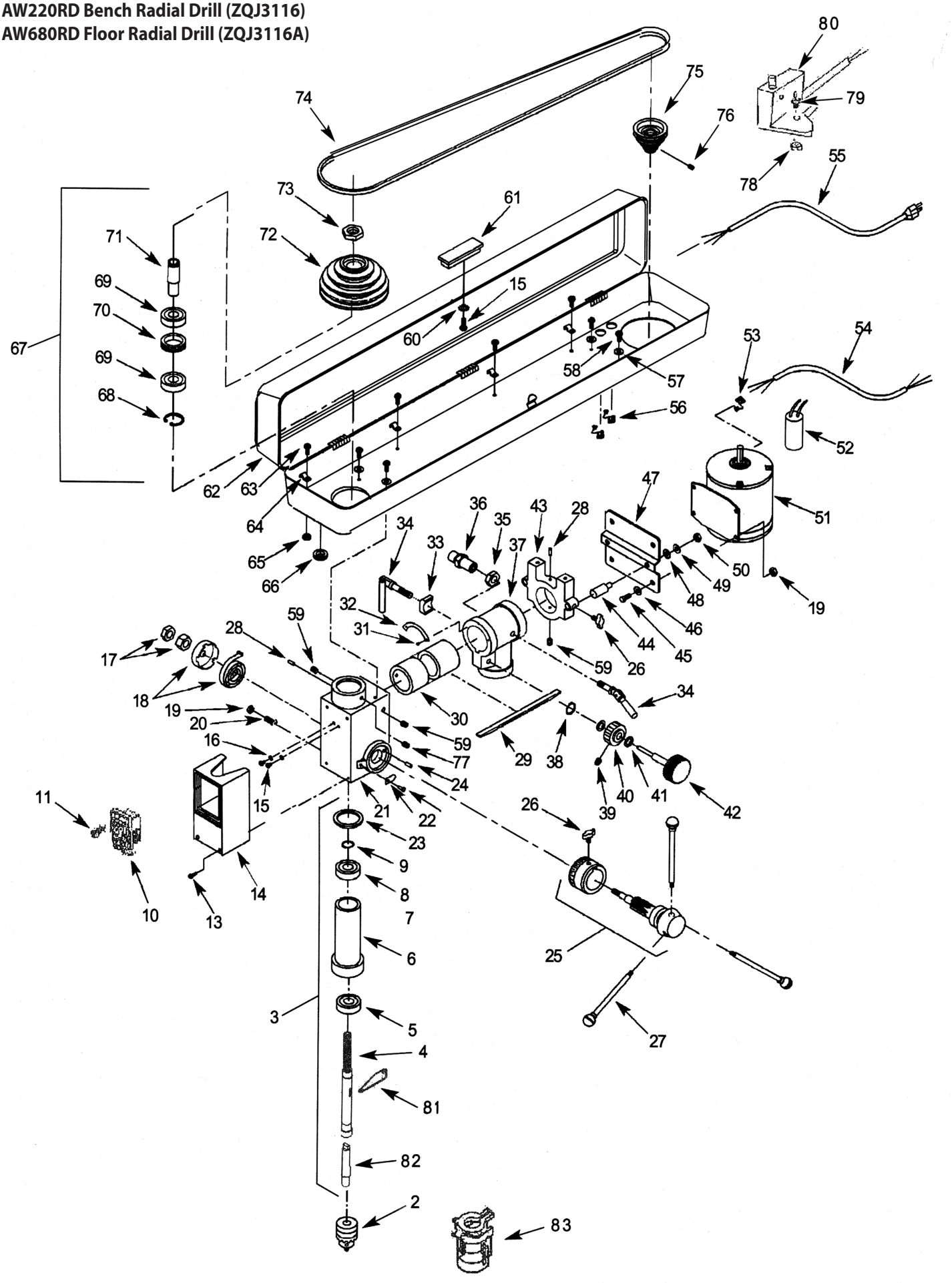
**AW315PD Bench Pillar Drill (ZQJ4116Q)**



## AW315PD Bench Pillar Drill (ZQJ4116Q)

| NO | DESCRIPTION |
|---|---|
| 1 | BASE |
| 2 | BOLT |
| 3 | COLUMN |
| 4 | RACK RING |
| 5 | HEADLESS SET SCREW |
| 6 | RACK |
| 7 | MOUNTING ARM BRACKET |
| 8 | NUT |
| 9 | WORM GEAR |
| 10 | GEAR |
| 11 | SHAFT |
| 12 | HANDLE |
| 13 | SET BOLT |
| 14 | PLUG |
| 15 | CLAMP BOLT |
| 16 | TABLE |
| 17 | PIN |
| 18 | NUT |
| 19 | SET SCREW |
| 20 | CHUCK |
| 21 | ARBOR |
| 22 | SPINDLE |
| 23 | BALL BEARING |
| 24 | SPINDLE SLEEVE |
| 25 | BALL BEARING |
| 26 | RETAIN RING |
| 27 | RUBBER WASHER |
| 28 | FEED SHAFT |
| 29 | CLAMP BOLT |
| 30 | SCALE RING |
| 31 | HANDLE BODY |
| 32 | HANDLE |
| 33 | KNOB |
| 34 | HEADLESS SET SCREW |
| 35 | NUT |
| 36 | BODY |
| 37 | HEX. KEY |
| 38 | HEX. KEY |
| 39 | HEADLESS SET SCREW |
| 40 | SLIDE BAR BOLT |
| 41 | SCREW |
| 42 | SLIDE BAR |
| 43 | INSTRUCTION MANUAL |
| 44 | CHUCK KEY |
| 45 | SPRING |
| 46 | SPRING SEAT |
| 47 | NUT |
| 48 | PLASTIC JAM NUT |
| 49 | SCREW |
| 50 | SWITCH |
| 51 | WIRE CLAMP |
| 52 | SCREW |
| 53 | MOTOR MOUNTING PLATE |
| 54 | MOTOR |
| 55 | BOLT |
| 56 | WASHER |
| 57 | NUT |
| 58 | V-BELT |
| 59 | CENTRE PULLEY |
| 60 | HEADLESS SET SCREW |
| 61 | CHUCK GUARD |
| 62 | RETAIN RING |
| 63 | BALL BEARING |
| 64 | COLLAR |
| 65 | DRIVE SLEEVE |
| 66 | SPINDLE PULLEY |
| 67 | PULLEY NUT |
| 68 | SCREW |
| 69 | WASHER |
| 70 | PULLEY COVER |
| 71 | V-BELT |
| 72 | MOTOR PULLEY |
| 73 | CENTER SHAFT |
| 74 | BALL BEARING |
| 75 | SWITCH BOX |
| 76 | SCREW M5 X 12 |
| 77 | WEDGE |

**AW220RD Bench Radial Drill (ZQJ3116)**
**AW680RD Floor Radial Drill (ZQJ3116A)**



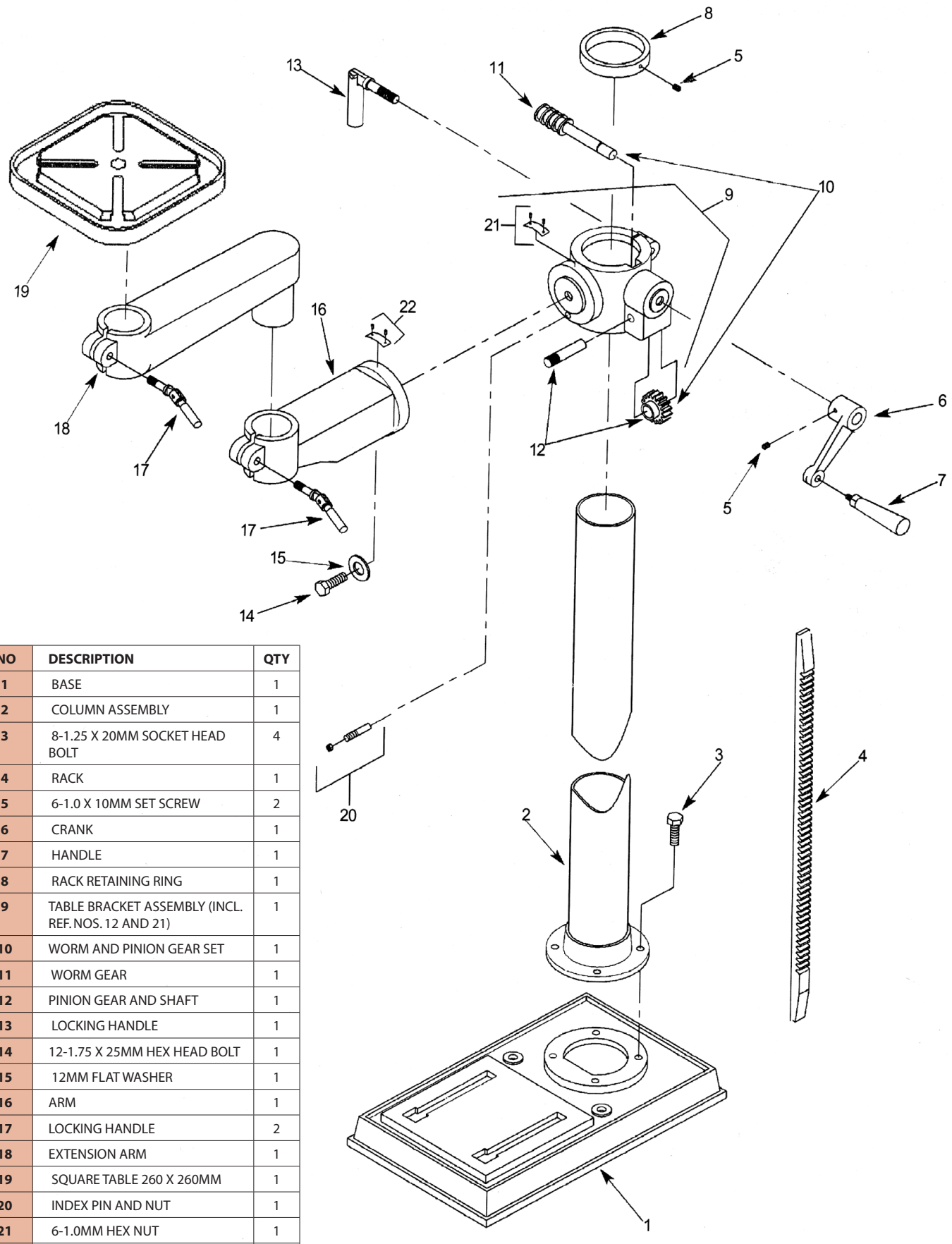
## AW220RD Bench Radial Drill (ZQJ3116)
## AW680RD Floor Radial Drill (ZQJ3116A)

| NO | DESCRIPTION | QTY |
|---|---|---|
| 2 | CHUCK | 1 |
| 3 | LOWER SPINDLE ASSEMBLY | 1 |
| 4 | SPINDLE | 1 |
| 5 | 6202LL BALL BEARING | 1 |
| 6 | QUILL | 1 |
| 7 | 6201LL BALL BEARING | 1 |
| 8 | RETAINING RING | 1 |
| 9 | RUBBER BUMPER | 1 |
| 10 | SWITCH | 1 |
| 11 | THREADFORMING SCREW | 2 |
| 13 | PAN HEAD SCREW | 4 |
| 14 | COVER | 1 |
| 15 | PAN HEAD SCREW | 3 |
| 16 | 5MM SERRATED WASHER | 2 |
| 17 | HEX NUT | 2 |
| 18 | CAP COVER AND SPRING | 1 |
| 19 | HEX NUT | 5 |
| 20 | CONE POINT SET SCREW | 1 |
| 21 | DRILL PRESS HEAD | 1 |
| 22 | POINTER | 1 |
| 23 | RIVET | 1 |
| 24 | SPRING PIN | 1 |
| 25 | QUILL FEED ASSEMBLY | 1 |
| | (INCL. REF. NOS. 26 AND 27) | |
| 26 | KNOB | 3 |
| 27 | HANDLE WITH GRIP | 3 |
| 28 | SPRING PIN | 2 |
| 29 | RADIAL RACK | 1 |
| 30 | RAM | 1 |
| 31 | PAN HEAD SCREW | 2 |
| 32 | SCALE | 1 |
| 33 | LOCKING SHOE | 1 |
| 34 | HANDLE | 2 |
| 35 | HEX NUT | 1 |
| 36 | GUIDE PIN ASSEMBLY | 1 |
| 37 | RAM BRACKET (MODE:ZQJ3116) | 1 |
| 37 | RAM BRACKET (MODE:ZQJ3116A) | 1 |
| 38 | RETAINING RING | 1 |
| 39 | SET SCREW | 1 |
| 40 | GEAR | 1 |
| 41 | SPACER | 2 |
| 42 | KNOB | 1 |
| 43 | BRACKET | 1 |
| 44 | TENSION ADJUSTMENT BAR | 2 |
| 45 | HEX HEAD BOLT | 4 |
| 46 | 8MM FLAT WASHER | 4 |
| 47 | MOTOR MOUNT PLATE | 1 |
| 48 | 10MM FLAT WASHER | 2 |
| 49 | 10MM LOCK WASHER | 2 |
| 50 | HEX NUT | 2 |
| 51 | MOTOR (INCL. REF. NOS. 52-54) | 1 |
| 52 | CAPACITOR | 1 |
| 53 | STRAIN RELIEF | 1 |
| 54 | MOTOR CORD | 1 |
| 55 | LINE CORD | 1 |
| 56 | STRAIN RELIEF | 2 |
| 57 | 6MM FLAT WASHER | 4 |
| 58 | PAN HEAD SCREW | 4 |
| 59 | SET SCREW | 3 |
| 60 | 5MM FLAT WASHER | 1 |
| 61 | KNOB | 1 |
| 62 | PULLEY HOUSING | 1 |
| 63 | PAN HEAD SCREW | 4 |
| 64 | CORD CLAMP | 4 |
| 65 | HEX NUT | 4 |
| 66 | GROMMET | 1 |
| 67 | UPPER SPINDLE ASSEMBLY | 1 |
| | (INCL. REF. NOS. 68-71) | |
| 68 | RETAINING RING | 1 |
| 69 | 6203LL BALL BEARING | 2 |
| 70 | SPACER | 1 |
| 71 | UPPER SPINDLE SLEEVE | 1 |
| 72 | SPINDLE PULLEY | 1 |
| 73 | PULLEY NUT | 1 |
| 74 | V-BELT | 1 |
| 75 | MOTOR PULLEY | 1 |
| 76 | SET SCREW | 1 |
| 77 | CONE POINT SET SCREW | 1 |
| 78 | NUT | 1 |
| 79 | SCREW | 1 |
| 80 | SWITCH | 1 |
| 81 | WEDGE | 1 |
| 82 | LIVE AXLE | 1 |
| 83 | GUARD | 1 |



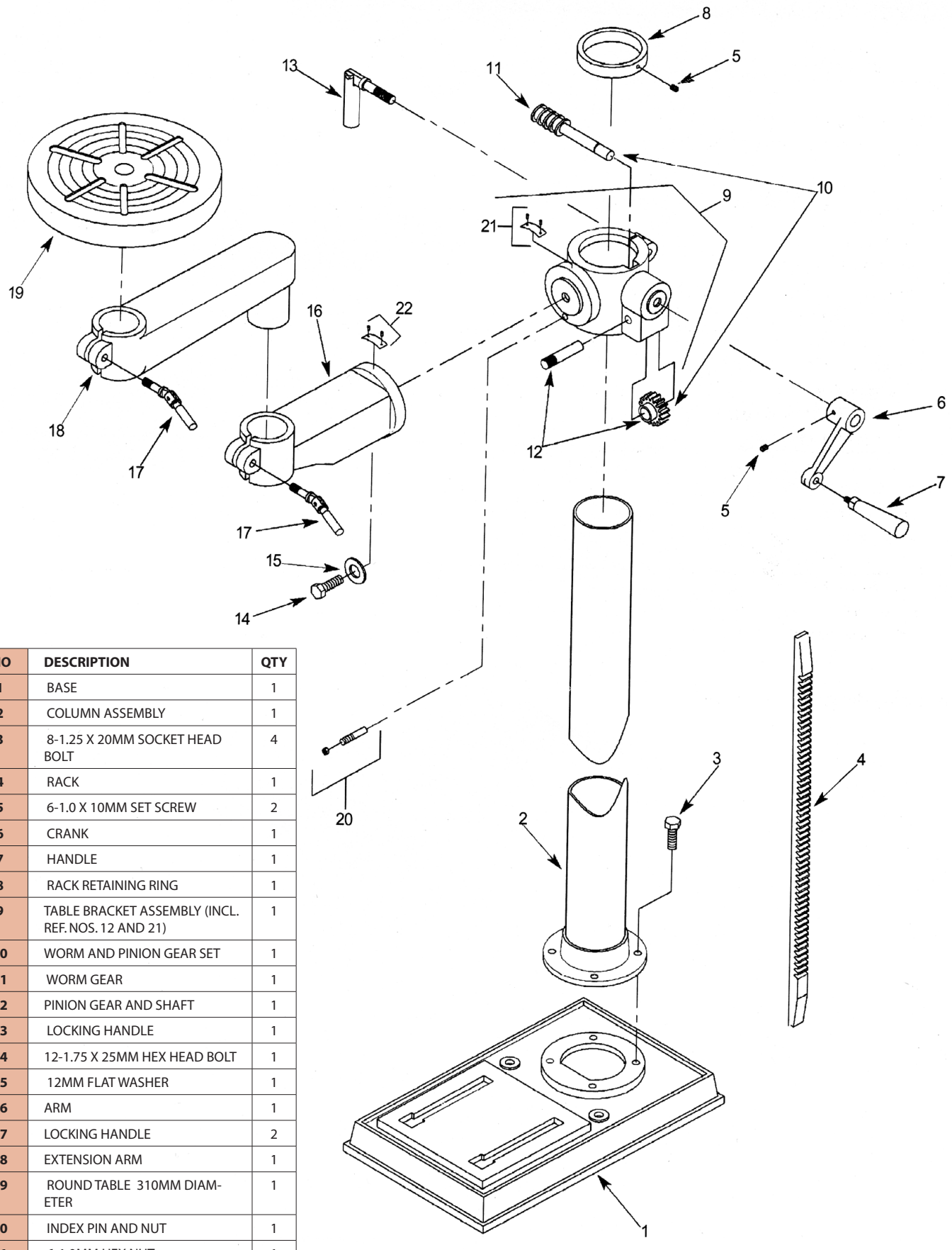
Continues Over....

## AW220RD Bench Radial Drill (ZQJ3116)



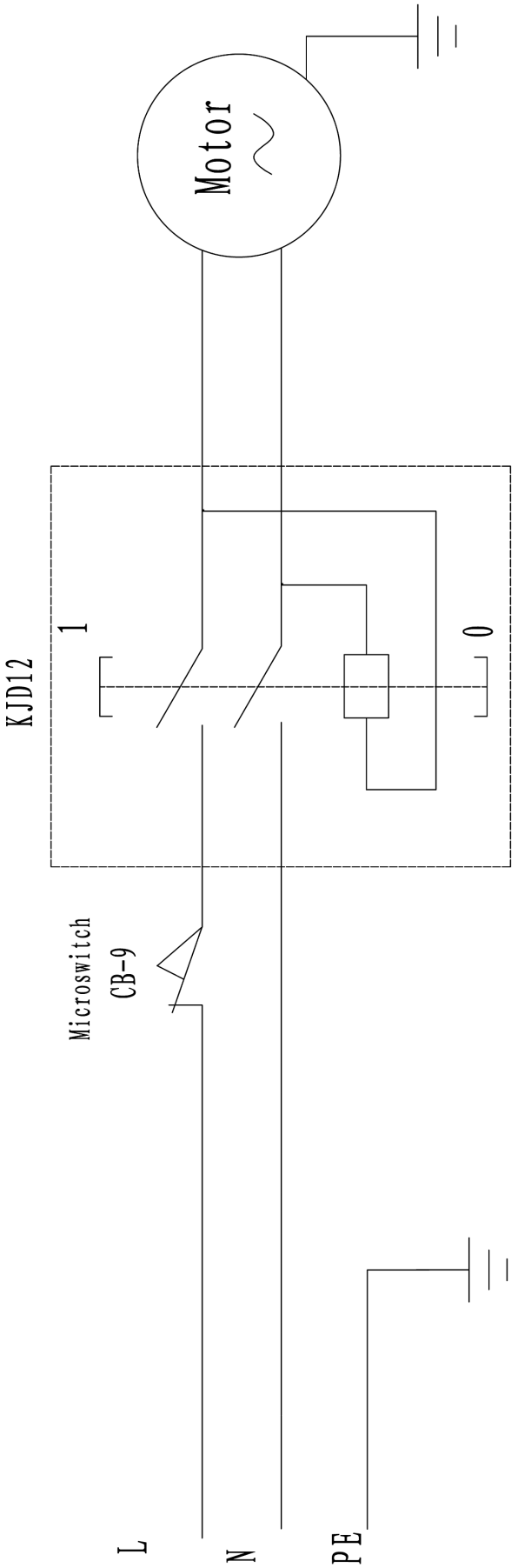

| NO | DESCRIPTION | QTY |
|---|---|---|
| 1 | BASE | 1 |
| 2 | COLUMN ASSEMBLY | 1 |
| 3 | 8-1.25 X 20MM SOCKET HEAD BOLT | 4 |
| 4 | RACK | 1 |
| 5 | 6-1.0 X 10MM SET SCREW | 2 |
| 6 | CRANK | 1 |
| 7 | HANDLE | 1 |
| 8 | RACK RETAINING RING | 1 |
| 9 | TABLE BRACKET ASSEMBLY (INCL. REF. NOS. 12 AND 21) | 1 |
| 10 | WORM AND PINION GEAR SET | 1 |
| 11 | WORM GEAR | 1 |
| 12 | PINION GEAR AND SHAFT | 1 |
| 13 | LOCKING HANDLE | 1 |
| 14 | 12-1.75 X 25MM HEX HEAD BOLT | 1 |
| 15 | 12MM FLAT WASHER | 1 |
| 16 | ARM | 1 |
| 17 | LOCKING HANDLE | 2 |
| 18 | EXTENSION ARM | 1 |
| 19 | SQUARE TABLE 260 X 260MM | 1 |
| 20 | INDEX PIN AND NUT | 1 |
| 21 | 6-1.0MM HEX NUT | 1 |
| 22 | SCALE WITH RIVETS | 1 |
| 22 | INDICATOR WITH RIVETS | 1 |

## AW680RD Floor Radial Drill (ZQJ3116A)




| NO | DESCRIPTION | QTY |
|---|---|---|
| 1 | BASE | 1 |
| 2 | COLUMN ASSEMBLY | 1 |
| 3 | 8-1.25 X 20MM SOCKET HEAD BOLT | 4 |
| 4 | RACK | 1 |
| 5 | 6-1.0 X 10MM SET SCREW | 2 |
| 6 | CRANK | 1 |
| 7 | HANDLE | 1 |
| 8 | RACK RETAINING RING | 1 |
| 9 | TABLE BRACKET ASSEMBLY (INCL. REF. NOS. 12 AND 21) | 1 |
| 10 | WORM AND PINION GEAR SET | 1 |
| 11 | WORM GEAR | 1 |
| 12 | PINION GEAR AND SHAFT | 1 |
| 13 | LOCKING HANDLE | 1 |
| 14 | 12-1.75 X 25MM HEX HEAD BOLT | 1 |
| 15 | 12MM FLAT WASHER | 1 |
| 16 | ARM | 1 |
| 17 | LOCKING HANDLE | 2 |
| 18 | EXTENSION ARM | 1 |
| 19 | ROUND TABLE 310MM DIAM-ETER | 1 |
| 20 | INDEX PIN AND NUT | 1 |
| 21 | 6-1.0MM HEX NUT | 1 |
| 22 | SCALE WITH RIVETS | 1 |
| 22 | INDICATOR WITH RIVETS | 1 |

## WIRING DIAGRAM



# NOTES

## The Axminster guarantee

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The packaging is suitable for recycling.
Please dispose of it in a responsible manner.

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Do not dispose of electric tools together with household waste material.
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