

# 84 ENGINEERING

## Assembly and Operating Instructions Shop Master 72 72 inch Belt Grinder



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Made in Australia



**WARNING:** This manual provides manufacturers information on the assembly, set up and operation of this equipment. Failure to understand the contents of this document may result in serious harm or injury.

The owner/operator of this equipment is responsible for the safe assembly and operation of the equipment. 84 Engineering is not liable for any injury or damage incurred as a result of operator negligence, misuse of the machine, unauthorised modifications to the machine and/or failure to utilise approved accessories or spare parts.

Please contact your 84 Engineering equipment provider with any questions or comments.



**WARNING:** All dust created as a result of grinding on this machine should be considered harmful to human health at all levels of exposure.

Appropriate respiratory masks should be used whenever the machine is being operated.



**WARNING:** Packing materials may present a choking or suffocation hazard to children or pets. Dispose of all packing materials in an environmentally responsible manner.

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# 1. Safety instructions

## 1.1. General Machinery


- Read and understand the entire manual before assembling or operating machinery.
- Always use correct PPE including hearing protection, eye protection and respiratory protection.
- Wear suitable clothing. Remove loose clothing, remove jewellery such as rings and necklaces and keep loose hair tied back or contained.
- Keep machinery and work area clean, tidy and free of trip hazards.
- Do not use machinery when tired or under the influence of prescription drugs, non-prescription drugs or alcohol.
- All machinery operators must be properly trained in the operation of the equipment and suitably supervised.
- Do not reach over an operating machine.
- Ensure footing is secure prior to starting machine.
- Check machine for damaged components and maintain as necessary.
- Only use original manufacturers accessories and spare parts.
- Do not force the machine or exceed its capacity.
- Do not leave the machine running when unattended and ensure the machine has come to a stop before walking away following machine operation.
- Ensure machine is securely mounted; or where mobile bases are utilised, ensure wheels are locked prior to operating the machine.
- Keep children and visitors away from operating machines and consider childproofing the workshop area.
- Do not use machine in wet/damp areas or in areas that may have flammable or noxious fumes.
- Ensure there is sufficient lighting around the machine and on the machine workface.
- If the machine is powered using an extension cord, ensure that the cord is rated for sufficient amperage and is installed in a manner that guarantees it cannot be damaged. Inspect cord prior to starting the machine.
- Disconnect power before servicing the machine.

## 1.2. Grinders

- Ensure grinder is switched off and has come to a complete stop prior to carrying out any adjustments or maintenance on the machine, including:
  - Moving the belt tension adjuster
  - Loosening or adjusting support arms and/or tool rest position
  - Carrying out cleaning or inspection of the belt grinder.
- Never start or operate a grinder that is damaged or excessively worn.
- Ensure all lock levers are sufficiently tightened prior to operating the grinder.
- Do not operate the grinder with damaged or torn belts, or damaged or torn abrasives on disc grinders.

- Ensure belts that are marked with a direction of travel are correctly orientated on the belt grinder.
- Ensure the direction of travel for the belt is commensurate with the task being performed.
- All dusts should be considered harmful to human health. Suitable respirators should be worn whenever using the belt grinder. Some dusts may cause allergic reactions to skin and surface membranes.
- Do not wear gloves while operating grinders.
- Always allow grinder to reach operating speed before bringing work piece into contact with the abrasive grinding surface.
- When operating disc grinders, only grind on the portion of the disc rotating in a downwards direction.
- Never leave the grinder running whilst unattended.
- The grinder is a hand hazard. Keep fingers and hands clear of moving parts and moving abrasive surfaces.

### 1.3. Dust Extraction Systems

 <p><b>WARNING</b></p>	<p><b>WARNING:</b> Dust extraction systems may present a fire hazard when grinding metallic materials due to potential build-up of hot/inflammable grinding debris.</p>
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## 2. Technical Data

Table 1 – Technical Data

Specification		Shop Master 72
Shop Master 72 Kit	Belt Length	1830 x 50mm (2 x 72")
	Weight (Excl motor)	Approx. 25 kgs
	Max Belt Speed	4500 surface feet per minute belt speed
	Platen Size	215mm platen backing
	4 way rotating platen	Yes
	Slack belt operation	Yes
	2 and 3 inch contact wheels	Yes
	Belt Tracking	Flat plane belt tracking
	Grinder Frame	Bolted
	Arm Slots	2
	Work Rest	Fixed work rest
	Spark Guard	Yes
	Variable Speed Motor	2 hp
Deluxe Shop Master 72 Kit	Variable Speed Drive	2 hp
	5 inch contact wheel	Yes
	Universal Tool Rest	Yes
	Small wheel Arm	Yes
	Small Wheel Attachment	Yes, complete with 19mm and 25mm wheels
	Grinder Mount	Bench mount or pedestal stand
	Vertical or Horizontal operation	Yes

### 3. Assembly


#### 3.1. Painting

The main components of the grinder do not require painting however main components may be painted if desired. Painting of main components must be undertaken prior to assembly of the grinder.

Any components to be painted must be fully degreased prior to painting.

#### 3.2. Component assembly

Figures 1 to 5 below show the detail assembly of the Shop Master 72. A full parts list for the Shop Master 72 grinder is included in **Attachment 1 – Parts List**.

	<b>NOTE:</b> The parts list covers the base grinder components only.
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An instruction video of component assembly for the Shop Master 72 can be found at:

<https://www.youtube.com/watch?v=uoEDpndcazl> **OR** Scan QR Code 

The tools necessary to complete the assembly are listed in **Attachment 2 – Tool List**.

Figure 1 – 72" Grinder Body Assembly (refer Table 2 for parts list)

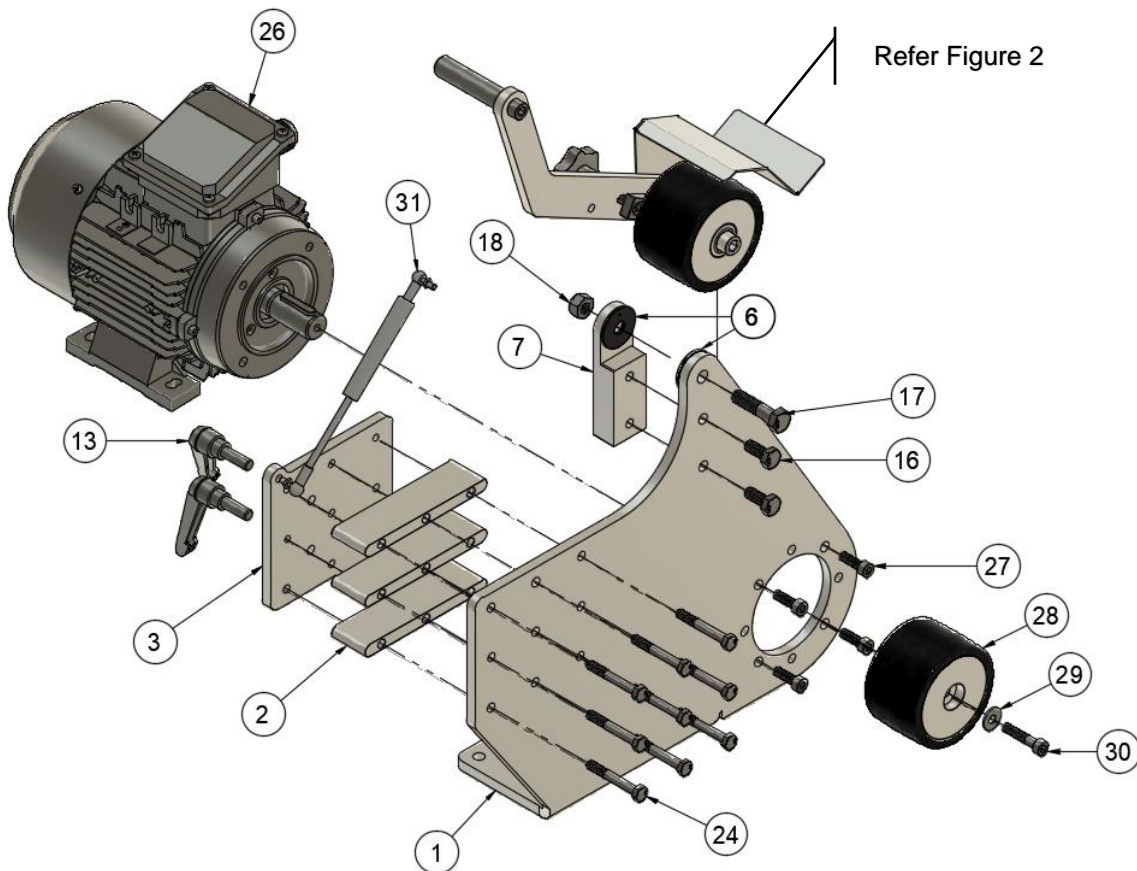


Figure 2 – 72" Tension Arm Assembly (refer Table 2 for parts list)

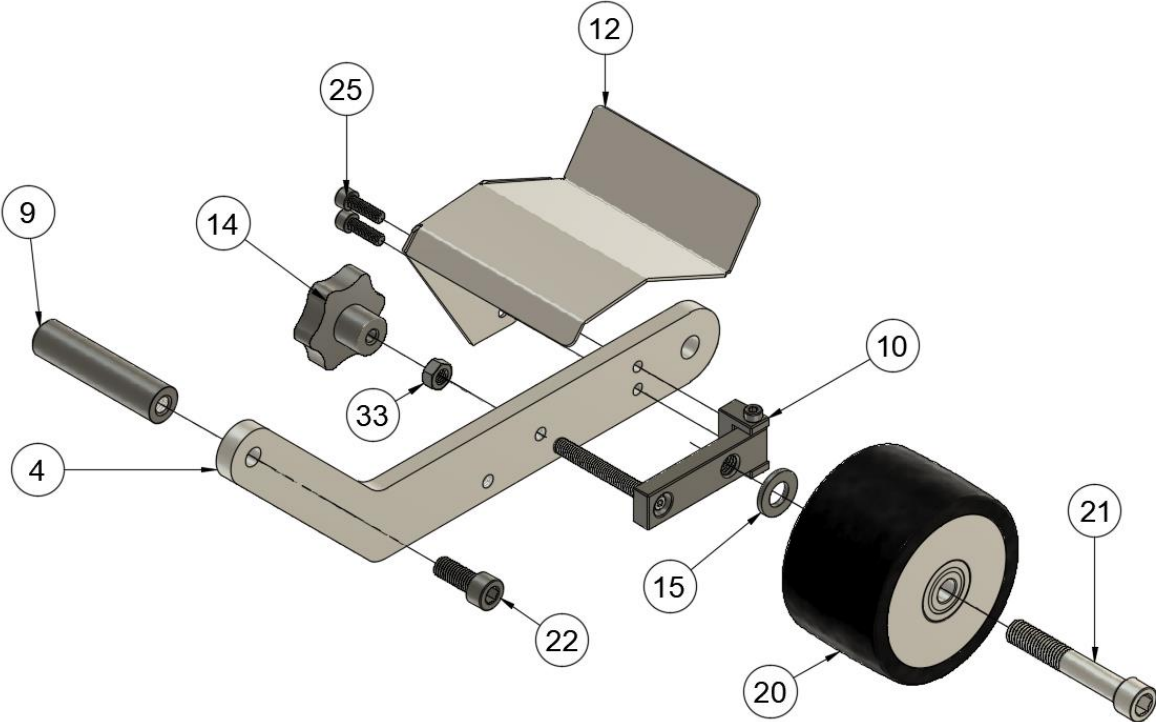


Figure 3– 72" Platen Assembly (refer Table 3 for parts list)

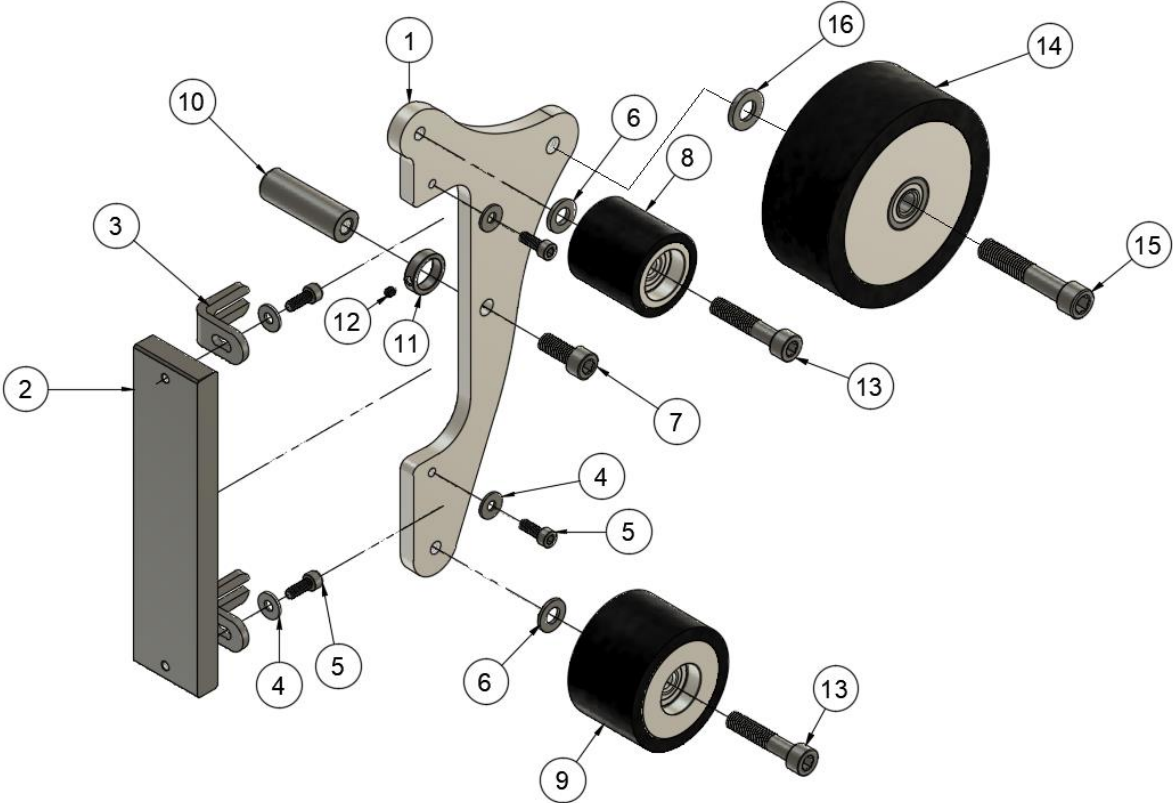




Figure 4 - Stop Collar Detail (refer Table 3 for parts list)

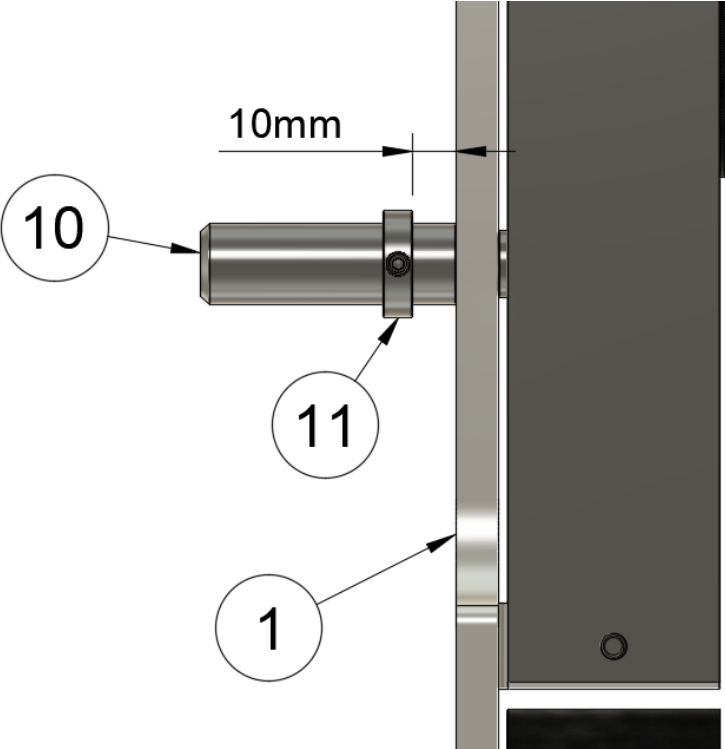
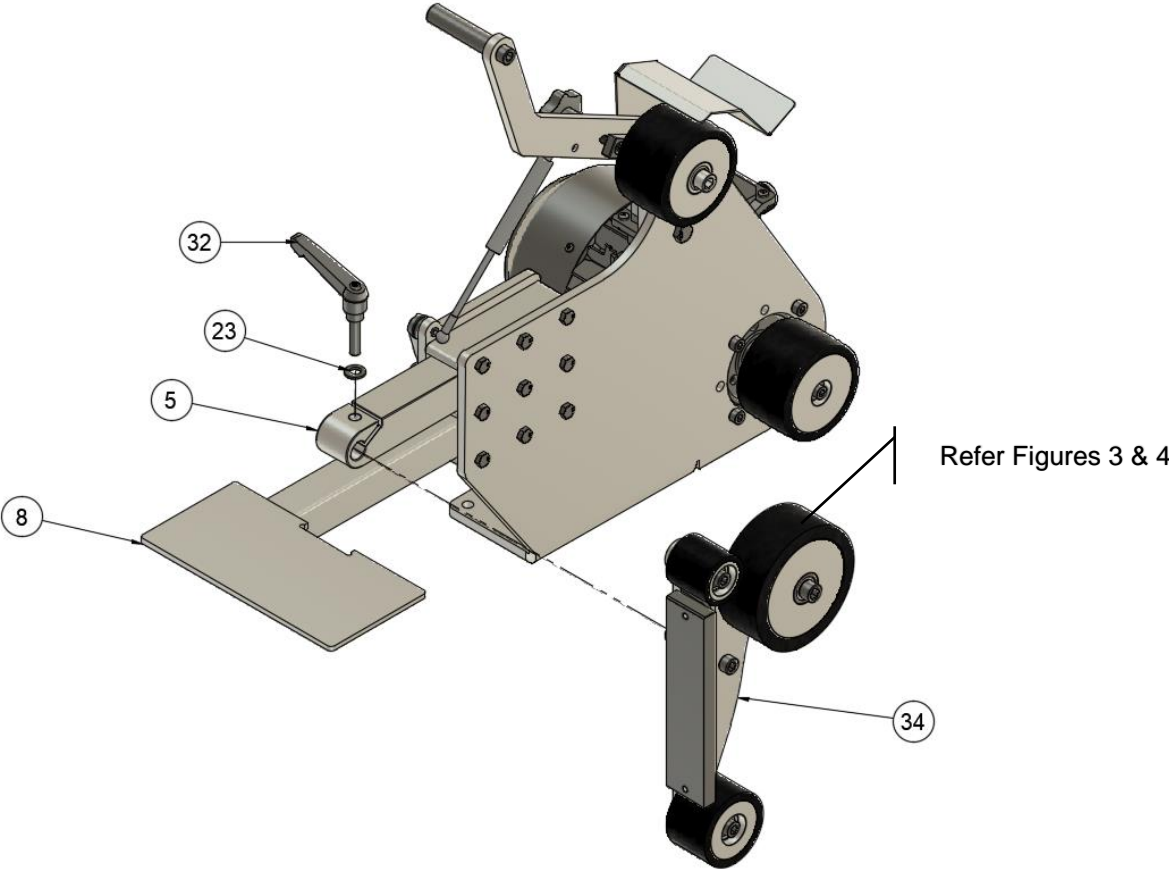


Figure 5 - 72" Final Assembly (refer Attachment 1 Table 1 for parts list)



# Attachment 1 - Parts List

**Table 1 – Main Assembly and Tension Arm**

Item	Qty	Part Name	Bolt Torque Required
1	1	SM-72 Frame	
2	3	SM-72 Shelf	
3	1	SM-72 LHS	
4	1	SM-72 Tension Arm	
5	1	SM-72 Platen Arm	
6	2	SM-72 Tension Arm Spacer	
7	1	SM-72 Tension Arm LHS	
8	1	SM-72 Rest	
9	1	SM-72 Tension Arm Handle	
10	1	Tracking Mechanism	
11	1	Tracking thread	
12	1	SM Guard	
13	2	M10x30 Adjustable handle	
14	1	M8 Star grip	
15	1	M12 Washer	
16	2	M10x25 Hex head bolt	25NM
17	1	M12x50 Hex head bolt	
18	1	M12 Nylock Nut	12NM
19	1	M4x16 SHCS	
20	1	SM Tracking wheel	
21	1	M12x75 SHCS	40NM
22	1	M10x25 SHCS	50NM
23	1	M10 Washer	
24	9	M8x60 Hex head bolt	15NM
25	2	M6x20 SHCS	11NM
26	1	2HP/1.5kw 2 pole motor	
27	4	M8x25 SHCS	20NM
28	1	SM-72 Drive Wheel	
29	1	M8 Washer	
30	1	M8x40 SHCS	20NM
31	1	SM Gas Strut	
32	1	M10x40 Adjustable handle	
33	1	M8 Nut	
34	1	SM72 platen assembly	

**Table 2 – Platen Assembly**

Item	Qty	Part Name	Bolt Torque Required
1	1	SM-72 Platen Support	
2	1	SM-72 Platen	
3	2	Platen Bracket	
4	4	M6 Washer	
5	4	M6x16 SHCS	10NM
6	2	M10 Washer	
7	1	M10x25 SHCS	60NM
8	1	2" (50mm) Contact wheel	
9	1	3" (75mm) Contact wheel	
10	1	Spigot	
11	1	Stop Collar	
12	1	M5x4 grub screw	4NM
13	2	M10x50 SHCS	35NM
Optional 5" contact wheel items below			
14	1	5" contact wheel	
15	1	M12x65 SHCS	40NM
16	1	M12 washer	



**NOTE:**

<sup>2</sup> M10x25 SHCS bolt should be connected to the spigot using thread locking fluid

## Attachment 2 - Tool List

The following tools are required to assemble the grinder

- 12mm spanner
- 13mm spanner
- 16mm spanner
- 18mm spanner
- 19mm spanner
- 2.5mm Allen key
- 5mm Allen key
- 6mm Allen key
- 8mm Allen key
- 10mm Allen key
- Thread locking fluid


### 3.3. Securing the Grinder

The grinder or grinder stand (if used) must be securely fixed to a work bench or surface that is of adequate strength and stability.

### 3.4. Variable frequency drive (VFD) and power switch mounting

Operation and maintenance details for the VFD are contained in a separate manual provided with the VFD.

The VFD is supplied pre-programmed to maximise performance with Shop Master 72. **DO Not** alter or modify the VFD program.

	<p><b>CAUTION:</b> The VFD or power switches should be mounted in locations that do not require the operator to lean over or across the grinder to operate the VFD or power switch.</p>
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## 4. Accessories and Spares



**WARNING:**

Only genuine 84 Engineering supplied accessories, optional equipment or replacement spare parts should be utilised on the Shop Master 72 grinder.

### 4.1. Accessories

Refer to your local 84 Engineering equipment supplier for full list of options and availability. Key accessories are listed below.

**Table 2 Accessories List**

Radius platen (36", 48" and 72" diameter)
Small wheel attachments complete with 6mm and 12mm wheels or 19mm and 25mm wheels
Large contact wheels (5", 8", 10", 12" <sup>1</sup> and 14" <sup>1</sup> )
Bench mount tilting pedestal for use with Shop Master72 Kit
Height adjustable tilting pedestal stand for use with Shop Master 72 Kit
Angle adjustable rest
Strap on surface grinder attachment
Universal tool rest



**NOTE:**

<sup>1</sup> Requires separate tooling arm.

### 4.2. Spare parts

Refer to your local 84 Engineering equipment supplier for full details of available spares.

## 5. Operation

### 5.1. Belt fitting and start up


- Move the tension arm to the full down position.
- Loosen and move the tool rest to allow sufficient clearance to fit the belt.
- Ensure the belt is in good condition, belt join is secure and that there are no rips or tears prior to fitting.
- If using unidirectional belts (indicated by arrow on back-side of abrasive face), ensure belts are run in the correct direction.
- The platen location should be adjusted such that when the belt tension arm is raised, it is at approximately 80-90% of the full travel of the tension arm un-restricted.



**NOTE:**

The lower the tension arm is in the operating position, the lower the belt tension. However, if the tension arm is fully raised to the 100% high position there will be little or zero tension on the belt.

- Move the tool rest to ensure a 1 - 2mm clearance between belt and the tool rest and fully rotate the belt by hand to ensure the belt is free to move and there are no obstructions prior to starting the grinder.
- Ensure all locking levers for the tool rest and platen arm are securely tightened prior to starting the grinder.
- Roll the belt over by hand to ensure the tracking is close to correct.
- Start the grinder and adjust tracking mechanism as required.


	<p><b>WARNING:</b> Do not replace or adjust the tool rest or platen arm while the grinder is in operation.</p>
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## 5.2. Cleaning and maintenance

- The grinder should be kept free of excessive dust build up.
- Regularly check bolts for condition and tightness.
- Regularly check wheels for excessive surface or bearing wear and replace as necessary.

## 5.3. Bench and Pedestal Mount

- The bench mount pedestal allows the grinder to be mounted above the level of the bench by approximately 200mm.
- The height adjustable pedestal mount allows the grinder to be free standing. The height adjustment allows the grinder height to be adjusted so that the universal tool rest can be moved from a height of approximately 750mm to 1050mm above floor level.
- The bench mount pedestal allows the Shop Master 72 to be rotated 90degrees from a vertical to a horizontal operating position.
- The height adjustable pedestal mount allows Shop Mate and Shop Master grinders to be rotated 90 degrees from a vertical to a horizontal operating position.
- The bench mount pedestal or the height adjustable pedestal mount must be securely fixed to a workbench or floor prior to mounting the grinder on the pedestal.

	<p><b>WARNING:</b> The grinder must be stopped and stationary before the grinder is flipped from the vertical to horizontal position or the horizontal to vertical position.</p>
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	<p><b>CAUTION:</b> The pedestal locking handle must be tightened before operating the grinder in the vertical or horizontal operating position.</p>
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## 6. Trouble Shooting

Table 3

Issue	Possible Cause	Action
Grinder will not start	No power supply	Check power supply at local outlet and main board
	Damaged power cord	Check power cord and replace as necessary
	Motor or VFD failure.	Have equipment checked by a qualified electrician
Grinder not operating at full speed	Check VFD speed setting	Adjust as necessary
	Excessive length or incorrect current carrying capacity of extension cords.	Reduce length or upgrade extension cord.
Poor belt tracking	Incorrect adjustment of tracking mechanism	Adjust as necessary
	Worn or damaged belt	Replace belt
	Incorrect location of grinding wheels or platen in relation to support arm	Adjust wheels and platen location as necessary
	Worn grinder wheels or damaged wheel bearings	Check and replace as necessary
Slack Belt/Belt slipping	Belt tensioner fully raised	Adjust platen support arm to correct location
	Worn grinder gas strut	Replace strut
	Excessive grinding pressure	Reduce grinding pressure
Excessive wheel wear	Incorrect wheel alignment	Check wheel alignment
	Debris on wheel surfaces	Clean and adjust as necessary
Excessive vibration	Damaged or worn belt	Inspect and replace belt
	Damage or worn drive, tricking or idler wheels	Inspect and replace wheels
	Loose or unstable mounting of the pedestal mount.	Check and secure pedestal mount
	Unstable work bench (bench mounted grinder)	Check and secure workbench.
Operation damaging belts	Belts running in the incorrect direction	Adjust belts to run in the direction marked on the back of the belt.
	Insufficient space between the belt and tool rest	Adjust the position of the tool rest
Ground surface not square	Tool rest not square to platen	Adjust platen and/or tool rest angle