

84 ENGINEERING

Assembly and Operating Instructions Shop Mate 48 48 inch Belt Grinder



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Made in Australia



WARNING: This manual provides manufactures 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 as a result of operator negligence, misuse of the machine, failure to utilise approved accessories or spare parts or unauthorised modifications to the machine.

If there are any questions or comments. Please contact your 84 Engineering equipment provider.



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 safety equipment 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 and 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 and ensure footing is secure.
- Check machine for damaged components and maintain as necessary.
- Only use original manufactures 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 or 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 extension cord is the correct amperage and the cord is correctly sized for the length of extension cordage. Ensure cord is installed in a manner that ensures it cannot be damaged. Inspect cord prior to starting the machine.
- Disconnect power before servicing the machine.

1.2. Grinders

- Make sure that the grinder is turned off and has come to a complete rest before moving the belt tension adjuster, loosen or adjust support arms or tool rest or 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 on the reverse side 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.
- Do not turn on grinders with the workpiece in 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>WARNING: 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 Mate 48
Shop Mate 48	Belt Length	1220 x 50mm (2 x 48")
	Weight (Excl motor)	Approx. 13 kgs
	Max Belt Speed	4500 surface feet per minute belt speed
	Platen Size	150mm 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	Fully Welded Frame
	Arm Slots	3
	Work Rest	Fixed work rest
	Spark Guard	Yes
	Variable Speed Motor	1.5 hp
Deluxe Shop Mate 48	Variable Speed Drive	1.5 hp
	Universal Tool Rest	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. Component assembly

Your Shop Mate comes fully assembled other than the fitting of the top of the gas strut (No. 6) to the tension arm (No. 17). This is done by screwing in the mounting bolt and securing with a 12mm spanner.

3.2. Component assembly

Figures 1 to 5 below show the detail assembly of the Shop Mate 48. A full parts list for the Shop Mate 48 grinder is shown in Table 2 below.


	NOTE: The parts list covers the base grinder components only.
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Figure 1 – 48” Grinder Body Assembly (refer Table 2 for parts list)

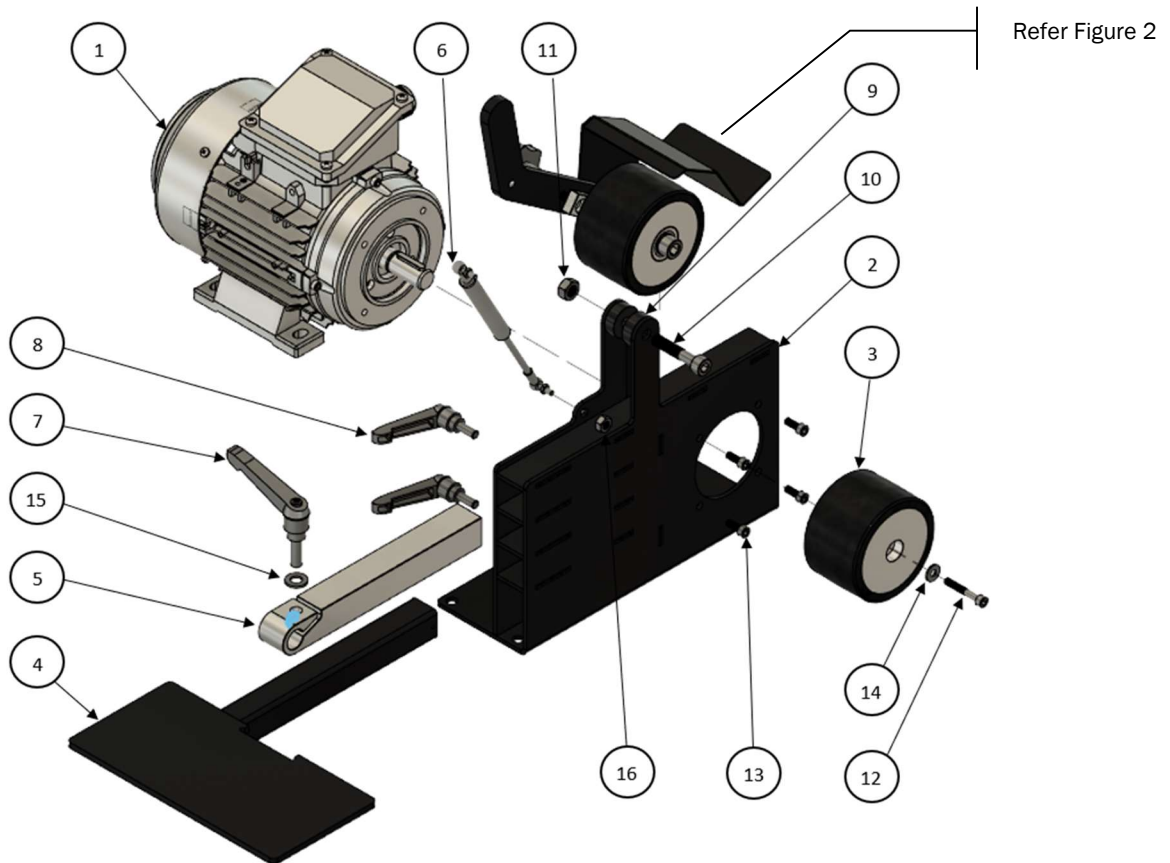


Figure 2 – 48” Tension Arm Assembly (refer Table 2 for parts list)

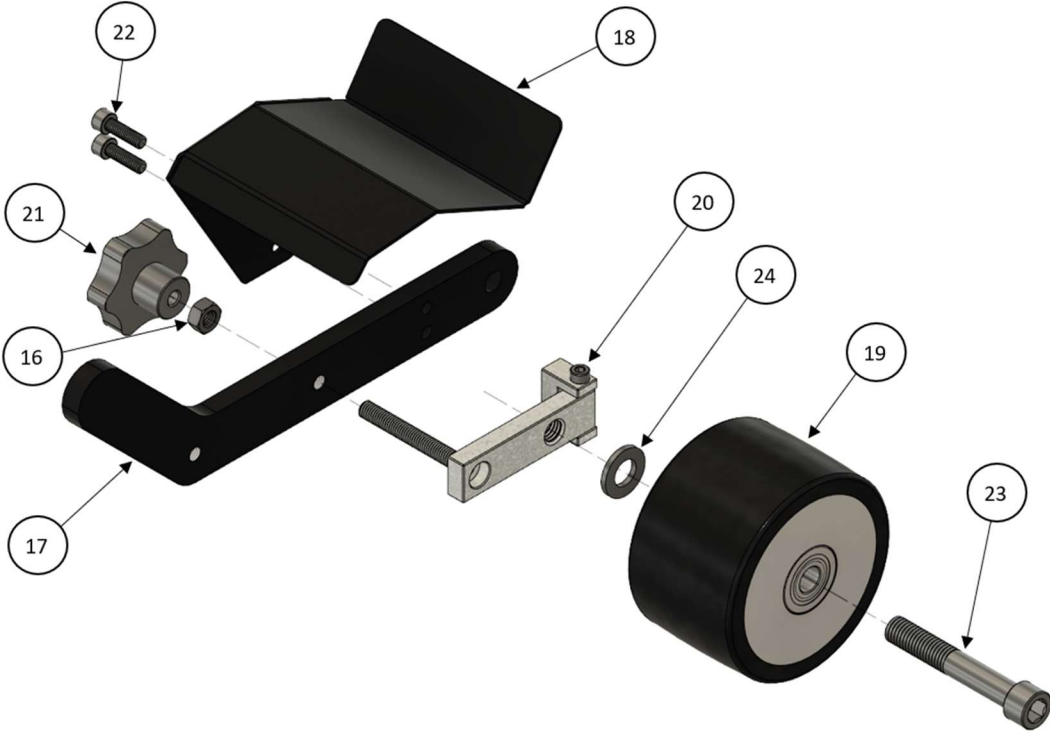


Figure 3– 48” Platen Assembly (refer Table 2 for parts list)

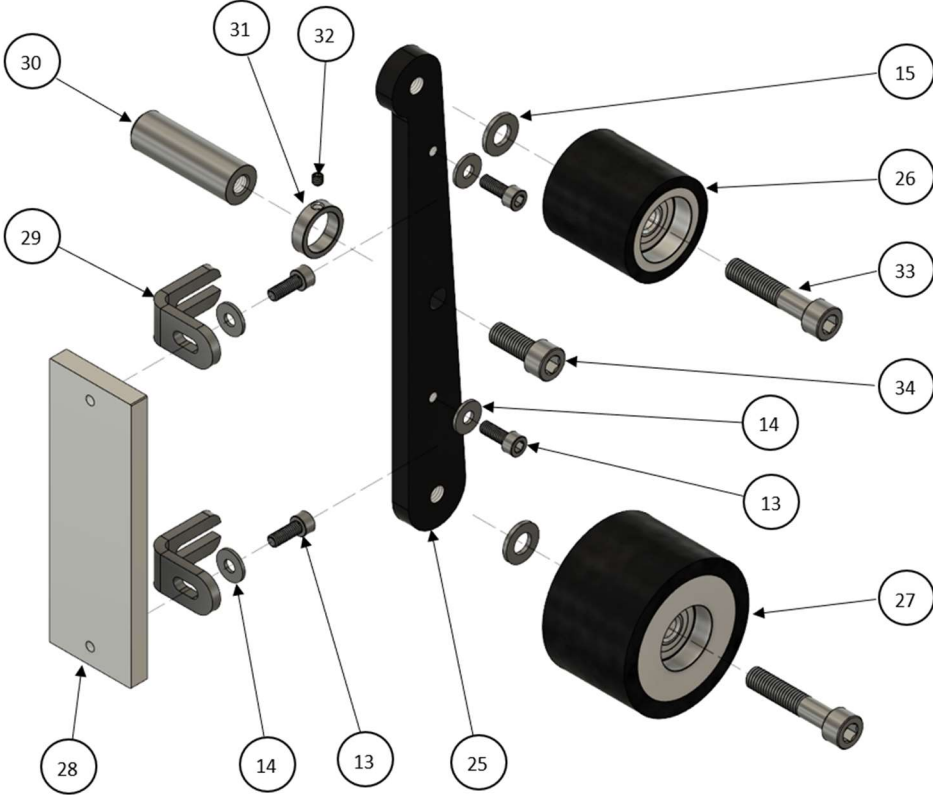
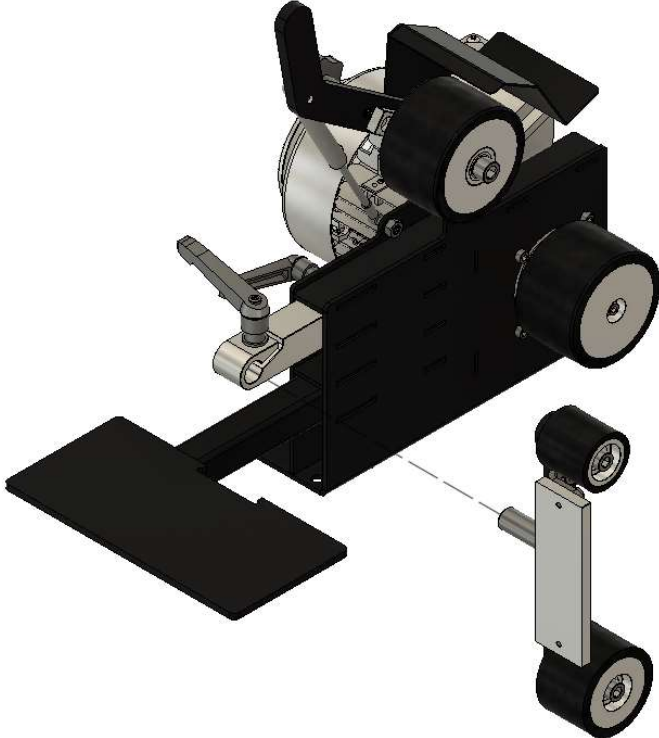


Figure 4 – 48" Platen Stop Collar Detail



Figure 5 – 48" Final Assembly



Parts List

Table 2 – Main Assembly and Belt Tracker

Item	Qty	Part Name	Bolt Torque Required
1	1	1.5HP/1.1KW 2 pole motor	
2	1	SM-48-FRAME	
3	1	SM-48 drive wheel	
4	1	SM-48 Rest	
5	1	SM-48 Platen arm	
6	1	SM Gas strut	10NM
7	1	M10x30 Adjustable handle	
8	2	M8x20 Adjustable handle	
9	2	SM-48 Tension arm spacer	
10	1	M10x50 SHCS	
11	1	M10 Nylock nut	10NM
12	1	M6x40 SHCS	10NM
13	8	M6x16 SHCS	10NM
14	5	M6 Washer	
15	1	M10 Washer	
16	2	M8 Nut	10NM
17	1	SM-48 Tension arm	
18	1	SM Spark Guard	
19	1	Tracking wheel	
20	1	Tracking mechanism	
21	1	M8 Star grip	
22	2	M6x20 SHCS	10NM
23	1	M12x75 SHCS	40NM
24	1	M12 Washer	
		PLATEN	
25	1	SM-48 Platen support	
26	1	2" Idler wheel	
27	1	3" Idler wheel	
28	1	SM-48 Platen	
29	2	Platen brackets	
30	1	M10 Spigot	
31	1	Stop collar	
32	1	M5x5 Grub screw	4NM
33	2	M10x50 SHCS	35NM
34	1	M10x25 SHCS	60NM


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 the Shop Mate 48. **Do Not** alter or modify the VFD program.

 <p>CAUTION</p>	<p>CAUTION: 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 Mate 48 grinder.

4.1. Accessories

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

Table 2 Accessories List

	Radius platen (36", 48" and 72" diameter)
	Small wheel attachments complete with 12.7mm and 6mm wheels or 19mm and 25mm wheels
	Large contact wheels (5", 8", 10")
	Bench mount tilting pedestal for use with Shop Mate 48
	Height adjustable tilting pedestal stand for use with Shop Mate 48
	Angle adjustable rest
	Strap on surface grinder attachment
	Universal tool rest

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

- Loosen and move the tool rest to allow sufficient clearance to fit the belt.
- Prior to fitting belts, ensure the belt is in good condition, the belt join is secure and there are no rips or tears.
- Ensure if belts are marked on the back as unidirectional that belts are running in the correct direction.
- Move and hold the tension arm to the full down position.
- The platen location should be such that when the belt tension arm is raised, it is at approximately 80-90% of the full travel of the tension arm when the arm is raised without a 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>WARNING: Do not replace or adjust the tool rest or platen arm while the grinder is in operation.</p>
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5.2. Small wheel attachment and arm

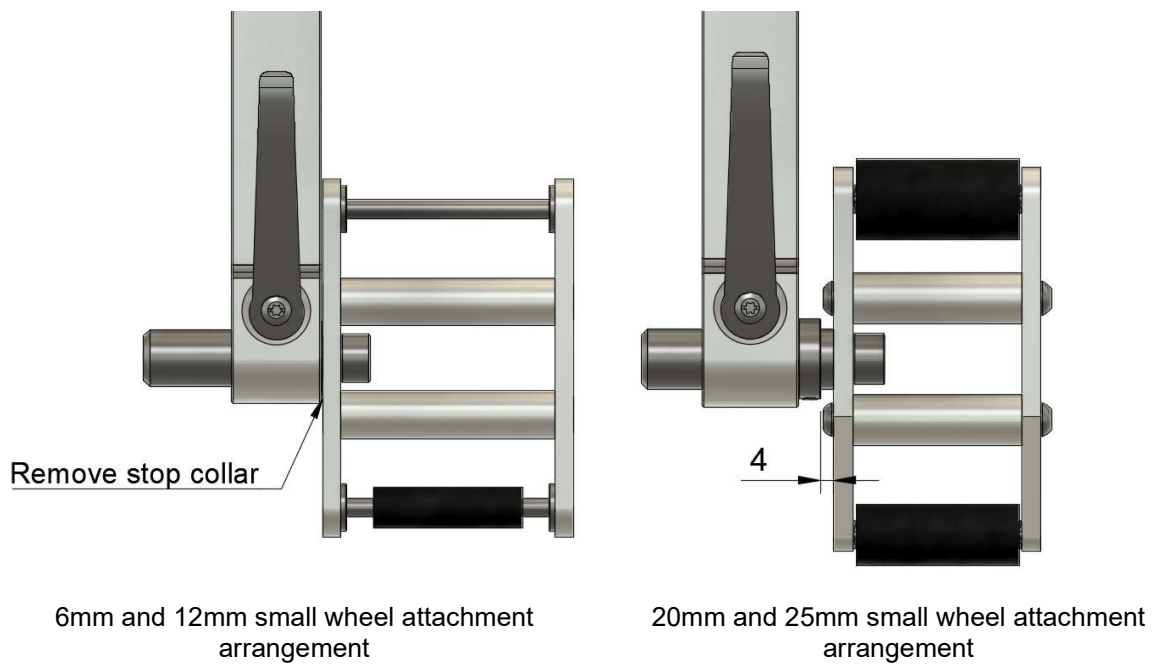
The small wheel attachment assemblies connect directly to the standard platen arm in lieu of platen.

Figure 6 – Small Wheel Attachment Connection



Figure 7 shows the different assembly connection detail for the 6mm/12.7mm attachment versus the 20mm/25mm attachment.

Figure 7 – Small Wheel Attachment Connection





WARNING:

When operating the grinder using the small wheel attachment, the grinder speed must not exceed 25% of the maximum VFD speed setting or the small wheels will be damaged by excessive heat build and may fail. The 6mm/12mm small wheel attachment **cannot** be operated with the fixed speed Shop Mate.

5.3. 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.



WARNING:

Never used compressed air to clean the grinder or components. Compressed air may drive dust into bearings and fittings leading to damage and premature failure.

5.4. 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 Mate 48 to be rotated 90degrees from a vertical to a horizontal operating position.
- The height adjustable pedestal mount allows Shop Mate 48 grinder 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.



HELPFUL HINT:

- If the floor is not suitable for fixing directly onto the floor, the stand may be fixed to a board large enough so that you can stand on the board whilst grinding to ensure stability. We recommend a minimum board thickness of 18mm.



WARNING:

The grinder must be stopped and stationary before the grinder is flipped from the vertical to horizontal position or the horizontal to vertical position.



CAUTION:

The pedestal locking handle must be tightened before operating the grinder in the vertical or horizontal operating position.

6. Trouble Shooting

Table 4

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