

POWERMATIC®

PM2244

Drum Sander

GB

Operating Instructions



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M-1792244MP

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CE-Conformity Declaration

Product

Drum sander

PM2244

(1792244MP)

Brand

POWERMATIC

Manufacturer

JPW (Tool) AG, Tämperlistrasse 5, CH-8117 Fällanden
Schweiz / Suisse / Switzerland

We hereby declare that this product complies with the regulations

2006/42/EC

Machinery Directive

2014/30/EU

electromagnetic compatibility

designed in consideration of the standards

EN ISO 12100:2010

EN 60204-1:2006+A1:2009

EN 61000-6-2:2005

EN 61000-6-4:2007+A1:2011

Responsible for the Documentation

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Schweiz / Suisse / Switzerland

Please note, that the entire machine documentation is accomplished in English only.

GB - ENGLISH

Operating Instructions

Dear Customer,

Many thanks for the confidence you have shown in us with the purchase of your new POWERMATIC-machine. This manual has been prepared for the owner and operators of a POWERMATIC PM2244 drum sander to promote safety during installation, operation and maintenance procedures. Please read and understand the information contained in these operating instructions and the accompanying documents. To obtain maximum life and efficiency from your machine, and to use the machine safely, read this manual thoroughly and follow instructions carefully.

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1. Declaration of conformity

On our own responsibility we hereby declare that this product complies with the regulations* listed on page 2. Designed in consideration with the standards**.

2. Warranty

The JPW (Tool) AG guarantees that the supplied product is free from material defects and manufacturing faults.

This warranty does not cover any defects which are caused, either directly or indirectly, by incorrect use, carelessness, accidental damage, repair, inadequate maintenance or cleaning and normal wear and tear.

Any warranty details (i.e. warranty period) can be found in the General Terms and Conditions (GTC) that are integral part of the contract. These GTC can be viewed at the website of your dealer or sent to you upon request.

JPW (Tool) AG reserves the right to make changes to the product and accessories at any time.

3. Safety

3.1 Authorized use

This drum sander is designed for sanding wood and similar materials only. Sanding of other materials is not permitted and may be carried out in specific cases only after consulting with the manufacturer.

The machine is not suitable for wet sanding.

The proper use also includes compliance with the operating and maintenance instructions given in this manual.

The machine must be operated only by persons familiar with its operation and maintenance and who are familiar with its hazards.

The required minimum age must be observed.

The machine must only be used in a technically perfect condition.

When working on the machine, all safety mechanisms and covers must be mounted.

In addition to the safety requirements contained in these operating instructions and your country's applicable regulations, you should observe the generally recognized technical rules concerning the operation of woodworking machines.

Any other use exceeds authorization. In the event of unauthorized use of the machine, the manufacturer renounces all liability and the

responsibility is transferred exclusively to the operator.

3.2 General safety notes

Woodworking machines can be dangerous if not used properly. Therefore the appropriate general technical rules as well as the following notes must be observed.

Read and understand the entire instruction manual before attempting assembly or operation.



Keep this operating instruction close by the machine, protected from dirt and humidity, and pass it over to the new owner if you part with the tool.

No changes to the machine may be made.

Daily inspect the function and existence of the safety appliances before you start the machine. Do not attempt operation in this case, protect the machine by unplugging the power cord.

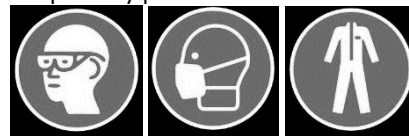
Before operating the machine, remove tie, rings, watches, other jewellery, and roll up sleeves above the elbows.

Remove all loose clothing and confine long hair.

Wear safety shoes; never wear leisure shoes or sandals.

Always wear the approved working outfit:

- eye protection
- expiratory protection



Do not wear loose clothes and gloves while operating this machine.

Install the machine so that there is sufficient space for safe operation and workpiece handling.

Keep work area well lighted.

The machine is designed to operate in closed rooms and must be bolted stable on firm and levelled table surface or on the supplied cabinet stand.

Make sure that the power cord does not impede work and cause people to trip. Keep the floor around the machine clean and free of scrap material, oil and grease.

Stay alert!

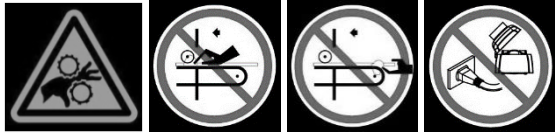
Give your work undivided attention.

Use common sense. Do not operate the machine when you are tired.

Keep an ergonomic body position.
Maintain a balanced stance at all times.

Do not operate the machine under the influence of drugs, alcohol or any medication. Be aware that medication can change your behaviour.

Never reach into the machine while it is operating or running down.



Always close the drum cover before you start the machine.

Keep your hands distant to drum housing and conveyor belt when feeding the work piece.

Keep children and visitors a safe distance from the work area.

Never leave a running machine unattended.
Before you leave the workplace switch off the machine.

Do not operate the electric tool near inflammable liquids or gases.

Observe the fire fighting and fire alert options, for example the fire extinguisher operation and place.

Do not use the machine in a damp environment and do not expose it to rain.

Sanding dust is explosive and can also represent a risk to health.

Always use a suitable dust extraction device.

Before machining, remove any nails and other foreign bodies from the workpiece.

Work only with well sharpened tools.

Machine only stock which rests securely on the table.

Specifications regarding the maximum or minimum size of the workpiece must be observed.

Do not remove chips and workpiece parts until the machine is at a standstill.

Do not stand on the machine.

Connection and repair work on the electrical installation may be carried out by a qualified electrician only.

Have a damaged or worn power cord replaced immediately.

Make all machine adjustments or maintenance with the machine unplugged from the power source.



Protect the environment, dispose of the packing in an environmentally friendly manner.

Your appliance contains valuable materials which can be recovered or recycled. Please leave it at a specialized institution.



3.3 Remaining hazards

When using the machine according to regulations some remaining hazards may still exist.

The moving sanding abrasive can cause injury.

Risk of kickback. The workpiece is caught by the moving sanding sleeve and thrown back to the operator.

Thrown workpiece parts can lead to injury.

Sanding dust and noise can be health hazards. Be sure to wear personal protection gear such as safety goggles and dust mask. Use a suitable dust exhaust system.

Defective sanding abrasive can cause injuries.

The use of incorrect mains supply or a damaged power cord can lead to injuries caused by electricity.

3.4 Labels and positions

A: Safety warning

B: Sanding drum & Conveyor belt running direction



Fig.A



Fig.B

4.0 Specifications

Model number	PM2244
Stock number	1792244MP
<u>Motor and electricals:</u>	
Drum motor:	
Motor type	induction motor
Motor power	1kW (1.3 HP)
Voltage	1~230V, PE, 50Hz
Listed full load amps.....	7A
Motor speed	1400 1/min
Starting amps	38 A
Running amps (no load)	1.7 A
Start capacitor	200µF 250VAC
Run capacitor	50µF 350VAC
Conveyor motor:	
Motor type	totally enclosed DC motor
Motor power	40 W
Voltage	200V DC
Listed full load amps.....	0.27 A
Motor speed	44 1/min
On/off switch..... magnetic switch	
Power cord	H05RR-F, 3x1,5 mm ² , 1830 mm
Power plug installed	CCE 7/7, ~250V, 16A
Recommended circuit and fuse/breaker size ¹	16A
Sound emission ²	Acoustic pressure level (EN ISO11202), 72 dB at 100cm; 74 dB at 50cm
<u>Capacities:</u>	
Maximum board width.....	single pass – 559 mm; two passes 1188 mm
Maximum board thickness	102 mm
Minimum board length	60 mm
Minimum board thickness.....	0.8 mm
<u>Materials:</u>	
Main body	cast iron and steel
Enclosed cabinet	steel
Drum	extruded aluminum
Extension tables	steel
Conveyor bed	cast iron
Handwheel	cast iron
<u>Sanding drum:</u>	
Drum dimensions	dia. 127 x 559 mm
Drum speed	1400 1/min
Sanding paper installed	80 grit
Drum elevation per one rotation of handwheel	2.12 mm
<u>Conveyor:</u>	
Conveyor speed	variable within 0-3 m/min
Conveyor bed dimensions	590 x 385 mm
Conveyor height from floor	780 mm
<u>Dust collection:</u>	
Dust port outside diameter	100 mm
Minimum extraction volume required	560 m ³ /h
<u>Dimensions:</u>	
Overall dimensions of shipping crate (LxWxH).....	1160 x 585 x 1277 mm
Overall dimensions, fully assembled (LxWxH)	1073 x 957 x 1257 mm
<u>Weights:</u>	
Net weight	149 kg
Shipping weight	190 kg

¹ Subject to local/national electrical codes. ² The specified values are emission levels and are not necessarily to be seen as safe operating levels. As workplace conditions vary, this information is intended to allow the user to make a better estimation of the hazards and risks involved only.

The specifications in this manual were current at time of publication, but because of our policy of continuous improvement, Powermatic reserves the right to change specifications at any time and without prior notice, without incurring obligations.

5.0 Setup and assembly

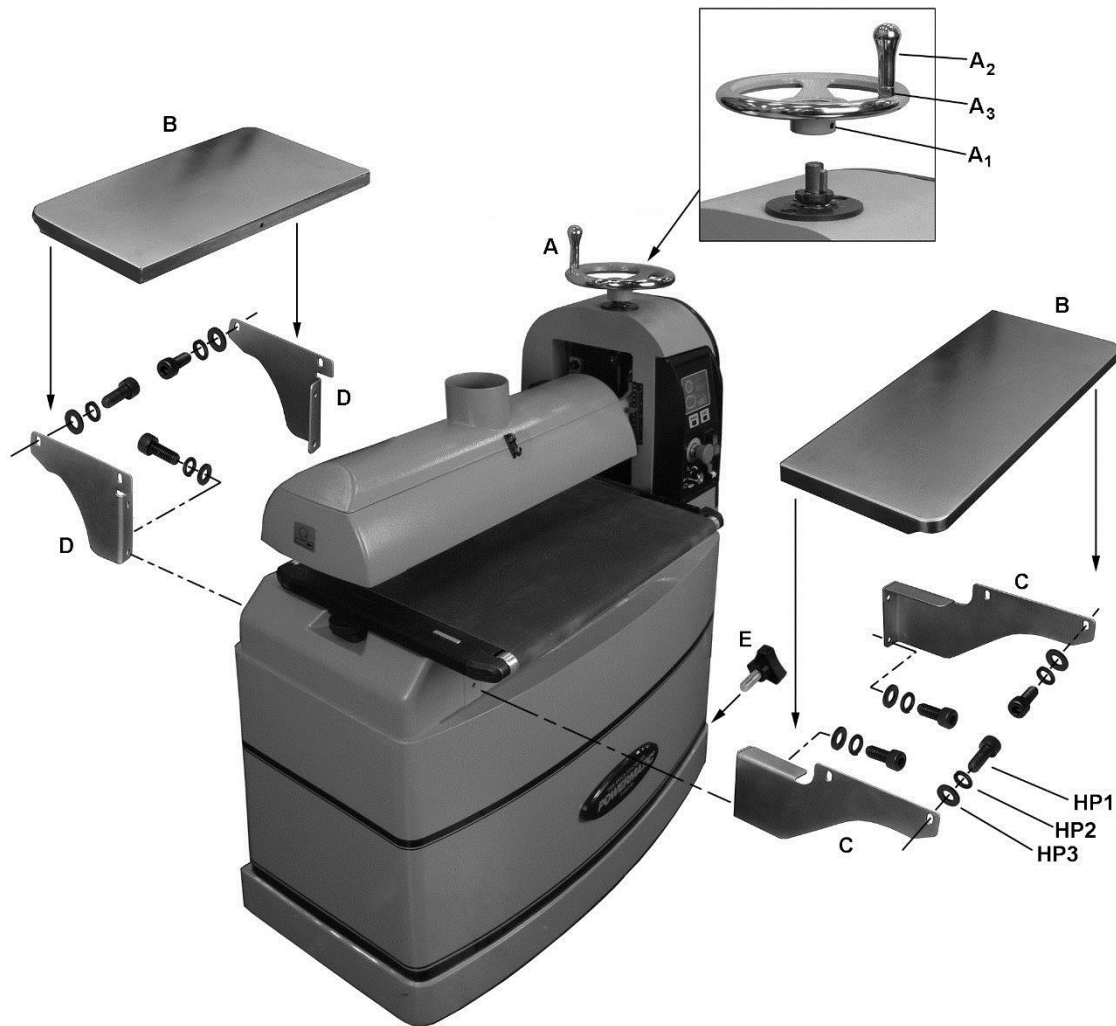


Figure 2

5.1 Shipping contents

See Figure 2.

- 1 Sander unit
- 1 Handwheel with handle – A
- 2 Extension tables – B
- 2 Infeed table brackets (L and R) – C
- 2 Outfeed table brackets (L and R) – D
- 2 Caster lock knobs (Pre-assembled onto stand) – E
- 4 Leveling Feet (only for benchtop model)
- 16 Socket hd. cap screws M8x20 - HP1
- 16 Lock washers M8 - HP2
- 16 Flat washers M8 - HP3

⚠WARNING Read and understand all assembly instructions before attempting assembly. Sander must be disconnected from power during assembly procedures. Failure to comply may cause serious injury.

5.2 Tools required for assembly

- Hex wrenches 4mm, 6mm
- Open-end wrench 14mm
- Straight edge (such as straight steel bar or carefully jointed board)

5.3 Unpacking and cleanup

1. Inspect all contents for shipping damage. Compare contents of shipping carton with the contents list in this manual. Report any damage or part shortages to your distributor.

⚠CAUTION Sander is heavy! Use an assistant to help remove from pallet.

2. Remove any screws or blocks holding sander to pallet. Carefully slide sander off pallet (NOTE: There are internal blocks on the pallet securing the sander – lift up on sander end to clear these while sliding off pallet.)

5.4 Handwheel

1. Back off set screw (A₁, Figure 2), and push handwheel (A, Figure 2) down onto shaft as far as it will go. Make sure set screw faces key on shaft. Tighten set screw with 4mm hex wrench.
2. Install handle (A₂) onto handwheel, and tighten using 14mm wrench on the flats (A₃).

Rotate handwheel clockwise to lower drum head; counterclockwise to raise.

5.5 Infeed and Outfeed Tables

1. Attach table brackets (C,D, Figure 2) to sander base with M8 screws and washers (HP1,HP2,HP3). Tighten screws with 6mm hex wrench.

NOTE: Longer brackets (C) mount to infeed side, shorter brackets (D) to outfeed side. Each bracket has left and right version. See Figure 2 for proper orientation.

2. Place extension tables (B) onto table brackets (C) and insert screws and washers (HP1,HP2,HP3). Note: Leave screws loose for now.
3. Place a straight edge across conveyor bed and extension table. See Figure 3.
4. Position straight edge at two or three places across width of table, as you adjust extension table until it is slightly below surface of conveyor belt.
5. Tighten screws.
6. Repeat for opposite table.

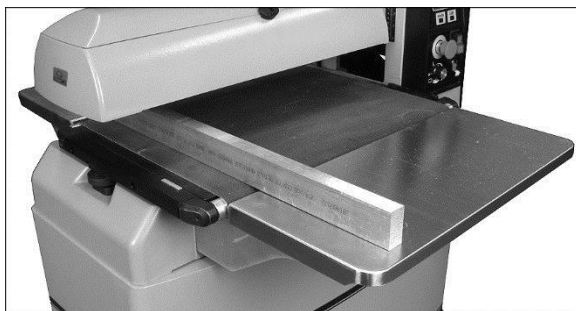


Figure 3

5.6 Caster lock knobs

Screw the caster lock knobs (E, Figure 2) into the threaded holes on the side of the cabinet.

CAUTION Always tighten the caster lock knobs before operating the sander.

5.7 Dust Collection

Dust collection is mandatory for a safe work environment and extended abrasive life. The PM2244 is equipped with a 100mm dust collection

port. Secure a 100mm dust collection hose to the port with a hose clamp (Figure 4), and connect to a high volume dust collector (minimum 800 CFM). *Note: Dryer vent hose is not acceptable for this purpose.*

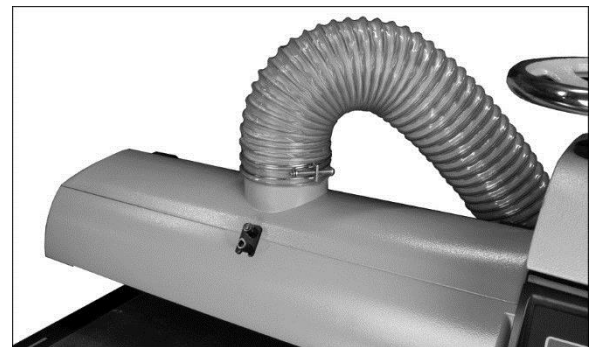


Figure 4 (hose and clamp not included)

5.8 Installing Abrasives

Proper attachment of the abrasive strip to the drum is critical to achieving top performance from your drum sander.

An 80-grit, 3-inch wide abrasive strip is pre-installed on the drum. Optional pre-cut abrasives of different grits are also available; see *sect. 10.0*.

(TIP: If you are using an after-market abrasive, use a new Powermatic-supplied abrasive as a template to quickly cut a new strip. Alternatively, a diagram is supplied in Figure 20 showing trim measurements.)

1. Press fastener lever (F, Figure 5) on outboard (left) end of drum, and insert tapered end of abrasive through slit in fastener, as shown. Insert approximately 3-inches of abrasive strip into fastener. Align tapered edge of abrasive strip with left edge of drum.
2. Release fastener lever to secure end of strip.

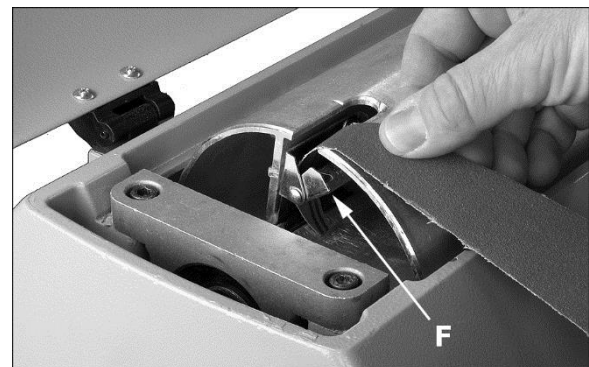


Figure 5

3. Begin wrapping abrasive around drum. The tapered edge of strip end should follow edge of drum.
4. Continue to wrap abrasive in spiral fashion by rotating drum with one hand and guiding strip with the other. See Figure 6.

Successive windings of strip must *not have any overlap*. They should be flush with previous windings or with a slight gap between.

The last winding should have a 1/16 to 1/8 in. gap, before insertion into inboard fastener (see Figure 7).



Figure 6

5. Press inboard take-up lever (G, Figure 7) and insert trailing end of strip as far as it will go. If necessary, trim tapered end of abrasive strip.
6. Release inboard take-up lever to secure strip.

All abrasive strips will stretch over time as they are used, and may stretch enough to allow the take-up lever to reach its lowest position so that it cannot maintain tension on the strip. If this occurs, follow the above procedures to reset the take-up lever.

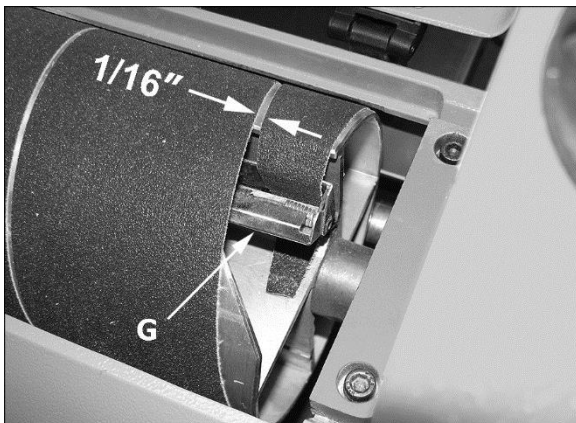


Figure 7

6.0 Electrical connections

⚠WARNING All electrical connections must be done by a qualified electrician in compliance with all local codes and ordinances. Failure to comply may result in serious injury.

The PM2244 Sander is rated at 230-volt power only. The sander comes with a plug designed for use on a circuit with a *grounded outlet*. Before connecting to power source, be sure switch is in *off* position.

It is recommended that the sander be connected to a dedicated 16 amp circuit with circuit breaker or fuse. If connected to a circuit protected by fuses, use time delay fuse marked "T". **Local codes take precedence over recommendations.**

6.1 GROUNDING INSTRUCTIONS

This machine must be grounded. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

⚠WARNING Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded. Failure to comply may cause serious or fatal injury.

7.0 Adjustments

⚠WARNING Disconnect sander from power source before making adjustments.

7.1 Depth scale

The depth scale indicates distance between bottom of sanding drum and top of conveyor belt. Adjustment is performed by “zeroing” the scale.

1. With an abrasive strip on the drum, lower sanding drum to where it touches top of conveyor belt.
2. At this drum position, the depth scale pointer should align with zero mark on scale. If it does not, loosen screw (Figure 9) and raise or lower pointer to align with zero on scale.
3. Retighten screw.

Note: Depending on desired accuracy, you may need to repeat this process when installing different abrasive grits.

This calibration of depth gauge establishes “absolute” distance from conveyor belt to drum, while the control panel allows setting of zero point for relative distance.

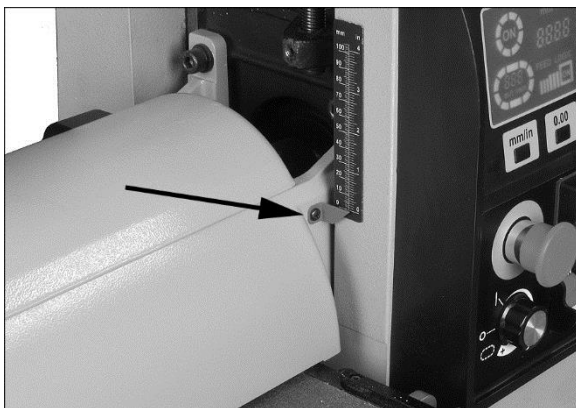


Figure 9

7.2 Conveyor belt tension/tracking

Conveyor belt tension adjustment may be necessary during the break-in period to compensate for belt stretching.

7.2.1 Tension adjustment

1. Remove left side cover (Figure 10) by removing two socket head screws with 4mm hex wrench.

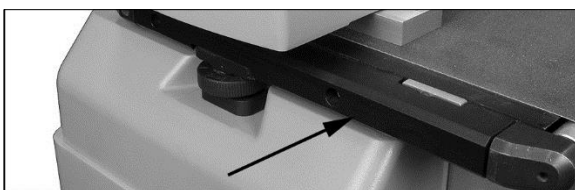


Figure 10

2. Adjust take-up screw nuts (Figure 11) with a 17mm wrench. Do this on both sides of conveyor to obtain approximately equal tension on both sides of sanding belt.

NOTE: Insufficient belt tension will cause slippage of conveyor belt on drive roller during sanding operation. The conveyor belt is too loose if it can be stopped by hand pressure applied directly to top of moving conveyor belt. Excessive belt tension can result in bent rollers, bent brackets, and/or premature wearing of bushings or conveyor belt.

3. Reinstall left side cover when tensioning is complete.

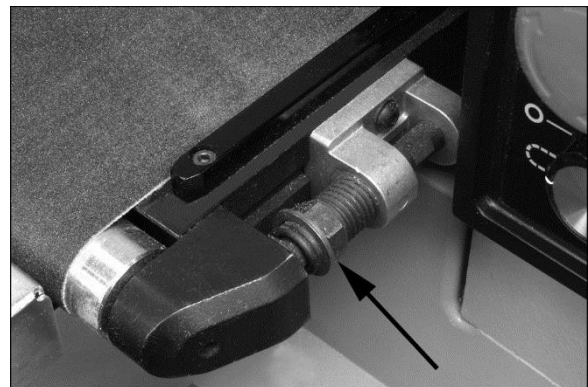


Figure 11

7.2.2 Tracking adjustment

A belt tracks correctly when it moves centrally on the conveyor rollers without drifting to either side. Tracking adjustments are made while conveyor belt is running.

1. Make sure proper belt tension has been achieved (see 7.2.1 *Tension adjustment*).
2. Turn on conveyor and set to maximum speed. Watch for a tendency of conveyor belt to drift to one side of conveyor. If it drifts, tighten or loosen take-up screw nut on *right side* of conveyor (Figure 11).

Note: Adjust take-up screw nut only 1/4 turn at a time. Then allow time for belt to react to adjustments before proceeding further.

Try to avoid over adjustments, as this may affect belt tension. If tension is affected, it may become necessary to remove left side cover and use both take-up screw nuts to accomplish tensioning and tracking.

7.2.3 Trackers

The sander comes equipped with “Trackers”, ceramic guides that reduce the amount of adjustments needed to keep the conveyor belt tracked (centered) on the conveyor bed. See Figure 12. These guides have a magnetic backing to keep them in place. If a Tracker wears through, it can be

reversed by turning it over. See *sect. 11.0 Tracker Kit* for more information about re-setting trackers.

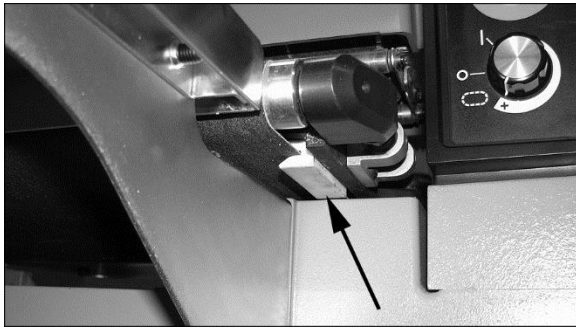


Figure 12

7.4 Inspecting drum alignment

The sanding drum must be parallel to conveyor bed for proper machine operation. The sanding drum comes pre-aligned from the manufacturer. If a problem with drum alignment should occur, follow the instructions below.

First, inspect the alignment with a gauge of some kind. The following procedure uses a steel block as a gauge.

1. Unplug sander from power source.
2. Open dust cover and remove abrasive strip from drum.
3. Insert gauge (A, Figure 13) between drum and conveyor bed at outboard side of drum.

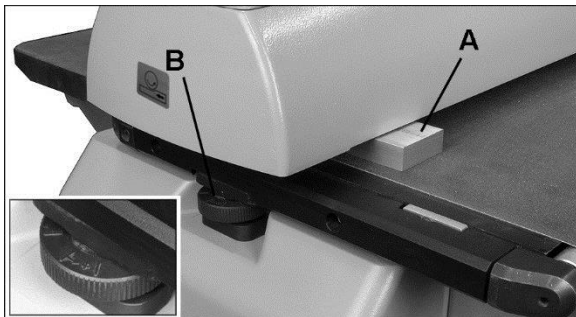


Figure 13

4. With dust cover open, lower sanding drum while slowly rotating drum by hand, until drum lightly contacts gauge.
5. Remove gauge and place under drum at inboard side.
6. If drum does not contact gauge equally on both ends of drum, alignment is needed.

To align drum:

7. Turn adjustment dial (B, Figure 13) to raise or lower outboard end of table. Follow directional marks on dial (+ to raise).

7.4.1 Verifying drum alignment

Note: This is an operational test. Perform this procedure only after you have become familiar with sander operation.

When sanding boards wider than the drum, table alignment is critical and table must be adjusted exactly level to slightly lower on the outboard end. This will prevent any ridges from developing in the stock. Always check this on a piece of scrap wood, as follows, before sanding the work piece.

1. Run a piece of scrap wood approximately 150mm wide by 700mm to 1000mm long through the sander sideways so that end of board extends past outboard side of drum.
2. Without changing drum height, rotate board 180° and sand the same side.
3. If a ridge is visible where the drum overlaps, lower table at outboard end slightly by turning dial (B, Figure 13).
4. Repeat this process until the ridge is eliminated and entire board is sanded.

TIP: Place a mark on adjustment dial to keep track of how much dial rotation is needed to change drum alignment for wider (over 559mm) sanding. When sanding narrow stock (less than 559mm) turn dial opposite direction the same amount as the initial wide sanding so that drum is again parallel.

7.5 Tension roller adjustment

The infeed and outfeed rollers are tensioned to provide downward pressure on the workpiece to prevent slippage on the feed conveyor. Tension rollers have been set by the manufacturer, but should be inspected and may require adjustment as the sander receives use.

⚠WARNING Improperly adjusted tension rollers (i.e. those set too high, rendering them non-functional) could allow kickback of pieces being sanded.

You can increase or decrease tension roller pressure by turning the screws on the tension roller brackets (Figure 14).

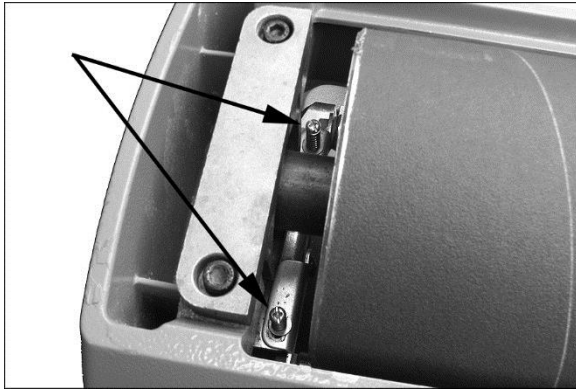


Figure 14

Too much tension roller pressure can result in a “snipe” mark, which is a visible line running across the width of the board and located approximately 60mm from end of board.

If snipe occurs on the leading end of board, adjust outfeed tension roller. If the snipe occurs on trailing end of board, adjust infeed tension roller.

7.6 Storage cabinet

Open cabinet by pulling latch outward and rotating left, as shown in Figure 15.

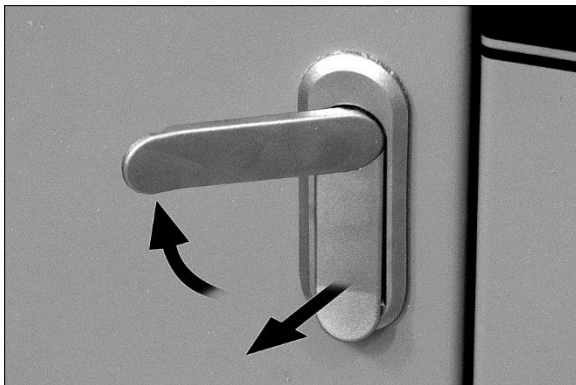


Figure 15

8.0 Operations

Before using your drum sander, review the previous sections on initial set-up and adjustment. Before operating, make sure an abrasive strip is mounted and a proper dust collection system is connected.

8.1 Basic Operating Procedure

1. Establish depth of cut.
2. Start dust collection system.
3. Start sanding drum.
4. Start conveyor and select feed rate.
5. Feed stock through machine.

To feed stock through the sander, rest and hold board to be sanded on conveyor belt, allowing conveyor belt to carry board into drum. Once stock is halfway through, reposition yourself to outfeed

side of machine to receive and control board as it exits.

8.2 Controls and LED display

Figure 16 shows control panel functions.

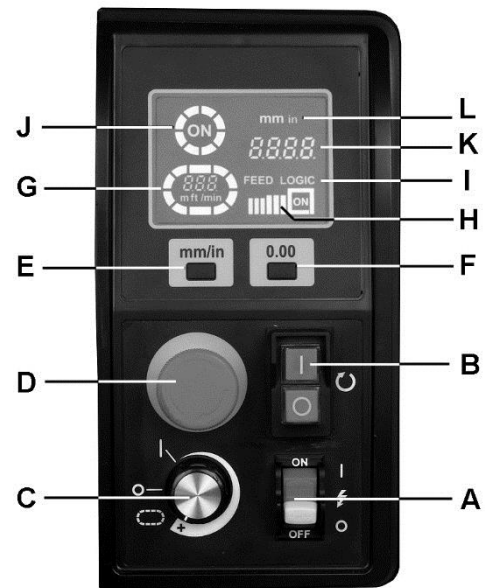


Figure 16

- A – Main power switch
- B – Drum motor switch
- C – Conveyor motor switch (variable speed)
- D – Emergency stop
- E – Unit selector mm / inch
- F – Zero depth reset
- G – Conveyor ON indicator
- H – Drum load indicator
- I – Feed Logic ON indicator
- J – Drum ON indicator
- K – Drum height
- L – Drum height unit

8.3 Drum motor operation

1. Connect power supply to machine. – *Display remains dark.*
2. Turn on main power switch (A). – *Display will illuminate. Racetrack (G) may flash continuously, indicating that emergency stop is still engaged.*
3. Rotate emergency stop (D) clockwise to disengage stop.
4. Turn on drum motor by firmly pressing switch (B) – *Illuminated circle (J) will run, and “ON” will illuminate.*

Note: If drum motor does not start, make sure conveyor speed dial (C) is set to OFF.

5. Load indicator (H) may illuminate. – *When motor is running without load, one bar may illuminate. More bars are illuminated as load increases.*

- Turn off drum motor switch (B). – “ON” will go dark. Circle (J) will continue running for 5 seconds while drum slows to a stop. Then circle (J) will stop running.

CAUTION Do not open drum hood until drum comes to a complete stop.

8.4 Feed Logic activation

If load on the sanding drum becomes excessive and motor is overloaded or exceeds specified current, “FEED LOGIC” (I) flashes and “ON” (I) lights up. Conveyor will be automatically slowed to highest efficient speed.

8.5 Conveyor motor operation

Rotate conveyor speed dial (C, Figure 15) clockwise to start and increase speed of conveyor. – Racetrack (G) will illuminate and run. Conveyor speed will show inside racetrack.

IMPORTANT: If sander is shut off or E-stop is engaged, conveyor speed dial must be returned to OFF position in order to restart sander.

8.6 Unit conversion

Toggle unit selector button (E) to select imperial or metric units. Units for drum height and conveyor speed will change accordingly on the display. When power is turned off, units default to imperial.

8.7 Drum height setting

Lower drum until it just contacts workpiece, then push zero depth reset button (F, Figure 16) to zero the setting of drum height from workpiece. The handwheel is then used to lower the drum in exact increments for each pass, by viewing the depth on the control display (K).

When handwheel is rotated to move drum downward below zero point, a negative sign will appear before the depth number (K).

NOTE: Drum height will remain in control panel memory if E-stop button is pressed. Drum height will *not* remain in memory if main power switch is turned OFF.

8.8 Emergency stop

Press E-stop button (D, Figure 16) to shut down all machine operations. When E-stop is pressed, drum motor stops and “ON” (J) goes dark on display. Conveyor motor also stops, and racetrack (G) flashes.

IMPORTANT: The E-stop remains engaged until it is rotated clockwise for release. Also, the conveyor speed dial (C, Figure 16) must be returned to OFF position before restarting machine.

The E-stop is designed for emergency shut-off. Under normal circumstances, use the other switches on the control panel to turn off machine functions.

8.9 Switch safety key

To prevent unauthorized use of sander, turn off main switch and pull out safety key (Figure 17). Store key in a safe place. Key must be reinserted to start sander.

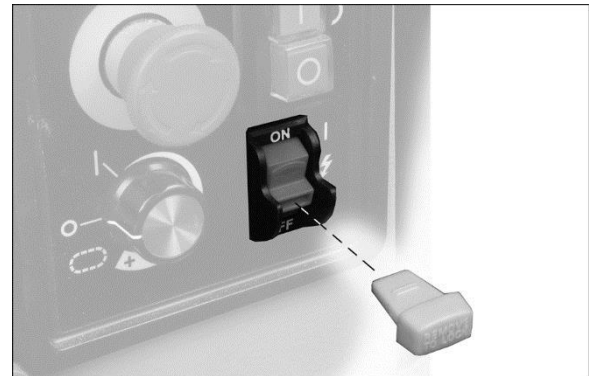


Figure 17

8.10 Setting depth of cut

Adjusting the drum sander for proper contact between abrasive and stock determines the depth of cut. The depth of cut is controlled by the height adjustment handwheel.

It may take some experimentation to determine the proper depth of cut, given the variables of abrasive grit, type of wood, and feed rate. For best results, use scrap wood to practice sanding and to develop skill and familiarity with the machine before doing finish work.

A combination of several variables will determine proper depth of cut to use, including the following:

- Abrasive type and grit size.
- Width of piece being processed.
- Hardness of piece.
- Feed rate of conveyor belt.

8.11 Establishing drum height

A good rule of thumb when sanding with grits finer than 80 is to place the stock to be sanded under the drum and lower drum until it contacts the stock. Drum should still rotate by hand. *Without changing drum height*, finish feeding the stock under the sander.

Start sanding drum and sand the stock at that same position.

WARNING Do not start drum while in contact with stock.

For sanding with grits coarser than 80, you can lower the drum slightly.

Always maintain control of stock. Through practice you will learn the proper depth of cut considering the variables above.

8.12 Selecting conveyor rate

A faster feed rate allows faster sanding but fewer revolutions of the drum per inch of sanding. A slower feed rate provides more revolutions of the drum per inch of sanding to allow a greater depth of cut and smooth sanding.

Begin experimenting with feed rate set to about 40% to 50% of maximum. The best feed rate will depend on a number of factors, including type of stock, grit and depth of cut used, and whether the stock is fed directly in line with the conveyor bed or at an angle. If the drum motor is lugging down, if the conveyor belt is slipping, or if you observe a ripple effect on the stock, slow the feed rate. If the finish is smooth and the machine is not overworking, you can experiment using a faster feed rate.

The Feed Logic control continuously monitors the load on the drum motor, and automatically regulates the speed of the conveyor motor to maintain highest feed rate without overload. When "Feed Logic" flashes and "ON" illuminates on the display (I, Figure 16), the Feed Logic control has detected too great a depth of cut and/or too fast a feed rate.

If load on the drum motor increases, Feed Logic will decrease the conveyor feed rate and will stop the conveyor under extreme conditions. If load on the drum motor decreases, Feed Logic will increase the feed rate but will not increase it faster than the speed the user has preset on the dial.

The best and most consistent finish will be achieved if the conveyor does not change speed during operation. A change in conveyor speed may affect the finish surface. If the finish is affected, make another sanding pass without changing any settings.

If the finish is still affected, make adjustments by slowing the conveyor and/or decreasing the depth of cut and run the stock through again.

Also try a faster feed rate or less depth of cut if the stock you are working begins to show burn marks. With cherry, hard maple or other hardwoods, using a shallower depth of cut and a faster feed rate will help minimize burn marks.

Slightly angling the stock as it is fed into the machine will also help prevent burning the stock.

Because of the wide range of variables, it is important to experiment with your specific conditions and make adjustments to achieve

optimum feed rate. If problems occur, first inspect and adjust feed rate, referring to *sect. 12.0 "Troubleshooting."*

8.13 Maximum performance tips

The versatility designed into the PM22-44 drum sander allows it to be used for a variety of tasks that will boost return on your investment. For example, it will speed up fine sanding work often done with slower, dust-generating hand sanders, and will achieve fine thickness adjustments not possible on some sanders. It can be used to surface figured woods – bird's eye or curly maple, for example – which can be damaged if fed through a planer.

Learning how to use its adjustments and controls will allow you to fine-tune the machine for maximum results. The best results come from experimenting with different abrasive grits and machine adjustments to fit the job at hand. Following is a list of useful tips which can help you improve performance of your sander.

8.13.1 Dust collection

When connecting dust collectors, remember that straight pipe will not restrict airflow as much as flexible tubing. Y's and elbows will restrict airflow less than T's. Also, a hose smaller than 100mm diameter should not be used.

8.13.2 Multiple-piece sanding runs

When abrasive planing (or thickness sanding) a run of similar pieces that you want to have the same thickness, it is best to determine the thickness of the thinnest piece and process all pieces to that same thickness in one session. Be aware that the sander will remove cups and crowns in the workpiece; consider this when measuring and processing stock to the same thickness.

8.13.3 Simultaneous multiple pieces

When sanding multiple pieces simultaneously, make sure to stagger (step) the pieces across the width of the conveyor belt. This provides better contact with the tension rollers. Try to process only multiple pieces of similar thickness.

If there is a significant thickness difference, the thinner pieces can slip on the conveyor belt if they do not contact the tension rollers. Also note that pieces thicker than 20mm should be longer than the minimum normally recommended to prevent tipping of the stock.

8.13.4 Edge sanding

When edge sanding, the sander will mimic the opposite edge of the stock which is lying on the conveyor belt. Because of this, it is important for the stock edge to have been ripped at the proper angle to the face before the sanding process. When edge sanding stock that is less than 20mm wide or

more than 50mm high, it is good procedure to stack and clamp several pieces together to prevent them from slipping or tipping on the conveyor belt.

8.13.5 Sanding imperfect stock

When sanding stock with a cup or crown, place the crown up. This will stabilize the stock to help prevent tipping or rocking during sanding. After the crown has been removed and the top is flat, turn the stock over and sand the opposite side. To avoid personal injury, take special care when sanding stock that is twisted, bowed, or otherwise varies in thickness from end to end. If possible, support such stock as it is being sanded to keep it from slipping or tipping. Use extra roller stands, help from another person, or hand pressure on the stock, to minimize potentially hazardous situations.

8.13.6 Face frames and raised panel doors

It is very important to have the proper abrasive contact when doing this type of sanding. If the machine is set to take an excessive depth of cut, the result can be a gouge or dip as the drum goes from sanding the rails at full width to sanding just a few inches of width on the stiles. To prevent this make sure, when using abrasives finer than 80 grit, that the drum is in contact with the wood but can still be spun by hand. If there is room, angling the stock on the conveyor belt can also help. Slowing the conveyor feed when coming to a rail in the stock can help prevent a dip or gouge. This allows the abrasive to work the wider width with less effort, and to achieve better consistency of the finished surface.

8.13.7 Stock feeding angle

Some pieces, because of their dimensions, will need to be fed into the machine at a 90° angle (perpendicular to drum). However, even a slight offset angle of stock will provide for more effective stock removal. The optimum feeding angle for stock removal is about 60°.

Angling the workpiece for stock removal provides other advantages, such as less loading of certain areas of the drum due to glue lines or mineral streaks in the stock, more even wear of abrasive strips, potentially faster feed rates, and lighter loads on the motor. Note that to get the best final finish, however, the stock should be fed through the machine so it will be sanded in line with the grain of the wood on the final one or two passes.

9.0 Maintenance

⚠WARNING Before doing maintenance on the machine, disconnect it from the electrical supply by pulling out the plug or switching off the main switch. Failure to comply may cause serious injury.

9.1 Cleaning and lubrication

For best results, make cleaning the sander a regular shop procedure. Allowing excess build-up of dust and debris can adversely affect performance through loading of the abrasives, slippage on the conveyor table, and/or the accumulation of material inside the drums which can throw off the center of balance.

Leave the dust collector on when cleaning dust from the drums. Also brush the conveyor belt after cleaning operations. If not cleaned, the conveyor belt could allow stock to slip during sanding operations.

NOTE: Bearings are pre-sealed and require no lubrication.

- Lubricate conveyor bushings as needed, and check for wear.
- Lubricate elevating leadscrew (A, Figure 18) as needed.
- Clean sawdust from abrasive strip and brush dust from conveyor belt.
- Keep gib areas clean (B, Figure 18). Periodically lubricate gibs lightly with grease.
- Blow dust from motors and switches. Blow dust from inside of sanding drum, which may cause vibration or offset the center of balance.
- Check all set screws for tightness on parts such as bearings, conveyor bed, and couplings.

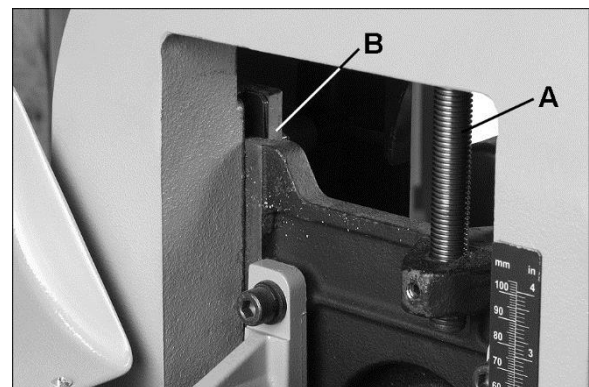


Figure 18

9.2 Drum maintenance

The drum should not require removal from the machine under normal circumstances. Should maintenance ever become necessary, the drum has been designed for easy removal and replacement.

Remove four socket head screws (C, Figure 19). Carefully lift out drum with coupling (D) attached.

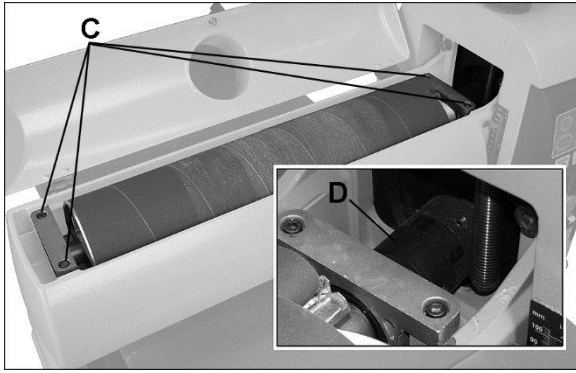


Figure 19

9.3 Conveyor belt replacement

1. Disconnect sander from power.
2. Raise drum to highest position.
3. Loosen take-up screw nuts (Figure 11) on both sides of conveyor to relieve belt tension, and slide the driven roller fully inward.
4. Remove three (3) screws that attach conveyor table to base. Lift up conveyor table and remove it from machine. Avoid tearing the belt on any edges underneath the conveyor bed. *Do not allow the Trackers to drop, as they may break.*

5. Install new belt along with trackers (see sect. 11.0), and re-install conveyor table. Tension and track the new belt.

Note: If the conveyor belt continually tracks to one side of the machine, reversing the belt on the conveyor bed may remedy the problem. To make sure the conveyor bed is not twisted, place a level on the conveyor bed. Level the machine if needed. If there is still a problem, proceed with the steps below:

Step 1: Check conveyor drive roller and driven roller to make sure they are parallel to surface of conveyor bed. To do this, first center conveyor belt on the bed. Then lay a straight-edge on the exposed edge of conveyor bed on left (outboard) side, extending it over the roller. Note distance between roller and straightedge.

Step 2: Now repeat Step 1 on right (inboard) side of conveyor. Compare the measurements from side to side. If they are not equal, loosen one of the brackets that hold the roller in place. Tip this bracket until distance between roller and straight-edge are equal from side to side, then tighten bracket.

10.0 Abrasive dimensions

Use this diagram to cut after-market abrasive strips to fit (or use a new Powermatic-supplied strip as a template).

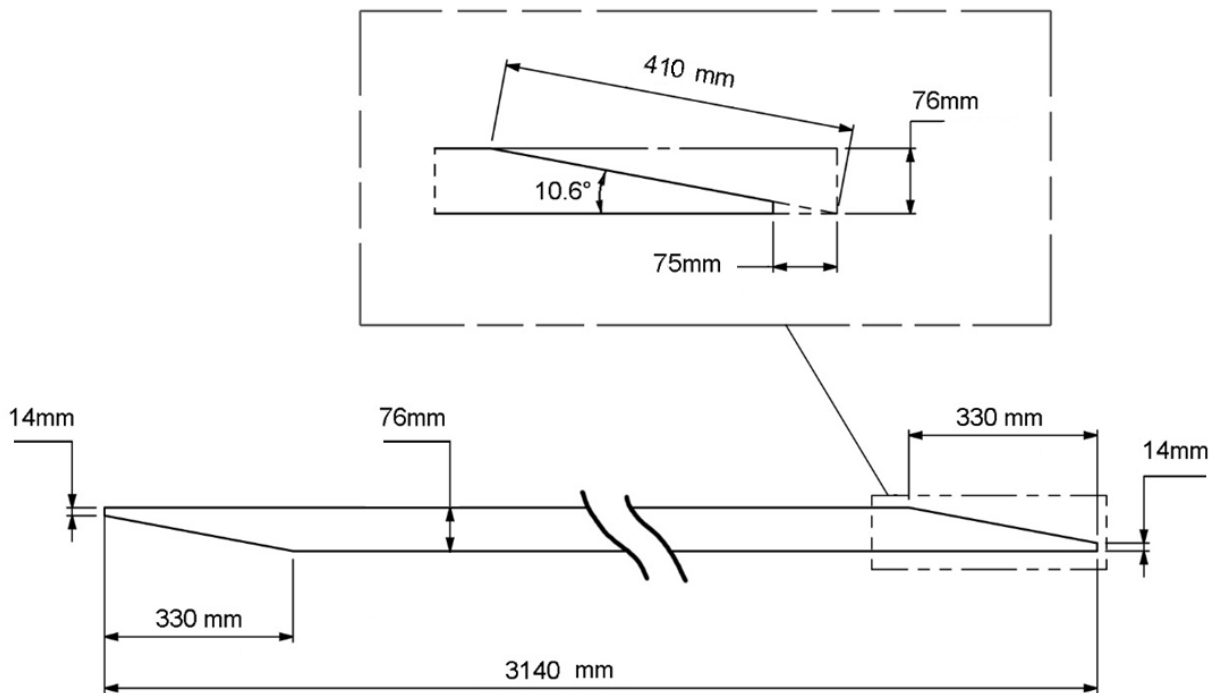


Figure 20

11.0 Tracker kit

Stock No.: PM2244-213

Trackers dramatically reduce tracking adjustments of conveyor belts. They are already installed on your sander. The following information is for resetting or replacing your trackers, should that become necessary.

1. Disconnect power to sander.
2. Raise drum as high as it will go, and remove side cover (see Figure 10).
3. Loosen both conveyor take-up screw nuts to relieve conveyor belt tension and slide driven roller fully inward.
4. Remove the three screws (A, Figure 21) holding conveyor table to sander base.

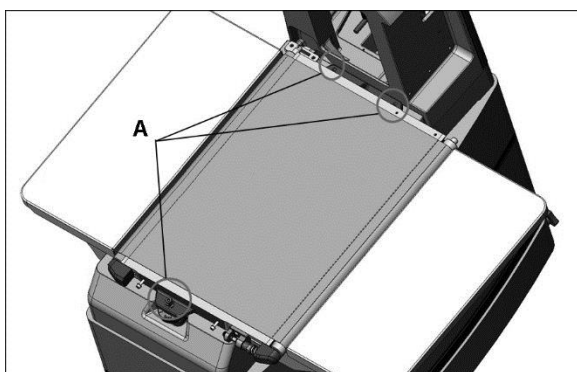
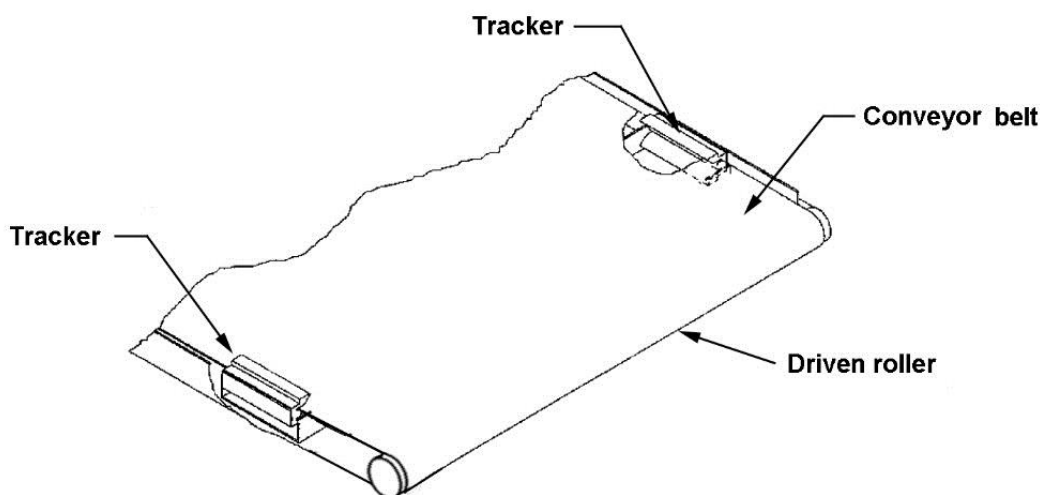


Figure 21

5. Lift conveyor table and slide it out of sander. Turn conveyor table upside down. Be careful not to damage conveyor belt.
6. The tracker is positioned on underside of conveyor bed near driven roller (Figure 22). The back of tracker is magnetized and will stick to side wall of conveyor bed. Do not install tracker if edge of conveyor belt is damaged or torn.



7. With first tracker installed, slide conveyor belt into bottom slot of tracker. **Note:** When installed properly, only bottom lip of tracker will be visible. The top slot can be used if bottom slot wears out.
8. Install second tracker opposite the first. Use both trackers unless the second one does not fit in conveyor or unless conveyor belt is damaged.
9. Turn conveyor table right-side up and re-position it onto sander. Re-attach three (3) mounting screws and tighten. **Caution:** Be careful not to knock tracker(s) out of conveyor bed when turning conveyor over. Trackers may break if allowed to fall.
10. Make sure all switches are off. Connect power to sander and plug in motor.
11. Tension conveyor belt using take-up screw nuts. If both trackers are installed, it is very important to have equal tension on both sides of conveyor belt. Tighten take-up screw nuts on both sides until equal tension is obtained.
12. To check tension, turn on conveyor full speed and place both hands on conveyor. If conveyor belt can be stopped, continue tensioning until conveyor belt cannot be stopped by both hands on the belt while conveyor is operating at full speed.
13. Make sure conveyor belt runs smoothly inside tracker slot and that the magnet is holding the tracker in position.
14. Continue to watch tracking of conveyor and adjust only if necessary, making sure to keep equal tension on conveyor belt at all times and not allowing conveyor belt to buckle under conveyor bed.

Figure 22 – Underside of conveyor shown12.0 Abrasives

The abrasive material you choose will have a substantial effect on the performance of your sander. Variations in paper type, weight, coating and durability all contribute to achieving your desired finish.

12.1 Selecting drum abrasives

It is important to select the proper grit of abrasive for the type of sanding being performed to achieve maximum results. As with any sanding operation, first begin sanding with a coarser grit, depending upon the roughness of the stock or the amount of stock to be removed. Then progressively work toward finer grits. The chart below shows the general uses for the various grits.

The amount of stock to be removed is a major consideration when choosing the grit grade with which to begin. Grits 24, 36, 50 and 60 are primarily designed for stock removal. Grits 24 and 36 will remove the most material in one pass, whether you are doing abrasive planing, cleaning up glued panels, or flattening stock. Grits from 100 through 220 are primarily finishing grits designed to remove the scratch pattern from the previous grit used. For best results, never skip more than one grit grade when progressing through a sanding sequence.

For fine work, such as furniture, try not to skip any grit grades during the sanding process. In general, premium quality abrasives will produce a better finish with a less noticeable scratch pattern.

Note: Grits that are too fine can sometimes burnish the wood and leave a glossy surface which will not accept stains evenly. This will vary by type of wood. Oak, for example, is susceptible to burnishing because of its open pores.

12.4 Abrasive selection guide

Grit	Common Application
24	Abrasive planing, surfacing rough-sawn boards, maximum stock removal, glue removal.
36	Abrasive planing, surfacing rough-sawn boards, maximum stock removal, glue removal.
50	Surfacing and dimensioning boards, truing warped boards
60	Surfacing and dimensioning boards, truing warped boards.
80	Light dimensioning, removal of planer ripples.
100	Light surfacing.
120	Light surfacing, minimal stock removal.
150	Finish sanding, minimal stock removal.
180	Finish sanding only, not for stock removal.
220	Finish sanding only, not for stock removal.

Table 1

12.2 Cleaning abrasive strips

Regularly clean the abrasive strip on the drum with commercially available cleaning sticks, following the manufacturer's directions. When cleaning, also brush the stick crumbs from the drum while it is still rotating.

In some cases, heavy loaded areas can be removed with Plexiglas held on edge over the rotating drum.

CAUTION Always wear eye protection while performing sandpaper cleaning, and take all precautions to avoid any contact of hands or clothing with the rotating drum.

Cloth-backed abrasives can be cleaned by soaking in paint thinner or mineral spirits for 20 minutes to one hour, then using a brush to remove any build-up. Dry the abrasive strips completely before using. Any used solvents should be discarded in compliance with environmental regulations.

12.3 Increasing abrasive life

Abrasive life can be increased not only by cleaning, but by removing the abrasive strip from the drum and reversing it. To do this, remove the strip and use what was the trailing end as the starting end on the left (outboard) side of the drum. Reversing the strip will provide a fresh set of cutting edges on the abrasive.

13.0 Troubleshooting the PM2244 Drum Sander

Symptom	Possible Cause	Correction *
Drum motor won't start when ON button is pushed.	No incoming current.	Check connections at plug or circuit panel.
	Safety key missing from switch.	Install safety key.
	E-stop still engaged (racetrack is flashing).	Disengage E-stop by rotating clockwise.
	Conveyor speed dial not reset after using E-stop (racetrack is flashing).	Turn speed dial to OFF position, then try starting machine.
	Low voltage.	Check power line for proper voltage.
	Open circuit in motor or loose connection.	Inspect all lead connections on motor for loose or open connections.
Motor will not start: fuses blow or circuit breakers trip.	Short circuit in line cord or plug.	Inspect cord or plug for damaged insulation and shorted wires.
	Short circuit in motor or loose connections.	Inspect all connections on motor for loose or shorted terminals or worn insulation.
	Incorrect fuse or circuit breaker in power line.	Install correct fuse or circuit breaker.
Motor overheats.	Air circulation through motor restricted.	Clean motor fan with compressed air to restore normal air circulation.
	Motor overloaded (Feed Logic not functioning properly).	Have controls inspected and repaired.
Motor stalls, resulting in blown fuses or tripped circuit.	Short circuit in motor or loose connections.	Inspect connections on motor for loose or shorted terminals or worn insulation.
	Low voltage.	Correct low voltage conditions.
	Incorrect fuse or circuit breaker in power line.	Install correct fuse or circuit breaker.
Loud, repetitive noise or vibration coming from machine.	Fasteners loose.	Inspect fasteners and tighten where needed.
	Motor fan is hitting cover.	Tighten fan or shim fan cover.
	Machine not level.	Place sander on level floor; shim if needed.
Conveyor motor will not run.	Conveyor speed dial not reset after using E-stop.	Turn speed dial to OFF position, then try starting machine.
Drum motor shuts off when finger leaves drum motor on/off switch.	Not pressing drum motor switch long enough.	Press and hold for at least 1 second.
	Conveyor speed dial not reset after using E-stop or switching off main switch.	Turn speed dial to OFF position, then try starting machine.

* **WARNING:** Some corrections may require a qualified electrician.

Table 2



JPW (Tool) AG
Tämperlistrasse 5, CH-8117 Fällanden
Schweiz | Suisse | Svizzera | Switzerland