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The Powermatic User Guide

Test Sieve Shaker

ISSUE 04-02

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Description

The Endecotts Powermatic is a heavy duty vibrating shaker that is designed to conduct sieve tests in conjunction with sieve stacks for particle sizing of various material samples.

By utilizing two off-set vibratory motors, mounted directly onto a location plate, the Powermatic induces both vertical and rotational movement of the sample. This produces the optimum action for effective and efficient sieving.

The Powermatic is a fixed amplitude shaker. An incremental timer provides a range of pre-set and repeatable sieve test run times.

The Powermatic is not recommended for any Wet Sieving Operation



The Powermatic is fully EMC and LVD compliant and complies with all relevant European directives.



Setting Up

Unpacking

The shaker should be set up according to the following procedure and the picture on page 3. The Internal packing and following items should be removed from the case and checked before the Powermatic is assembled.

- 1 off Instruction Manual
- 2 off Lifting Eyebolts.
- 2 off Long Clamp Rods
- 2 off Standard Clamp Rods
- 2 off M12 Plated Lock Nuts
- 2 off M12 Plated Plain Washers
- 1 off Clamp Plate complete with Clamping Assemblies.
- 1 off Control Unit (complete unit with 2 safety keys)
- 1 off Short Control Cable.
- 1 off Long Control Cable.
- 1 off Mains Cable.
- 3 off 10mm Diameter Location Pins.
- 3 off 15mm Diameter Location Pins.

Screw the two M12 eyebolts provided into the top location plate and using a suitable lifting device, lift the Powermatic and packing case on suitable blocks to access the underside and remove the two M12 transit bolts.

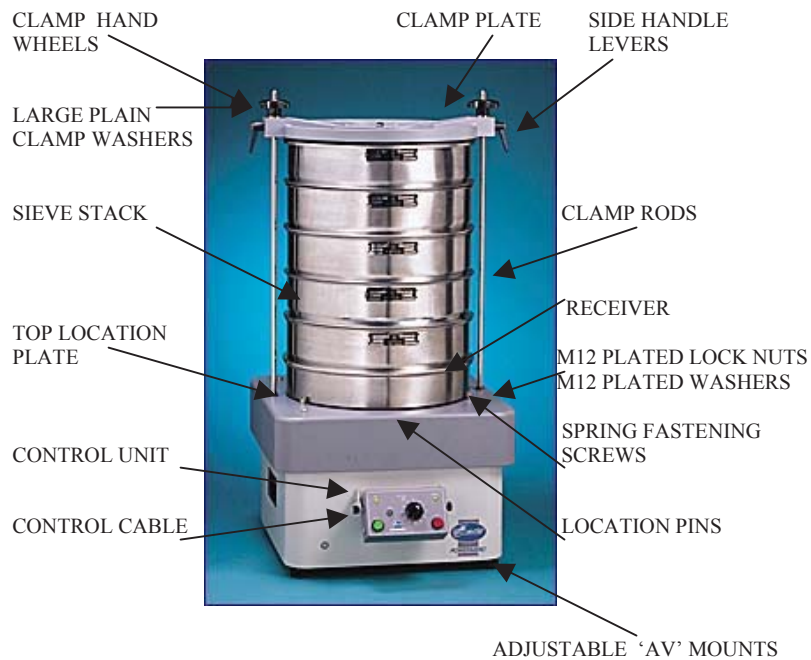
Do not lift the Powermatic by the location plate without the transportation bolts fitted.

Setting Up

Assembly

Lift the Powermatic from the packing case and position on a level, rigid and robust floor, suitable for the operation of the sieve shaker (placing the shaker on a level surface ensures an even distribution of the sample over the sieves and ensures machine stability).

Take Care as the shaker weighs 92 Kg



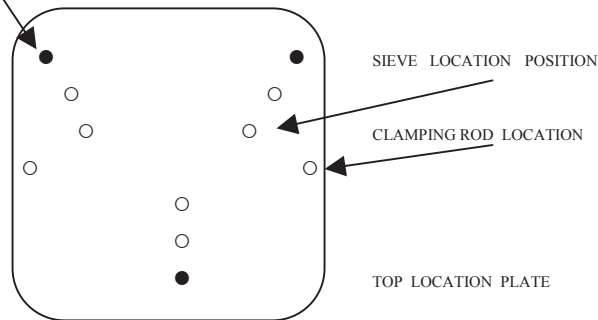
Setting Up

Assembly

When the Powermatic is placed in its operating position the lifting eyebolts and transportation bolts can be removed, see diagram below (Retain for future use).

REMOVAL & REPLACEMENT OF TRANSPORTATION BOLTS

M6 TRANSPORTATION BOLTS X 3



Fit one M12 nut and washer onto each clamp rod selected for use, then screw the pair of clamp rods into the location plate and tighten the locknuts.

WARNING
Transportation bolts must be removed before operating machine

Levelling Release the locknuts on the machine feet and adjust until the shaker is level, then retighten the locknuts.

Setting Up

Electrical Connections

Ensure that the voltage and frequency on the Rating Label at the rear of the shaker correspond with the electrical mains supply. If there is any discrepancy, please consult your supplier or a qualified electrician.

Do Not Connect to any other supply other than that stated on the nameplate.

Important – This equipment must be connected to mains earth

The Powermatic sieve shaker is provided with a detachable 2 metre long mains cable, incorporating an IEC moulded connector and plug suitable for connecting to the local mains supply. Certain models may be supplied with a fused plug. In the event of failure the fuse must be replaced with a fuse of identical rating..

Setting Up

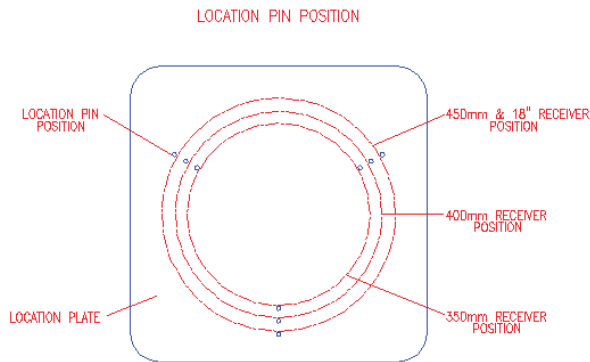
Sieve Stacking

The Powermatic shaker accommodates up to the following number of sieves in a stack plus the required lid and receiver:

Diameter	350mm	400mm	450mm/18 inch
	8	7	5

Screw the appropriate locations pins into position on the location plate for the sieve stack range selected. Use the 15mm diameter pins for the metric (350, 400 & 450mm) range of sieves and the 10mm diameter pins for the imperial (18 inch) sieves.

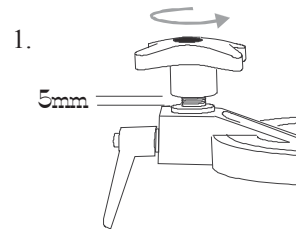
Place the receiver centrally between the locations pins. Stack the required sieves on top of the receiver. Put the sample under test in the top sieve and fit the lid.



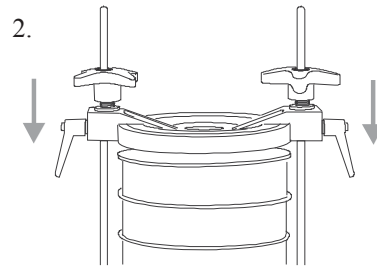
Setting Up

Sieve Stacking

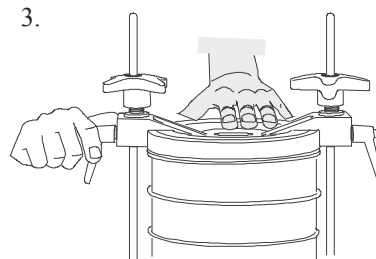
Align the locking assemblies in the two side lugs of the clamp plate with the round clamp rods. Slide the clamp plate down squarely onto the lid at the top of the sieve stack.



Ensure that the clamping handwheels at the top are loose and the locking assemblies are fully pushed down. There should be a 5mm gap between the large plain washer and the face of the handwheel.



Place one hand on the top of the clamp plate and hold square while locking one side handle lever. Repeat for the opposite side handle lever.

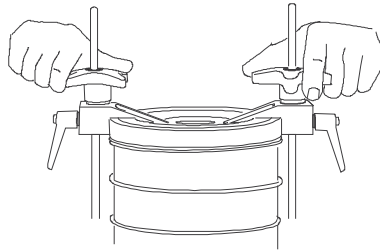


Setting Up

Sieve Stacking

The side handle levers can be set vertically downwards by pressing on the Red button and pulling the handle outwards to release. Turn the handle to a safe, convenient angle downwards and release to engage the teeth. Screw the two clamping handwheels

4.



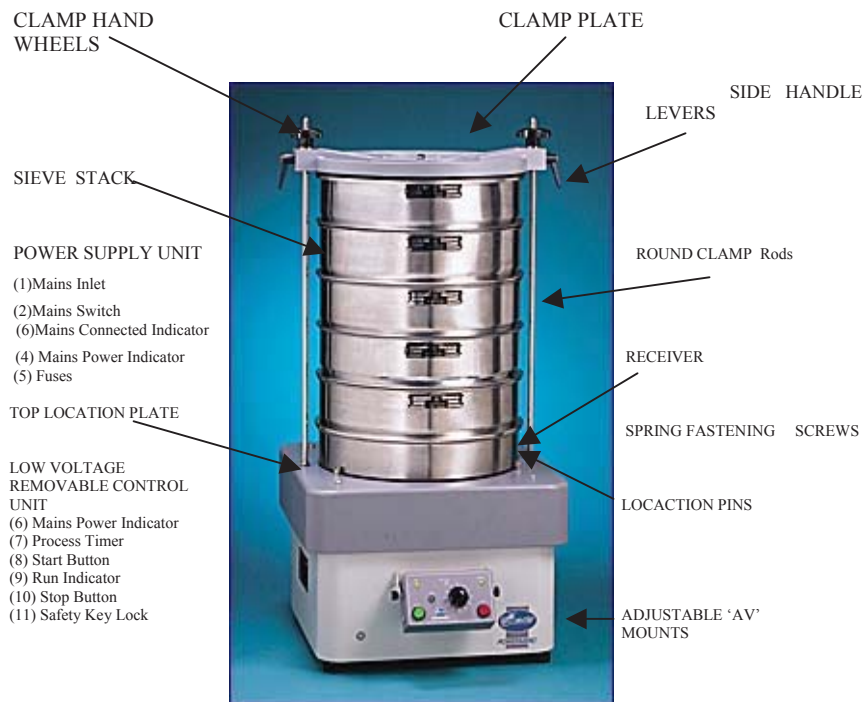
down simultaneously to ensure the clamping plate is square. Continue until the handwheels are tight against the internal stop. Hand tightness must be exerted so that the assembly does not loosen during vibration.

The locking side handle levers and clamping handwheels must be tightened sufficiently to ensure that the sieves and receiver are clamped securely during operation. Damage may occur if the shaker is allowed to operate with a loose clamping plate.

Operating Instructions

Position of Controls

Operators should be familiar with, and fully understand the controls and indicators before operating the machine. This should be done in conjunction with the diagram below:



Operating Instructions

Function of Controls

Power Supply Unit Controls

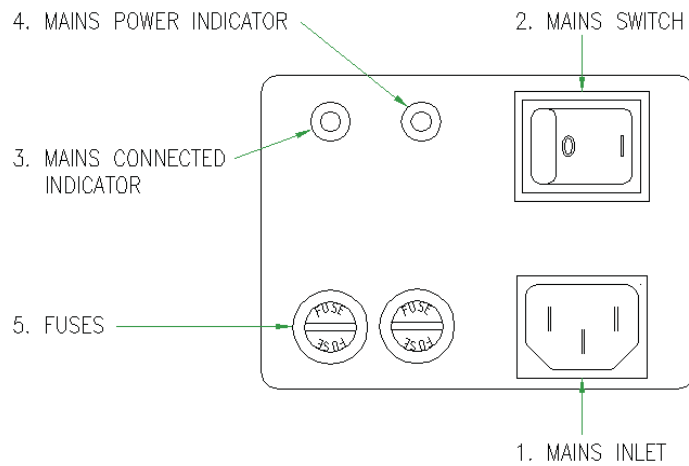
The power supply unit is mounted in the rear of the shaker base, the following controls and indicators are on this unit (see diagram opposite):

1. **Mains Inlet** Mains inlet with integral line filter. Ensure the IEC connector on the mains lead is pushed fully into the mains inlet.
2. **Mains Switch** This controls the electrical supply to the equipment. The side marked 1 is On and the side marked O is Off.
3. **Mains Connected Indicator** This indicates electrical power is connected to the equipment, even though the Mains switch (2) is not in the OFF position. The l.e.d. is illuminated when the IEC connector is pushed fully into the inlet and power is connected at the local outlet. If the l.e.d. fails to light with the switch in the On position then a Fuse (5) has blown or power is not present at the mains.
4. **Mains Power Indicator** The l.e.d. indicates that power has been switched ON at the mains switch (2). The shaker will operate when the appropriate actions or settings are made on the low voltage control unit.

Operating Instructions

Function of Controls

5. **Fuses (Live & Neutral)** These are 1¼ inch long anti-surge ceramic fuses that protect the electrical components within with equipment. It is important that the recommended current rating is not exceeded (3.15 amperes for 230 volts, 5 amperes for 110 volts) and the fuse is replaced with the same type and size. If the fuse blows after replacement then a fault exists in the equipment.



Operating Instructions

Function of Controls

Removable Low Voltage Control Unit

The control unit can be mounted on the front of the shaker base (use the short low voltage cable) or in some other suitable remote position i.e., bench, desk or wall mounted, where connection is made using the three metre long low voltage cable, which should be positioned to avoid trapping or creating any safety hazards.

Do not connect or disconnect the control unit while the Power is connected

REMOVABLE CONTROL UNIT

9. RUN INDICATOR

7. PROCESS TIMER

6. MAINS POWER INDICATOR

11. SAFETY KEY LOCK

8. START BUTTON



10. STOP BUTTON

6. **Mains Power Indicator** The l.e.d indicates that power has been switched ON at the Mains switch (2) at the rear of the shaker.

Operating Instructions

Function of Controls

7. **Process Timer** Sets the overall time of the sieving operation. It may be set for operating periods of 5 to 60 minutes in 5 minute increments, the setting is increased by rotating clockwise and decreased by rotating anticlockwise.
8. **Start Button** Operates the machine when conditions 1 to 7 are satisfied.
9. **Run indicator** The l.e.d. indicates that the shaker is operating.
10. **Stop Button** Stops the shaker during operating mode. The shaker cannot be restarted until the 'Reset Alarm' sounds after approximately 20 seconds.
11. **Safety Key Lock** Immobilises the shaker during loading or unloading sieves, the Safety Key Lock also isolates the Start button which prevents the shaker from being restarted.

Take Care that there are no loose sieves on the shaker !

**Do not attempt to remove the sieves before the shaker
has come to a halt**

**Do not unscrew clamping handwheels or side handle levers while shaker is in
operation**

Maintenance

The Endecott's Powermatic sieve shaker is maintenance free other than keeping external surfaces clean.

Cleaning The machine can be cleaned with a soft damp cloth using a solution of water and a mild liquid detergent.

Do not use any solvents for cleaning

Fuse Replacements Should a fuse require replacement this must be of the same type and rating as the original. The rating of the fuse is marked on a label above the fuse. Switch off the mains supply at the rear of the shaker and remove the mains cable (see diagram on page 11). Unscrew the central cap of the fuseholder with a suitable coin or screwdriver, extract the holder and the fuse together. Remove the blown fuse or fuses and place the new fuse in to the metal retaining spring within the cap. Fit the cap and fuse back in the holder and screw in fully.

Do not over tighten !

All replacement parts must be ordered by quoting the shaker serial number and the correct part number

Part number can be obtained from our sales or technical department.

Maintenance

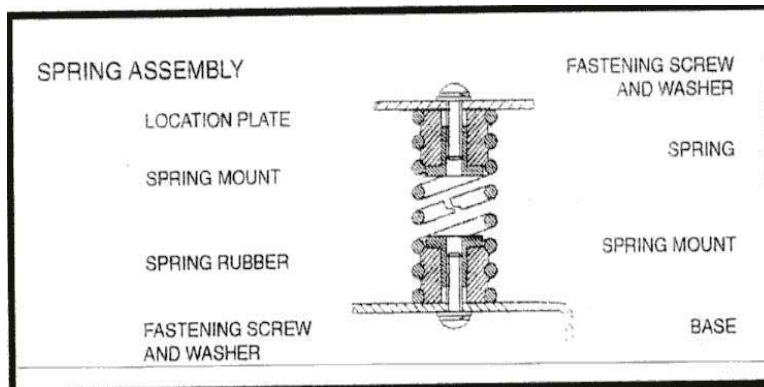
Motor Removal

1. Disconnect the electrical supply from the machine.
2. Remove the clamp rods and location pins.
3. Refit and tighten the three M6 transportation bolts through the outermost location pin holes.
4. Carefully turn the shaker over to access the motors from underneath.
5. Disconnect the wiring from the motor (noting the colour/terminal connection).
6. The bolts holding the motors can now be removed, to release the motors.
7. To reassemble the shaker, reverse the actions listed at 1 to 6 above insuring that the fixing bolts are tightened to a Torque of 7.5 Kg.m.

Maintenance

Spring Replacement If a problem develops on any of the spring assemblies it is recommended that the parts are replaced as a complete set of four.

1. Follow sequence 1 to 5 in the *Motor Removal* section.
2. Carefully turn the shaker back over.
3. Loosen the four spring fastening screws on the location plate.
4. Remove the Three M6 transportation bolts from the location pin holes.
5. Lift the location plate off the shaker base.
6. The spring assemblies can be removed by loosening the four spring fastening screws on the base.
7. To reassemble the spring assemblies, reverse the actions listed at 2 to 6 above, and then follow the instructions in the *Motor Removal* section to rebuild the shaker.



GENERAL ADVICE

Endecotts shakers are fully tested and factory checked before shipping to customers. No parts require lubrication or resetting unless disturbed.

The sieve shaker has been constructed and factory tested to ensure correct operation when connected to the specified electricity supply indicated on the machines rating plate.

Use of unapproved spares or any alteration to the machine would invalidate all warranties and compliance with European directives for 'CE' Marking.

*Endecotts Ltd does not accept any responsibility if
the operating instructions contained in this manual
are not strictly followed.*

**Warning Note : The Powermatic is not recommended for use with
liquids**

Specification

Model:	Powermatic	
Voltage:	230	110
Frequency:	50 Hz	60 Hz
Phase:	Single	Single
Power Consumption:	480 VA	280 VA
Class:	1 (earthed)	1 (earthed)
Motor Speed:	1,500 per min at 50 Hz 1,800 per min at 60 Hz	1,500 per min at 50 Hz 1,800 per min at 60 Hz
Process Time:	5 to 60 minutes	
Dimensions:	385mm High (excluding rods) 1,135mm High (775mm rods fitted) 580mm Square	
Weight:	92 Kg	

Endecotts policy is one of continuous development and we reserve the right to modify future models.