



Porta-Screen PS-3 & PS-4



PS-3



PS-4



Safety Instructions

Please read and understand all the safety and operating instructions before using the machine.

WARNING!!

This machine operates on electric current. Improper operation could result in electric shock, electrocution, or an explosion.

1. ALWAYS ensure the motor and other electrical components are properly configured for your intended use and available power source.
2. ALWAYS check electrical wiring for loose connections and for pinched or frayed wiring.
3. ALWAYS use the factory-installed three-pronged plug.
4. ALWAYS disconnect and lock out power supply before performing maintenance and repairs.

WARNING!!

DO NOT use this machine in an explosive or hazardous atmosphere. It is NOT explosion-proof or approved for operation in hazardous locations.

5. Only operate the machine in a properly ventilated area.
6. DO NOT operate the machine without having all guards and covers in place.
7. ALWAYS level the machine prior to operation.
8. Stop the machine immediately and re-level if excessive vibration or machine movement occurs.
9. The electric motor on this machine has internal thermal protection. If the motor shuts off from overload, the machine will restart by itself after cooling off, unless the machine has been unplugged.
10. Watch out NOT to pinch your fingers between the clamp levers and the machine frame.
11. ALWAYS unplug or disconnect the machine from the power source when the unit is not in operation.
12. Keep all parts of your body away from the moving parts of the machine while it is in operation.
13. ALWAYS make sure to wear safety glasses and hearing protection while operating, maintaining or repairing the machine.

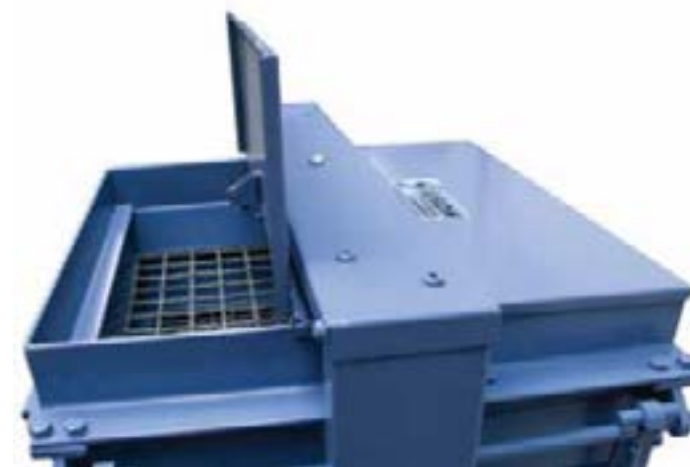
Unpacking & Set-Up

The Porta-Screen weighs between 225-255lbs when packed for shipment. Use equipment to adequately handle this weight safely. Wear safety glasses and work gloves. The Porta-Screen is shipped in a cardboard carton, before accepting the shipment check the carton for any visible damage that may have occurred. Once damage inspection is complete follow these steps:

1. Place the carton on its side so you can remove the staples from the bottom. Open the bottom flaps and set the machine upright again.
2. Check the tag on the electric motor of the Porta-Screen to be sure that the machine is wired as ordered.
3. Release clamping pressure on the Porta-Screen trays by rotating the clamp levers outward and upward 180°.
4. Remove the trays by sliding them out the front of the machine.
5. Choose a well-ventilated operating site that is on a solid, stable surface near a properly wired three pronged receptacle.
6. Once you have placed the Porta-Screen in its operating location, each time you move it level the unit by adjusting the three leveling legs.
 - To extend a leg place your foot on the edge of the pad and lift up on the machine above the leg.
 - To contract a leg, depress the leg lock tab which will extend the case about each footpad.

After you have placed the Porta-Screen into service, observe the distribution sample material in the trays at the end of a test. If the material is not evenly distributed re-level the machine.

7. Reinstall the trays in the Porta-Screen and leave them unclamped.
8. Do not plug in the Porta-Screen until you are ready to use it.



PS-3 Porta Cover



Porta-Screen Tray

Operating Instructions

Timer Set-Up & Operation:

This unit is equipped with an easy-to-operate Gilson interval count-down timer. The timer has a large 0.6in LED display and will operate in four different modes.

NOTE: The main device controlled by the timer may be restricted to operating on a more limited electrical supply range. Check the device carefully to insure compatibility with your electrical supply.

Current timer mode is indicated by the four red LED's on the timer face:

- A = MMSS (99min: 59sec x 1 second)
- B = HHMM (99hr; 59min x 1 minute)
- C = SSSS (9999sec x 1 second)
- D = MMMM (9999min x 1 minute)

To adjust the timer mode, press and hold both UP and DOWN keys at the same time until the display shows the mode. When the mode letters are displayed, press UP or DOWN to change the modes. Press START/STOP to accept a mode.

To set the run time, either press UP or DOWN. The first digit on the right hand side will flash in half-second intervals. To adjust to the desired value press either arrow key. To enter the displayed digit and move to the next, press START/STOP. The timer is ready to start when the last digit on the left is entered.

Once running, pressing START/STOP will pause the timer with the current amount of time remaining on the screen. Automatically, Setting and Mode values will be saved and restored on power-up.

Procedure:

1. Check to see that the Porta-Screen is level.
2. Select and load the trays, 5 trays and pan for PS-3 and 7 trays and pan for PS-4. The Porta-Screen will not clamp or operate properly unless fully loaded with trays. If your test requires fewer trays than the capacity of the Porta-Screen, insert the required trays in the upper slots with the pan immediately below. Then fill the lower slots with extra trays.
3. Clamp the trays by rotating the clamp levers so they point down.
4. Pour your sample into the top tray.
5. Connect the three-pronged plug into a receptacle.
6. Set and activate the timer.
7. When the machine stops, unclamp the trays by rotating the clamp levers so they point up. Remove and empty the trays.
8. When your test is complete unplug the machine. Store clean empty trays in the unit leaving them unclamped and re-level the machine before next use.

Sample Capacity

Capacity of the Porta-Screen depends on the specifications of the test and the type and size of the material being tested.

Coarse Aggregates:

Minimum quantity of sample is usually established by the specifications of the test procedure. For example:

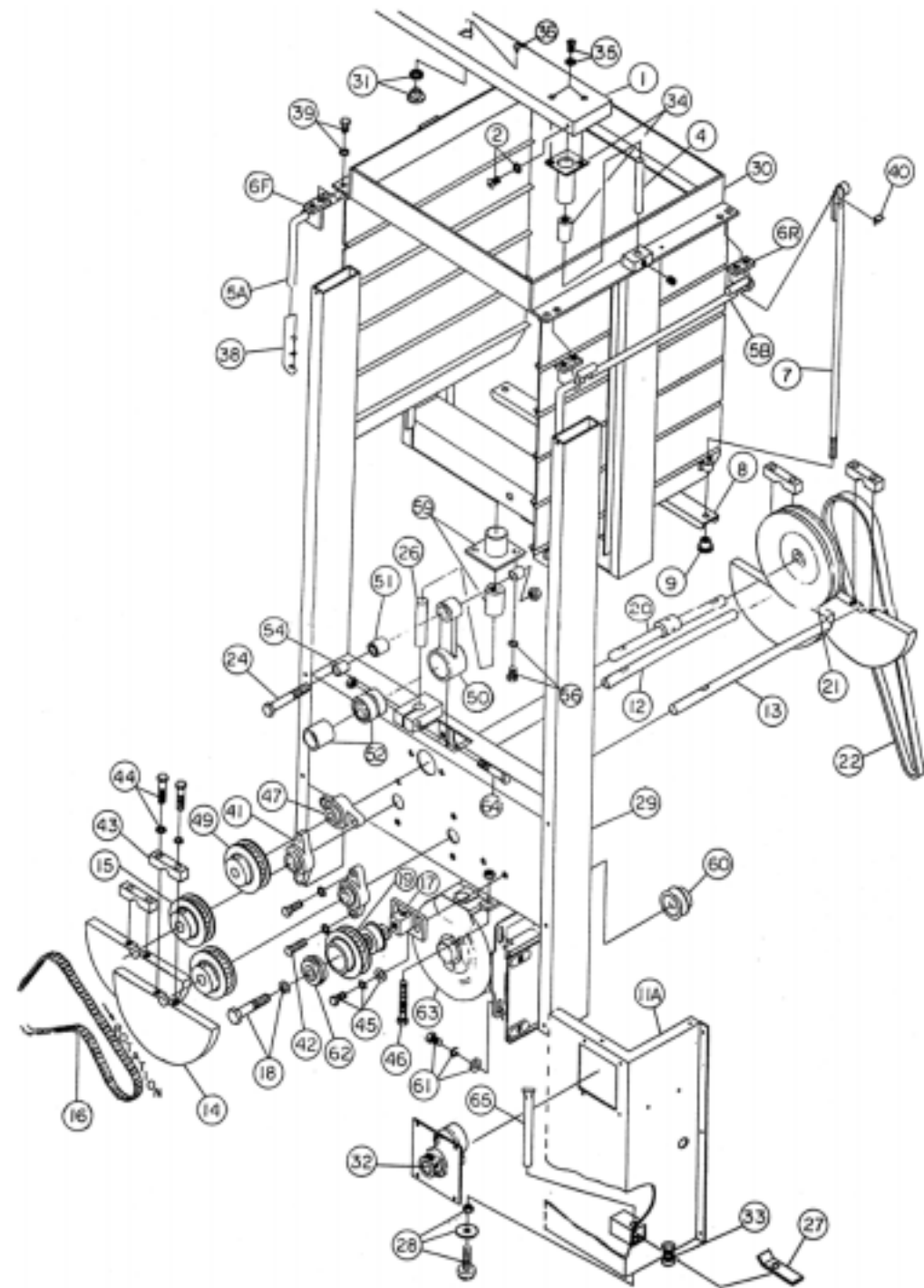
| Normal Maximum Particle mm (in) | Minimum Sample Weight kg (lb) |
|---------------------------------|--------------------------------|
| 9.5 (3/8) | 1 (2) |
| 12.5 (1/2) | 2 (4) |
| 19.0 (3/4) | 5 (11) |
| 25.0 (1) | 10 (22) |
| 37.5 (1-1/2) | 15 (33) |
| 50 (2) | 20 (44) |
| 63 (2-1/2) | 35 (77) |

These guidelines on minimum sample size quantities are for representative samples. Always take a larger amount, then combine and reduce them to the correct quantity by splitting. With coarse series trays the limiting tray should have no more than one layer of particles over the wire cloth at the end of the test. Lightweight aggregates or coal must be tested in lower sample weights, and high-density ores or pellets may be tested in larger amounts by weight. Most samples of up to 2in top size can be handled in a single batch without difficulty. We do not recommend the use of trays with mesh sizes about 1-1/2in.

Fine Aggregates:

With fine series trays the limiting tray should contain no more than approximately 4g per square inch of sieve surface at the end of a test. Since the Porta-Screen is designed primarily for use in the 2in to No.20 range, separations in finer sizes will not be as precise.

PS-3 & PS-4 Parts Diagram



Maintenance & Disassembly

Clamping System:

1. Disconnect and lock out of the electric power.
2. Load the Porta-Screen with trays and pan filling all of the slots.
3. Rotate the clamp levers (#38) so that they are pointing down.
4. Locate the clamp adjusting nuts (#9), which are on the lower ends of the four clamp tension rods (#7).
5. Tighten the nuts enough to prevent any rattling from the trays when the machine is operating.

Lubrication:

1. Disconnect and lock out of the electric power.
2. Remove and set aside trays and pan.
3. Remove the upper case cover.
4. Connection Rod Bearing: lubricate the connecting rod bearing (#52) after every 80-100 hours of operation.
 - Rotate the drive shaft (#20) slightly by hand until the grease fitting at the lower end of the connecting rod (#50) is accessible.
 - Apply a small amount of any good-quality bearing grease and proceed to shaft bearing lubrication.
5. Shaft Bearings: There are two bearings (#47), front and rear, on the drive shaft (#20), and two bearings (#41) front and rear on each of the two counterweight shafts (#12 & #13).
 - With electric power disconnected and locked out, and trays, pan and upper case cover are removed, remove the lower front and rear case covers.
 - Apply a small amount of bearing grease and reassemble in reverse order.
6. Motor Bearings: lubricate annually.
 - Remove trays, pan, upper case cover, lower front and rear case covers.
 - Find and remove the oil plugs at each end of the motor. Insert a few drops of oil, replace plugs and reassemble in reverse order.
7. Idler Pulley Bearings: sealed bearings (#62) do not require lubrication.

Belts:

The drive belt (#22) should fit snugly. If the belt is too tight it will wear out causing bearings to wear, resulting in noisy operation. A loose belt may cause the unit to run too slowly or to slip. Keep the drive pulley (#21) and motor pulley (#60) aligned so the drive belt is straight.

Access to Belts:

1. Disconnect and lock out electric power.
2. Remove and set aside trays and pan and all case covers.

Maintenance & Disassembly Continued

3. Drive Belt: check tension by pressing on the span of the belt. If the belt is properly adjusted it should be deflected 1/64th of the value of the distance between the pulleys. To adjust or remove, loosen the motor mounting bolts (#61) and the motor will slide up and loosen the belt tension.

4. Timing Belt: check the tension of the belt, it should be tight. To adjust or remove the belt, loosen the two idler bracket mounting screws (#45). Loosen the nut on the adjusting screw (#46).

- To tighten: turn in the adjusting screw to pull the bracket (#17) down and increase the tension on the belt.

Retighten the nut to hold the bracket in position and reassemble.

- To replace: loosen the adjusting screw to restrict the idler bracket to move upward, loosening the tension on the timing belt so that you can remove it. Before reinstalling the belt rotate the drive shaft (#20) until the connecting rod (#50) is at its highest position. Rotate counterweight shafts (#12 & #13) until counterweights are at their lowest positions. Fit the belt around the left counterweight shaft pulley around the timing pulley (#49) and above the right counterweight shaft pulley and around the idler pulley (#19). Tighten the idler bracket adjusting the screw until the timing belt is tight. Lock the idler bracket in position with the nut and tighten the bracket mounting screws.

Bearing Replacement:

Guide Bearing Assemblies: The Porta-Screen has three guide bearing assemblies each has a housing and guide bushing. The two upper guide bearings (#34) are mounted to the top frame crossbar, and the lower guide bearing (#59) is mounted to the underside of the vibrating unit. If you notice side-to-side movement of the vibrating unit during operation inspect the guide bearings and replace them.

1. Disconnect and lock out electric power.
2. Remove and set aside trays, pan, top frame screws (#2) and lift off the top frame crossbar (#1).
3. Upper: Remove mounting screws (#35) to detach bearing housing (#34). Replace with new bearing housing assembly.
4. Lower: remove all case covers and the connecting rod mounting bolt (#24). Lift the entire vibrating unit assembly up and out of the Porta-Screen frame. Remove the mounting screws (#56) to detach bearing housing unit (#59) and replace with new bearing housing assembly. Reassemble in reverse order.

Connecting Rod & Drive Shaft Bearings: The connecting rod (#50) can be replaced as an assembly or you can press out and replace its bearing and bushing (#52). The drive shaft (#20) has front and rear bearings (#47). Replacement of both the front and rear bearings as a set is recommended.

1. Disconnect and lock out electric power.
2. Remove and set aside trays, pan, top frame screws (#2) and lift off top frame crossbar (#1).
3. Remove all case covers and the connecting rod mounting bolt (#24).

4. Lift the entire vibrating unit assembly up and out of the Porta-Screen frame.
5. Loosen the motor mounting bolts to release tension on the drive belt and remove the drive belt from its pulleys.
6. Loosen the setscrews in the drive pulley (#21) and slide the pulley off the drive shaft. Loosen the setscrew in the rear drive shaft bearing.
7. Loosen the idler bracket mounting and adjusting screws (#45 & #46) to release tension on the timing belt. Remove the timing belt.
8. Loosen the setscrew in the drive shaft pulley (#49) and slide the pulley off the drive shaft.
9. Remove the mounting screws from the front drive shaft bearing (#47). Hold onto the top of the connecting rod (#50) while you pull the drive shaft out from the front of the machine with the front bearing attached.
10. Remove the connecting rod (#50). Install the new connecting rod assembly or press new bushing and bearing into existing connecting rod.
11. Replace the drive shaft bearings if needed.
12. Continue or reassemble in reverse order. When replacing the timing belt, refer to timing belt instructions and be sure that counterweights are aligned properly.

Counterweight Shaft Bearings:

Each of the two counterweight shafts (#12 & #13) has a front and a rear bearing (#41). It is recommended that replacement of both bearings on a shaft be done. Disassemble as follows:

1. Disconnect and lock out of electric power.
2. Remove and set aside tray, pan, top frame screws (#2), all case covers and lift of top of frame crossbar(#1). Then remove the connecting rod mounting bolt (#24).
3. Lift the entire vibrating unit assembly up and out of the Porta-Screen frame.
4. Loosen the idler bracket mounting and adjusting screws (#45 & #46) to release tension on the timing belt.
5. Remove the timing belt (#16). Loosen the bolts on the rear counterweight clamp bracket (#43), and remove the counterweight from the shaft.
6. Loosen the setscrew which holds the rear bearing to the counterweight shaft.
7. Remove the mounting screws (#42) which hold the front counterweight shaft bearing (#41) to the main frame.
8. Pull the counterweight shaft from the front of the machine with its front counterweight, pulley, and the front bearing all attached. Reinstall parts needed.
9. Reassemble in reverse order.

Wire Cloth:

Check condition of wire cloth both before and after operation. Test results can be only as accurate as the size of the wire cloth openings. Testing grade wire cloth is a precision-made material and should be treated with care. Abrasion due to normal use or improper cleaning and handling can cause the wire cloth to be out of specifications to a considerable degree before it appears worn. Check it frequently to be sure that it conforms to your test specifications. Wire cloth life can be extended by establishing proper procedures for handling, cleaning and storage of trays.