Pioneer Eclipse
An AMANO Company

User Guide
PowerLab 120

The PowerLab 120 is a trouble-shooting tool used on 120V machines. It allows the technician to quickly evaluate machines by simply plugging them into the device while operating.

Note: Before operating any machine, review the operator's manual and follow all safety instructions!

Electrocution could occur if the machine is being serviced while the machine is connected to a power source. Disconnect the power supply before servicing.

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Current:

The PowerLab 120 has an Amp meter to measure the electric current draw of the machine that is plugged into it. It indicates the amount of energy being consumed by the machine. This is a measurement that can be used to determine if a machine is operating properly. Below is a table with no-load, loaded, and max electric current draw of machines. "No-Load Current" is defined as the machine operating, but the output is not contacting the floor. "Loaded Current" is defined as the machine is operating either on an uncoated concrete floor with a pad or with 100 grit sandpaper on a hardwood floor panel. Finally, "Max Current" is defined as the maximum allowable intermittent, (less than 1 hr), current for the machine.

Brand	Machine	No-Load Current	Loaded Current	Max Current
Pioneer Eclipse	**225BU**	6-8	10	16
Pioneer Eclipse	**225FP**	3-5	8	15
Pioneer Eclipse	**225GP**	4-6	8	16
Pioneer Eclipse	**250ST**	5-7	7	15
American Sanders	**B-2+**	8-10	12*	15
American Sanders	**CE7**	6-8	8*	15
American Sanders	**Epoch**	6-8	12	20
American Sanders	**EZ-8**	6-8	12*	15
American Sanders	**EZ-E**	7-9	9*	15
American Sanders	**EZ-Sand**	7-9	12*	15
American Sanders	**FM**	9-11	12	16
American Sanders	**OBS-18**	6-8	9	15
American Sanders	**RS-16**	3-5	6	15
American Sanders	**Sander 1600**	7-9	11	16
American Sanders	**Super 7R**	8-10	10*	15

**** Indicates test performed on hardwood with 100 grit paper. All other load tests performed on uncoated concrete with pad***

Test for Current Draw

1. Plug the machine into the PowerLab 120 and operate in the no-load condition. If the current draw is lower than the minimum no-load value, proceed to step 2. Operate the machine with the output contacting the floor. If the amp draw is above the maximum current, proceed to step 4.

2. Operate the machine and verify both the motor and output are rotating. If the output is not rotating, check belt or coupling.

3. If output is rotating, verify speed, (consult operator's manual or serial tag for correct speed). If measured speed is too low, repair or replace the motor.

4. If current draw is too high, do the following:

4a. Unplug machine and rotate output, (drum, pad holder, etc). If the output rotates rough or with more resistance compared to similar machines, there is a mechanical issue. Check bearings, belts, gears, etc. Repair or replace as needed.

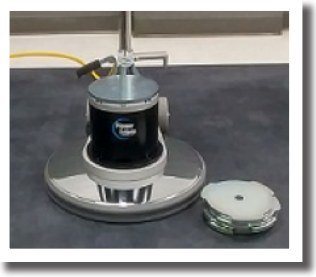
4b. If the output rotates freely, check for poor electrical connections on the machine. Repair or replace as needed.

4c. If poor electrical connections are not found, inspect the motor. Repair or replace as needed. Common faults include worn brushes, worn commutator, degraded insulation in the motor, etc.

Note: Application impacts on current draw.

- Worn sand paper will decrease current draw.

- If machine is equipped with removable weights, removing them will decrease current draw.



- Incorrect diamonds or pads will increase current draw.

- Operating the machine aggressively or abusively will increase current draw.

Voltage:

The PowerLab 120 has a volt meter to measure the voltage supplied to the machine. This device can help determine if there is an electrical supply issue that could impact the performance of the machine. It is recommended to operate 120V electric machines between 114V and 126V, but they can operate between 103.5V and 126.5V.

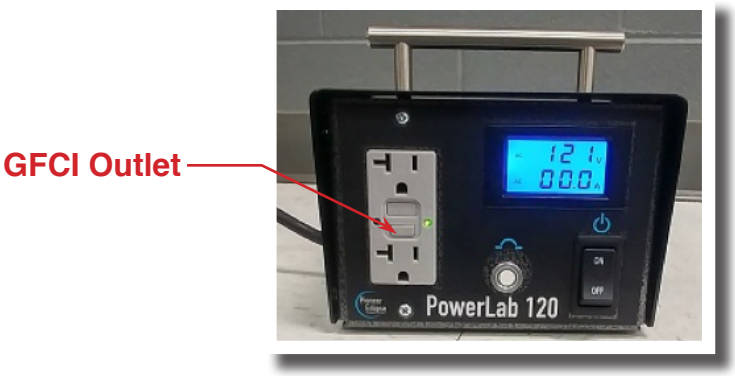
Test for Supply Voltage

1. Plug the machine into the PowerLab 120 and operate under the loaded condition. If the voltage is below 103.5V, proceed to step 2. If the voltage is above 126.5V, proceed to step 3.

2. Low voltage will cause the motor(s) to turn slow and overheat. If the machine is plugged into a building receptacle, this is a power supply issue. Have a licensed electrician evaluate and resolve the issue. If the machine is plugged into a generator, the generator speed can be increased to raise the voltage.

3. High voltage can cause the motor(s) to turn fast. This can result in increased current draw that will overheat the motor. If the machine is plugged into a building receptacle, this is a power supply issue. Have a licensed electrician evaluate and resolve the issue. If the machine is plugged into a generator, the generator speed can be reduced to lower the voltage.

Ground Fault:



A ground fault indicates an electrical imbalance between the hot and neutral conductors. This most commonly occurs as a cord becomes fatigued.

Test for Ground Fault

1. If the machine is equipped with a detachable power cord, connect the cord to the PowerLab 120, but not the machine. If the GFCI trips, the cord is faulty and needs to be replaced. If the GFCI does not trip, proceed to step 2.

2. With the power cord connected to the PowerLab 120, connect the other end of the power cord to the machine, but do not operate the machine. If the GFCI trips, the machine's pigtail is defective and needs to be replaced. If the GFCI does not trip, proceed to step 3.

3. With the machine plugged into the PowerLab 120, disconnect the interconnect cord at the bottom of the handle, (if equipped), and engage the machine's on/off switch. If the GFCI trips, the interconnect cable is defective and needs to be replaced. If the GFCI does not trip, proceed to step 4.

4. With the machine plugged into the PowerLab 120, and all electrical connections secured, operate the machine. If the GFCI trips, there is a ground fault in the motor pigtail, (if equipped), or in the motor. Disconnect the power cord and inspect these components. Replace or repair any defective components and repeat tests.

Circuit Breaker:

The circuit breaker will trip because of an over-current condition or a dead short from a live conductor to ground.

Test for Circuit Breaker

1. Plug the machine into the PowerLab 120 and attempt to operate. Determine if the machine will operate, or if the breaker trips immediately. If the machine will operate, proceed to step 2, if the circuit breaker trips immediately, proceed to step 3.

2. While operating, monitor the current draw of the machine. If it is above 20 A, the breaker will trip after a few seconds. If this occurs, follow the steps described in the “Test for Current Draw” section.

3. If machine is equipped with a detachable power cord, connect the cord to the PowerLab 120, but not the machine. If the circuit breaker trips, the cord is bad and needs to be replaced. If the circuit breaker does not trip, proceed to step 4.

4. With the power cord connected to the PowerLab 120, connect the other end of the power cord to the machine, but do not operate the machine. If the circuit breaker trips, the machine’s pigtail is defective and needs to be replaced. If the circuit breaker does not trip, proceed to step 5.

5. With the machine plugged into the PowerLab 120, disconnect the interconnect cord at the bottom of the handle, (if equipped), and engage the machine’s on/off switch. If the circuit breaker trips, the interconnect cable is defective and needs to be replaced. If the circuit breaker does not trip, proceed to step 6.

6. With the machine plugged into the PowerLab 120, and all electrical connections secured, operate the machine. If the circuit breaker trips, there is a fault in the motor pigtail, (if equipped), or in the motor. Disconnect the power cord and inspect these components. Replace or repair any defective components and repeat tests.