



SMARTER. SMALLER. STRONGER.



ASSEMBLY, OPERATION, SAFETY AND MAINTENANCE MANUAL

Manual for All **A-Series** Models of PowerHandler

A25S
A30S



A40S
A60S





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Instructions upon Receipt of Machine

Upon receipt, please inspect your box for signs of damage and immediately inform PowerHandling of the damage. If possible also take digital photos of the damaged box and email them to sales@powerhandling.com. If there is no physical damage to the outside packaging, place the box on the ground or work table with the "THIS WAY UP" arrows pointing up and open from the top.

IMPORTANT NOTE: ENSURE ALL PACKAGING IS RETAINED

Do not discard packaging. After removal of machine, repack all packaging and instructions into outer shipping containers and store. By retaining the original packaging and instructions, the unit can be repacked securely should you need to return the machine at any time for repairs, analysis or upgrade by a PowerHandling facility.

Packaging varies according to the machine, model, etc. In all cases the packaging has been custom designed to safely and securely protect the machine in transport. Correct packaging is critical in being able to transport PowerHandlers without damage in transit as the units are extremely dense (very heavy for their size) and must be securely packed in sturdy packaging that prevents movement of any parts of the machine within the outer shipping container.

Open the outer and inner boxes to reveal the equipment inside. Ensure all inside boxes have been opened, as parts are sometimes shipped with machines. Verify all components in the box match the packing slip. If everything is accounted for, unpack and assemble the machine per the Machine Assembly section of the manual. If not, contact PowerHandler before continuing.



Please note that damage incurred to a PowerHandler due to incorrect or insufficient packaging is the responsibility of the sending party. By retaining the original packaging and instructions the unit can be repacked securely should you need to return the machine at any time for repairs, analysis or upgrade by a PowerHandling facility.

A and T-Series Out of Box Assembly Instructions

Upper Handle Assembly



◀ Step 1

Inspect upper handle tube to ensure it is smooth and free of damage.

▶ Step 2

Inspect o-ring installed in the inside diameter of the lower handle assembly to ensure it is present and lightly lubricated with a small amount of grease.



◀ Step 3

Insert upper handle assembly into lower handle assembly and adjust to preferred height and orientation. Tighten clamp securely.

Tip Preventer



◀ **Step 1**

Remove top bolt on motor side.

▶ **Step 2**

Install tip preventer on axle shaft. Install bolt and spacer into top bolt hole on motor side.



◀ **Step 3**

Install the other side of the tip preventer onto the opposite axle shaft. Install bolt and spacer into top bolt hole on non-motor side.

Air Supply and Line/Connector Requirements

Generally speaking there is very little maintenance required for your Air-Operated PowerHandler provided the units are set-up correctly at the outset. Below details the most important items to check in regard to initial set-up and trouble-shooting, particularly in respect to air supply. For optimal performance of a PowerHandler, sufficient air supply is essential. The following criteria should be achieved to ensure sufficient air-flow and performance.

Recommended air pressure and volume

Supplied air pressure should be 6-7 bar (85-100psi) for all models & series of PowerHandler. Above 7 bar (100 psi) air pressure can damage the vanes of the air motor. The required air volume depends on the model as larger motors consume more air. See below:

Model	Air Volume: (Litres/min)	(Ft ³ /min)
A25S, A30S	1250 lpm	(44 cfm)
A40S, A60S, T40S	1500 lpm	(53 cfm)

In most cases, standard “factory supply air” will accommodate this recommended pressure and flow rate, however special attention should be paid to air lines and connectors (see below).

Air lines and connectors should not limit air flow / volume

More than 90% of all performance problems users experience with air-operated PowerHandlers are a result of undersized airlines or connectors.

Additionally, the length of the air line inversely affects air flow and therefore performance. The shorter the air line the better the performance and a maximum length of 15m (45ft) is recommended for diameters listed in the table below. If an air line longer than 20m is required, the air lines and connectors should be upsized further. Too small of a diameter air line (relative to its length) will result in significantly reduced power – evident by both slower running speeds and less torque.

Please note minimum required internal dimensions of the air lines, connectors and fittings per the table below:

Model	Min. Int. Diameter:	Air Line	Connector
A25S, A30S		12mm (½")	12mm (½")
A40S, A60S		13-15mm (½"-5/8")	13-15mm (½"-5/8")

For safety, an overhead “curly cord” style airline is recommended with the PowerHandler located in its desired working area. This makes use of the device easier while presenting less of a trip hazard than having the airlines running across the floor (see photo on next page)



OPTION: SWIVELING AIR LINE CONNECTOR.

PowerHandling offers an inexpensive connector that is sized at 12mm (½") and swivels 360° for improved maneuverability - whether the airline is overhead or running down to the floor.

The air supply must be clean (i.e. filtered)

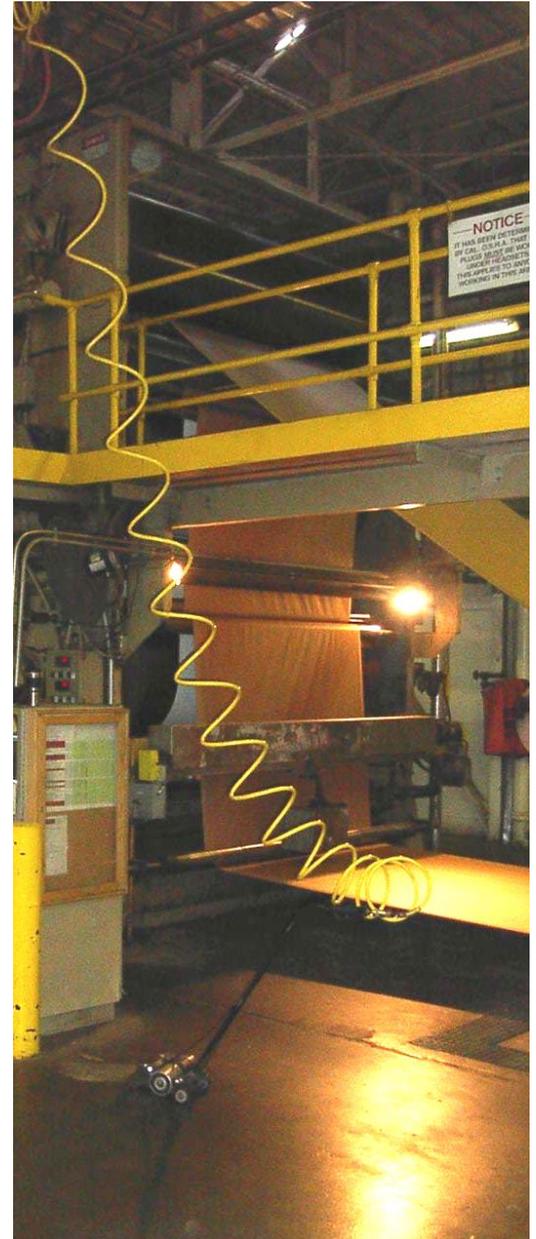
Large contaminants in the air supply will clog the screens in the PowerHandling air valve and at the inlet to the air motor. This will reduce the air volume delivered to the vanes and result in reduced torque and speed. Small contaminants in the air supply will pass through these screens and enter the vanes and cylinder of the air motor. Some will be immediately exhausted but others will remain, causing damage and premature wear of the vanes, bearings and seals along with diminished torque and speed. If not addressed, the scarring of the inside of the chamber will require honing of the cylinder or replacement of the entire motor.

The air supply must be dry (i.e. inline water traps installed)

Moisture in the compressed air supply will result in corrosion inside the air motor's vanes and precipitate the need for replacement of the vane kit. The effect of moisture will be diminished torque and speed and ultimately motor failure. A quick way to check if there is moisture in the air lines is to remove the muffler and look for moisture and or expelled corrosion in the muffler.

Lubrication to be provided to the air motor

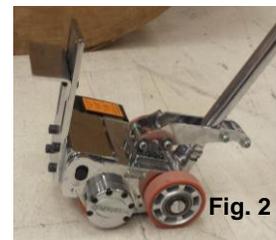
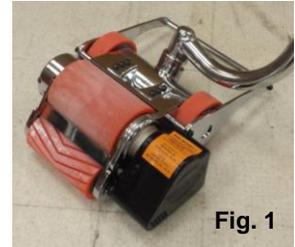
To maximize the life of your air motor the air supply should be "continuous oil lubricated". If this is not available, daily insertion of a few drops of oil into the air line should be included in the maintenance procedures of the plant. The planetary gearbox (gear-sets and bearings) are a sealed unit and typically will not require any maintenance for the life of the machine. However, if while maintaining the motor it is observed the gearbox is not fully packed with grease, please contact your PowerHandling representative for details on the best course of action.



General Overview

PowerHandling's product line and features are constantly being updated and improved so please check for more information and updates at www.powerhandling.com.

- PowerHandlers are broadly categorized into two types of machines, with an optional third being a combination of both of these:
 - those that Roll^(Fig. 1) (such as paper rolls, cable reels or vehicles) or
 - those that Push (such as trolleys, carts etc), or
 - those that Roll and Push^(Fig. 2) (being a rolling model with a Hybrid or Pusher Bracket).
- Beyond this distinction there are models powered by:
 - Compressed Air – having an airline connected into the back end of the handle grip throttle; or
 - Rechargeable Batteries – having two battery packs, one on the machine and one on a charger (so the machine is never “down” for recharging).
- Further model distinctions apply according to:
 - the size and power output of the motor, and
 - the reduction of the gearing, the latter tailoring a PowerHandler for higher torque or for higher speed to better match the requirements of the application. In each case an increase in one results in a corresponding reduction in the other.
- Finally, models can be further customized according to the handle assemblies and other attachments, etc. For example ‘Roller’ models can be configured with:
 - a Center Straight handle shaft (C), a
 - a Swiveling handle shaft (S) or a
 - a Swiveling & Pivoting handle shaft (SP)^(Fig. 3).



To overcome the inertia of a heavy load, PowerHandlers require a significant amount of traction – both with the load itself and the ground on which it's being moved. Regardless of the amount of power (or specifically ‘torque’) generated, the load will not move without the necessary traction.

PowerHandlers gain this traction by directing the weight of the load down onto the drive roller to generate the traction that is required. In the case of moving cylindrical loads, small diameter / lighter loads can in fact be more of a problem than larger heavier loads as the weight transfer onto the drive roller is not as good. This problem will be apparent if the drive roller is observed to slip or spin against the load rather than wedging in under the load and rotating it. (Please refer to the “Trouble-Shooting” section for suggestions on how to address this issue).

Model Identification (Which Model A-Series do you have?)

The images at right show the four **A-Series** models with the drive roller removed to expose the air motors and inline (color coded) gearboxes

Both the **Small A-Series (A25 and A30)** and **Large A-Series (A40 and A60)** are each available in two versions, with the only difference being the ratio and torque capacity of the gearbox.

The lower reduction gearbox (color coded green) is in the model **A25S** and provides more speed and less torque.

The higher reduction gearbox (color coded red) is in the model **A30S** and **A40S** and provides more torque and less speed.

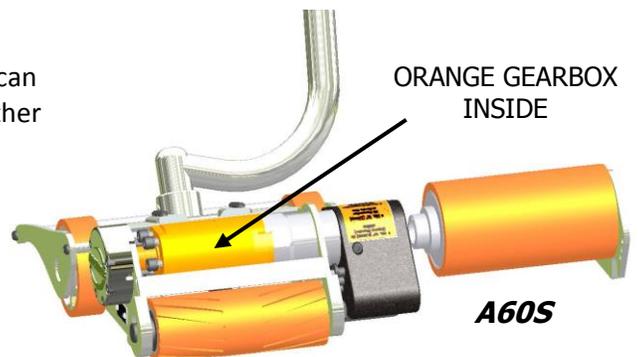
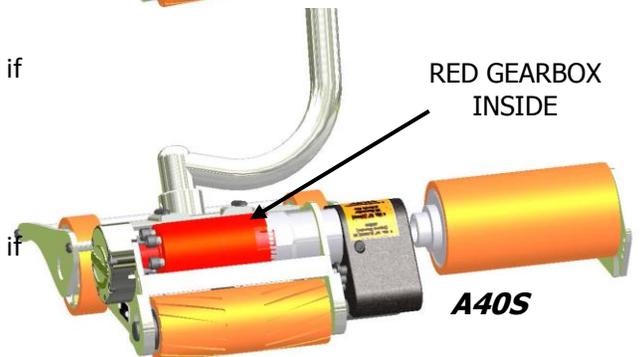
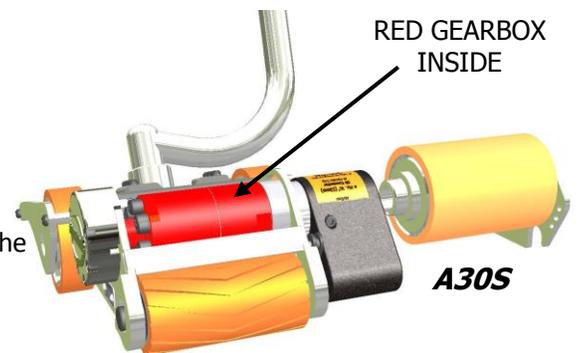
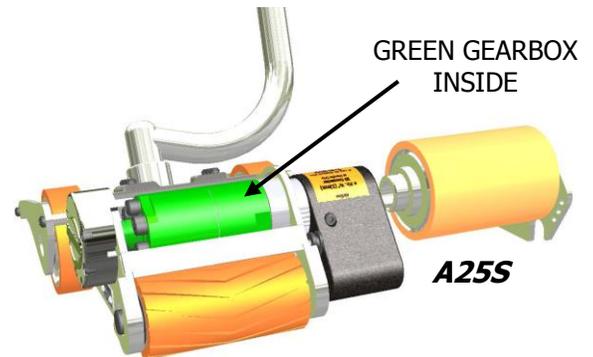
The highest reduction gearbox (color coded orange) is in the model **A60S** and provides highest torque and slowest speed.

The difference between the **A25** and **A30** is about 20% in respect to performance (both torque and speed) and the gearbox can be switched out to change to the other model if this is found to better suit the application.

The difference between the **A40** and **A60** is about 30% in respect to performance (both torque and speed) and the gearbox can be switched out to change to the other model if this is found to better suit the application

The **Large A-Series** has a wider body to accommodate the longer air motor and provide more surface contact for better grip on larger loads.

The swiveling "S" handle (as shown in the images above) can be replaced with a straight Centered "C" handle shaft. Other options available include Hybrid brackets and Pusher brackets.



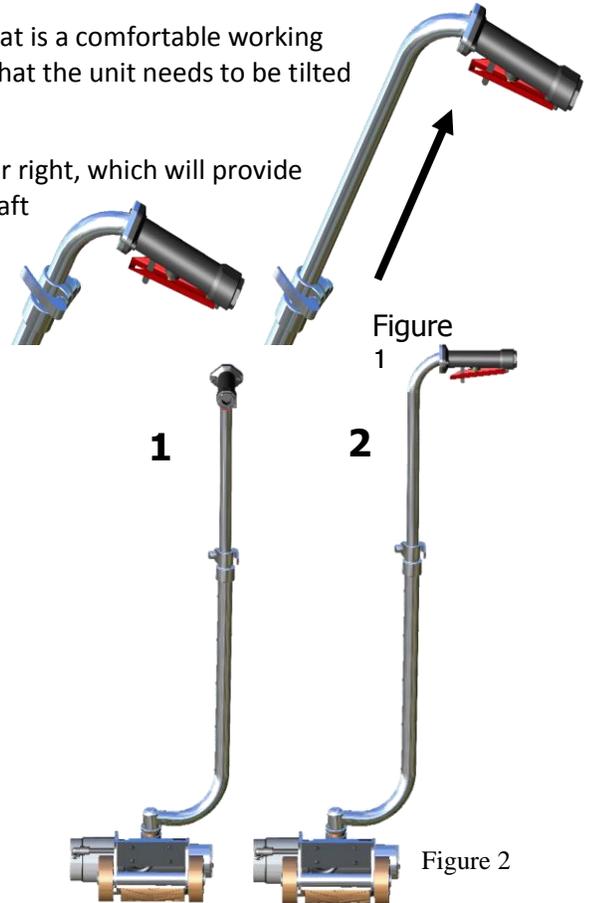
Operation Manual

Handle Shaft Adjustment

The handle shafts of pneumatic PowerHandlers are telescoping, allowing both the height and the orientation of the handle to be adjusted to suit each individual operator.

1. Release the Quick-Release Clamp at the sliding connection point of the handle shaft.
2. Extend or retract the upper handle shaft according to what is a comfortable working height for each operator, making allowance for the fact that the unit needs to be tilted back onto its rear wheels for maneuvering into position.
3. Rotate the handle grip to be pointing to the left, center or right, which will provide different orientations of the handle grip as the handle shaft is rotated into each of its four operating positions.
4. If loads are being rolled forwards and only from the center of the load, the most typical handle orientation is pointing backwards (position 1 in Figure 2). If the operator operates the handle with the handle grip almost always to one side, orient the handle grip to that side. Figure 2 shows the recommended orientation for operators using the handle swiveled right.
5. If the unit will be operated with the handle shaft rotated to both the left and the right sides, we recommend “motorcycle position” (position 2 in Figure 2).

Each operator may have a different preferred handle grip orientation. This is easily and quickly adjustable for each operator at the commencement of the device’s operation.



IMPORTANT SAFETY NOTE:

Engaging the throttle with the quick-release clamp still loose will cause the upper handle shaft to be expelled under pressure from the lower handle shaft, potentially causing injury to the operator. Always ensure the quick-release clamp is tightened securely prior to pulling the throttle.

Maneuvering

To move the machine to the load, take the handle grip in hand (without depressing the throttle) and tilt the unit back by pushing down on the handle grip until the front support roller lifts up off the ground. In this position the device can be easily rolled around on its rear wheels. When in position to move a load, tilt the unit forward again so the support roller is down and in contact with the ground and the drive roller is in contact with the load. Depress the throttle gradually to smoothly move the load.



Precautions to Take Before Rolling a Load

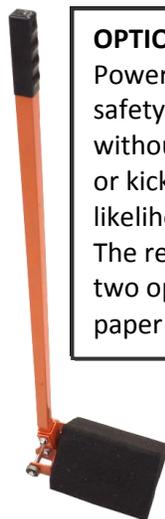
The PowerHandler should be operated on relatively level and smooth concrete (or similar) flooring, as is typical for indoor industrial applications. Operation on sloping (gradient) floors or on uneven surfaces is a safety risk and not recommended.

Before moving the load, ensure the path over which the load will travel is not occupied - by either people or obstacles. Also ensure there is not a slope away from the load which could result in the load free rolling faster than the PowerHandler. If possible place a "Safety Stop" on the opposite side of the load to the PowerHandler to ensure the load cannot move beyond the end of its intended travel.



Operators should refer to the safety procedures of the facility in which the PowerHandler is being used. All precautions required in ensuring a clear path is available, sufficient warning or safety lock-out is put into effect and where possible a Safety Stop or similar is in place so as to ensure moving the load will not result in damage or injury to property or person. Appropriate caution should also be exercised in rolling loads up inclines due to the risk of the load rolling back onto the operator or other unintended movement of the load.

**HEAVY-DUTY
Wheeled
CHOCK- FOR
CABLE REELS**

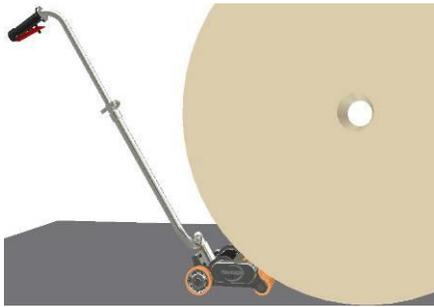


OPTION: SAFETY STOP.

PowerHandling offers an inexpensive wedge shaped safety stop that can be moved to position conveniently without the operator having to bend down to pick it up or kick it into position. Its ease of use increases the likelihood of it being used, increasing operational safety. The removable handle shaft can be located in either of two optional locations to suit the requirements of any paper roll or cable reel stopping application.

**HEAVY-DUTY
Wheeled
CHOCK- ONLY
FOR PAPER
ROLLS**





Moving the Load Forward

Once the PowerHandler has been maneuvered into position (just behind the cable reel, paper roll, wheel or other cylindrical surface, the operator should lift up on the handle to tilt the unit forward onto its support roller with the drive roller in contact with the surface of the load. Then gradually depress the lever of the variable flow air-valve of the handle grip, accelerating the load gradually. The further the lever is depressed, the more air flow to the unit and more speed / torque the unit will generate.

It is generally safest to engage the air flow gradually so as to prevent the possibility of accelerating the load too rapidly and rolling it beyond the intended travel distance (as a result of the momentum from a rapid acceleration). This gradual acceleration is also recommended so as to reduce skidding of the drive roller which can damage either the product being moved or the drive roller. The further the lever is depressed, the more air flow to the unit and more speed/torque the unit will generate.



Pulling the Load Backward

If your PowerHandler has a pivoting handle system, pulling backward is not unlike rolling forward. Maneuver your PowerHandler to either end of the rolling load. Swivel the handle to the outside of the rolling load and pivot it over the top of the machine into the pulling position. It is critical that additional caution is exercised to ensure there are no obstacles to the operator as they walk backward, pulling the load with them.

Tripping or falling while pulling the load could result in the operator unintentionally depressing the air-valve lever as they fall, accelerating the load backwards and onto themselves. To minimize the risk of such circumstance, at a minimum the following additional precautions should be implemented:

1. The path checked for obstacles or other potential encumbrances to the operator's travel,
2. The operator walking outboard of the load being rolled backwards, and
3. A Safety Stop to be used to limit the travel of the load.

IMPORTANT SAFETY NOTE:

The PowerHandler does not in itself "control" the load it moves. It rolls the load forwards but without braking or controlling that movement. Therefore precautions must be taken to ensure the load does not roll forward further than intended, causing damage or injury to others. Use of a Safety Stop is one recommended procedure. Note that whatever method is used, the onus of safety is on the operator to ensure there are no risks involved with the intended move.

Trouble Shooting Guide

The Drive Roller turns unengaged but won't move the load

Determine whether the issue is:

- A) **TORQUE** (drive roller stops turning when engaged with the load) or
- B) **GRIP or TRACTION** (drive roller spins against the load, not moving it),

... and then read the appropriate suggestions for that problem below.

A) TORQUE - The drive roller stops turning when it engages with the load

This is typically because of insufficient torque being provided to the drive roller and can occur for a number of reasons.

- Check the unloaded rpm of the motor and compare to what it should be (see below). On air machines power is represented by both torque and speed so an underperforming machine will turn more slowly, even unloaded.
- For additional information on checking the RPM of your machine please see PowerHandling RPM Test Procedure RPM/RM1.
 - A25** speed should be 84 rpm.
 - A30** speed should be 62 rpm.
 - A40** speed should be 57 rpm.
 - A60** speed should be 34 rpm.
 - T40** speed should be 39 rpm.
- If the rpm for your model is within 5% of the number shown above the machine should be performing (i.e. be capable of moving and/or lifting the loads) as per the Data Sheet. If not, please contact your PowerHandling representative to investigate further.
- If the rpm for your model is more than 5% under the number shown above then please progress through the following trouble-shooting suggestions:
 1. The drive roller urethane may have delaminated (i.e. separated) from the drive roll core. This would give the impression the drive roll is not turning when in fact the core is, but the polyurethane that should be bonded to it has separated and is not turning with it. Look at the side of the machine to see if the drive roller core is turning while the urethane surface is not.
 2. The air lines and/or air connectors are not large enough size.
 3. The air pressure and/or volume of the air supply are not great enough.
 4. The vanes on the motor are blocked by debris or they are too dry.
 5. The rotor of the motor has rusted or is otherwise scarred or damaged.

6. The muffler/exhaust is not clear, which causes back-pressure. Look for dry oil deposits or debris in the muffler material that may be inhibiting the exhausting of air. This may require cleaning and/or if necessary, replacement of the muffler material
7. The sprockets & chains (if applicable) are in poor condition. There's too much slack in the chain (stretched chain) or worn/broken sprocket teeth. If parts are damaged, replace all sprockets & chains together. Do not replace parts separately.
8. The shaft of the motor-gearbox has been damaged (failed key or keyway).
9. There is another mechanical failure or blockage, such as the drive roller is jammed, the drive chain has broken, a bearing has seized or failed, etc.

B) GRIP - The drive roller spins against the load instead of moving it

This is typically because of insufficient traction between the drive roller and the load being moved and can occur for a number of reasons, including:

- On a brand new machine, there can be a problem with initial grip until the drive roller becomes "worn in". This is a temporary condition that can be remedied quickly. The best way to "wear in" the drive roller is to use it – on loads that do not slip (e.g. larger diameter). Using it on rolls or other product that does slip will shine up the urethane surface, delaying the roller wearing in.
- The geometry may be accentuating an existing traction problem. Reference the explanation in the 'General Overview' section describing how too small of a diameter load results in less of the inertial resistance of the load pushing downward (vertical) instead of backward (horizontal). A small diameter can be moved if there is sufficient friction contact and a large diameter load can be moved even with very little friction contact, but the combination of a small diameter **and** low friction greatly increases the likelihood of slipping. Generally, the load's diameter should be > 1000mm (40").
- The drive roller has oil, grease or other low viscosity material embedded into or otherwise making contact with it, reducing its ability to achieve a friction contact. As the drive roller makes pressure contact with the support roller while the machine is operating, oil and/or grease may be picked up from the floor and deposited onto the drive roller in which case the rollers will need to be cleaned with an appropriate oil dissolving solvent or detergent.
- To address low friction issues and reduce the impact of lubricants that end up interfering with the rollers, the application of Borax (Hydrated Sodium borate – an inexpensive cleaning agent, ref www.borax.com) to the drive roller can help. All new PowerHandlers and replacement drive rollers are sent out with Borax already applied.
- PowerHandling also offers special low durometer / high grip polyurethane drive rollers for special applications. These softer rollers will typically not wear as well and so not last as long at the higher durometer (i.e. harder) polyurethane rollers that PowerHandling provides as standard.

For more information on servicing your PowerHandler please check the Mechanical Maintenance Procedures Section.



RPM Test Procedure

The first step in troubleshooting most performance problem with a PowerHandler is to check whether the unit is running at its design speed. This is a quick and simple check to do and requires only a means of marking the drive roller, a means for counting seconds and about 2 minutes of your time.

Why we want to do this test and why it helps

For pneumatic machines, if insufficient air pressure or volume is being supplied or if there is a mechanical or other machine problem, it will likely be evidenced by a slower RPM (revolutions per minute). Likewise for battery-powered machines if the battery is not maintaining the required voltage or other mechanical or electrical issues exist, the RPM will likely be lower. If a PowerHandler does not appear to roll or lift a load that it should be able to, the starting point should be “is the machine performing as it should be?”. Depending on the outcome of this quick test, different paths exist to find the actual solution.

The Test

With the PowerHandler “in situ” – being in the plant and connected to the airline it should operate on (air machines) or with a fully charged battery pack (battery machines) do the following:

1. Mark the drive roller with the felt tip pen.
2. Pivot the machine back onto its rear wheels, so that the drive roller is out of contact with the support roller and the support roller is lifted off the ground. (I.e., we want a ‘no-load’ RPM test).
3. Depress the throttle to full/100% speed and the unit has reached its maximum speed, start the stopwatch as the felt tip mark passes its highest (12 o’clock) position. Then count 10 revolutions and as the mark again reaches the 12 o’clock position, stop the watch.
4. Immediately repeat above step again and assuming the count is similar, take the average and refer to the table below to determine the performance of the machine vs. its design speed/RPM.

UNLOADED MACHINE SPEEDS

TYPE	MODEL	RPM	Seconds per 10 Rev's	Ft/Min	M/Min
AIR MACHINES	A25 / A30	84 / 62	7.1 / 9.7	72 / 53	22 / 16
	A40 / A60	57 / 39	10.5 / 15.4	49 / 34	15 / 10

Interpreting the Results

If the unloaded RPM is within 5% of the values in the table, we consider this acceptable and unlikely to be a major issue. If it is above 5%, please firstly refer to the trouble-shooting guide in your machine’s Operator and Maintenance Manual or advise PowerHandling so we can help trouble-shoot the issue. PowerHandling checks and records the RPM of every machine it builds or repairs (in addition to test running the machine on a paper roll). This can be used as a comparison to what RPM you measure.

Air Motor Vane Kit Maintenance and Replacement Procedures:



◀ **Figure 1**
Using a 5mm Allen wrench, remove the muffer bolt.

▶ **Figure 2**
Gently pry/pull the muffer off the motor. Some resistance will be felt due to the integral O-rings.



◀ **Figure 3**
Pull the muffer back until the air line (Figure 4) is fully extended.

▶ **Figure 4**
Using pliers and a screwdriver or equivalent, simultaneously press in the release ring on the air line fitting and pull the air line out of the fitting.



◀ **Figure 5**
Remove the muffer completely from the air motor. Note the orientation of the slot in the motor for later re-assembly.



▶ **Figure 6**
Using a 5mm Allen wrench, remove the 6 bolts retaining the bearing housing.





◀ **Figure 7**
Remove the bearing housing.

▶ **Figure 8**
PowerHandler shown with bearing housing removed.



◀ **Figure 9**
With a 4mm Allen wrench, remove the front bolt on the motor side of the tip preventer.

▶ **Figure 10**
Loosen the rear bolt on the motor side of the tip preventer.



◀ **Figure 11**
Rotate the tip preventer side plate back.

▶ **Figure 12**
Using a 5mm Allen wrench, remove the muffler retainer bolts.



◀ **Figure 13**
Remove the muffler retainer.

**◀ Figure 14**

Using a 5mm Allen wrench, remove the bolts holding the motor mount into the machine.

▶ Figure 15

While supporting the drive roller, slide the motor mount assembly out of the PowerHandler.

**◀ Figure 16**

You may need to gently tap the gearbox from the far side to get it out of the drive roller.

▶ Figure 17

Remove the drive roller from the machine and set aside. If your drive roller is worn, you may want to replace it as part of your preventative maintenance cycle.

**◀ Figure 18**

Using a 6mm Allen wrench, remove the bolts holding the motor and gearbox in the motor mount.

▶ Figure 19

Remove the motor mount from the motor and gearbox.





◀ **Figure 20**
Motor and gearbox shown with the motor mount removed.

▶ **Figure 21**
Unthread the motor from the gearbox. Please note – this is a reverse thread.



◀ **Figure 22**
Motor and motor housing shown removed from the gearbox.

▶ **Figure 23**
Remove the motor retention set screw from the motor housing.



◀ **Figure 24**
Slide the motor out of the motor housing.

▶ **Figure 25**
Motor shown with motor housing removed.



◀ **Figure 26**
Gently tap the end of the motor shaft to release the air rotor from the rotor housing.



◀ **Figure 27**
The vanes are housed in slots in the air rotor.



▶ **Figure 28**
Remove and replace the vanes.



◀ **Figure 29**
Check the rotor housing for any damage or grooving that will reduce the life of your vane kit. Significant roughness on the rotor housing will require motor replacement.



▶ **Figure 30**
When re-assembling the motor, the shaft end pin is short and the other end has a long pin.



◀ **Figure 31**
A socket can be used to support the bearing for tapping/pressing the motor assembly back together. Verify the motor rotates freely and is not over-pressed.

▶ **Figure 32**
Reassemble the machine in the reverse order. Care must be taken to align the motor and gearbox assembly such that the muffler retention bolt goes in the slot in the motor housing.



Warranty & Guarantee (Machines & Parts / Materials & Labor)

Overview & Conditions:

PowerHandling Incorporated hereby warrants and guarantees all of its material handling machines and parts will be free from defects in materials and workmanship.

This Warranty is conditional upon:

- The unit being used in a normal and responsible manner and for the purpose for which it was intended - consistent with the application details provided to PowerHandling.
- The unit is being used in accordance with PowerHandling's recommended operation and maintenance instructions as outlined in the documentation provided with the machine.
- The unit having all replacement parts provided by PowerHandling. The use of non-original PowerHandling replacement parts voids all warranties.
- All afore-mentioned parts being correctly installed, either by PowerHandling, an authorized reseller or by the customer (per the instructions or directions provided by PowerHandling).

Warranty Periods

- RVB Series is warranted for a period of twenty four (24) months from the date the user receives the unit(s) from PowerHandling.
- PowerPallet, PowerCart H-Series, PowerCart L-Series, PowerMover G-Series, RGB-Series, A-Series are warranted for a period of twelve (12) months from the date the user receives the unit(s) from PowerHandling.
- NiMH battery packs are warranted for a period of three (3) months from purchase. If battery life is less than 12 months, please review your application and charging procedures with PowerHandling to ensure they are consistent with maximizing their service life.
- Lithium Battery Packs are warranted for a period of twelve (12) months from purchase. If battery life is less than 24 months, please review your application and charging procedures with PowerHandling to ensure they are consistent with maximizing their service life.

Any and all defects either due to improper use, negligent maintenance, or as a result of normal wear and tear are not covered by this guarantee. Hence the following are excluded:

Exceptions - Use/Misuse Related:

- Air motor damage due to air that is not clean (unfiltered) or not dry (no inline water trap fitted).
- Brushed electric motor damage caused by over-use (too high a duty cycle for the PowerRoll).
- Brushed electric motor damage caused by non-timely brush replacement and/or improper or incomplete brush maintenance.

Exceptions - Long Term Consumables:

- Vanes / vane kits (for air machines) and brushes / brush kits (for battery machines).
- Brushed electric motors are a long-term consumable and will typically need to be replaced after 5-10 brush replacements, depending on the condition of the commutator bars.
- Battery packs are long-term consumables and will need to be replaced periodically. Life depends on many factors including cycling rate, charging practices, and operating/storage temperatures. Misuse or failing to follow best practices can reduce battery life.
- Muffler materials, connectors and other miscellaneous hardware (for air machines).

Terms & Conditions

All parts supplied under warranty will be provided at no charge to the customer FOB, Post Falls, ID, once the failed parts have been received back at PowerHandling. If the warranty parts are provided in advance of the failed items being returned, they will be invoiced as a normal parts sale and then a credit note will be applied when the failed parts are received by PowerHandling. If the warranted parts are available from another PowerHandling location closer to the customer, the parts may be supplied from that location if available.

In the event of a claim being made under the terms of this Warranty which requires the unit to be returned to PowerHandling, the customer must first obtain a Return Material Authorization (RMA) from their sales contact. All freight and related duties and other costs are to customer's account. All parts and labor costs incurred for the repair and / or replacement of warranted parts will be provided at no charge to the customer.

PowerHandling and its distributors, agents, and resellers assume no other responsibility beyond the scope of this Warranty. The repair or replacement of the said unit constitutes the limit of PowerHandling's liability to the customer and PowerHandling specifically disclaims and excludes rescission as a remedy, or the payment of compensatory or consequential damages, attorney's fees or costs of litigation.

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