

Woodturning lathe
Operating Instructions



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EC DECLARATION OF CONFORMITY

We
(Manufacturer)

Laguna Tools Inc.
2072 Alton Parkway, Irvine, California 92606, USA

Declare that the product name: Wood Lathe

Model Name : REVO 18|36 Lathe, REVO 24|36 Lathe, REVO 12|16 Lathe, REVO 15|24

Conform with the essential safety requirements of the relevant European Directive:

- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2014/30/EU

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Mounting and connecting instructions defined in catalogues and technical construction files must be respected by the user.

They are based on the following standards :

- EN ISO 12100:2010 Safety of Machinery - General principles for design / Risk Assessment and Risk reduction.
- EN 60204-1:2006+AC:2010 Safety of machinery – Electrical equipment of machines, part 1 : General requirements.
- EN 13849-1:2015 Safety of machinery – Safety – related parts of control systems Part 1: General principles for design
- EN 50370 -1:2005 Electromagnetic compatibility (EMC) – Product family standard for machine tools – Part 1: Emission.
- EN 50370 -2:2003 Electromagnetic compatibility (EMC) – Product family standard for machine tools – Part 2: Immunity.
- EN 61000-4-2: 2009 Electrostatic (ESD)
- EN 61000-4-4: 2012 Electrical fast transient/burst requirements (EFT/Burst)
- EN 61000-4-6: 2014 Immunity to conducted disturbances, induced by radio-frequency fields (CS)

Responsible for the documentation: Head Product Management, Laguna Tools Inc.

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EN - English

Operating instructions (Translation of original)

Dear Woodworker,

Thank you for your purchase and welcome to the **Laguna Tools** group of discerning woodworkers. We understand that you have a choice of where to purchase your machines and appreciate the confidence you have in the Laguna Tools brand.

Every machine manufactured by Laguna Tools has been carefully designed and well thought through from a woodworker's perspective. Through hands-on experience, Laguna Tools is constantly working hard to make innovative, precision products. Products that inspire you to create works of art, are a joy to run and work on, and encourage your performance.

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1. Declaration of conformity

We declare that this product is in compliance with the Directives and Standards on page 2 of this manual.

1.1 Warranty

IGM Tools & Machinery strives to always deliver high-quality machinery. The warranty is governed by the valid terms and conditions of IGM Tools & Machinery available at www.igmtools.com.

2. About this manual

This manual is intended to thoroughly cover the setup up, maintenance, and proper adjustments of your new purchase. Aside from the proceeding general safety considerations, this manual DOES NOT cover woodworking or metalworking techniques that are possible with this product and the appropriate safety precautions necessary for safe practices.

3. Specifications

Wood turning lathes are typically used to shape wood into cylindrical profiles. Objects made on a wood lathe include such items as furniture

legs, lamp posts, baseball bats, bowls and other ornamental forms. Wood lathe tooling consists of fixtures and securing devices for the work piece, a moveable tool rest, and hand-held cutting tools.

3.1 Parts of the machine

The lathe consists of a number of major parts, which are discussed in this manual. Take the time to read this section and become familiar with the machine.

Identification

There is a plate at the back of the machine listing all the manufacturing data, including the serial number, model, etc.

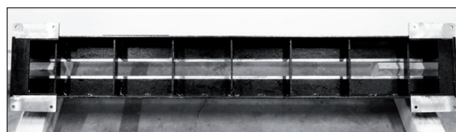
Lathe Bed

The bed is a heavy steel welded construction.



Pic. 1

Underside of lathe bed



Pic. 2

Lathe legs

The Legs are cast iron, and their heavy construction gives the machine a low centre of gravity and ensures that it is very stable. The legs are supplied with adjustable feet to allow the machine to be levelled.

Legs with adjustable feet assembled.



Pic. 3

Head stock

The head stock is cast iron and houses the variable speed control and motor. The spindle can be locked in 14 / 36 and 48 positions.

Headstock removed from the bed



Pic. 4

Headstock attached to bed



Pic. 5

Tail stock

The tail stock is of cast iron construction, and the spindle has a travel of 4 1/2 in. It can accommodate centres and other tools which have a number 2 Morse Taper. The tail stock can be moved to any position on the lathe bed and locked to suit the job at hand.

Tail stock viewed from the back.



Pic. 6

Tail stock viewed from the front



Pic. 7

Tool rest

The tool rest can be moved to any position on the lathe bed and locked to suit the job at hand. The tool rest has a tall profile to allow the bowl turner to turn steep angles. The leading edge is made from 6 mm hardened steel.

Tool rest assembled to the bed



Pic. 8

Tool rest



Pic. 9

Electrical system

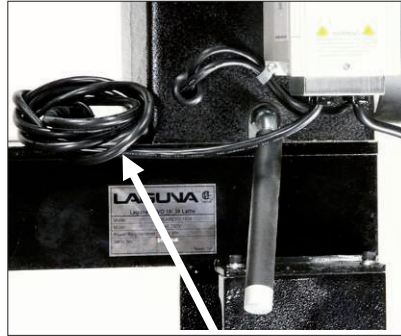
220V: The electrical control system (VFD) is housed at the back of the head stock, The VFD converts single phase 220v to three phase. There is a speed readout at the front of the lathe with controls to fine adjust the rpm of the spindle. A power cord with 220V plug is provided.

VFD with cover open



Pic. 10

Power cord



Pic. 11

Tool storage

A tool storage bracket which can be mounted on either leg.

Tool storage bracket



Pic. 12

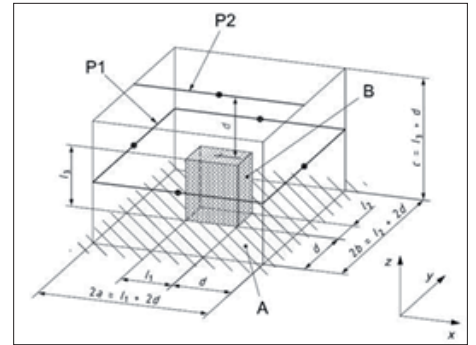
3.2 Technical data

| | |
|--------------------------------|---|
| Motor | Induction, 1420 rpm, 1,5 kW, S1 |
| Voltage | 230V, 50 Hz, 1 Ph. |
| | 3 phase output |
| Recommended breaker size | 16 A, tripping characteristic C (16/1/C). |
| Swing over bed | 457 mm |
| Swing over banjo | 343 mm |
| Outboard swing max. | 813 mm |
| Distance between centres | 914 mm |
| Floor to spindle centre | 1054 mm |
| Floor to bed height | 826 mm |
| Dim. W x D x H | 1524 x 660 x 1194 mm |
| Tool rest | 305 mm |
| Speed range high: | 135 – 3500 rpm |
| Speed range low: | 50 – 1300 rpm |
| VFD | Delta |
| Spindle | M33 x 3.5 mm, righthanded |
| Spindle taper | MK 2 |
| Spindle lock | Spring loaded |
| Spindle indexing | 14 / 36 / 48 with lock |
| Head stock and tail stock bore | 9,5 mm |

| | |
|--------------------|-----------------|
| Tail stock travel | 115 mm |
| Tail stock removal | Self-ejecting |
| Tail stock taper | MK2 |
| Faceplate | 76 mm |
| Bed material | Steel |
| Weight (net/ship) | 194 kg / 206 kg |

3.3 Noise emissions

Equivalent A-weighted Sound pressure level according to EN ISO 3746: 75.66 dB(A). Uncertainty, K in decibels: 4.0 dB (A) according to EN ISO 4871 The figure quoted is emission levels and are not necessarily safe working levels. Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factors that influence the actual level of exposure of the workforce include characteristics of the work room, the other sources of noise, etc. i.e. the number of machines and other adjacent processes. Also the permissible exposure level can vary from country to country. This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.



Pic. 13

4. General safety

“WARNING”: For Your Own Safety Read Instruction Manual before Operating Lathe

4.1 Safety Rules

- Wear eye protection.
- Do not wear gloves, a necktie, or loose clothing.
- Tighten all locks before operating.
- Rotate work piece by hand before applying power.
- Rough out work piece before installing on faceplate.
- Do not mount split work piece or one containing a knot.
- Use lowest speed when starting new work piece.

- Keep guards in place and in working order.
- Remove adjusting keys and wrenches. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
- Keep work area clean. Cluttered areas and benches invite accidents.
- Don't use in a dangerous environment. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.

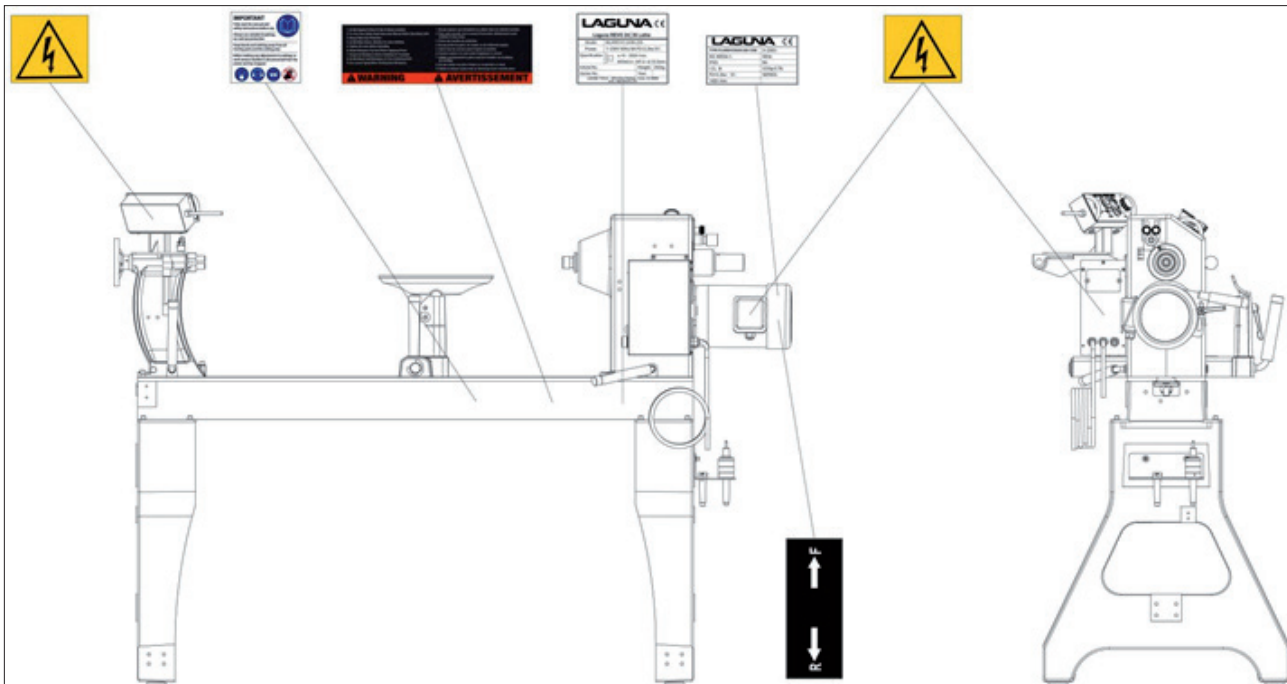
- Keep children away. All visitors should be kept at a safe distance from the work area.
- Make your workshop kid proof with padlocks, master switches, or by removing starter keys.
- Don't force tool. It will do the job better and safer at the rate for which it was designed.
- Use right tool. Don't force tool or attachment to do a job for which it was not designed.
- Use proper extension cord. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.
- Wear proper apparel do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewellery which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
- Always use safety glasses. Also use a face or dust mask if cutting operation is dusty.

Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.

- Secure work. Use clamps or a vice to hold the work when practical. It's safer than using your hand and it frees both hands to operate the tool.
- Don't overreach. Keep proper footing and balance at all times.
- Maintain tools with care. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- Disconnect tools before servicing and when changing accessories, such as blades, bits, cutters, and the like.
- Reduce the risk of unintentional starting. Make sure power switch is in the off position before plugging the machine in.
- Use recommended accessories. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.

- Never stand on tool serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
- Check damaged parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function - check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
- Direction of feed. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
- Never leave tool running unattended. Turn power off. Don't leave tool until it comes to a complete stop.

Location of warning signs



Pic. 14

Locking the lathe

It is strongly recommended that the lathe is never be left unattended in the unlocked condition.

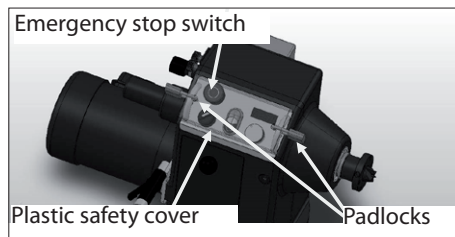
To lock the machine it is recommended that a cover (not supplied) is made to lock the control panel. We have supplied two concepts for locking the panel (see below). The cover can be made from wood or plastic.

First, push down the emergency stop. Then lock the cover together by putting padlocks [not included] on the two handles on the control panel. To safeguard your machine from unauthorized operation and accidental starting by young children, the use of padlocks is strongly recommended.



Wooden safety cover Padlocks

Pic. 15



Plastic safety cover Padlocks

Pic. 16

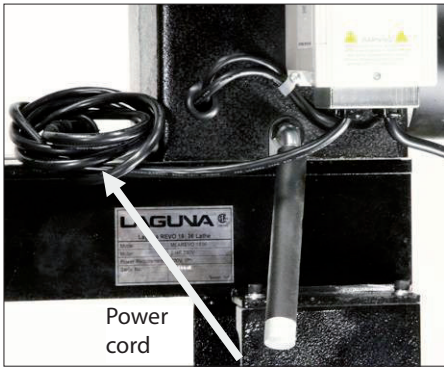
4.2 Electrical connections

Make sure that the power supply meets the machine's requirements (230V). We recommend using a 16 A breaker, tripping characteristic C (16/1/C). **Note.: Perform adjustments with the help of a qualified electrician.**

VFD with cover open



Pic. 17



Pic. 18

5. Receiving your machine

5.1 Unpacking and transport

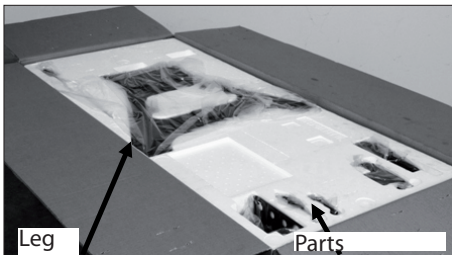
To unpack your machine you will need tin snips, a knife, and a wrench.

1. Using the tin snips, cut the banding that is securing the packing box (If fitted). Extreme caution must be used, because the banding will spring and could cause injury.

Lathe in packaging



Pic. 19



Pic. 20

Top packaging removed



Pic. 21

2. Open the box and remove the parts sent with the lathe including the first leg.
- Note:** The legs are heavy and caution must be exercised. They are cast iron and if dropped they will break.
3. Remove the top packaging and remove the second leg.
4. Remove the lathe bed. It is recommended that it be lifted with a hoist or forklift using a „sling“ as it is very heavy.

Note: The machine is heavy. Ensure that you have enough people to do the job safely. Do not attempt any procedure that you feel is unsafe, or that you do not have the physical capability of achieving.

5. Lower the bed of the lathe onto 2 stacks of wood. This will allow access to the underside of the bed.



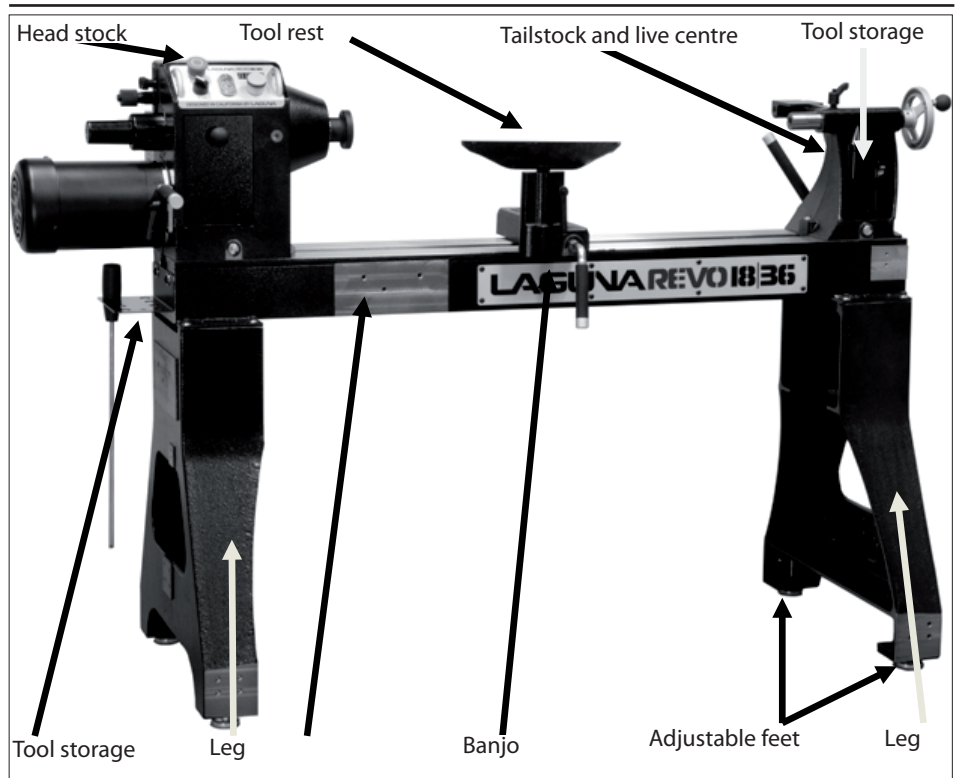
Pic. 22

5.2 Receiving the lathe

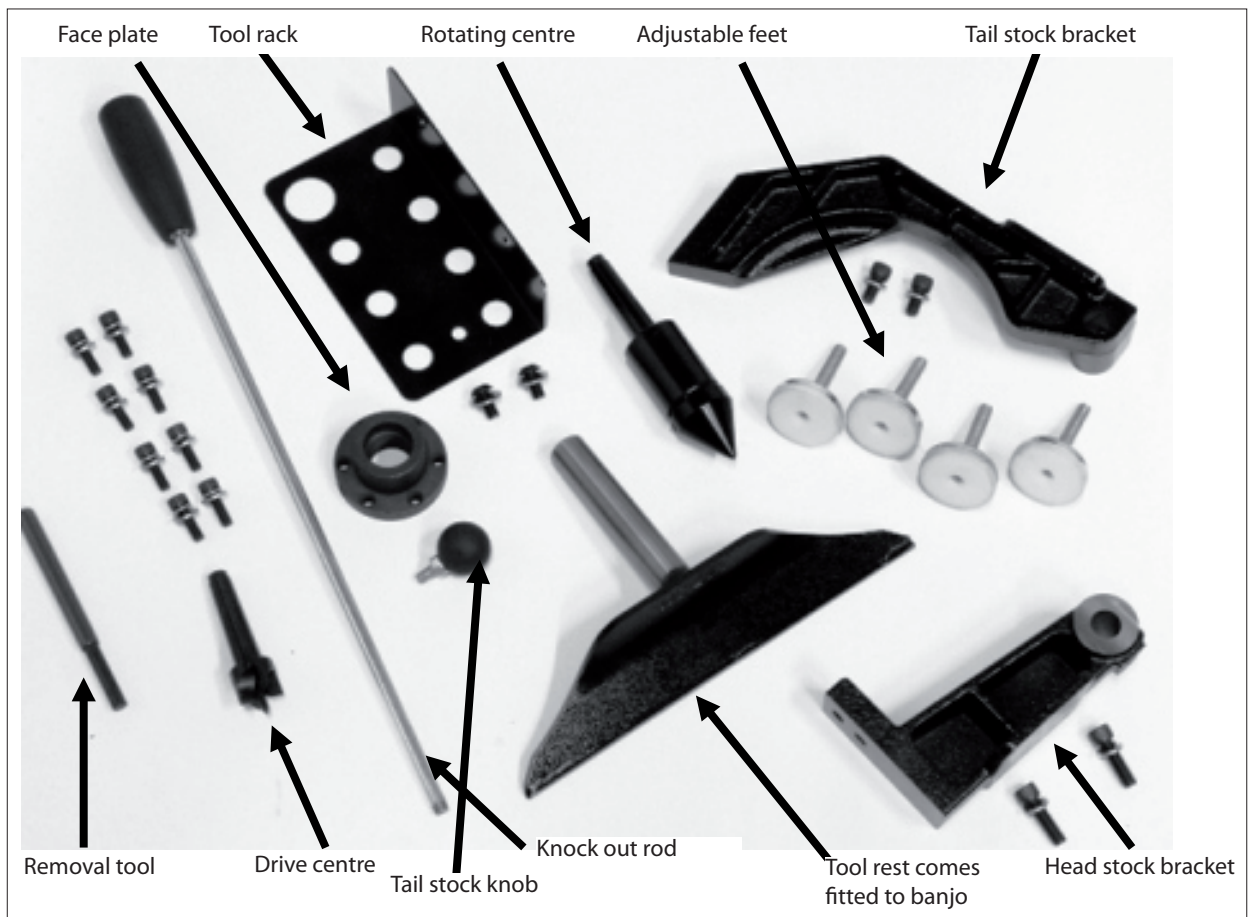
Before you unpack your new machine you will need to first inspect the packing, invoice and shipping documents supplied by the driver. Insure that there is no visible damage to the packing or the machine. You need to do this prior to the driver leaving. All damage must be noted on the delivery documents and signed by you and the delivery driver. You must then contact the seller (Laguna Tools) as soon as practical. If damage is found after delivery, contact the seller as soon as is practical.

Note: It is probable that you will find sawdust within your machine. This is because the machine has been tested prior to shipment from the factory. It must be noted that additional machine movement can take place between Laguna Tools and the end user and some adjustments may have to be undertaken by the customer. These adjustments are covered in the various sections of this manual.

Parts of the lathe Supplied with:



Pic. 23



Pic. 24

5.3 Locating your machine

Before you remove your machine from the packaging, select the area where you will use your machine. There are no hard and fast rules for its location, but below are a few guidelines:

1. There should be sufficient area at the front of the machine to allow you to work on it comfortably.
2. There should be sufficient area at the back of the machine to allow access for adjustments and maintenance to be conducted.
3. Adequate lighting. The better the lighting the more accurately and safely you will be able to work.
4. Solid floor. You should select a solid flat floor, preferably one made of concrete or something similar.
5. Locate it close to a power source and dust collection.
6. Allow an area for the storage of blanks, finished products and tools.

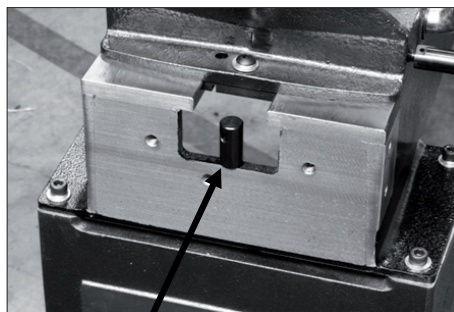
6. Assembly and setup

The machine comes mostly assembled. You will have to assemble the legs, headstock, tail stock, tool storage and the tool rest to the bed of the machine.

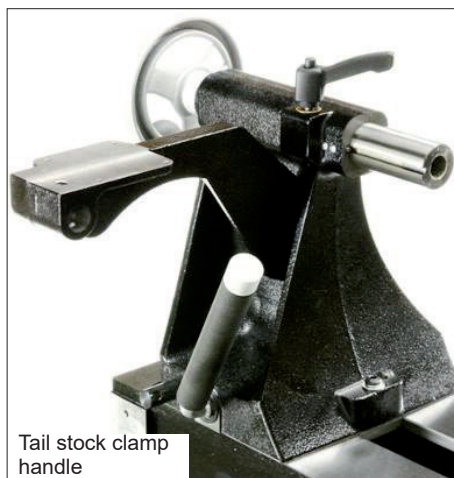
Note. It is recommended that the head stock, tool rest and tail stock be removed from the bed of the lathe to ease assembly

6.1 Assembling legs to the bed of the lathe

There is a stop at both ends of the bed. The stop is a safety feature that makes it impossible for the headstock or tail stock to slide off the end of the bed. Remove the stops and loosen the clamps on both the head stock, tool rest and tail stock. Slide them off the bed. This will greatly reduce the weight of the bed and allow easier assembly. **Note:** The headstock and tail stock are very heavy and extreme caution must be exercised when removing them from the bed of the lathe. Take care not to cause damage during removal.

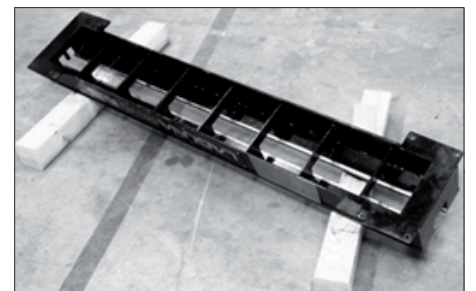


Pic. 25

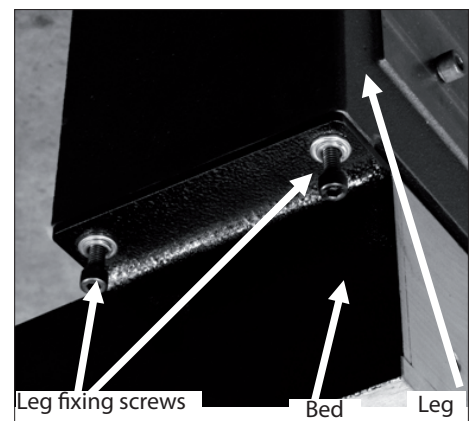


Pic. 26

Bed with headstock and tail stock removed



Pic. 27



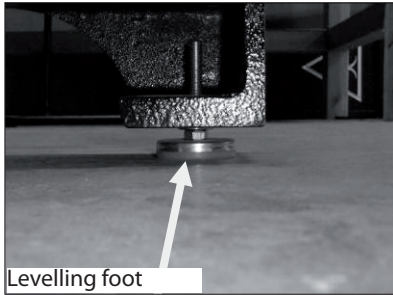
Pic. 28

Lay the bed on timbers in the upside down position. Lift the legs to the vertical position and lower them onto the bed. Secure with the fixing screws provided.

Note: At least two people will be needed to perform the assembly, one to hold the leg in position and one to fit the fixing screws.

Note: If you have any doubt about the

described procedure, seek professional assistance. Fit the 4 levelling feet to the lathe legs with the lock nut on the underside of the leg. Once both legs have been fitted turn the assembly up to the correct position.



Pic. 29



Pic. 30

Assemble the head stock, tool rest and tail stock back onto the bed of the lathe and **fit the stops**. **Note:** If you have any doubt about the described procedure, seek professional assistance. Do not attempt any procedure that you feel is unsafe, or that you do not have the physical capability of achieving.

Assembled lathe



Pic. 31

If you decide to fit the tool rest after fitting the tail stock, follow the below procedure. Fit the tool rest onto the bed of the lathe ensuring that the washer recess fits into the slot in the bed. Fit the banjo onto the bed with the bolt through the washer and assemble the nut onto the thread. Adjust the nut so that the clamp handle locks the banjo with approximately 30 degree of movement.

Tool rest disassembled



Pic. 32



Pic. 33

Washer assembled in position



Pic. 34



Pic. 35

Fitting the stock knob

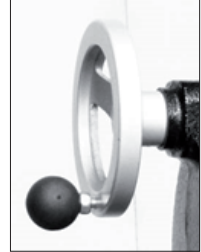
Screw the tail stock knob onto the tail stock handle.

Tail stock knob



Pic. 36

Tail stock handle



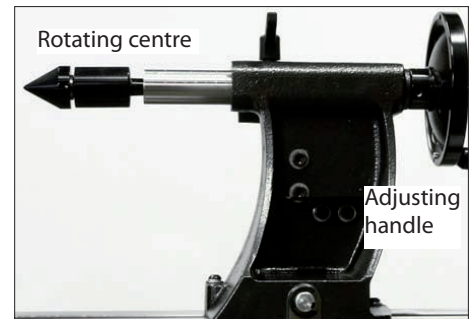
Pic. 37

6.2 Cleaning the machine

Remove the rust protection grease with benzene or a similar solvent. It is important that you remove all the grease and re-lubricate with a Teflon-based lubricant. (Teflon has a lower tendency to attract sawdust and cause clogging).

6.3 Fitting the rotating centre

Ensure that the bore of the tail stock is clean. The rotating centre has a number 2 Morse Taper that fits into the tail stock. Push the centre into the tail stock bore firmly, and ensure that it is securely located. To remove the centre, rotate the adjusting handle until it is as far back as possible and this will eject the centre.



Rotating centre

Adjusting handle

Pic. 38

6.4 Fitting the drive centre into head stock

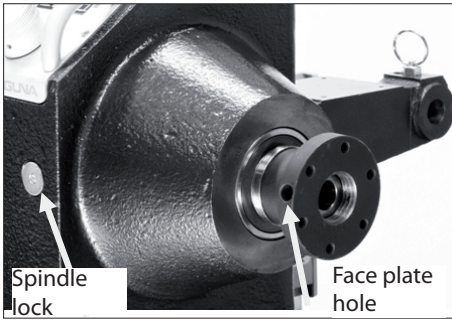
To remove the face plate from the head stock spindle, insert the removal tool into the hole in the face plate large diameter. Lock the spindle with the lathe spindle lock and unlock the face plate by rotating it. Take care not to drop the faceplate onto the bed of the lathe.

Note: The face plate has a left-hand thread.

Removal tool



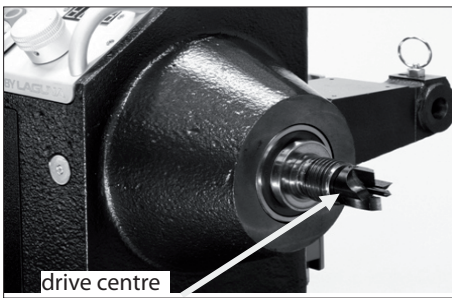
Pic. 39



Pic. 40



Pic. 41



Pic. 42



Pic. 43

Ensure that the bore of the head stock is clean. The drive centre has a number 2 Morse Taper that fits into the head stock. Push the centre into the head stock bore firmly, and ensure that it is securely located. To remove the centre, push the rod into the back of the head stock, and give it a sharp knock. This will remove the drive centre. **Note:** Never leave the rod in the head stock with the machine running.

6.5 Fitting the face plate

Reverse the removal procedure, described earlier.

6.6 Lathe controls

Emergency stop button

The emergency stop button will lock in the OFF position when fully depressed. To reset it, twist clockwise and it will pop out.

Forward / Reverse switch

The forward / reverse switch selects the direction of the rotation of the spindle. The forward / reverse switch must only be used once the spindle has come to a complete stop.

Start / Stop

The start / stop buttons start the motor and the

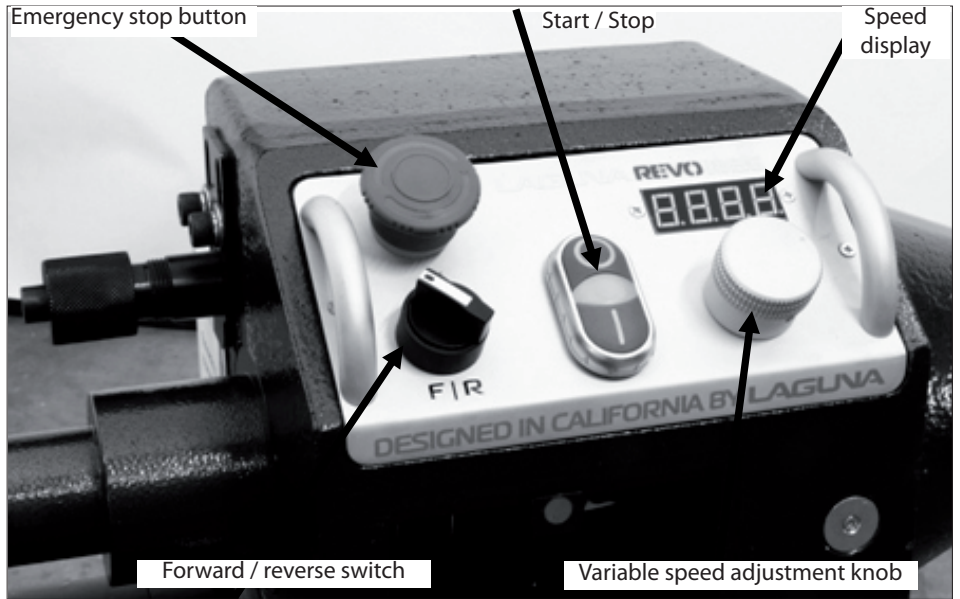
rotation of the spindle.

Speed display

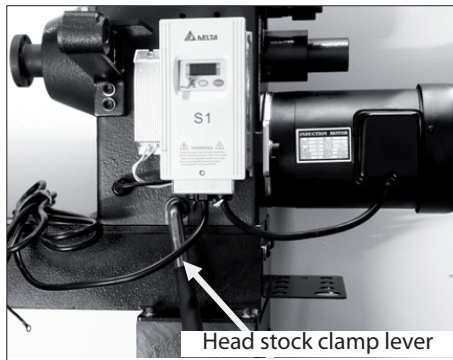
The speed display shows the RPM of the spindle.

Variable speed adjustment knob

The Variable speed adjustment knob adjusts the spindle speed.



Pic. 44

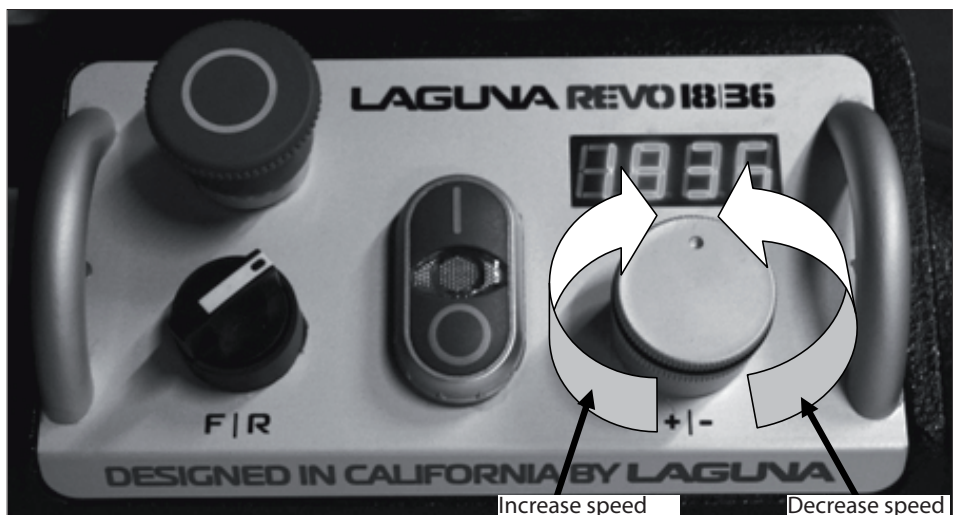


Pic. 45

Head stock clamp lever.

The head stock clamp lever allows the head stock to be released and moved to any position on the lathe bed. It is located at the back of the head stock.

6.7 Variable speed adjustment knob



Pic. 46

The Variable speed adjustment knob adjusts the spindle speed. Turns clockwise to increase the speed, turns counter-clockwise to decrease the speed.

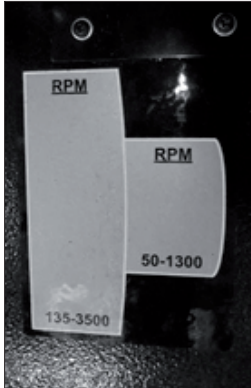
6.8 High / low speed

The lathe has two sets of pulleys for high (135 - 3500 rpm) and low (50 - 1300 rpm) speed ranges.

Adjust between the speed ranges as follows.

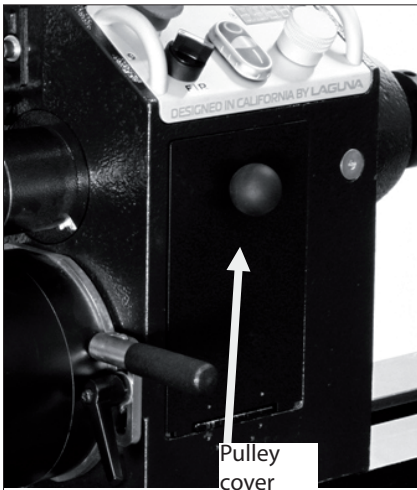
1. Disconnect the electric supply to the lathe.
2. Open the pulley cover.
3. Loosen the motor lock handle and lift the motor to the highest position with the motor adjustment handle, then lock the motor lock handle.
4. Move the drive belt to the required set of pulleys.

High / low speed

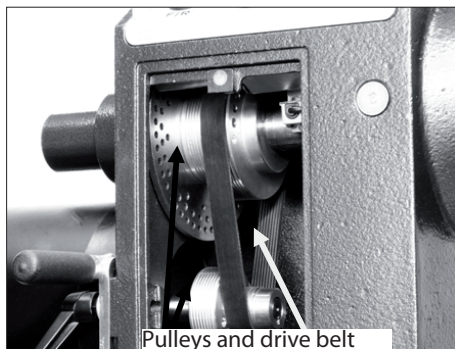


Pic. 47

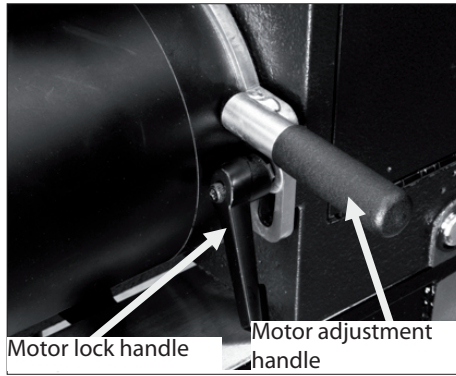
5. Loosen the motor lock handle and with the motor adjustment handle tension the drive belt, then lock the motor lock handle. The belt should be tensioned so that there is approximately 3-6 mm deflection when pressed.



Pic. 48



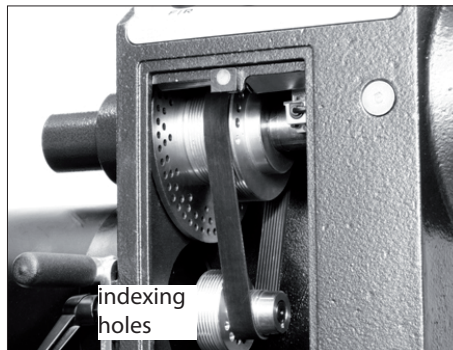
Pic. 49



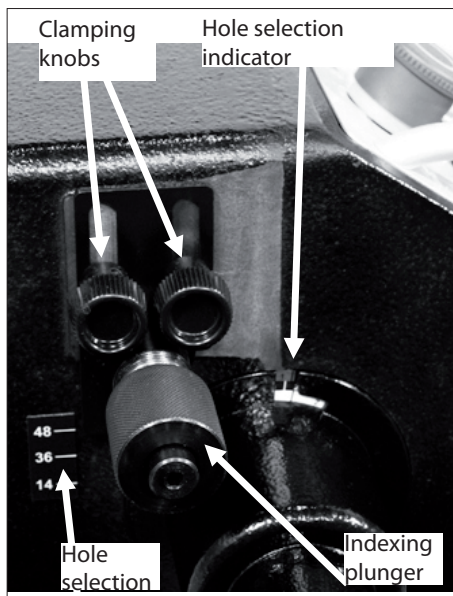
Pic. 50

6.9 Indexing the spindle

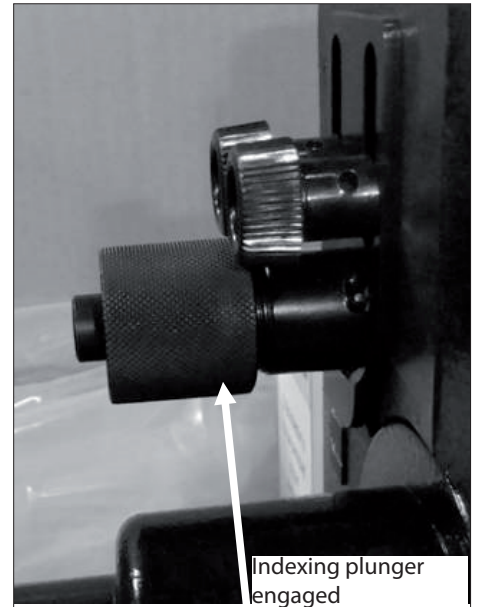
The spindle has 3 sets of indexing holes 14 / 36 / 48. The selection plunger is located at the end of the head stock. To move between the 3 sets of holes, loosen the clamp knobs and slide the indexing plunger assembly to align with the selected hole set. Clamp in position with the clamp knobs. Try the plunger in a few different holes to check that it inserts and removes smoothly. The indexing plunger is spring loaded and this is used only to temporarily align the plunger in the selected hole. To fix the plunger in a selected hole, it must be attached to the housing by screwing into the clamped position. There is a hole selection indicator that allows you to view which hole in a selected hole set has been selected.



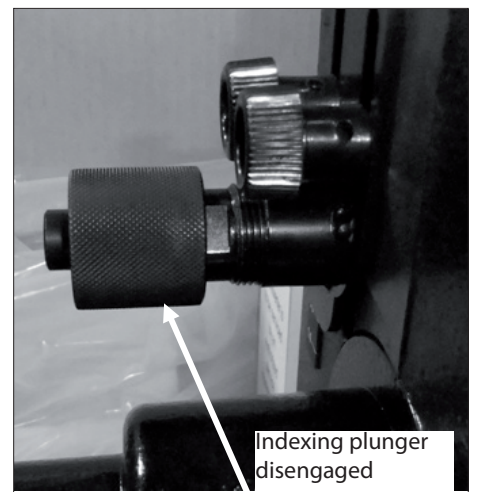
Pic. 51



Pic. 52



Pic. 53



Pic. 54

7. Maintenance

General

Keep your machine clean. At the end of each day, clean the machine. Wood contains moisture, and if sawdust or wood chips are not removed they will cause rust. In general, we recommend that you only use a Teflon-based lubricant on the lathe. Regular oil attracts dust and dirt. Teflon lubricant tends to dry and has less of a tendency to accumulate dirt and saw dust.

Periodically check that all nuts and bolts are tight.

Drive belt

The drive belt should last for many years (depending on the usage) but needs to be inspected regularly for cracks, cuts and general wear. If damage is found, replace the belt.

Bearings

All bearings are sealed for life and do not require any maintenance. If a bearing becomes faulty, replace it.

Rust

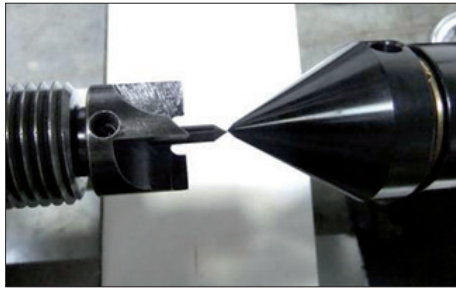
The lathe is made from steel and cast iron. All non-painted surfaces will rust if not protected. It is recommended that they be protected by applying wax or a Teflon-based lubricant to them.

Centre point alignment and slide clearance adjustment

The centre point alignment and slide clearance are adjusted at the factory and no adjustment should be required. Should movement or wear have taken place, the following adjustment procedure should be conducted. Note: The

slide clearance of the headstock and the tail stock must be checked and adjusted should it be needed prior to adjusting the centre point alignment.

Centre points aligned



Pic. 55

Slide adjustment

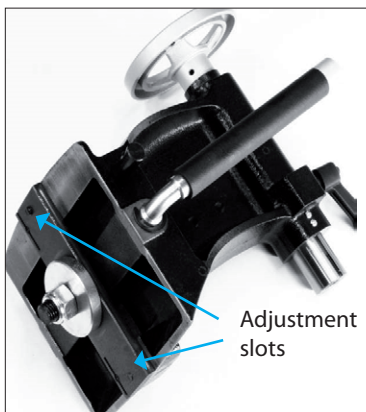
Loosen the clamp handle on the tail stock and check for side movement. If it is excessive, insert an Allen key into the adjusting screw and tighten.

Note: By rotating the adjustment screw, it moves into the adjusting slot which opens and removes the excessive clearance between the tail stock and the bed.

Note: Only make very small adjustments and then recheck the clearance. After adjustment Centre points aligned the tail stock should be slid along the bed to check for any area that binds in the bed slot. The same procedure as above should be conducted on the head stock should it be required.

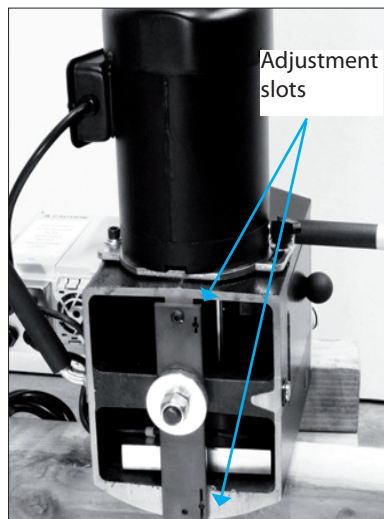
Note: It is very unlikely that the headstock will require adjustment as it is not moved as often as the tail stock, so has less tendency's for ware.

View under the tail stock

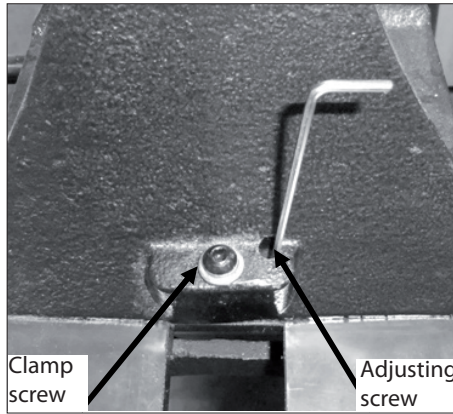


Pic. 56

View under headstock



Pic. 57



Pic. 58

Center point alignment

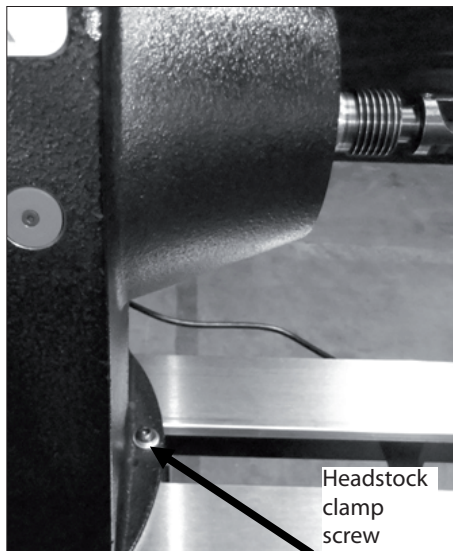
The tail stock has two clamp screws that are accessible from the top of the tail stock. The clamp screws hold the slide plate to the tail stock casting. There is clearance in the holes that allows the tail stock to be moved in relation to the slide plate. The headstock also has two clamp screws, but one is accessible from under the headstock.

By loosening the clamp screws the headstock and tail stock can be moved and the centre points aligned.

Note: It is recommended that the head stock be adjusted and not the tail stock. If the tail stock is not adjusted parallel to the bed slide, the centre point will not be in alignment when the spindle is extended or retracted.

1. Loosen the clamp screw that is accessible from the top on the head stock.
2. Tap the side of the headstock with a rubber mallet close to the base in the direction requiring adjustment and retighten the clamp screw.
3. Recheck the centre point alignment and repeat if required.

Note: Never hit any part of the lathe that is cast iron with a metal hammer or similar as it **will** break the casting.



Pic. 59

8. Troubleshooting

Lathe will not start

1. Check that the start switch is in the correct position.
2. Check that the electrical power cord is plugged into the power outlet.
3. Check that the electrical supply is on (reset the breaker).

4. With the power disconnected from the machine, check that the wiring to the plug is correct. Check that the rubber insulation is stripped enough and is not causing a bad connection. Check that all the screws are tight.
5. Emergency stop button engaged. Reset emergency stop button. Twist and it will pop out.

The machine will not stop

This is a very rare occurrence as the machine is designed to be fail-safe. If it should occur and you cannot fix the fault, seek professional assistance. The machine must be disconnected from the power and never run until the fault has been rectified.

1. The stop switch is faulty. Replace the stop switch.

Motor tries to start but will not turn

1. With the power disconnected from the machine, try to turn the spindle by hand. If the spindle will not turn, check the reason for jamming.
2. Capacitor faulty. Replace the capacitor.
3. Motor faulty. Replace the motor.
4. Power line overloaded. Correct overloaded condition.
5. Low voltage. Correct low voltage condition.

Motor overheats

The motor is designed to run hot, but should it overheat it has an internal thermal overload protector that will shut it down until the motor has cooled, and then it will reset automatically. If the motor overheats, wait until it has cooled and restart. If the motor shuts down consistently check for the reason. Typical reasons are dull cutting tools, the motor cooling fan being clogged or faulty, the motor cooling fins are clogged, overfeeding the job, and excessive ambient temperature.

Squeaking noise

1. Check that the motor cooling fan is not contacting the fan cover.
2. Check the bearings.
3. Check the drive belt is tensioned correctly.

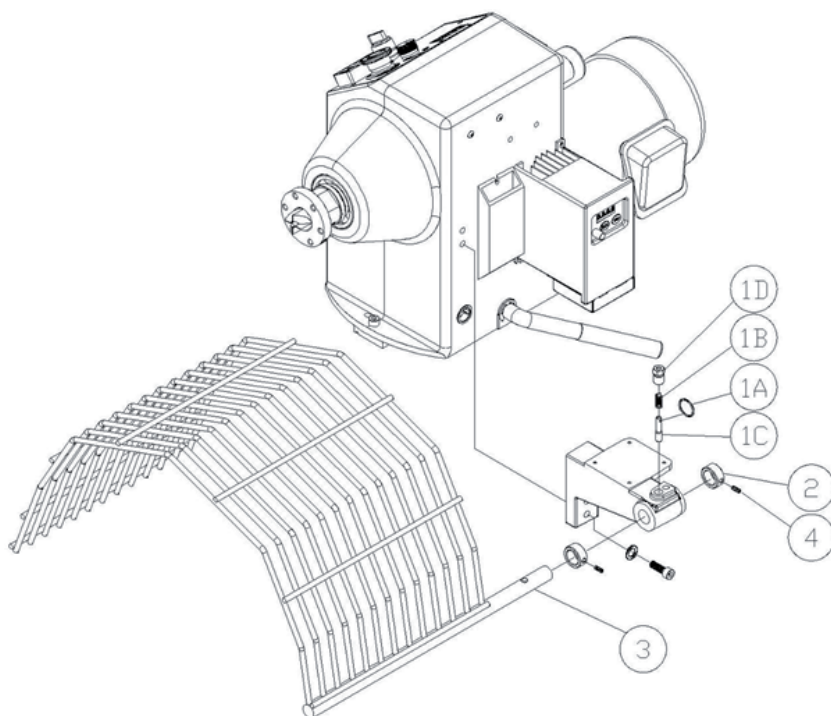
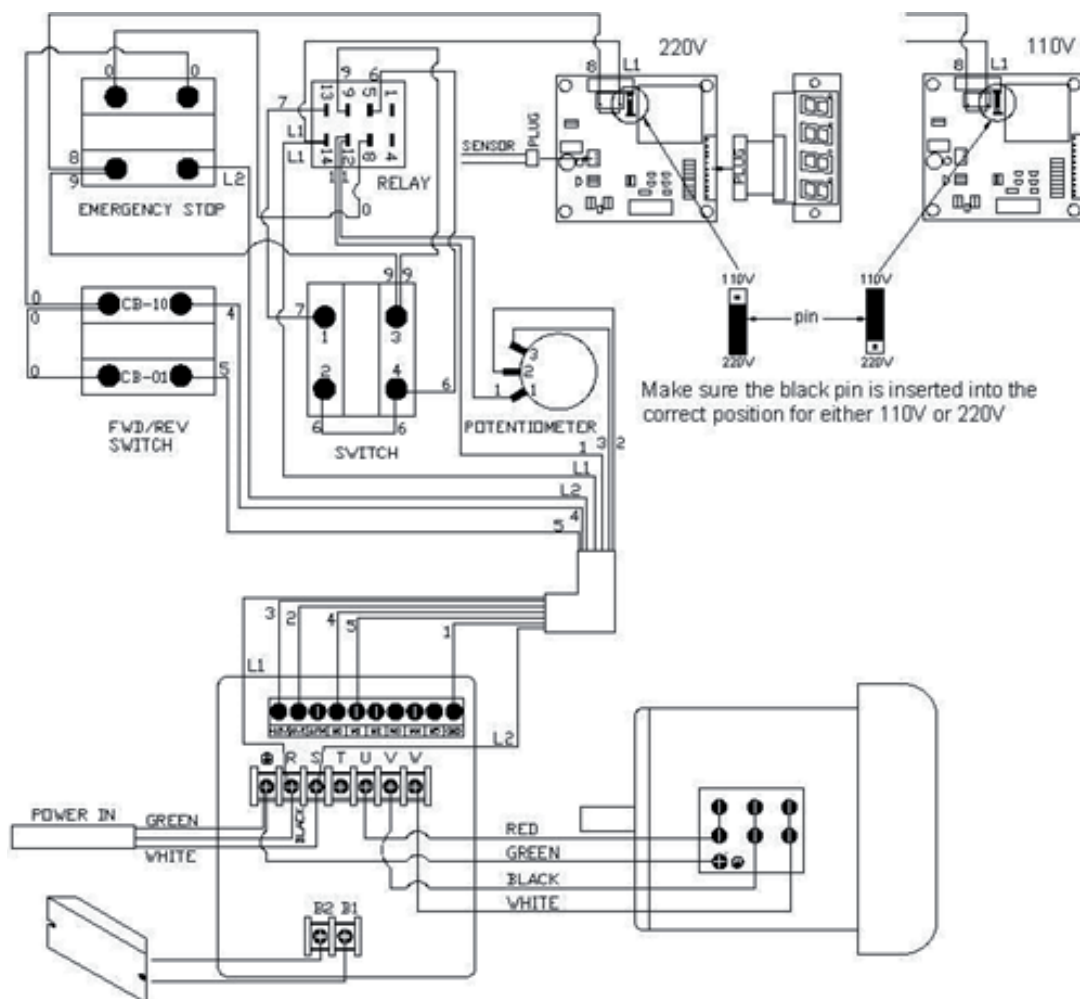
Spindle slows down during a cut

1. Dull cutting tools. Replace the tool or have it re-sharpened.
2. Feeding the wood too fast. Slow down the feed rate.
3. Oil or dirt on the drive belt. Clean or replace the drive belt.
4. Drive belt loose. Re-tension drive belt.

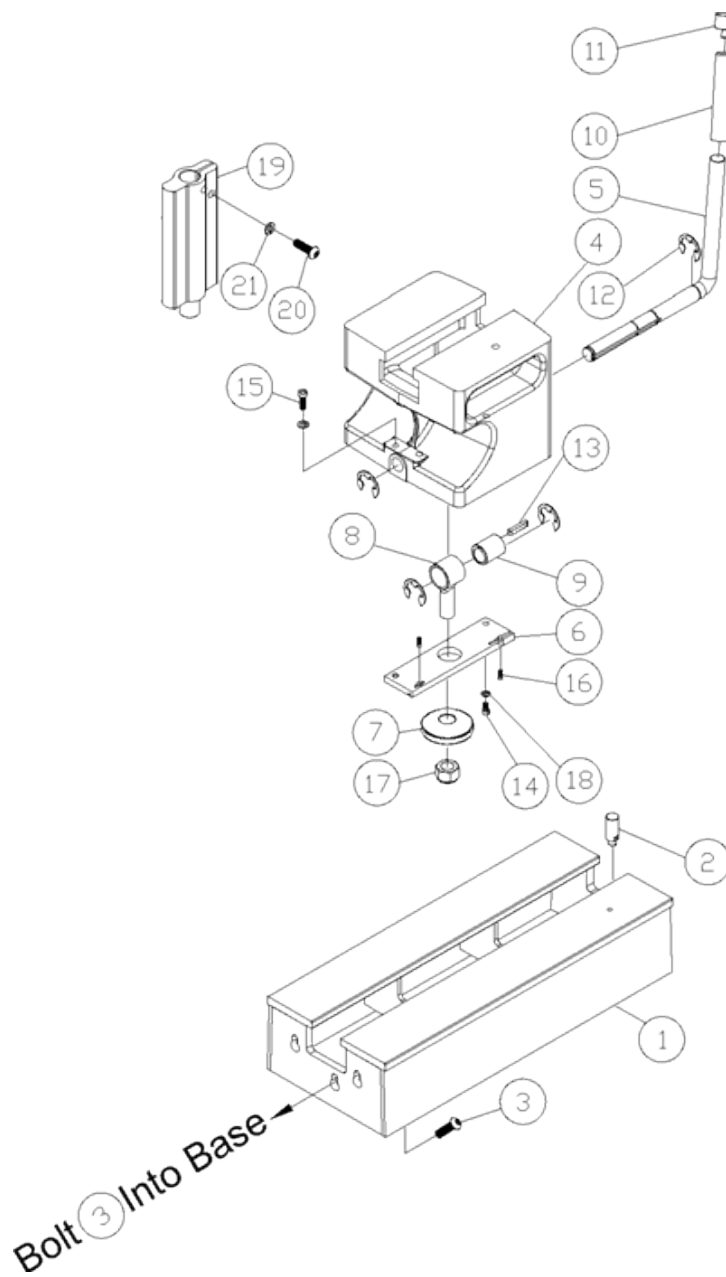
Machine vibrates

1. Machine not level on the floor. Re-level the machine ensuring that it has no movement.
2. Damaged drive belt. Replace the belt.
3. Job is not balanced. Change to slower speed and/ or balance the job.
4. Damaged pulley. Replace the pulley.
5. Worn spindle bearing. Replace the bearing.

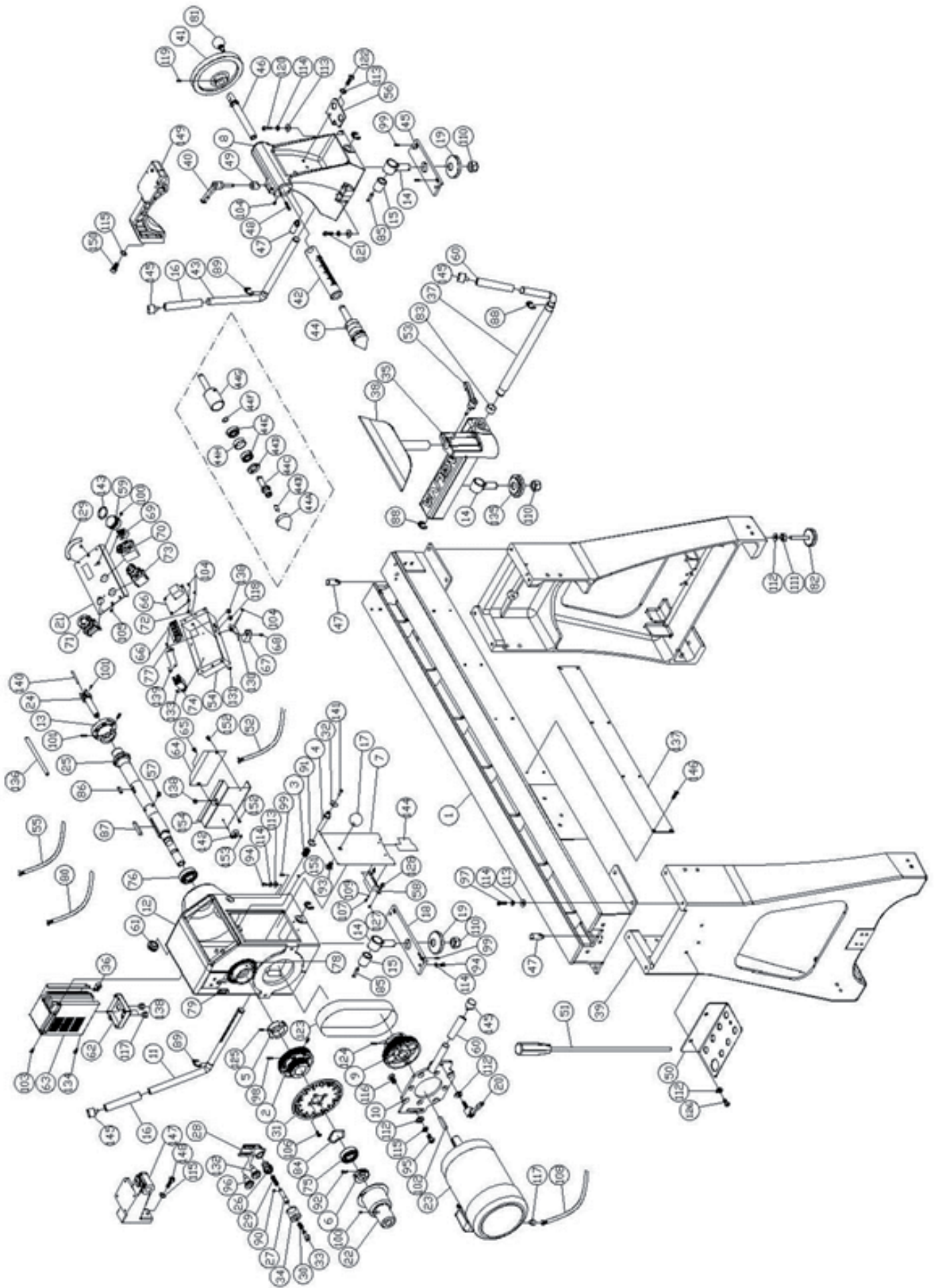
Elektrické zapojení / Elektrické zapojenie / Electrical drawing / Elektromos csatlakoztatás /
 Połączenie elektryczne



| Optional Headstock Guard | | | | |
|--------------------------|-----------------|------------------|----------------|-----|
| Index | Part Number | Item Description | Specification | Qty |
| 1 | PLAREVO1836-201 | Plunger | | 1 |
| 2 | PLAREVO1836-202 | Retaining Collar | | 2 |
| 3 | PLAREVO1836-203 | Guard | | 1 |
| 4 | PLAREVO1836-204 | Set Screw | 1/4-20UNCx1/4" | 2 |



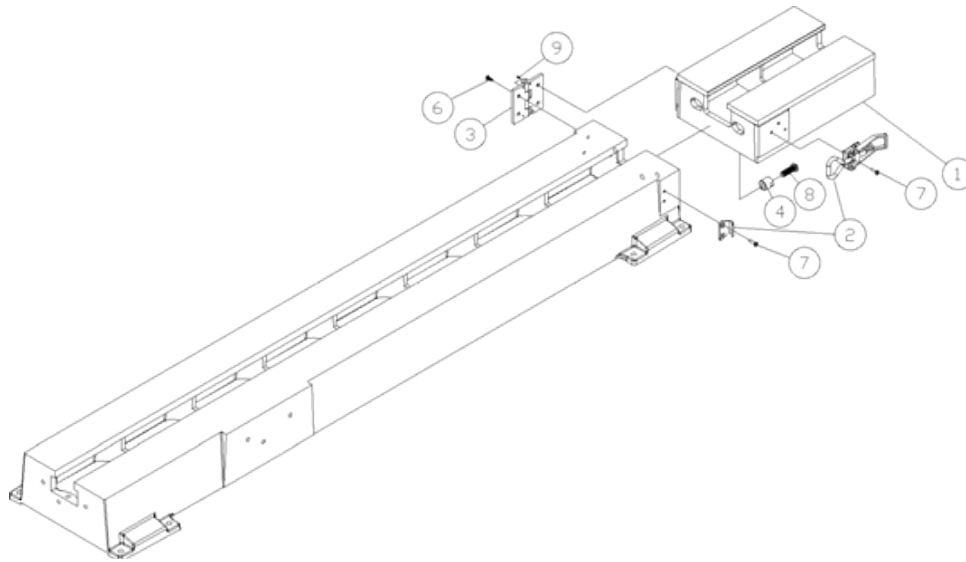
| Optional 20" Bed Extension with Riser Block and Tool Rest Extension | | | | |
|---|------------------|-----------------------------|------------------|-----|
| Index | Part Number | Item Description | Specification | Qty |
| 1 | PLAREVO1836-301 | 20" Bed Extension | | 1 |
| 2 | PLAREVO1836-147 | Stop Bolt | | 2 |
| 3 | PLAREVO1836-195 | Socket Head Cap Screw | 3/8-16UNCx1" | 3 |
| 4 | PLAREVO1836-304 | Riser Block | | 1 |
| 5 | PLAREVO1836-305 | Riser Block Locking Handle | | 1 |
| 6 | PLAREVO1836-306 | Riser Block Adjusting Plate | | 1 |
| 7 | PLAREVO1836-119 | Clamp | | 1 |
| 8 | PLAREVO1836-114 | Clamp Bolt | | 1 |
| 9 | PLAREVO1836-115 | Sleeve | | 1 |
| 10 | PLAREVO1836-116 | Rubber Sleeve | | 1 |
| 11 | PLAREVO1836-1145 | Cap | | 1 |
| 12 | MPAREVO1836-189 | E-Ring | E15 | 4 |
| 13 | PLAREVO1836-185 | Key | 6x6x30 | 1 |
| 14 | PLAREVO1836-194 | Socket Head Button Screw | M8x20 | 1 |
| 15 | PLAREVO1836-315 | Socket Head Button Screw | M8x50 | 1 |
| 16 | PLAREVO1836-199 | Set Screw | M8x6 | 2 |
| 17 | PLAREVO1836-1110 | Nylon Insert Lock Nut | M18x2.5 | 1 |
| 18 | PLAREVO1836-1114 | Lock Washer | 5/16" | 2 |
| 19 | PLAREVO1836-319 | Tool rest Extension | | 1 |
| 20 | PLAREVO1836-320 | Socket Head Button Screw | 3/8-16UNCx1-1/4" | 1 |
| 21 | PLAREVO1836-1115 | Lock Washer | 3/8" | 1 |



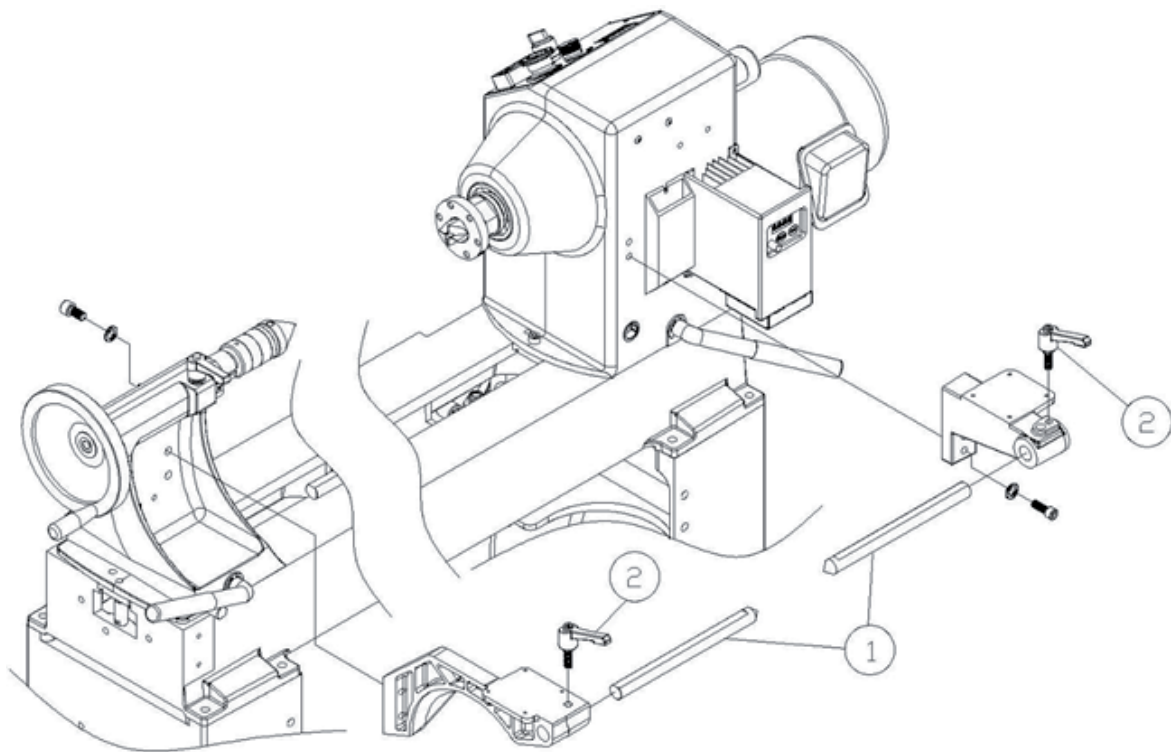
REVO 18, 36 LATHE

| Index | Part Number | Item Description | Specification | Qty |
|-------|--------------------------|---------------------------|---------------|-----|
| 1 | PLAREVO1836-101 | Bed | | 1 |
| 2 | PLAREVO1836-102 | Spindle Pulley | | 1 |
| 3 | PLAREVO1836-103 | Spring | | 1 |
| 4 | PLAREVO1836-104 | Spindle Lock Plunger | | 1 |
| 5 | PLAREVO1836-105 | Locking Collar | | 1 |
| 6 | PLAREVO1836-106 | Bearing Nut | | 1 |
| 7 | PLAREVO1836-107 | Door | | 1 |
| 8 | PLAREVO1836-108 | Tailstock | | 1 |
| 9 | PLAREVO1836-109 | Motor Pulley | | 1 |
| 10 | PLAREVO1836-110 | Motor Plate | | 1 |
| 11 | PLAREVO1836-111 | Headstock Locking Handle | | 1 |
| 12 | PLAREVO1836-112 | Headstock | | 1 |
| 13 | PLAREVO1836-113 | 3" Faceplate | | 1 |
| 14 | PLAREVO1836-114 | Clamp Bolt | | 3 |
| 15 | PLAREVO1836-115 | Sleeve | | 2 |
| 16 | PLAREVO1836-116 | Rubber Sleeve | | 2 |
| 17 | PLAREVO1836-117 | Knob | | 1 |
| 18 | PLAREVO1836-118 | Headstock Adjusting Plate | | 1 |
| 19 | PLAREVO1836-119 | Clamp | | 2 |
| 20 | PLAREVO1836-120 | Lock Handle | | 1 |
| 21 | PLAREVO1836-121 | Control Panel | | 1 |
| 22 | PLAREVO1836-122 | Handwheel | | 1 |
| 23 | PLAREVO1836-123 | Motor 2HP | | 1 |
| | PLARE-VO1836-110-150-123 | Motor 1.5HP | | 1 |
| 24 | PLAREVO1836-124 | Spur Center | | 1 |
| 25 | PLAREVO1836-125 | Spindle | | 1 |
| 26 | PLAREVO1836-126 | Index Stud | | 1 |
| 27 | PLAREVO1836-127 | Index Shaft | | 1 |
| 28 | PLAREVO1836-128 | Index Bracket | | 1 |
| 29 | PLAREVO1836-129 | Spring | | 1 |
| 30 | PLAREVO1836-130 | Spring | | 1 |
| 31 | PLAREVO1836-131 | Index Plate | | 1 |
| 32 | PLAREVO1836-132 | Disc, Spindle Lock | | 1 |
| 33 | PLAREVO1836-133 | Index Bolt | | 1 |
| 34 | PLAREVO1836-134 | Index Knob | | 1 |
| 35 | PLAREVO1836-135 | Tool Rest Support Base | | 1 |
| 36 | PLAREVO1836-136 | Cord Holder | | 1 |
| 37 | PLAREVO1836-137 | Tool Rest Locking Handle | | 1 |
| 38 | PLAREVO1836-138 | 12" Tool Rest | | 1 |
| 39 | PLAREVO1836-139 | Leg | | 2 |
| 40 | PLAREVO1836-140 | Lock Handle | | 1 |
| 41 | PLAREVO1836-141 | Handwheel | | 1 |
| 42 | PLAREVO1836-142 | Quill | | 1 |
| 43 | PLAREVO1836-143 | Tailstock Locking Handle | | 1 |
| 44 | PLAREVO1836-144 | Live Center Assembly | | 1 |
| 45 | PLAREVO1836-145 | Tailstock Adjusting Plate | | 1 |
| 46 | PLAREVO1836-146 | Lead Screw | | 1 |
| 47 | PLAREVO1836-147 | Stop Bolt | | 3 |
| 48 | PLAREVO1836-148 | Key | | 1 |
| 49 | PLAREVO1836-149 | Quill Lock Sleeve | | 1 |
| 50 | PLAREVO1836-150 | Tool Caddy | | 1 |
| 51 | PLAREVO1836-151 | Knockout Rod | | 1 |
| 52 | PLAREVO1836-152 | Braking Resistor Cord | | 1 |
| 53 | PLAREVO1836-153 | Lock Handle | | 1 |
| 54 | PLAREVO1836-154 | Control Box | | 1 |
| 55 | PLAREVO1836-155 | Control Cord | | 1 |
| 56 | PLAREVO1836-156 | Tailstock Tool Caddy | | 1 |
| 57 | PLAREVO1836-157 | Hex Cap Screw | M6x6 | 4 |
| 58 | PLAREVO1836-158 | Door Hinge | | 1 |
| 59 | PLAREVO1836-159 | Speed Knob | | 1 |
| 60 | PLAREVO1836-160 | Rubber Sleeve | | 2 |
| 61 | PLAREVO1836-161 | Rubber Bushing | | 1 |
| 62 | PLAREVO1836-162 | Bottom Cover | | 1 |
| 63 | PLAREVO1836-163 | Inverter 220V | | 1 |
| | PLARE-VO1836-110-150-163 | Inverter 110V | 1 | |
| 64 | PLAREVO1836-164 | Braking Resistor | | 1 |
| 65 | PLAREVO1836-165 | Screw | M4x12 | 1 |
| 66 | PLAREVO1836-166 | Digital Readout | | 1 |
| 67 | PLAREVO1836-167 | Digital Readout Sensor | 1 | |
| 68 | PLAREVO1836-168 | Screw | M3x20 | 2 |
| 69 | PLAREVO1836-169 | Control Pot Assembly | | 1 |
| 70 | PLAREVO1836-170 | ON/ OFF Switch | | 1 |
| 71 | PLAREVO1836-171 | Emergency Stop | | 1 |
| 72 | PLAREVO1836-172 | Spacer | | 2 |
| 73 | PLAREVO1836-173 | Fwd/Rev Switch | | 1 |
| 74 | PLAREVO1836-174 | Relay 220V | | 1 |
| | PLARE-VO1836-110-150-174 | Relay 110V | 1 | |
| 75 | PLAREVO1836-175 | Ball Bearing | 6205LLU | 1 |
| 76 | PLAREVO1836-176 | Ball Bearing | 6207LLU | 1 |
| 77 | PLAREVO1836-177 | Pillar | | 2 |
| 78 | PLAREVO1836-178 | Index Label | | 1 |
| 79 | PLAREVO1836-179 | Index Indicator | | 1 |
| 80 | PLAREVO1836-180 | Power Cord 220V | | 1 |
| | PLARE-VO1836-110-150-180 | Power Cord 110V | | 1 |
| 81 | PLAREVO1836-181 | Knob | | 1 |
| 82 | PLAREVO1836-182 | Leveling Foot | | 4 |
| 83 | PLAREVO1836-183 | Bushing | | 1 |
| 84 | PLAREVO1836-184 | Wave Washer | 6205 | 1 |
| 85 | PLAREVO1836-185 | Key | 6x6x30 | 2 |
| 86 | PLAREVO1836-186 | Key | 8x7x25 | 1 |
| 87 | PLAREVO1836-187 | Key | 8x7x60 | 1 |
| 88 | PLAREVO1836-188 | E-Ring | E19 | 2 |
| 89 | PLAREVO1836-189 | E-Ring | E15 | 4 |

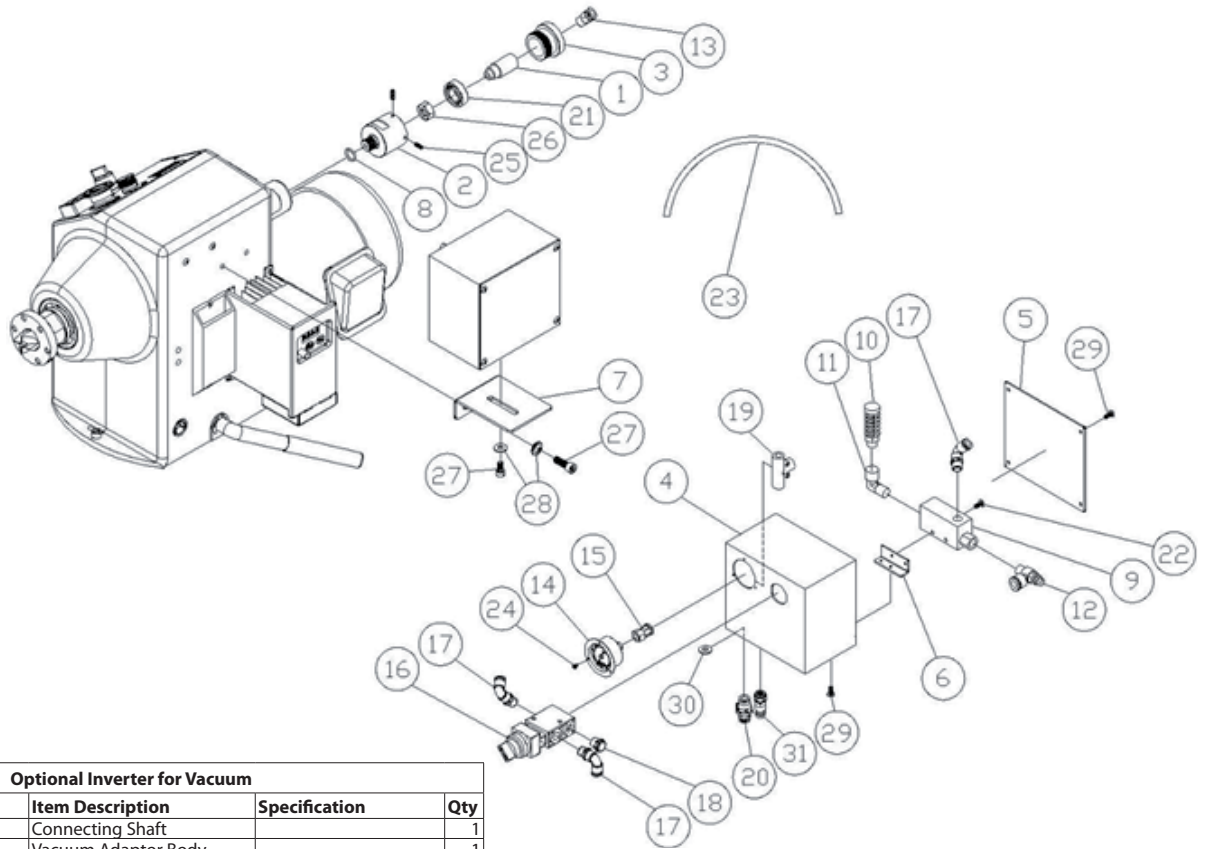
| Index | Part Number | Item Description | Specification | Qty |
|-------|------------------|--------------------------|------------------|-----|
| 90 | PLAREVO1836-190 | E-Ring | E5 | 1 |
| 91 | PLAREVO1836-191 | C-Ring | R22 | 1 |
| 92 | PLAREVO1836-192 | Socket Head Cap Screw | 1/4-20UNCx1" | 1 |
| 93 | PLAREVO1836-193 | Hex Cap Screw | 3/8-16UNCx1/2" | 1 |
| 94 | PLAREVO1836-194 | Socket Head Button Screw | M8x20 | 2 |
| 95 | PLAREVO1836-195 | Socket Head Cap Screw | 3/8-16UNCx1" | 1 |
| 96 | PLAREVO1836-196 | Knob | | 1 |
| 97 | PLAREVO1836-197 | Socket Head Cap Screw | 5/16-18UNCx1" | 8 |
| 98 | PLAREVO1836-198 | Set Screw | 5/16-18UNCx3/8 | 2 |
| 99 | PLAREVO1836-199 | Set Screw | M8x6 | 4 |
| 100 | PLAREVO1836-1100 | Set Screw | M4x4 | 2 |
| 101 | PLAREVO1836-1101 | Set Screw | 1/4-20UNCx1/4 | 3 |
| 102 | PLAREVO1836-1102 | Key | 5x5x50 | 1 |
| 103 | PLAREVO1836-1103 | Screw | M4x15 | 2 |
| 104 | PLAREVO1836-1104 | Screw | M3x8 | 8 |
| 105 | PLAREVO1836-1105 | Phillips Flat Head Screw | M3x8 | 2 |
| 106 | PLAREVO1836-1106 | Phillips Flat Head Screw | M6x16 | 4 |
| 107 | PLAREVO1836-1107 | Screw | M3x4 | 2 |
| 108 | PLAREVO1836-1108 | Motor Cord | | 1 |
| 109 | PLAREVO1836-1109 | Flat Washer | D3xD8x1t | 2 |
| 110 | PLAREVO1836-1110 | Nylon Insert Lock Nut | M18x2.5 | 3 |
| 111 | PLAREVO1836-1111 | Hex Nut | 3/8-16UNC | 4 |
| 112 | PLAREVO1836-1112 | Flat Washer | D10xD23x2t | 7 |
| 113 | PLAREVO1836-1113 | Flat Washer | D8xD18x2t | 14 |
| 114 | PLAREVO1836-1114 | Lock Washer | 5/16" | 12 |
| 115 | PLAREVO1836-1115 | Lock Washer | 3/8" | 5 |
| 116 | PLAREVO1836-1116 | Phillips Flat Head Screw | 3/8-16UNCx3/4" | 4 |
| 117 | PLAREVO1836-1117 | Strain Relief | 7N-2 | 3 |
| 118 | PLAREVO1836-1118 | Strain Relief | SB2F-1 | 1 |
| 119 | PLAREVO1836-1119 | Set Screw | 1/4-20UNCx3/8 | 1 |
| 120 | PLAREVO1836-1120 | Socket Head Button Screw | M8x25 | 1 |
| 121 | PLAREVO1836-1121 | Socket Head Button Screw | M8x45 | 1 |
| 122 | PLAREVO1836-1122 | Socket Head Cap Screw | 5/16-18UNCx1/2" | 3 |
| 123 | PLAREVO1836-1123 | Poly-V Belt | PJ8-190 | 1 |
| 124 | PLAREVO1836-1124 | Set Screw | 3/16-24UNCx3/16 | 2 |
| 125 | PLAREVO1836-1125 | Set Screw | 5/16-18UNCx1/4 | 1 |
| 126 | PLAREVO1836-1126 | Socket Head Button Screw | 3/8-16UNCx5/8" | 2 |
| 127 | PLAREVO1836-1127 | Screw | M3x12 | 2 |
| 128 | PLAREVO1836-1128 | Spacer | | 2 |
| 129 | PLAREVO1836-1129 | Handle | | 2 |
| 130 | PLAREVO1836-1130 | Sensor Bracket | | 1 |
| 131 | PLAREVO1836-1131 | Phillips Flat Head Screw | M3x4 | 4 |
| 132 | PLAREVO1836-1132 | Knob | | 1 |
| 133 | PLAREVO1836-1133 | Screw | M3x4 | 1 |
| 134 | PLAREVO1836-1134 | Screw | M3x10mm | 3 |
| 135 | PLAREVO1836-1135 | Clamp | | 1 |
| 136 | PLAREVO1836-1136 | Handle, Faceplate | | 1 |
| 137 | PLAREVO1836-1137 | Logo Plate | | 1 |
| 138 | PLAREVO1836-1138 | Strain Relief | 6N-4 | 4 |
| 139 | PLAREVO1836-1139 | Bracket | | 1 |
| 140 | PLAREVO1836-1140 | Thimble | | 1 |
| 141 | PLAREVO1836-1141 | Socket Flat Head Screw | M3x8 | 1 |
| 142 | PLAREVO1836-1142 | Cord Holder | | 1 |
| 143 | PLAREVO1836-1143 | O-Ring | P29 | 1 |
| 144 | PLAREVO1836-1144 | Speed Label | | 1 |
| 145 | PLAREVO1836-1145 | Cap | | 4 |
| 146 | PLAREVO1836-1146 | Socket Head Button Screw | 1/4-20UNCx3/8" | 8 |
| 147 | PLAREVO1836-1147 | Headstock Bracket | | 1 |
| 148 | PLAREVO1836-1148 | Socket Head Cap Screw | 3/8-16UNCx1-1/4" | 2 |
| 149 | PLAREVO1836-1149 | Tailstock Bracket | | 1 |
| 150 | PLAREVO1836-1150 | Socket Head Cap Screw | 3/8-16UNCx3/4" | 2 |
| 151 | PLAREVO1836-1151 | Magnet | | 1 |
| 152 | PLAREVO1836-1152 | Screw | M4x6 | 2 |
| 153 | PLAREVO1836-1153 | Hex Nut | M4x0.7 | 1 |
| 154 | PLAREVO1836-1154 | Braking Resistor Cover | | 1 |



| Optional 12" Swing-Away Extension | | | | |
|-----------------------------------|-----------------|--------------------------|------------------|-----|
| Index | Part Number | Item Description | Specification | Qty |
| 1 | PLAREVO1836-401 | 12" Bed Extension | | 1 |
| 2 | PLAREVO1836-402 | Draw Latch Assembly | | 1 |
| 3 | PLAREVO1836-403 | Hinge | | 1 |
| 4 | PLAREVO1836-404 | Pin | | 2 |
| 5 | PLAREVO1836-147 | Stop Bolt | | 1 |
| 6 | PLAREVO1836-406 | Socket Head Cap Screw | M6x12 | 4 |
| 7 | PLAREVO1836-407 | Phillips Flat Head Screw | M5x12 | 5 |
| 8 | PLAREVO1836-320 | Socket Head Button Screw | 3/8-16UNCx1-1/4" | 2 |
| 9 | PLAREVO1836-409 | Set Screw | 3/16-24UNCx3/8" | 4 |

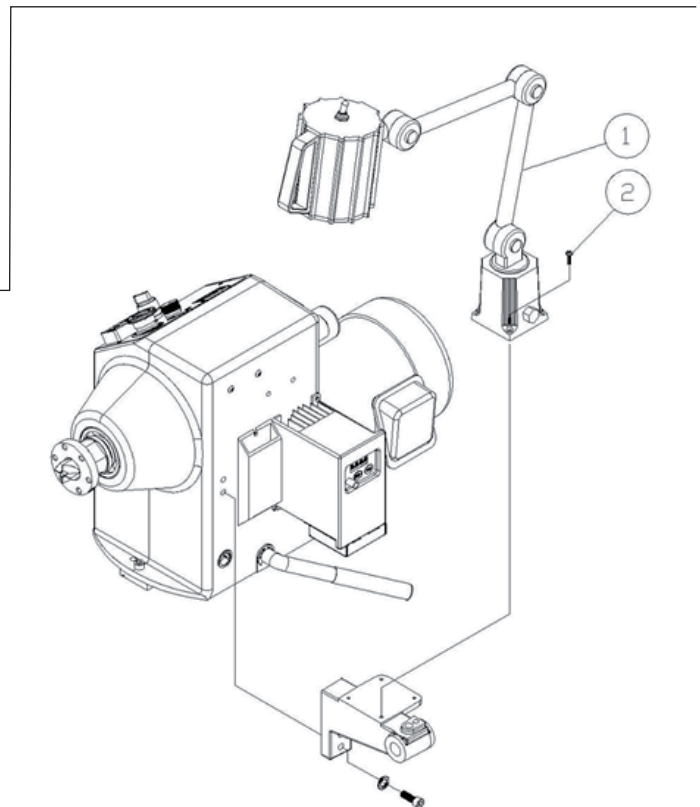


| Optional Comparator | | | | |
|---------------------|-----------------|------------------|---------------|-----|
| Index | Part Number | Item Description | Specification | Qty |
| 1 | PLAREVO1836-501 | Center | | 2 |
| 2 | PLAREVO1836-502 | Lock Handle | | 2 |



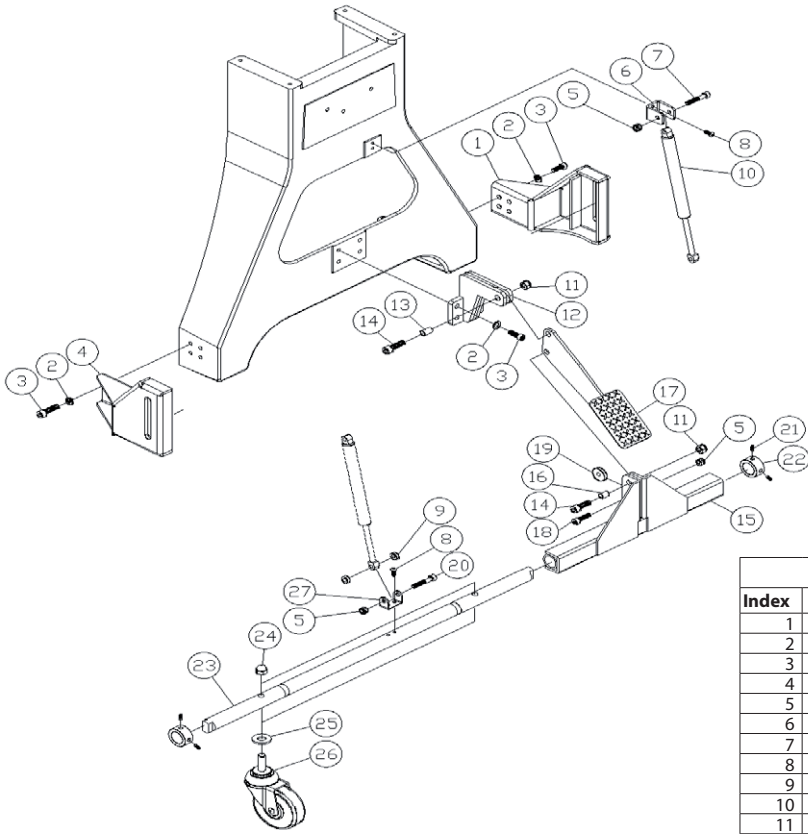
Optional Inverter for Vacuum

| Index | Part Number | Item Description | Specification | Qty |
|-------|------------------|--------------------------|-----------------|-----|
| 1 | PLAREVO1836-801 | Connecting Shaft | | 1 |
| 2 | PLAREVO1836-802 | Vacuum Adaptor Body | | 1 |
| 3 | PLAREVO1836-803 | Cover | | 1 |
| 4 | PLAREVO1836-804 | Vacuum System Box | | 1 |
| 5 | PLAREVO1836-805 | Plate | | 1 |
| 6 | PLAREVO1836-806 | Vacuum Generator Bracket | | 1 |
| 7 | PLAREVO1836-807 | Vacuum System Bracket | | 1 |
| 8 | PLAREVO1836-808 | O-Ring | P14 | 1 |
| 9 | PLAREVO1836-809 | Vacuum Generator | | 1 |
| 10 | PLAREVO1836-810 | Silencer | | 1 |
| 11 | PLAREVO1836-811 | L-Type Fitting | | 1 |
| 12 | PLAREVO1836-812 | Air Flow Regulator | | 1 |
| 13 | PLAREVO1836-813 | Quick Release Fitting | | 1 |
| 14 | PLAREVO1836-814 | Pressure Vacuum Gauge | | 1 |
| 15 | PLAREVO1836-815 | Gauge Fitting | | 1 |
| 16 | PLAREVO1836-816 | Vacuum Switch | | 1 |
| 17 | PLAREVO1836-817 | H-Type Fitting | | 1 |
| 18 | PLAREVO1836-818 | Flat Type Silencer | | 1 |
| 19 | PLAREVO1836-819 | T-Type Fitting | | 1 |
| 20 | PLAREVO1836-820 | Straight Fitting-Female | | 1 |
| 21 | PLAREVO1836-821 | Ball Bearing | 6003ZZ | 1 |
| 22 | PLAREVO1836-822 | Screw | M4x30 | 2 |
| 23 | PLAREVO1836-823 | Air Hose | | 1 |
| 24 | PLAREVO1836-824 | Screw | M2.5x5 | 3 |
| 25 | PLAREVO1836-825 | Set Screw | M5x5 | 2 |
| 26 | PLAREVO1836-826 | Hex Nut | M12 | 1 |
| 27 | PLAREVO1836-827 | Socket Head Cap Screw | 5/16-18UNCx1/2" | 4 |
| 28 | PLAREVO1836-1113 | Flat Washer | D8xD18x2t | 4 |
| 29 | PLAREVO1836-829 | Screw | M4x10 | 6 |
| 30 | PLAREVO1836-830 | Flat Washer | D1/2"xD26x2.5t | 1 |
| 31 | PLAREVO1836-831 | Quick Fitting- Inlet | | 1 |

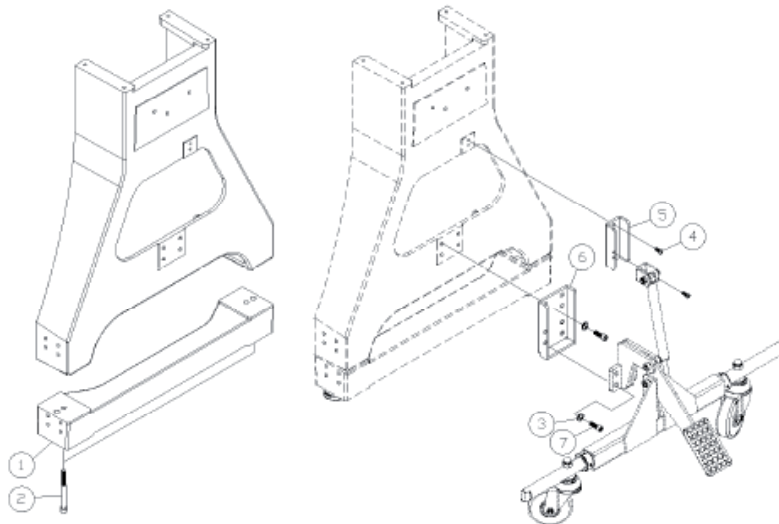


Optional Industrial Flood Light

| Index | Part Number | Item Description | Specification | Qty |
|-------|-----------------|------------------|---------------|-----|
| 1 | PLAREVO1836-601 | Work Light | | 1 |
| 2 | PLAREVO1836-602 | Screw | M4x15 | 4 |



| Optional Deluxe Wheel System | | | | |
|------------------------------|------------------|--------------------------|----------------|-----|
| Index | Part Number | Item Description | Specification | Qty |
| 1 | PLAREVO1836-901 | Support Bracket-Right | | 2 |
| 2 | PLAREVO1836-1115 | Lock Washer | 3/8" | 24 |
| 3 | PLAREVO1836-195 | Socket Head Cap Screw | 3/8-16UNCx1" | 24 |
| 4 | PLAREVO1836-904 | Support Bracket-Left | | 2 |
| 5 | PLAREVO1836-905 | Nylon Insert Lock Nut | M8x1.25 | 6 |
| 6 | PLAREVO1836-906 | Support Bracket | | 2 |
| 7 | PLAREVO1836-907 | Socket Head Cap Screw | M8X45mm | 2 |
| 8 | PLAREVO1836-1146 | Socket Head Button Screw | 1/4-20UNCx3/8" | 8 |
| 9 | PLAREVO1836-909 | Spacer | | 4 |
| 10 | PLAREVO1836-910 | Cylinder | | 2 |
| 11 | PLAREVO1836-911 | Nylon Insert Lock Nut | M10x1.5 | 4 |
| 12 | PLAREVO1836-912 | Support Bracket | | 2 |
| 13 | PLAREVO1836-913 | Bushing | | 2 |
| 14 | PLAREVO1836-914 | Socket Head Cap Screw | M10x35mm | 4 |
| 15 | PLAREVO1836-915 | Connecting rod | | 2 |
| 16 | PLAREVO1836-916 | Bushing | | 2 |
| 17 | PLAREVO1836-917 | Foot Brake | | 2 |
| 18 | PLAREVO1836-918 | Socket Head Cap Screw | M8X30mm | 2 |
| 19 | PLAREVO1836-919 | Bushing | | 2 |
| 20 | PLAREVO1836-920 | Socket Head Cap Screw | M8X50mm | 2 |
| 21 | PLAREVO1836-199 | Set Screw | M8x6 | 8 |
| 22 | PLAREVO1836-922 | Spacer | | 4 |
| 23 | PLAREVO1836-923 | Rod | | 2 |
| 24 | PLAREVO1836-924 | Nut | 1/2"-12UNC | 4 |
| 25 | PLAREVO1836-925 | Flat Washer | 1/2" | 4 |
| 26 | PLAREVO1836-926 | Caster | 4 | 1 |
| 27 | PLAREVO1836-927 | Support Bracket | | 2 |



| Optional 3" Riser Blocks | | | | |
|--------------------------|------------------|--------------------------|------------------|-----|
| Index | Part Number | Item Description | Specification | Qty |
| 1 | PLAREVO1836-701 | 3" Riser Blocks | | 2 |
| 2 | PLAREVO1836-702 | Socket Head Cap Screw | 3/8-16UNCx3-1/2" | 4 |
| 3 | PLAREVO1836-1115 | Lock Washer | 3/8" | 8 |
| 4 | PLAREVO1836-1146 | Socket Head Button Screw | 1/4-20UNCx3/8" | 4 |
| 5 | PLAREVO1836-705 | Support Bracket | | 2 |
| 6 | PLAREVO1836-706 | Support Bracket | | 2 |
| 7 | PLAREVO1836-707 | Socket Head Cap Screw | 3/8-16UNCx3/4" | 8 |



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