

# PLATINUM SERIES 16-43 LATHE MANUAL



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## Table of contents

	<b>Page number</b>
<b>Safety Rules</b>	<b>4</b>
<b>Limited Warranty</b>	<b>5</b>
<b>Noise emission</b>	<b>6</b>
<b>Specification sheet</b>	<b>6</b>
<b>Receiving your machine</b>	<b>6</b>
<b>Introduction to Lathes</b>	<b>7</b>
<b>Parts of the Lathe</b>	<b>7</b>
<b>Where to locate your machine</b>	<b>10</b>
<b>Unpacking your machine</b>	<b>10</b>
<b>Assembly and setup</b>	<b>12</b>
<b>Maintenance and troubleshooting</b>	<b>17</b>
<b>Exploded view drawings</b>	<b>20</b>
<b>Electrical drawing</b>	<b>22</b>

## **Safety Rules.**

**As with all machinery there are certain hazards involved with the operation and use. Using it with caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. If you have any questions relative to the installation and operation, do not use the equipment until you have contacted your supplying distributor.**

**Read the following carefully before operating the machine:**

- 1. Keep the working area clean and be sure adequate lighting is available.**
- 2. Do not wear loose clothing, gloves, bracelets, necklaces or ornaments. Wear face, eye, respiratory and body protection devices as indicated for the operation or the environment.**
- 3. Be sure that the power is disconnected from the machine before tools are serviced or an attachment is to be fitted or removed.**
- 4. Never leave the machine with the power on.**
- 5. Do not use dull, gummy or cracked cutting tools.**
- 6. Be sure that the keys and adjusting wrenches have been removed and all the nuts and bolts are secured.**

# Limited Warranty

New machines and accessories sold by Laguna Tools carry a one-year warranty effective from the date of shipping. Machines sold through dealers must be registered with Laguna Tools within 30 days of purchase to be covered by this warranty. Laguna Tools guarantees all new machines and accessories sold to be free of manufacturers' defective workmanship, parts and materials. We will repair or replace, without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. We require that the defective item/part be returned to Laguna Tools with the complaint. Any machines returned to Laguna Tools must be returned with packaging in the same manner in which it was received. If a part or blade is being returned it must have adequate packaging to ensure no damage is received during shipping. In the event the item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. machine. Warranty maybe voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis.

Software purchased through Laguna Tools Inc. is not covered under this warranty and all technical support must be managed through the software provider. Software is non-refundable.

Normal user alignment, adjustment, tuning and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic machinery operation, settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer.

Parts, under warranty, are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service or a similar method. Technical support to install replacement parts is primarily provided by phone, fax, e-mail or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user.

Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four hours of delivery. Please contact our Customer Service Department for more information.

Only **new** machines sold to the original owner are covered by this warranty. For warranty repair information, **call 1-800-332-4094**.



## **Noise emission.**

Notes concerning noise emission :

Given that there exists a relationship between noise level and exposure times, measurement is not precise enough to determine the need for supplementary precautions. The factors affecting the true level of exposure to operators are clearly the amount of time exposed, the characteristics of the working environment, such as other sources of dust and noise, etc., for example, adjacent machines - in other words, the level of ambient noise. It is possible that exposure level limits will vary from country to country.

## **Specification sheet.**

<b>Motor</b>	<b>1,5 HP TFEC</b>
<b>Voltage</b>	<b>110V</b>
<b>Swing over bed</b>	<b>16 in</b>
<b>Distance between centers</b>	<b>43 in</b>
<b>RPM range</b>	<b>600 – 2400 RPM</b>
<b>Spindle</b>	<b>1 ¼ in X 8 TPI</b>
<b>Head &amp; tail stock</b>	<b>No. 2 morse taper</b>
<b>Tool rest</b>	<b>12 in</b>
<b>Face plate</b>	<b>6 in</b>
<b>Tail stock travel</b>	<b>2 ¼ in</b>
<b>Weight</b>	<b>300 lb</b>
<b>Shipping weight</b>	<b>400 lb</b>

## **Receiving your machine.**

**Note.** It is probable that your machine will be delivered by a third party. 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 and/or Laguna Tools.

Laguna Tools endeavors to test machines prior to shipping to customers as movement can take place during transportation. 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.

## **Introduction to Lathes.**

This machine is designed to give you years of safe service. Read this owner's manual in its entirety before assembly or use.

## **Parts of the Lathe.**

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.



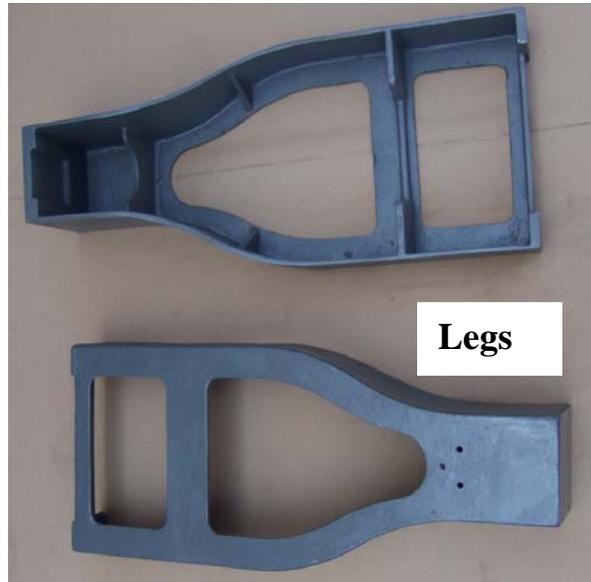
### **Lathe bed.**

The bed is a machined heavy casting.



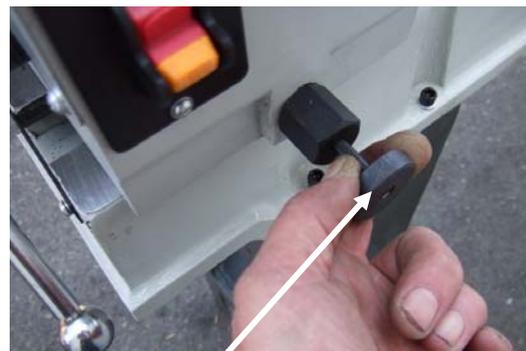
### **Lathe legs.**

The Legs are cast iron, and their heavy construction gives the machine a low center of gravity, and ensures that it is very stable.



### **Head stock.**

The head stock is cast iron and houses the variable speed control, motor, and the head stock swivel mechanism. The head stock swivel mechanism has an indexing pin that allows it to be locked in the following positions: 0, 60, 90, 120 and 180 degrees.



### **Tail stock.**

The tail stock is a cast iron construction, and the spindle has a travel length of 2 ¼ in. It can accommodate centers 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 in hand.



**Tool rest.**

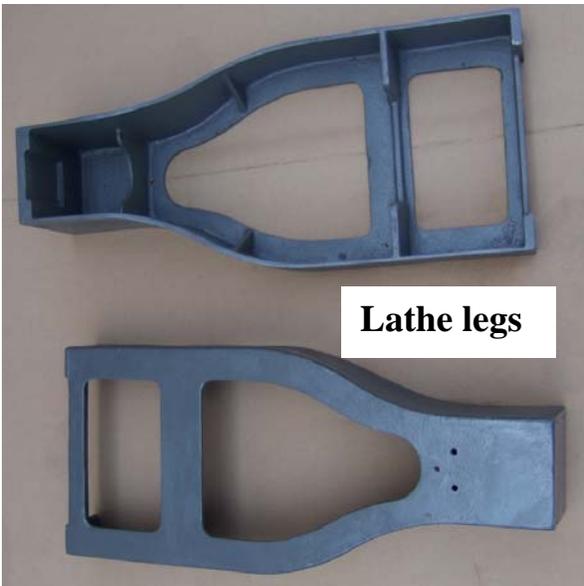
The tool rest can be moved to any position on the lathe bed and locked to suit the job in hand.

**Electrical system.**

The electrical control system is housed inside the head stock, and a power cord with a 3 pin 110V plug is provided.



**What you will receive with the Lathe.**



**Lathe legs**



**Tools, centers and tool rest**



**Lathe bed with tailstock, tool rest, and headstock assembled**

### **Where to locate 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 an area at the front of the machine suitable for comfortable working.
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 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.

### **Unpacking your machine.**

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

1. Using the tin snips, cut the banding that is securing the packing box [If fitted].

**WARNING: EXTREME CAUTION MUST BE USED, BECAUSE THE BANDING WILL SPRING APART AND COULD CAUSE INJURY.**



2. Dismantle the box, including the sides as this will ease access to the machine.



**Remove sides**

**Remove clamping bolts**

**3.** Remove the bolts that secure the legs to the bed of the machine. If you do not have a lifting hoist or forklift, you may find it easier to remove the bolts that secure the legs together, and remove one leg at a time.

**Note:** The legs are heavy, and you must use caution when removing the fixing bolts. Also you must use caution when removing the legs from the bed of the machine.

**4.** Remove the base mounting bolts that secure the machine to the base of the box.

**5.** It is recommended that the bed of the machine be removed from the packaging by lifting it with a hoist or forklift using a "SLING." Remove the packaging and lower to the floor.

**Note:** The machine is heavy. Ensure that you have sufficient people.

**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.

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



**Lathe bed shown with the head stock removed.**

**[Head stock removal covered later]**

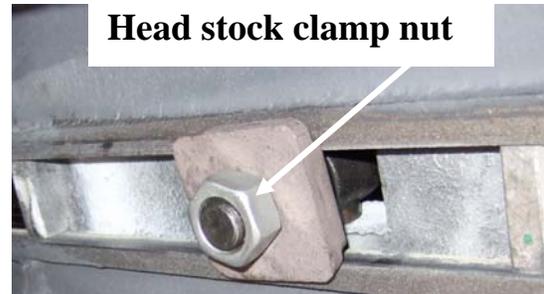
## Assembly and setup.

The machine comes mostly assembled. You will have to assemble only the legs and the tool rest to the bed of the machine.

**Note:** It is recommended that the head stock be removed from the bed of the lathe to ease assembly [Covered later in the manual].

### Assembling the legs to the bed of the machine.

Remove the nut that secures the head stock. Lift the head stock off the bed. This will reduce the weight of the bed and make assembly easier.



Lift the legs to the vertical position and lower the bed onto them. Secure with

the fixing screws provided.

**Note:** Each leg must be supported to ensure that it will not fall when positioning the bed.

**Note:** To ensure safety you will need 4 people to assemble the

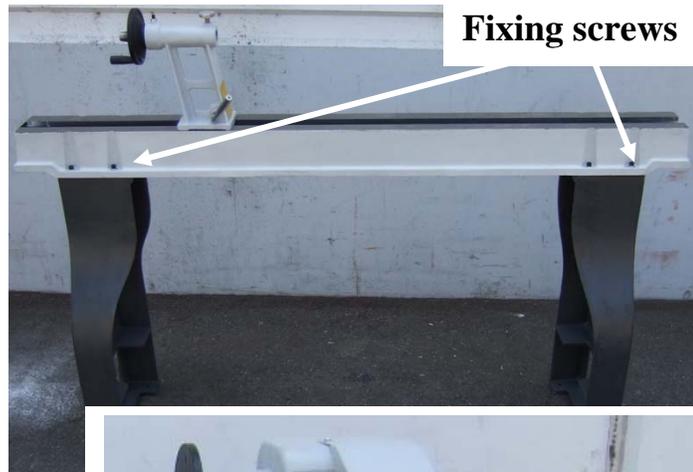
**Lathe bed**



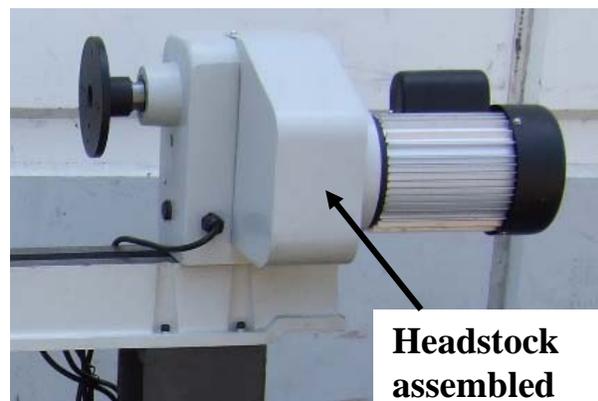
bed to the legs- one on each leg, and one at each end of the bed.

**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.

Assemble the head stock back onto the bed of the lathe and fit the clamping nut.



**Headstock clamping nut**



Adjust the headstock clamp nut until the locking handle secures the headstock. Locate the headstock so that the casting is level with the back edge of the bed. This will allow the maximum amount of the bed to be used.

**Assembling the tool rest on the bed of the machine.**

Remove the clamping nut and washer.

Fit the tool rest onto the bed of the lathe. Refit the washer and nut.

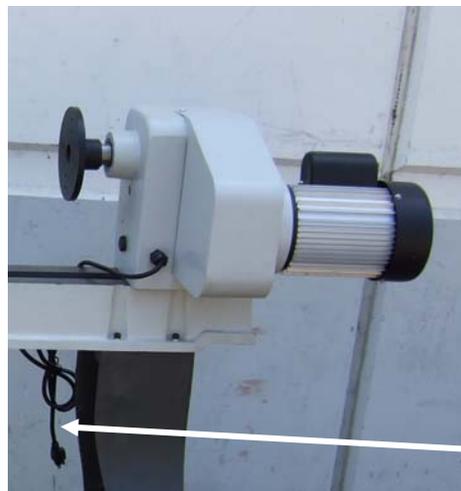
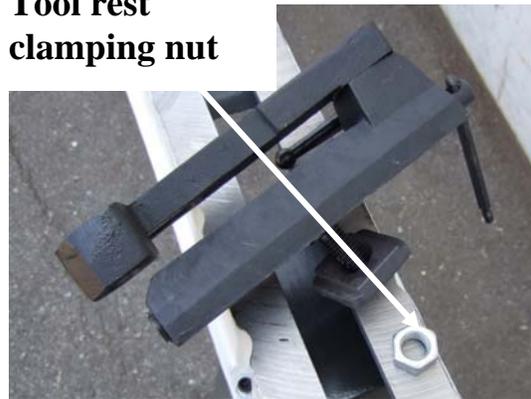
Adjust the nut until the clamping handle secures the tool rest.

The tool rest can be moved to any position on the bed of the lathe, and also in/out to suit the job in hand. To move the tool rest, loosen the locking handle, move to the required position and lock.

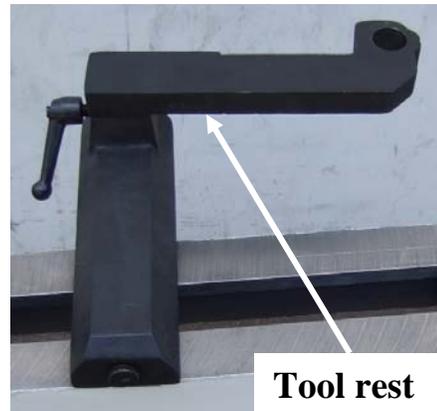
**Headstock locking handle**



**Tool rest clamping nut**



**Power cable**



**Tool rest**

**Connecting the electrical supply.**

Ensure that the electrical supply corresponds with that of the machine [Single phase 110V].

It is recommended that you use a 30-amp main breaker.

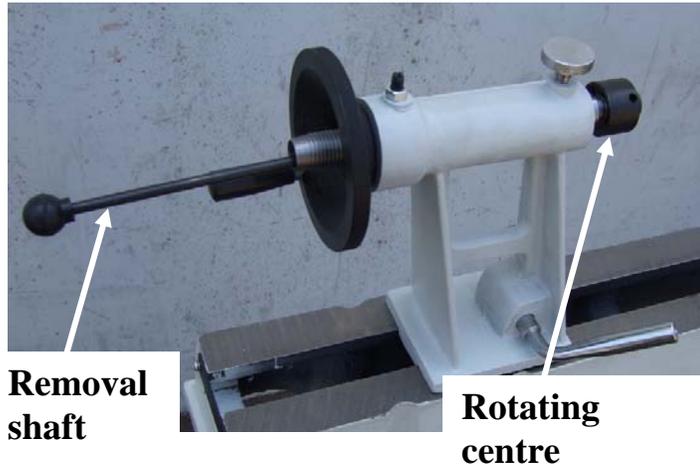
**Note: A qualified electrician must carry out the installation.**

### **Cleaning the machine.**

Remove the rust protection grease with WD 40 or a similar solvent. It is important that you remove all the grease and relubricate with a Teflon-based lubricant. Teflon has fewer tendencies to attract sawdust, and cause clogging.

### **Fitting the rotating center.**

Ensure that the bore of the tail stock is clean. The rotating center has a number No. 2 morse taper that fits into the tail stock. Push the center into the tail stock, bore firmly, and ensure that it is securely located. To remove the



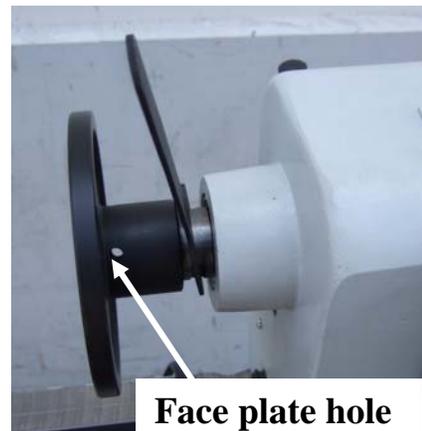
center, push the shaft into the back of the tail stock and give it a sharp knock. This will remove the rotating center.

**Note:** Do not leave the removal shaft in the tail stock with the machine running.

### **Fitting the drive center in the head stock.**

To remove the face plate from the head stock spindle, insert a screw driver into the hole in the face plate shaft. Fit the wrench onto the head stock spindle and unlock the face plate.

Ensure that the bore of the head stock is clean. The drive center has a number No 2 morse taper that fits into the head stock. Push the center into the head stock bore firmly, and ensure that it is securely located. To remove the center, push the removal shaft into the back of the head stock, and give it a sharp knock. This will remove the drive center.



**Note.** Do not leave the removal shaft in the head stock with the machine running.

**Fitting the face plate.**

Reverse the removal procedure, described earlier.



**Removal shaft**

**Head stock controls.**

**Head stock clamp lever.**

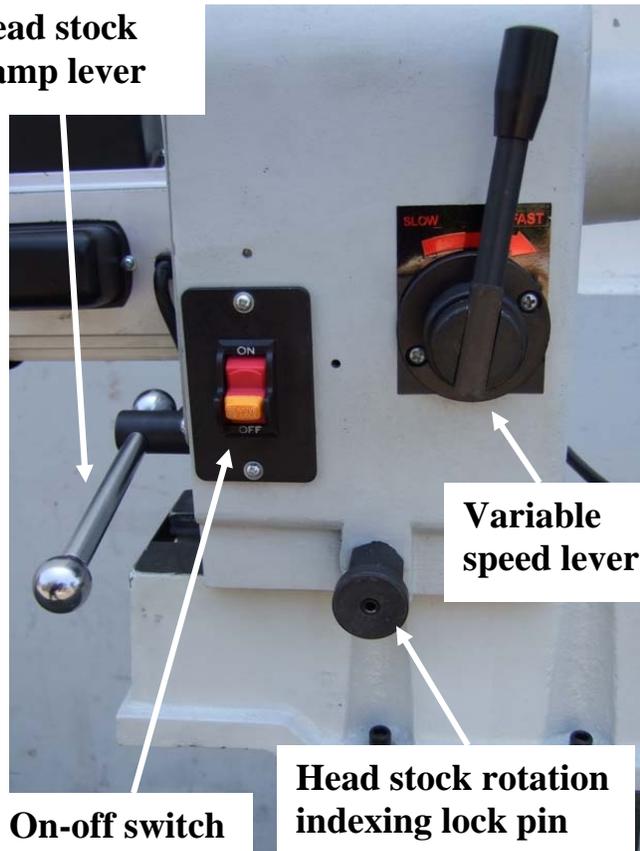
The head stock clamp lever allows the head stock to be released and moved to any position on the lathe bed.

**Head stock clamp lever**

**Variable speed lever.**

The variable speed lever adjusts the spindle pulley. This changes the speed of the lathe spindle to 10 fixed speeds.

**Note:** The motor must be running when changing the speed of the lathe.



**Variable speed lever**

**On-off switch**

**Head stock rotation indexing lock pin**

**Head stock rotation indexing lock pin.**

The head stock rotation indexing pin, when released, allows the head stock to be rotated from 0 to the 60, 90, 120, and 180 degree positions.

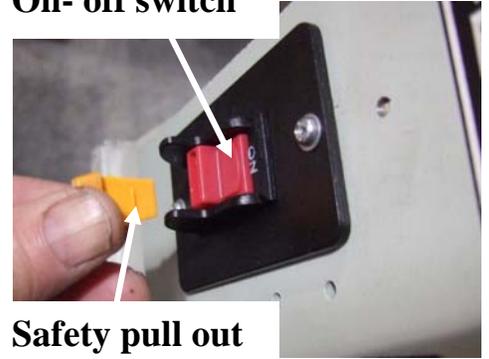
**Note:** Do not rotate the head stock with the motor running.



**On-off switch.**

The on-off switch activates or deactivates the motor. The switch is provided with a safety pull-out. With the yellow pull-out removed, the switch is deactivated.

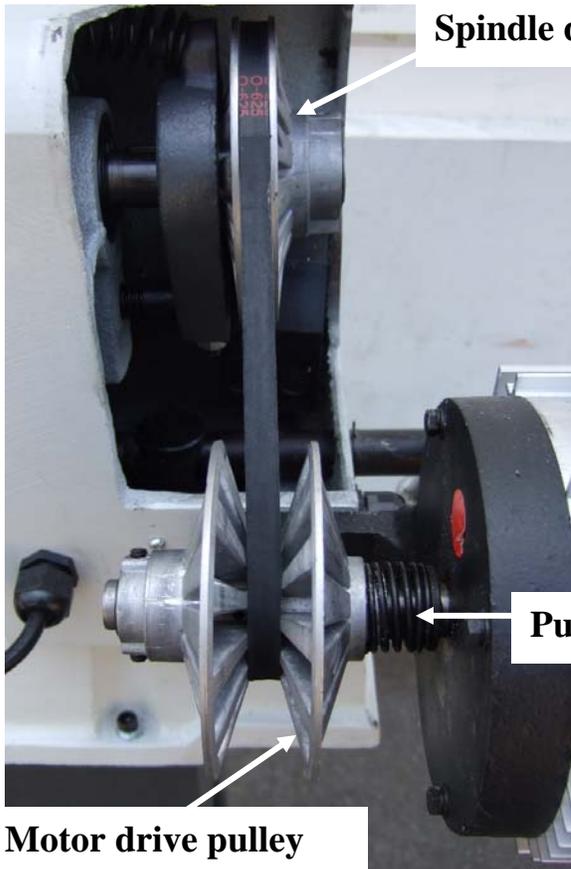
**On- off switch**



**Variable speed.**

The lathe has a variable speed system that utilizes two variable diameter pulleys. By changing the diameter of the motor and spindle pulleys, the speed of the lathe spindle changes. The lever located on the head stock adjusts the spindle pulley, and the motor pulley adjusts automatically under the action of the drive V belt, and a spring. Because the spring on the motor drive pulley adjusts to suit the position of the drive V belt there is no need to adjust the belt tension.

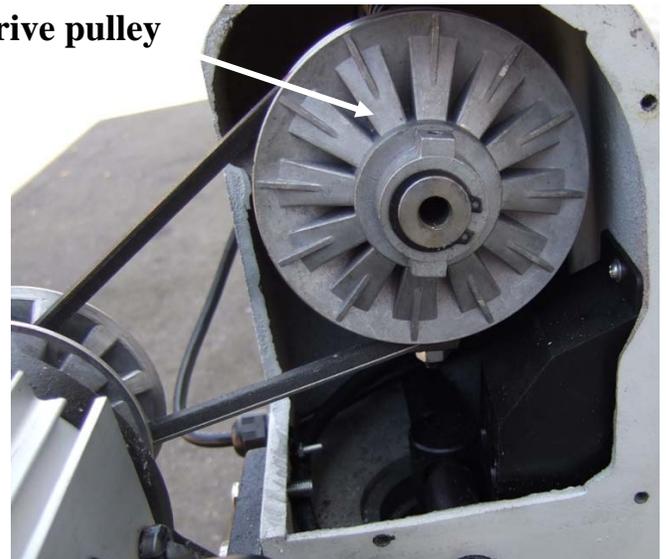
**Safety pull out**



**Spindle drive pulley**

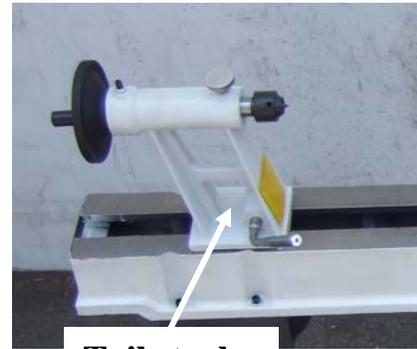
**Pulley tension spring**

**Motor drive pulley**



### **Tail stock**

The tail stock can be moved to any position on the bed of the lathe. To move the tail stock, unlock the locking handle, slide the tail stock to the required position and lock. The tail stock spindle can be extended and retracted by rotating the handle located at the back of the tail stock. The spindle can be locked in position with the screw on the top of the tail stock. Always lock the spindle when operating the lathe.



**Tail stock**

### **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 fewer tendencies 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.

## **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.

### **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. Stop switch 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 the jamming.
2. Capacitor faulty. Replace the capacitor.
3. Motor faulty. Replace the motor.

### **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, motor cooling fan clogged or faulty, motor cooling fans 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.

### **Spindle slows down during a cut.**

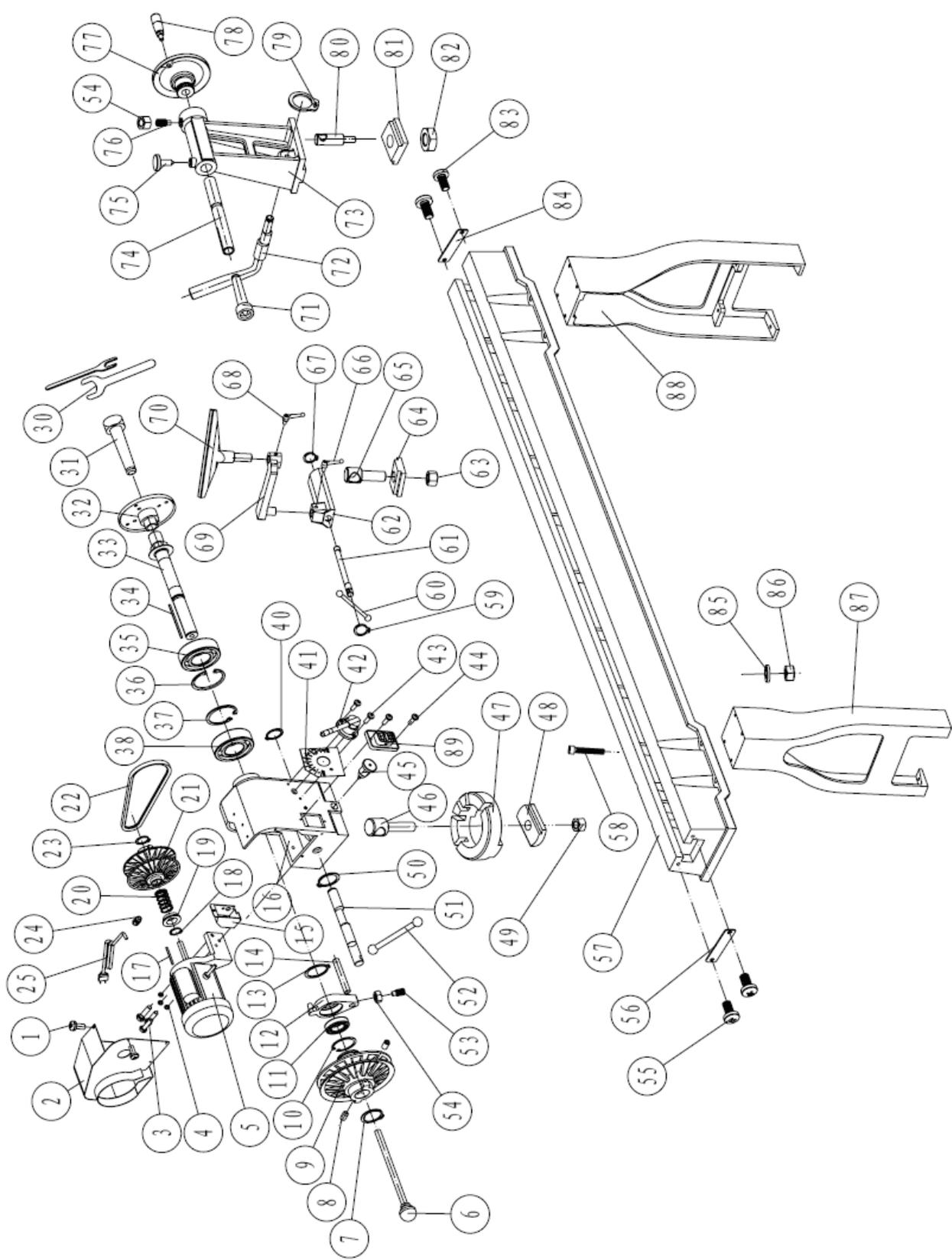
1. Dull cutting tools. Replace the tool or have it resharpened.
2. Feeding the wood too fast. Slow down the feed rate.
3. Oil or dirt on the drive belt. Clean or replace the drive belt.

**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 a slower speed and/or balance the job.
4. Damaged pulley. Replace the pulley.

## PART LIST

Part No	Description	Size	Q'ty	Part No	Description	Size	Q'ty
W1	Screw	M5X8	4	W50	"C" ring	24	1
W2	Cover – motor		1	W51	Lever		1
W3	Hex screw	M8X30	3	W52	Handle		1
W4	Washer		3	W53	Screw	M8x25	1
W5	Motor		1	W54	Nut	M8	2
W6	Pin-injection		1	W55	Screw	M5x12	2
W7	"C" ring	24	1	W56	Plate		1
W8	Screw	M6	2	W57	Bed		1
W9	Motor Pulley Set, L&R		1	W58	Bolt	M8x35	8
W10	"C" ring	62	1	W59	"C" ring	19	1
W11	Bearing	6007	1	W60	Handle		1
W12	Bracket-Shifting Lever		1	W61	Shaft		1
W13	"C" ring	35	1	W62	Tool Rest Body		1
W14	Rack		1	W63	Nut	M18	1
W15	Switch Box		1	W64	Clamp		1
W16	Headstock		1	W65	Bolt-A		1
W17	Key 4x4x80		1	W66	Handle Assembly		1
W18	"C" ring	16	1	W67	"C" ring	19	1
W19	Sleeve		1	W68	Handle Assembly		1
W20	Spring		1	W69	Extension Tool Rest		1
W21	Spindle Pulley Set, L&R		1	W70	Tool Rest		1
W22	V-Belt 625		1	W71	Center		1
W23	"C" ring	16	1	W72	Shaft		1
W24	Plastic Jaw Nut M20x1.5		3	W73	Tailstock		1
W25	Power Wire		1	W74	Tail Spindle		1
W30	Wrench		2	W75	Quill Locking Screw		1
W31	Drive Center		1	W76	Cone Set Screw		1
W32	Disc		1	W77	Handle Wheel		1
W33	Spindle		1	W78	Handle		1
W34	Key 4x4x80		1	W79	"C" ring	10	1
W35	Bearing	6205	1	W80	Special Bolt		1
W36	"C" ring	52	1	W81	Clamp		1
W37	"C" ring	52	1	W82	Nut	M10	1
W38	Bearing	6205	1	W83	Screw	M5x12	2
W40	"C" ring	24	1	W84	Plate		1
W41	Label for Sped		1	W85	Washer	8	4
W42	Gear Assembly		1	W86	Nut	M8	4
W43	Screw	M5x12	2	W87	Leg		1
W44	Screw	M4x12	3	W88	Leg		1
W45	Angular setting assembly		1	W89	Switch		1
W46	Special Screw		1				
W47	Index Bracket		1				
W48	Clamp		1				
W49	Nut	M18	1				



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# **LAGUNA**

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