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POWERMATIC®

Operating Instructions and Parts Manual
20-inch Planer
Models 209 and 209HH



Powermatic
427 New Sanford Road
LaVergne, TN 37086
Ph.: 800-274-6848
www.powermatic.com

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Warranty and Service

Powermatic warrants every product it sells against manufacturers' defects. If one of our tools needs service or repair, please contact Technical Service by calling 1-800-274-6846, 8AM to 5PM CST, Monday through Friday.

Warranty Period
The general warranty lasts for the time period specified in the literature included with your product or on the official Powermatic branded website.

- Powermatic products carry a limited warranty which varies in duration based upon the product. (See chart below)
- Accessories carry a limited warranty of one year from the date of receipt.
- Consumable items are defined as expendable parts or accessories expected to become inoperable within a reasonable amount of use and are covered by a 90 day limited warranty against manufacturer's defects.

Who is Covered
This warranty covers only the initial purchaser of the product from the date of delivery.

What is Covered
This warranty covers any defects in workmanship or materials subject to the limitations stated below. This warranty does not cover failures due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, improper repair, alterations or lack of maintenance. Powermatic woodworking machinery is designed to be used with Wood. Use of these machines in the processing of metal, plastics, or other materials outside recommended guidelines may void the warranty. The exceptions are acrylics and other natural items that are made specifically for wood turning.

Warranty Limitations
Woodworking products with a Five Year Warranty that are used for commercial or industrial purposes default to a Two Year Warranty. Please contact Technical Service at 1-800-274-6846 for further clarification.

How to Get Technical Support
Please contact Technical Service by calling 1-800-274-6846. **Please note that you will be asked to provide proof of initial purchase when calling.** If a product requires further inspection, the Technical Service representative will explain and assist with any additional action needed. Powermatic has Authorized Service Centers located throughout the United States. For the name of an Authorized Service Center in your area call 1-800-274-6846 or use the Service Center Locator on the Powermatic website.

More Information
Powermatic is constantly adding new products. For complete, up-to-date product information, check with your local distributor or visit the Powermatic website.

How State Law Applies
This warranty gives you specific legal rights, subject to applicable state law.

Limitations on This Warranty
POWERMATIC LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD OF THE LIMITED WARRANTY FOR EACH PRODUCT. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. POWERMATIC SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY, OR FOR INCIDENTAL, CONTINGENT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF OUR PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Powermatic sells through distributors only. The specifications listed in Powermatic printed materials and on the official Powermatic website are given as general information and are not binding. Powermatic reserves the right to effect at any time, without prior notice, those alterations to parts, fittings, and accessory equipment which they may deem necessary for any reason whatsoever.

Product Listing with Warranty Period

90 Days – Parts; Consumable items
1 Year – Motors, Machine Accessories
2 Year – Woodworking Machinery used for industrial or commercial purposes
5 Year – Woodworking Machinery

NOTE: Powermatic is a division of JPW Industries, Inc. References in this document to Powermatic also apply to JPW Industries, Inc., or any of its successors in interest to the Powermatic brand.

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Warnings

As with all machines, there is a certain amount of hazard involved with the use of this planer. Use the machine with the respect and caution demanded where safety precautions are concerned. When normal safety precautions are overlooked or ignored, personal injury to the operator can result.

Read, understand and follow the safety and operating instructions found in this manual. Know the limitations and hazards associated with this machine.

Electrical grounding. Make certain that the machine frame is electrically grounded and that a ground lead is included in the incoming electrical service. In cases where a cord and plug are used, make certain that the grounding plug connects to a suitable ground. Follow the grounding procedure indicated in the National Electrical Code.

Eye safety. Wear an approved safety shield, goggles, or glasses to protect eyes. (NOTE: Common eyeglasses are only impact-resistant, they are not safety glasses.)

Personal protection. Before operating the machine, remove tie, rings, watch and other jewelry and roll up sleeves above the elbows. Remove all loose outer clothing and confine long hair. Protective type footwear should be used. Where the noise exceeds the level of exposure allowed in Section 1910.95 of the OSHA Regulations, use hearing protective devices. Do not wear gloves.

Guards. Keep the machine guards in place for every operation for which they can be used. If any guards are removed for maintenance, DO NOT OPERATE the machine until the guards are reinstalled.

Placement. Place machine so that potential kickback area is not in line with aisles, doorways, wash stations, or other work areas.

Work area. Keep the floor around the machine clean and free of scrap material, saw dust, oil and other liquids to minimize the danger of tripping or slipping. Be sure the table is free of all scrap, foreign material and tools before starting to cut. Make certain the work area is well lighted and that a proper exhaust system is used to minimize dust. It is recommended that anti-skid floor strips are used on the floor area where the operator normally stands and that each machine's work area be marked off. Provide adequate work space around the machine.

Avoid accidental starting: Make certain motor switch is in off position before connecting power to the machine.

Operator position. Maintain a balanced stance and keep your body under control at all times. Stand to one side out of line with the table and make sure no one else is standing in line with the table.

Housekeeping. Before turning on machine, remove all extra equipment such as keys, wrenches, scrap, and cleaning rags away from the machine

Careless acts. Give the work you are doing your undivided attention. Looking around, carrying on a conversation, and "horseplay" are careless acts that can result in serious injury.

Disconnect machine before performing any service or maintenance or when changing blades. A machine under repair should be RED TAGGED to show it should not be used until the maintenance is complete.

Maintain tools in top condition. Keep tools sharp and clean for safe and best performance. Dull tools increase noise levels and can cause kickbacks and glazed surfaces. Check the condition and adjustment of the tools before making any cuts. Follow the sharpening instructions on knife grinding and jointing, installing and adjustments.

Hand safety. Keep hands outside the machine. NEVER reach under the guards to try to clear stock that stops feeding. Do not clear chips and sawdust with hands; use a brush. Do not have any part of the hands under that part of the board that is over the table when starting a cut; the infeed roll will engage the board and force it down against the table causing a pinching action. Do not operate machine while the gear cover is open.

Cutterhead rotation: Be sure cutterhead rotates under power in a counterclockwise direction when viewed from the main drive motor side.

Material condition: Do not plane boards with loose knots or with nails or any foreign material on its surface. Knife impact on these objects can cause the knives to be pulled out and cause them to shatter against the chipbreaker or pressure bar. Twisted, warped, or in wind stock should first be jointed on one surface before attempting to plane a parallel surface on the planer. Serious stock flaws cannot be removed by use of a planer alone.

Machine adjustments: Make all machine adjustments with power off except feed rate.

Job completion. If the operator leaves the machine area for any reason, the planer should be turned "off" and the cutterhead should come to a complete stop before his departure. In addition, if the operation is complete, he should clean the planer and the work area. Never clean the planer with power "on" and never use the hands to clear sawdust and debris; use a brush.

Replacement parts. Use only Powermatic or factory authorized replacement parts and accessories; otherwise the warranty and guarantee is null and void.

Misuse. Do not use this planer for other than its intended use. If used for other purposes, Powermatic disclaims any real or implied warranty and holds itself harmless for any injury or damage which may result from that use.

If you are not thoroughly familiar with the operation of planers, obtain advice from your supervisor, instructor or other qualified person.

Drugs, alcohol, medication. Do not operate this machine while under the influence of drugs, alcohol, or any medication.

⚠ **WARNING:** This product can expose you to chemicals including lead which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to http://www.p65warnings.ca.gov.

⚠ **WARNING:** Drilling, sawing, sanding or machining wood products generates wood dust and other substances known to the State of California to cause cancer. Avoid inhaling dust generated from wood products or use a dust mask or other safeguards for personal protection.

Wood products emit chemicals known to the State of California to cause birth defects or other reproductive harm. For more information go to http://www.p65warnings.ca.gov/wood.

Familiarize yourself with the following safety notices used in this manual:

⚠CAUTION This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.

⚠WARNING This means that if precautions are not heeded, it may result in serious injury or possibly even death.

Introduction

This manual is provided by Powermatic covering the safe operation and maintenance procedures for a Powermatic Model 209 and 209HH Planer. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. This machine has been designed and constructed to provide consistent, long-term operation if used in accordance with instructions set forth in this manual. If there are any questions or comments, please contact either your local supplier or Powermatic. Powermatic can also be reached at our web site: www.powermatic.com.

Features

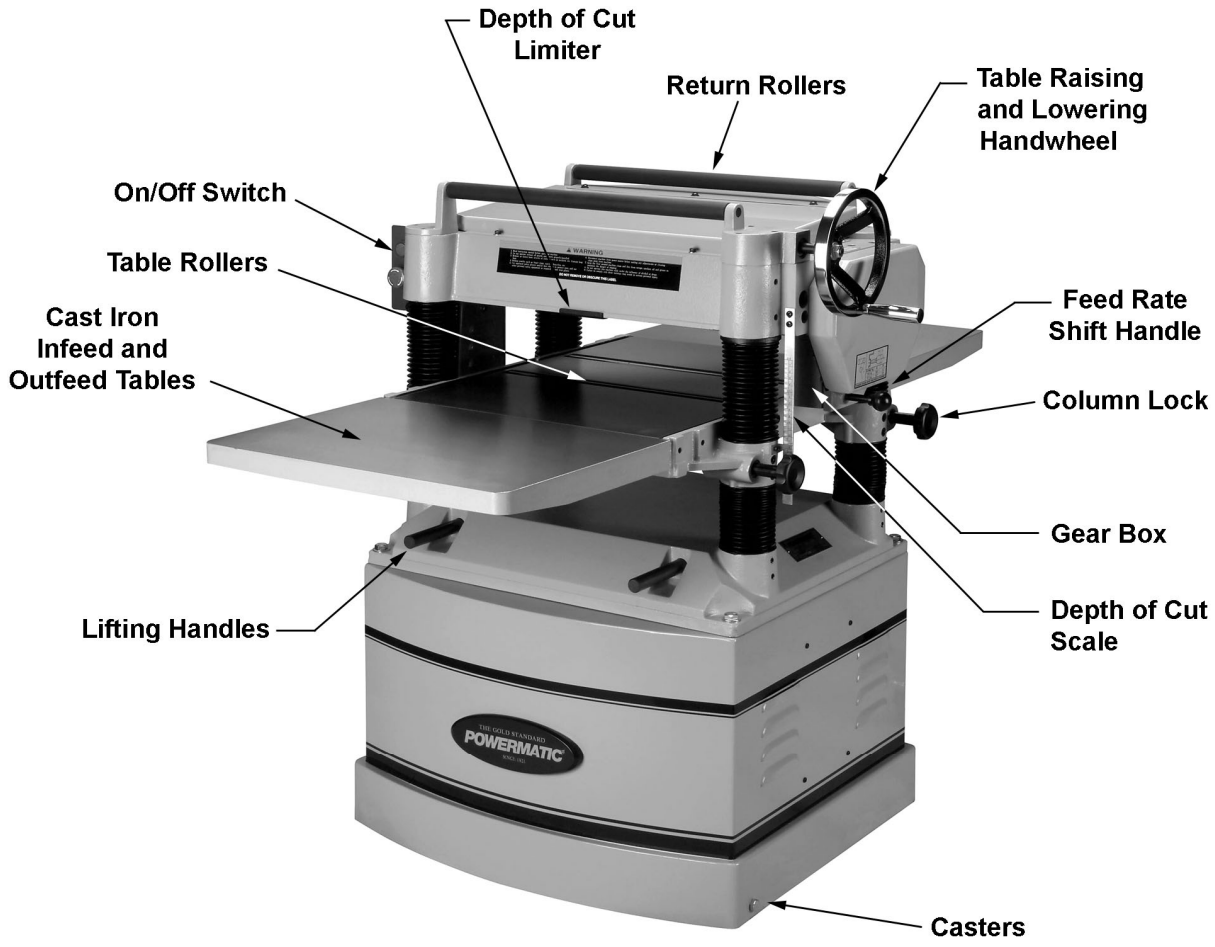


Figure 1

Specifications

Model Number	**209-1**	**209-3**
Stock Number	1791296	1791297
Table Area (in.)	25-3/4 x 20	25-3/4 x 20
Maximum Planing Width (in.)	20	20
Maximum Planing Thickness (in.)	8	8
Minimum Planing Thickness (in.)	1/8	1/8
Full Width Cutting Depth (in.)	3/32	3/32
Minimum Planing Length (in.)	6-3/4	6-3/4
Knives	4	4
Blade Size (in.)	20 x 1 x 1/8	20 x 1 x 1/8
Cutterhead Speed (RPM)	5,000	5,000
Cuts per Minute	20,000	20,000
Cutterhead Diameter (in.)	3-3/16	3-3/16
Sound Rating @ 2” distance (dB)	82 to 85	82 to 85
Feeding Speed (FPM)	24 and 31	24 and 31
Motor	TEFC, 5HP, 1Ph, 23A, 230V	TEFC, 5HP, 3Ph, 14/7A, 230/460V*
Dust Chute Diameter (in.)	5	5
Overall Dimensions (LxWxH)(in.)	26 x 36-5/8 x 41-3/8	26 x 36-5/8 x 41-3/8
Net Weight (lbs.)	770	770
Shipping Weight (lbs.)	880	880

Model Number	**209HH-1**	**209HH-3**
Stock Number	1791315	1791316
Table Area (in.)	25-3/4 x 20	25-3/4 x 20
Maximum Planing Width (in.)	20	20
Maximum Planing Thickness (in.)	8	8
Minimum Planing Thickness (in.)	1/8	1/8
Full Width Cutting Depth (in.)	3/32	3/32
Minimum Planing Length (in.)	6-3/4	6-3/4
Cutterhead number of rows	5	5
Knives	100 four-sided inserts	100 four-sided inserts
Cutterhead Speed (RPM)	5,000	5,000
Cuts per Minute	20,000	20,000
Cutterhead Diameter (in.)	3-1/16	3-1/16
Knife Insert Screw Max. Torque (pound force–inch)	45 to 55	45 to 55
Sound Rating @ 2” distance (dB)	80 to 84	80 to 84
Feeding Speed (FPM)	24 and 31	24 and 31
Motor	TEFC, 5HP, 1Ph, 28A, 230V	TEFC, 5HP, 3Ph, 14/7A, 230/460V*
Dust Chute Diameter (in.)	5	5
Overall Dimensions (LxWxH)(in.)	26 x 36-5/8 x 41-3/8	26 x 36-5/8 x 41-3/8
Net Weight (lbs.)	801	801
Shipping Weight (lbs.)	911	911

* pre-wired 230 volt ***NOTE:*** *For 460V operation, magnetic switch (part no.209-5016G) must be purchased separately and installed. A qualified electrician is recommended.*

The above specifications were current at the time this manual was published, but because of our policy of continuous improvement, Powermatic reserves the right to change specifications at any time and without prior notice, without incurring obligations.

Unpacking

Open shipping container and check for shipping damage. Report any damage immediately to your distributor and shipping agent. Do not discard any shipping material until the Planer is assembled and running properly.

Compare the contents of your container with the following parts list to make sure all parts are intact. Missing parts, if any, should be reported to your distributor. Read the instruction manual thoroughly for assembly, maintenance and safety instructions.

Crate Contents (Figure 2):

Models 209 and 209HH:

1 Planer (not shown)
1 Dust Hood
2 Cast Iron Extension Tables
1 Handwheel
1 Handle
1 Low Speed Gear Kit (#6292822) containing:
  1 50P Chain
  1 12T Sprocket
3 Open-End Wrenches (8-10,12-14,17-19mm)
4 Hex Wrenches (3,4,5 and 6mm)
2 Hardware Bags*
  *(*Contents of hardware bags are drawn full scale in Figure 3.)*
1 Owner's Manual (not shown)
1 Warranty Card (not shown)

Model 209 ONLY:

1 Knife Setting Gauge

Model 209HH ONLY:

1 1/4" Drive Screwdriver
1 T25P Torx Plus Drive Socket Adaptor
1 Set of 10 Knife Inserts

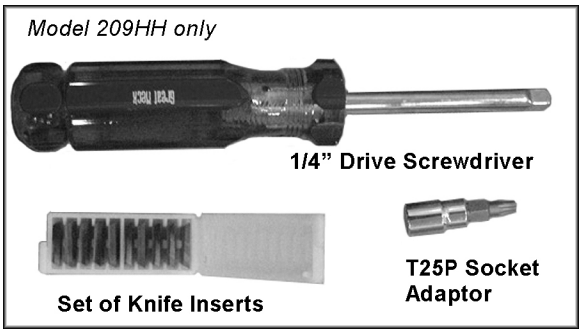


Figure 4



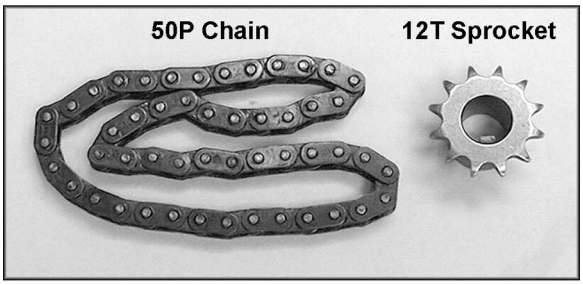


Figure 2

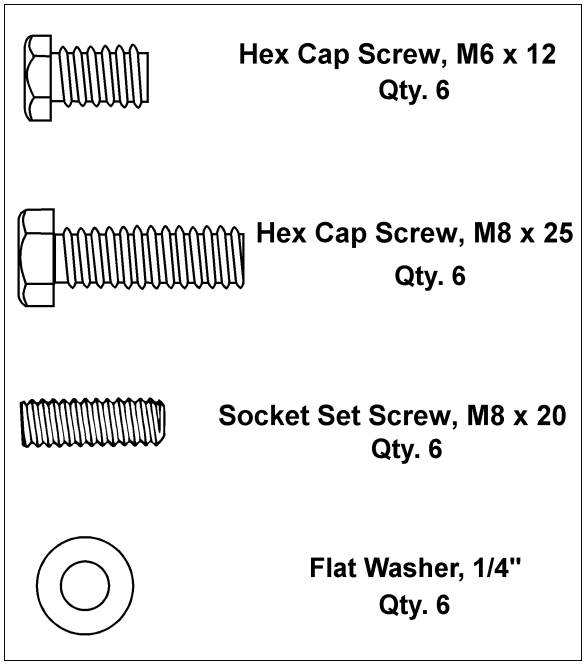


Figure 3

Assembly

Tools required for assembly:

Forklift or hoist with slings
Pliers
Open-End Wrenches 10,12,13,19mm
Hex Wrenches, 4 and 5mm – provided

Remove the screws holding the planer to the pallet and use a forklift or hoist to lift the planer off the pallet. Forks and straps should always be placed under the four lifting handles when lifting this machine (Figure 5). The lifting handles can be pushed back in when not in use.

The planer should be operated in a well-lit area with a sturdy floor and good ventilation. It can be rolled on its casters to the desired location. Tighten the lock knob (Figure 6) to prevent movement during operation or adjustments.

Exposed surfaces, such as tables, rollers, cutterhead, etc., have been given a protective coating at the factory. This should be removed with a soft cloth moistened with a good commercial solvent. Do not use acetone, gasoline, lacquer thinner, or other solvents with a low flash point. Do not use an abrasive pad because it may scratch the polished cast iron surfaces.

⚠CAUTION **Use care when cleaning around the cutterhead area – knives are extremely sharp!**

Knife Gauge (model 209 only)

Place the two gauge blocks on the ends of the shaft (Figure 7) and use a pliers to press the four e-rings into the grooves on each side of the blocks.

Handwheel

1. Remove the nut and washer from the gearbox shaft, and place the handwheel onto the shaft (Figure 8), making sure it is oriented so the handwheel slips over the key.
2. Place flat washer and hex nut on shaft and tighten with 19mm wrench.
3. Mount the handle into the threaded hole in the handwheel, and tighten with a 12mm wrench placed over the flat on the handle.

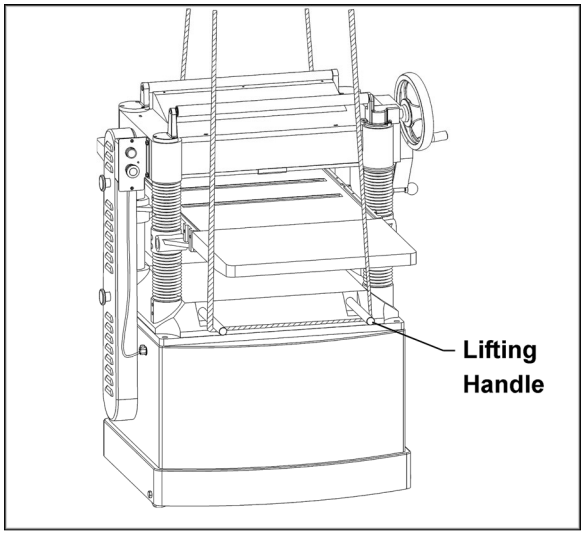


Figure 5



Figure 6

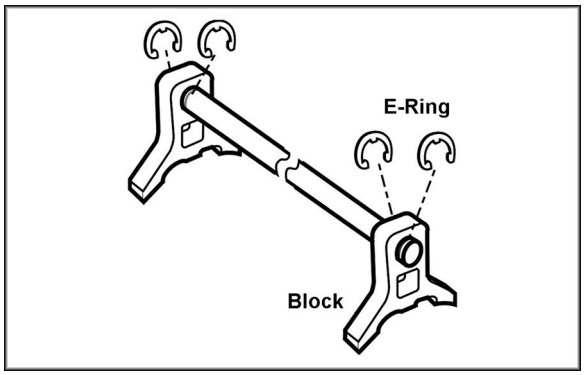


Figure 7 – Model 209 only

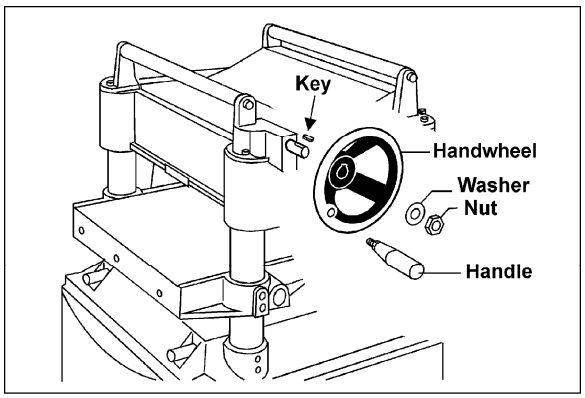


Figure 8

Extension Tables

1. Mount a cast iron table to the edge of the main table with three M8 x 25 hex cap screws (Figure 9) using a 13mm wrench. Do not fully tighten yet.
2. The extension table must be leveled with the main table. Place a straight edge (such as a jointed board) across both tables.
3. Insert three socket set screws with a 4mm hex wrench, and screw them in or out as needed until tables are level.
4. Securely tighten the hex cap screws.
5. Mount the second extension table to the opposite side of the planer table, using the same procedure.

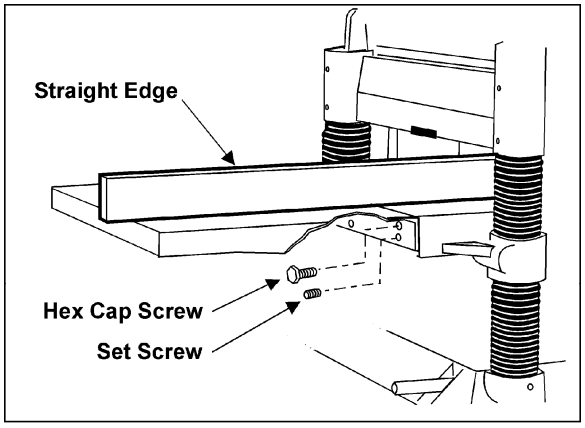


Figure 9

Dust Hood

Mount the hood to the rear of the head casting with six M6 x 12 hex cap screws and six 1/4" flat washers (Figure 10), with a 10mm wrench.

It is recommended that you use a dust collection system with this planer. If you are not using a dust collection system, **do not** attach the dust hood to the planer, as the accumulation of dust inside the hood may create a safety hazard, or eventually cause jamming of the rollers.

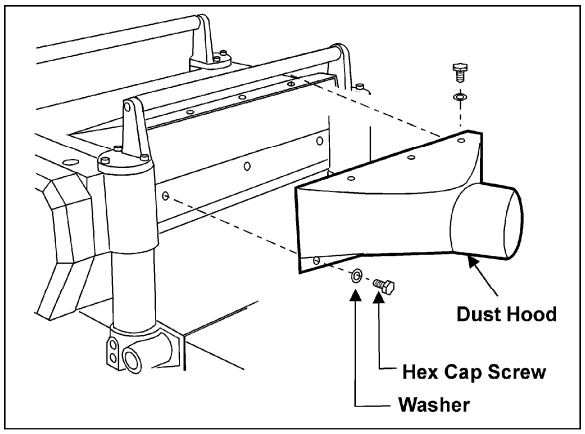


Figure 10

Electrical Connections

⚠WARNING Electrical connections must be made by a qualified electrician in compliance with all relevant codes. The machine must be properly grounded to help prevent electrical shock and possible fatal injury.

A power plug is not provided with the 209 planer. You may either connect one or "hard-wire" the machine directly to your electrical panel provided there is a disconnect near the machine. Consult electrical schematics on pages 35-37 for further clarification of wiring setup.

The 209 Planer should be connected to a dedicated circuit, and protected by a circuit breaker or time delay fuse, with minimum amp ratings as shown in Table 1. **Local codes take precedence over recommendations.**

This machine must be grounded. Grounding provides a path of least resistance to help divert current away from the operator in case of electrical malfunction.

Make sure the voltage of your power supply matches the specifications on the motor plate of the machine.

209 Planer	Recommended circuit*
5HP 1PH 230V	40 Amp
5HP 3PH 230V	30 Amp
5HP 3PH 460V	15 Amp

**subject to local codes*

Table 1

If converting from 230 to 460 volt operation:

1. Change leads in motor junction box, as shown in electrical diagrams.
2. Replace 230V magnetic switch with 460V magnetic switch (part no. 209-5016G; separate purchase). A qualified electrician is recommended.

Extension Cords

The use of an extension cord is not recommended for this machine, but if one proves necessary make sure the cord rating is suitable for the amperage listed on the machine's motor plate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

The chart in Figure 11 shows the correct size cord to use based on cord length and motor plate amp rating. If in doubt, use the next heavier gauge. The smaller the gauge number the heavier the cord.

Recommended Gauges (AWG) of Extension Cords

Amps	Extension Cord Length *					
	25 feet	50 feet	75 feet	100 feet	150 feet	200 feet
< 5	16	16	16	14	12	12
5 to 8	16	16	14	12	10	NR
8 to 12	14	14	12	10	NR	NR
12 to 15	12	12	10	10	NR	NR
15 to 20	10	10	10	NR	NR	NR
21 to 30	10	NR	NR	NR	NR	NR

*based on limiting the line voltage drop to 5V at 150% of the rated amperes.
NR: Not Recommended.

Figure 11

Adjustments

Tools required for adjustments:

3, 5, 6, and 10mm hex wrenches
12, 14 and 19mm open-end wrenches
Feeler gauges
Straight edge
Gauge block or dial gauge
Cross-point (Phillips) screwdriver

⚠WARNING Disconnect machine from power source before making any adjustments (except feed rate).

Belt Tension

Inspect the tension of the belts frequently during the first few times you use the planer. Belts often stretch during this trial period. If they require tightening, proceed as follows:

1. Remove the belt guard and the rear panel.
2. Loosen the bottom nuts on the motor adjustment screws (Figure 12) with a 19mm wrench.
3. Turn the top nuts to lower the motor plate, which will increase the belt tension.
4. Proper tension is achieved when there is slight deflection in the belt midway between the pulleys, using moderate finger pressure.
5. Tighten the bottom nuts (Figure 12).

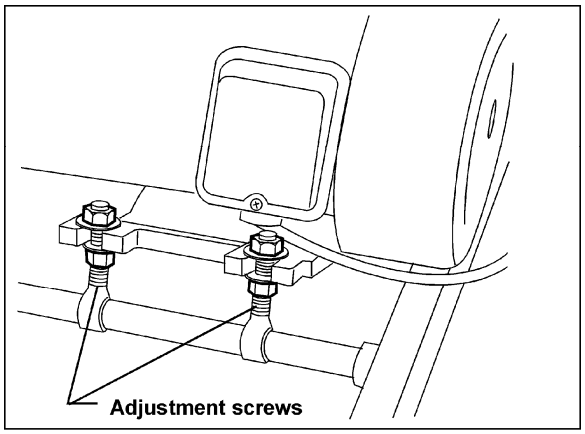


Figure 12

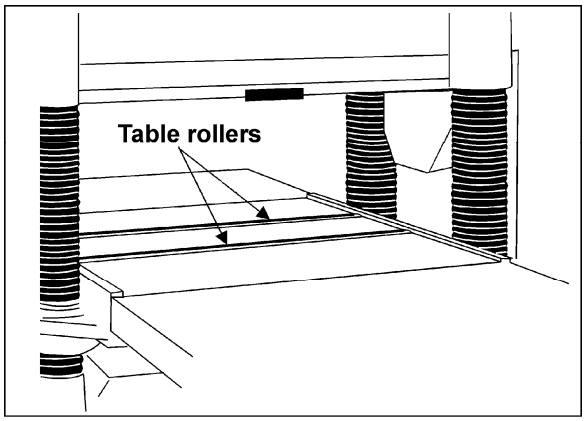


Figure 13

Table Rollers

Your planer is supplied with two table rollers (Figure 13) which turn as the stock is fed into the machine, thus reducing friction. It is not possible to give exact dimensions on the proper height setting of the table rollers because each type of wood behaves differently. As a general rule, however, when planing rough stock the table rollers should be set at high position.

When planing smooth stock the rollers should be set at low position.

NOTE: When raising the roller higher above the table, the range is from .003" to .006" (Figure 14).

The table rollers are factory set for average planing and are parallel to the table surface. If you desire to adjust the table rollers higher or lower, proceed as follows:

1. Disconnect machine from power source.
2. Lay a straight edge across both rollers.
3. On one side of the table, loosen the set screws (Figure 15) with a 3mm hex wrench, and turn the eccentric shafts to raise or lower the rollers.
4. When proper height is achieved, tighten set screws.
5. Adjust the rollers from the opposite side of the table in the same manner.

IMPORTANT: Be sure that the height of front and rear rollers are the same. The table rollers must always be set parallel to the table.

Cutterhead

Although your planer was carefully adjusted at the factory, it should be checked before being put into operation. Any inaccuracies due to rough handling in transit can be corrected by following the directions in this manual.

To check the adjustments you will need a knife-setting gauge (provided), feeler gauges, and a dial gauge or home-made gauge block made of hardwood. This gauge block can be made by following the dimensions shown in Figure 16. You will also need to remove the belt guard, so you can rotate the cutterhead using the pulley.

Knife Adjustments (Model 209 only)

When checking or adjusting cutterhead knives on the model 209 Planer, proceed as follows:

1. Disconnect machine from power source.
2. Remove the six screws and upper cover (Figure 17).
3. To check and adjust knives, use the provided knife setting gauge and check all four knives. Knives should just contact the bottom of the center protrusion (D, Figure 18) of the knife gauge. Make sure the feet of the knife gauge sit solidly upon the cutterhead, and that its shaft is parallel to the cutterhead (see Figure 19).

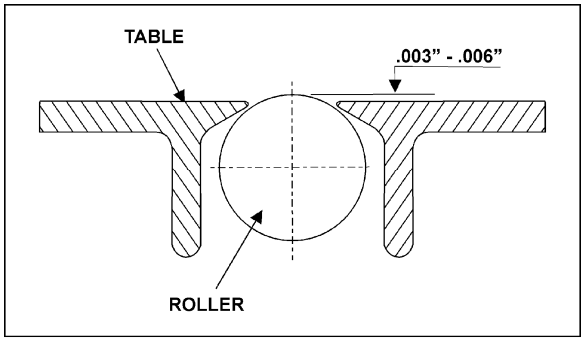


Figure 14

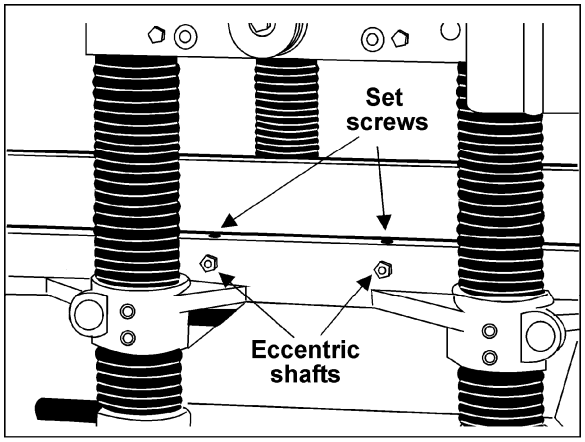


Figure 15

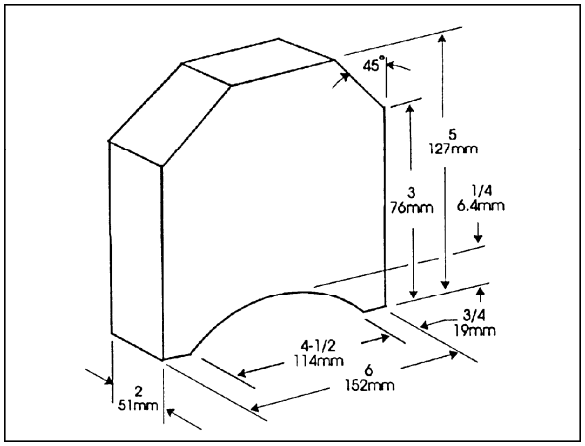


Figure 16

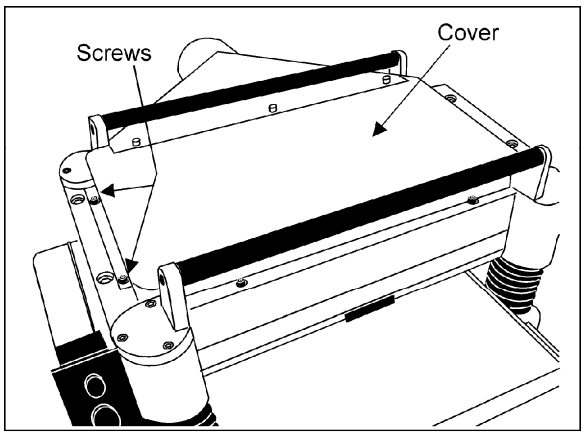


Figure 17

4. If an adjustment to one or more of the knives is necessary, slightly loosen the knife gib (E, Figure 18) by turning the six screws (F, Figure 18) into the gib (i.e. clockwise, when facing the screw heads) with a 12mm hex wrench. Turn the screws just enough to relieve stress in the cutterhead without disturbing the setting of the knives. Do this for all four knives at the same time.
5. With the knife setting gauge (C, Figure 18) in place over a knife (G, Figure 18), continue to loosen the screws (F, Figure 18) until the springs (H, Figure 18) begin raising the knife. When knife comes in contact with the center protrusion of the gauge, snug the gib by lightly backing out the six screws (F, Figure 18) against the slot (i.e. counter-clockwise).

   NOTE: At this time, tighten the knife into the slot just enough to hold knife in position.
6. If additional knives must be reset, repeat step 5.
7. After all knives are set with screws just snug, back out and tighten the six screws (F, Figure 18) against the slot starting with the end screws first, then the center screws, until the knife is securely held in the cutterhead. Tighten the remaining three knives in the same manner.

⚠WARNING **After setting or installing knives, re-check all gib screws. Loose gib screws can result in knives being thrown out of the cutterhead, causing severe damage to the machine and possible serious or fatal injury to the operator or bystanders.**

Replacing and Re-setting Knives (Model 209 only)

If the knives are removed for sharpening, care must be exercised in replacing and re-setting them. Proceed as follows:

1. Disconnect machine from power source.
2. Remove six screws and upper cover (see Figure 17).
3. To remove knife, loosen the gib (E, Figure 18) by turning the six gib screws clockwise. Remove gib, knife and springs.
4. Remove the remaining three knives in the same manner.
5. Thoroughly clean the knife slots, gibs, springs and gib screws. Check the gib screws; if the threads appear worn or stripped or if the heads are becoming rounded, replace them.

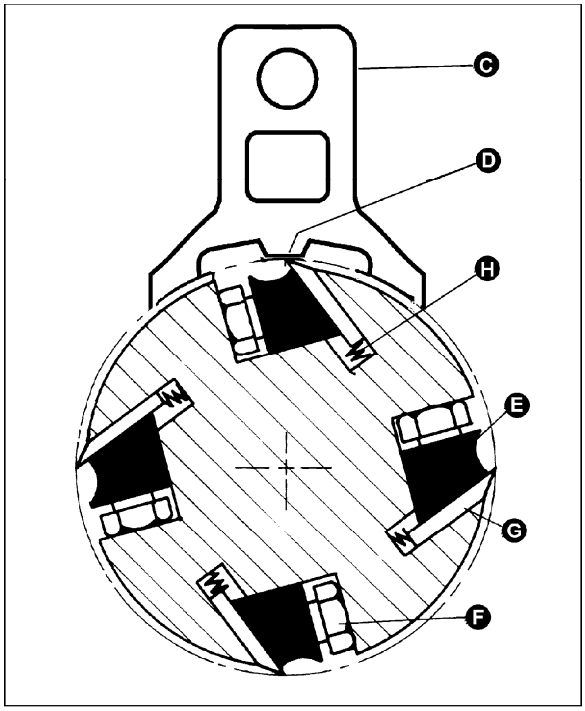


Figure 18 – Model 209 only

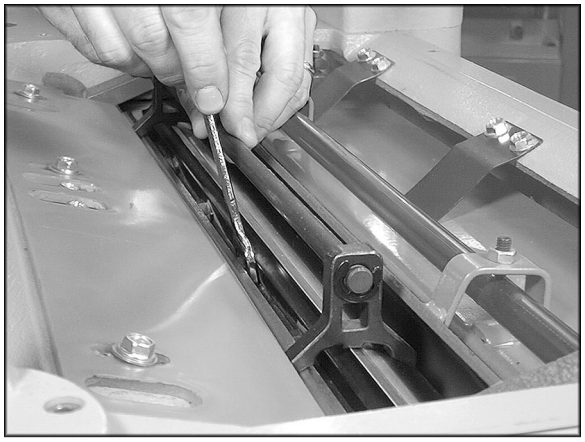


Figure 19 – Model 209 only

6. Inspect the cutting edge of the knives for nicks or wire edge. Hone the knives slightly using a stone or if the knives are to be sharpened, maintain a cutting angle of 35 degrees.
7. Insert springs, knife and gib into slot of cutterhead. Back out screws just enough to hold the knife in the cutterhead.
8. Place knife setting gauge (Figure 19) over knife.
9. While holding down the knife gauge, loosen all six screws by turning them into the gib until the cutting edge of the knife comes in contact with the protrusion of the gauge. Snug up the gib by slightly backing out the six screws against the slot.

   NOTE: At this time, only tighten the knife into the slot just enough to hold the knife in position.
10. Replace and re-set the other three knives in the same manner.
11. After all four knives are set with the screws just snug, back out and tighten the six screws against the slot starting with the end screws first and then the center screws until the knife is securely held in the cutterhead. Tighten the remaining three knives in the same manner.

⚠WARNING After replacing and checking knives, check again carefully. Make certain the direction of knives is correct and all 24 gib screws are tightened securely.

Replacing or Rotating Knife Inserts (Model 209HH only)

The knife inserts on the model 209HH are four-sided. When dull, simply remove each insert, rotate it 90° for a fresh edge, and re-install it.

Use the provided screwdriver with the T25P socket adaptor to remove the knife insert screw. See Figure 20. **NOTE:** A T25 adaptor or driver can round out the screw head recess. Always use a **T25-*Plus*** driver or adaptor.

It is advisable to rotate all inserts at the same time to maintain consistent cutting. However, if one or more knife inserts develops a nick, rotate only those inserts that are affected.

Each knife insert has an etched reference mark so you can keep track of the rotations.

IMPORTANT: When removing or rotating inserts, clean saw dust from the screw, the insert, and the cutterhead platform.

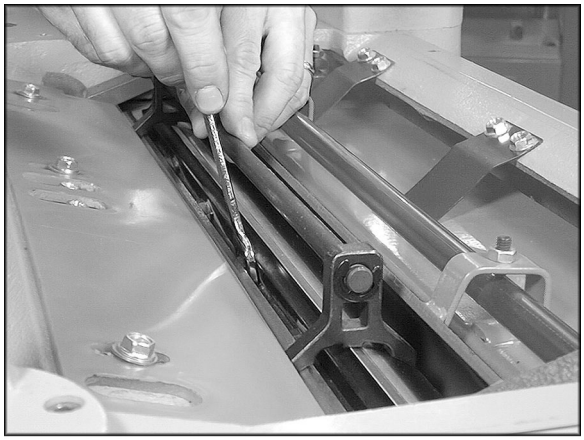


Figure 19 repeated

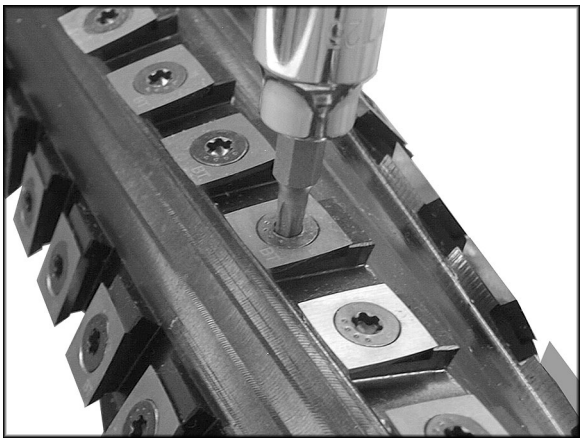


Figure 20 – Model 209HH only

Dust accumulation between these elements can prevent the insert from seating properly, and may affect the quality of the cut.

To install new knife inserts:

1. Before installing each screw, lightly coat the screw threads with machine oil and wipe off any excess.
2. Position knife insert and move it back and forth to verify there are no burrs or dirt.
3. Hold insert away from the back of the seat (pull slightly toward yourself if facing the cutting edge) and allow the screw to pull insert into position. Note: A slight offset between screw hole and hole in knife insert is normal. Do not position insert directly over screw hole, as it could ride up on the back of the seat and potentially cause cracking of the tip.
4. Securely tighten each screw which holds the knife inserts before operating the planer.

   IMPORTANT: Maximum torque for tightening the screws is 45 to 55 inch pounds (3.75 to 4.6 foot pounds).

⚠WARNING Make sure all knife insert screws are tightened securely. Loose inserts can be propelled at high speed from a rotating cutterhead, causing injury.

Work Table Parallel to Cutterhead

The work table is set parallel to the cutterhead at the factory and no further adjustment should be necessary. If your machine is planing a taper, first check to see if the knives are set properly in the cutterhead. Then check to see if the work table is set parallel to the cutterhead. Proceed as follows:

1. Disconnect machine from power source.
2. Place the gauge block (Figure 21) on the work table directly under the edge of a knife or knife insert as shown. Make slight contact with the knife edge by gently raising the table.
3. Move the gauge block to the opposite end of the work table. The distance from the work table to the edge of the knife should be the same on both ends of the knife.

If the work table is not parallel to the cutterhead, perform the adjustment procedure as follows:

1. Disconnect machine from power source.
2. Remove bolts holding the planer to the stand. Tilt planer on its side to expose underside of base (Figure 22).
3. Remove bolt (A, Figure 22) and loosen bolt (B-Figure 22) which will allow you to move the idler sprocket assembly (C, Figure 22) far enough to release tension on the chain.
4. Remove the chain from the particular sprocket on the corner of the base that you need to adjust.
5. Turn the sprocket by hand to bring that corner into adjustment with the other three corners. NOTE: Turning sprocket clockwise will increase the distance between the working table and the head casting; counterclockwise will decrease the distance. This adjustment is very sensitive and it should not be necessary to turn the sprocket more than one or two teeth.
6. When adjustments are correct, replace chain around corner sprocket, slide idler sprocket (C-Figure 22) back to re-tension chain, tighten bolt (B, Figure 22) and insert and tighten bolt (A, Figure 22).

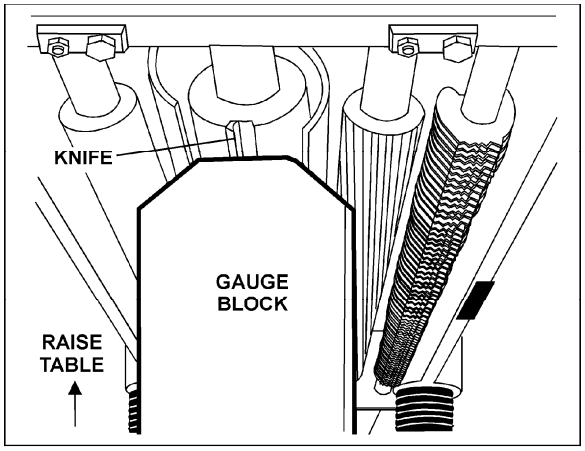


Figure 21

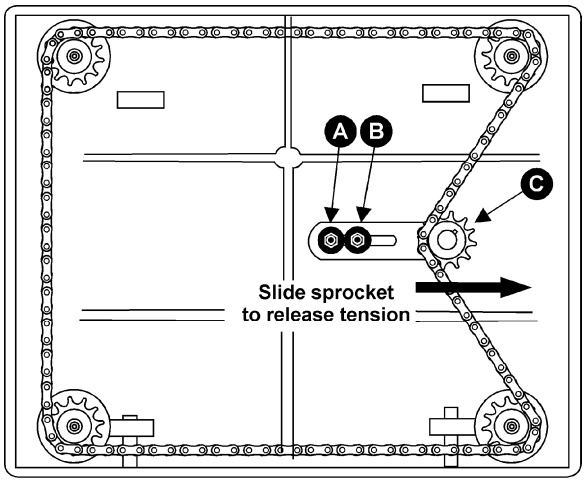


Figure 22

Know the Transmitting Rollers of Your Planer

(Figure 23)

A. Anti-Kickback Fingers
B. Infeed Roller
C. Chipbreaker
D. Cutterhead
E. Pressure Bar
F. Outfeed Roller

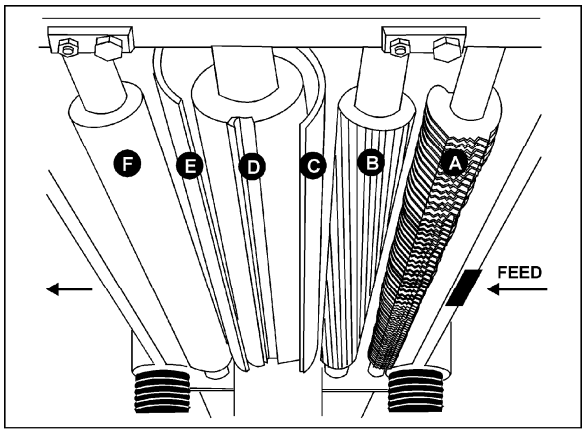


Figure 23

Anti-Kickback Fingers

The anti-kickback fingers (A, Figure 23) are an important safety feature, as they help prevent kickback of stock. They operate by gravity and should be inspected frequently to make sure they are free of gum and pitch, so that they move independently and operate correctly.

Infeed and Outfeed Roller Spring Tension

The infeed roller (B, Figure 23) and outfeed roller (F, Figure 23) are those parts of your planer that feed the stock while it is being planed. The infeed roller and the outfeed roller are under spring tension and this tension must be sufficient to feed the stock uniformly through the planer without slipping but should not be so tight that it causes damage to the board. The tension should be equal at both ends of each roller. Note: Contact Powermatic Technical Service before attempting any adjustments to spring tension.

Height of Infeed Roller, Chipbreaker, Pressure Bar and Outfeed Roller

The infeed roller, chipbreaker, pressure bar and outfeed roller are adjusted at the factory. The height relationship between these items and the cutterhead is crucial for accurate and safe planing. The infeed roller and outfeed roller should be set 0.032" (0.81mm) below the arc of the knives. The pressure bar is set 0.006” to 0.008” above the arc of the knives. The chipbreaker is set even with the knife arc. See Figure 25.

If any adjustments are necessary for the infeed roller, chipbreaker, pressure bar or outfeed roller, they should be done carefully. Use the following steps as an example of procedure.

NOTE: This procedure uses a home-made gauge block and feeler gauges, which should be sufficient for most planer operations. If extra precise measurements are desired, however, use a dial indicator device.

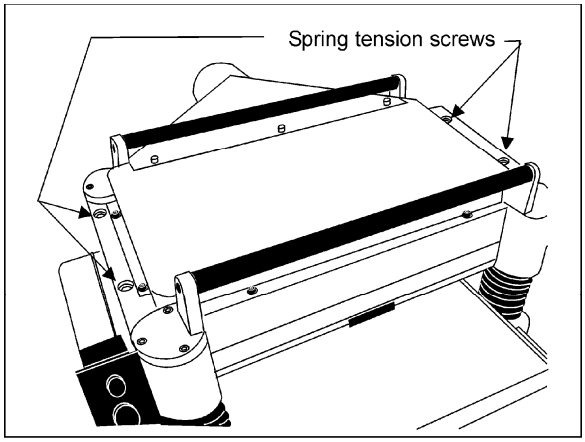


Figure 24

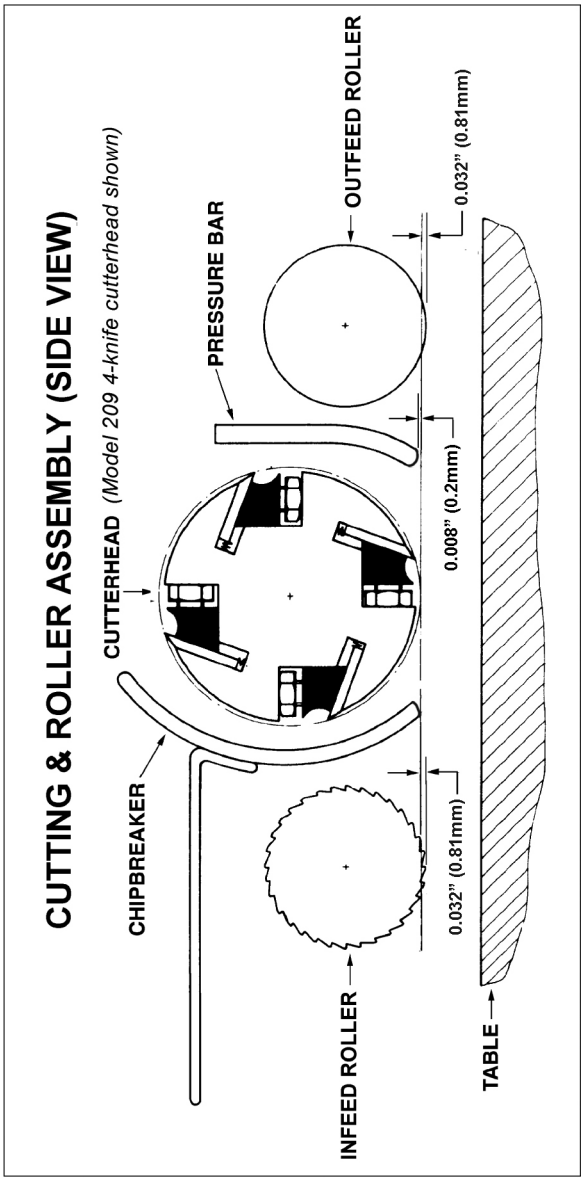


Figure 25

Outfeed Roller Height

1. Disconnect machine from power source.
2. Make sure the knives are set properly as previously explained under "Knife Adjustment."
3. Place the gauge block (J, Figure 26) on the table directly beneath the cutterhead (D, Figure 26).
4. Using a 0.032" (0.81mm) feeler gauge (K, Figure 26) placed on top of the gauge block, raise the work table until the knife just touches the feeler gauge when the knife is at its lowest point. Do not move the work table any further until the outfeed roller is adjusted.
5. Remove the feeler gauge and move the gauge block (J, Figure 27) under one end of the outfeed roller (F, Figure 27). The bottom of the outfeed roller should just touch the top of the gauge block. If an adjustment to the outfeed roller is necessary, loosen the lock nut (L, Figure 27) and turn screw (M, Figure 27) until the outfeed roller just touches the gauge block. Then tighten lock nut (L, Figure 27).
6. Check and adjust the opposite end of the outfeed roller in the same manner.

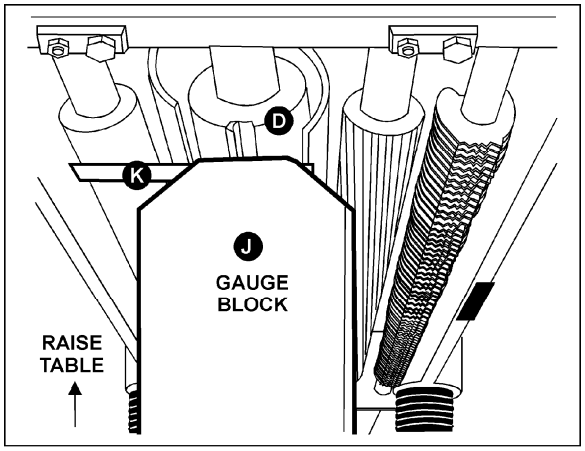


Figure 26

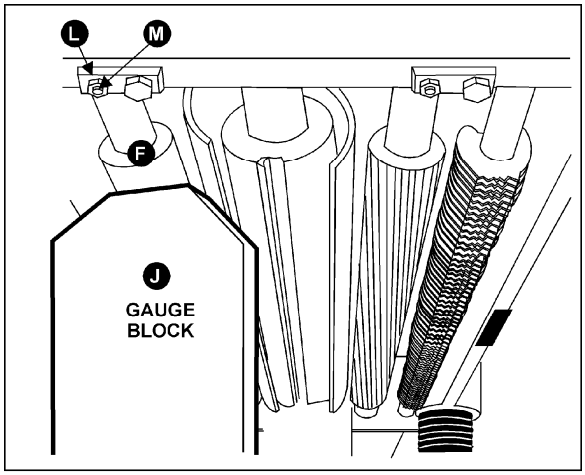


Figure 27

Infeed Roller Height

Use the exact same procedure for checking the infeed roller as you did for the outfeed roller, using a 0.032" (0.81mm) feeler gauge atop the gauge block. If adjustment is necessary, use the lock nut and screw on each end of the infeed roller.

Chipbreaker Height

The chipbreaker breaks off the larger chips before the stock reaches the cutterhead. Use the gauge block to set the chipbreaker even with the arc of the knives, following the same procedure as above. If adjustment is needed:

1. Remove top cover.
2. Loosen the lock nuts (A, Figure 28) at both ends of the chipbreaker, and turn the set screws to raise or lower the chipbreaker as needed. The set screws should be turned the same amount.
3. When the chipbreaker contacts the gauge block, tighten both lock nuts (A, Figure 28).

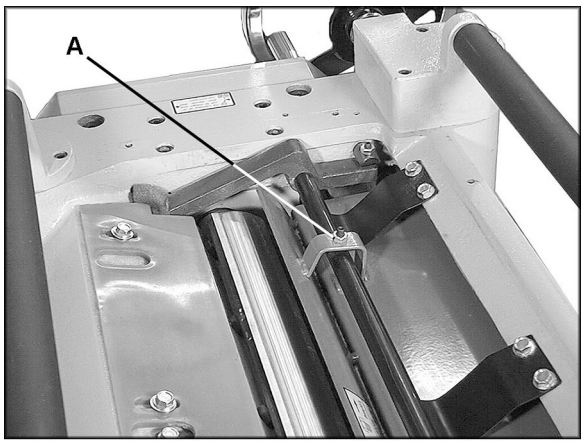


Figure 28

Pressure Bar Height

The pressure bar prevents the stock from lifting after it passes under the cutterhead. Check the height of the pressure bar with your gauge block and a .008" (0.2mm) feeler gauge. If adjustment is needed:

1. Remove top cover.
2. Loosen the lock nuts (B, Figure 29) on both ends of the pressure bar and turn the set screws as needed.
3. When the pressure bar contacts the top of the gauge block, tighten the lock nuts (B, Figure 29).

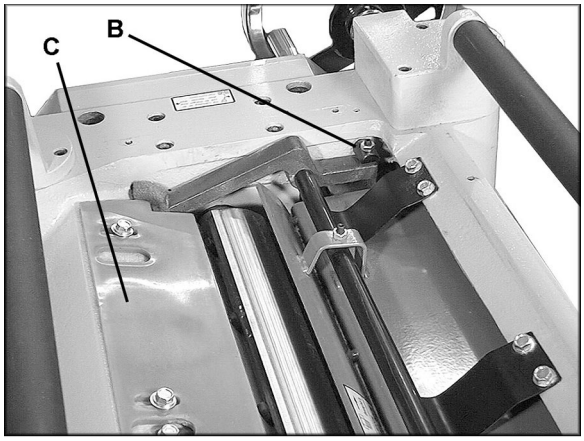


Figure 29

Chip Deflector

The chip deflector (C, Figure 29) keeps wood chips from falling into the outfeed roller. The deflector should be set approximately 1/16" from the tip of the knives. Make sure the deflector's front edge is beveled to match the shape of the cutterhead.

Feed Speed Control

Your machine is equipped with a spiral, serrated infeed roller and a solid steel outfeed roller. When the feed rollers are engaged, they turn to feed the stock. The feed rollers slow automatically when the machine is under heavy load for best planing in all conditions. The feed rollers are driven by chains (A, Figure 30) and sprockets (B, Figure 30) which take power directly from the cutterhead through the oil bath gear box (C, Figure 30).

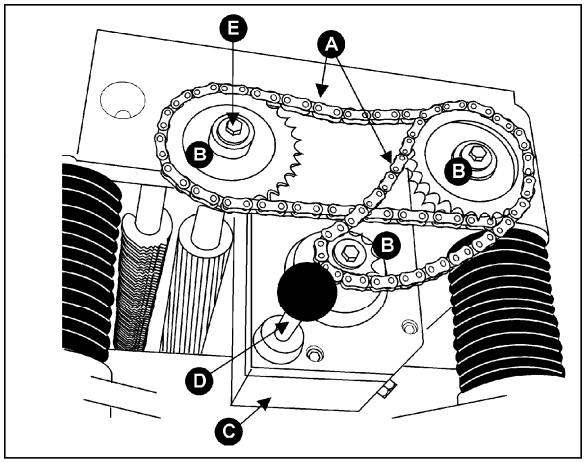


Figure 30

The gear box has two feed speeds. These are set by pulling out or pushing in the shift lever (D, Figure 30) while the machine is running. The feed speed range is shown in Figure 31.

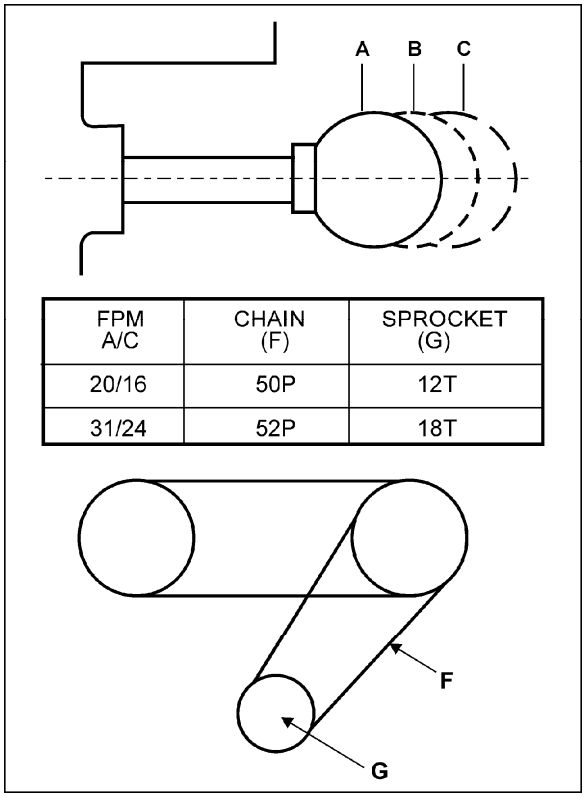
⚠CAUTION Do not attempt to change feed speed while stock is passing through the machine. Damage to the gearbox may result.

Changing Accessories for Lowest Feed Speed

The lowest feed speeds for your planer (16.2 fpm and 20.7 fpm) can be obtained by replacing the lower (gear shaft) sprocket and its chain (Figure 31).

A low speed gear kit, consisting of a 50P chain and 12T sprocket, is provided with your planer.

To change the sprocket and chain on your machine, proceed as follows:



FPM A/C	CHAIN (F)	SPROCKET (G)
20/16	50P	12T
31/24	52P	18T

Figure 31

1. Disconnect machine from power source.
2. Remove the three hex cap screws and washers (E, Figure 30).
3. Remove the three sprockets (B, Figure 30) from the infeed roller, outfeed roller and the gear shaft at the same time.
4. When all sprockets have been removed, replace the gear shaft sprocket (G, Figure 31) and its chain (F, Figure 31) with those of a different size.
5. Mount all three sprockets and chains to their shafts, and tighten all hex cap screws and washers (E, Figure 30).

Return Rollers

The two return rollers on top of the machine serve as a convenient rest for stock. They save time and motion for the operator as the stock is returned to the infeed side.

Depth of Cut

The cutting depth scale is a combination inch/metric scale (A, Figure 32), with a cutting range from 0 to 8" (204mm). The distance of upward or downward movement is controlled by the handwheel (B, Figure 32). One revolution of the handwheel is .059" (1.5mm). Before moving the table up or down, loosen the lock nuts (C, Figure 32). After obtaining proper table position, tighten the lock nuts (C, Figure 32).

Maximum depth of cut is 1/8". A limiter (D, Figure 32) is provided to limit the depth of cut on full width planing from 3/16" to 1/8".

The depth scale and pointer are adjustable and should be checked for accuracy. Proceed as follows:

1. Connect power, and turn on the planer.
2. Take a scrap board and measure its exact thickness with calipers.
3. Raise or lower the table so the scale reads the thickness of the board minus 1/16". Feed the board through the planer.
4. Move the table up another 1/16". Flip the board over and plane the other side.
5. Measure the board with calipers and compare with the depth scale on the planer. If the scale needs adjustment, loosen the screws and shift the scale up or down as needed. Tighten screws when finished.

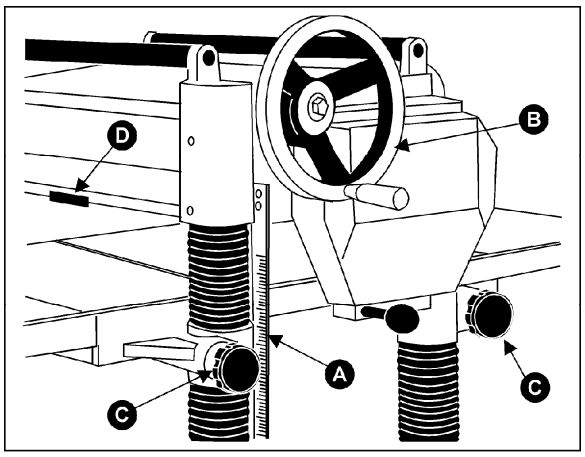


Figure 32

Maintenance

⚠WARNING Disconnect machine from power source before performing any maintenance.

Periodic or regular inspections are required to ensure that the machine is in proper adjustment, that all screws are tight, that belts are in good condition, that dust has not accumulated in the electrical enclosures, and that there are no worn or loose electrical connections.

Buildup of sawdust and other debris can cause your machine to plane inaccurately. Periodic cleaning is not only recommended but mandatory for accurate planing.

Close-fitting parts, such as the cutterhead slot and gibs, should be cleaned with a cloth or brush and non-flammable solvent, and freed from clinging foreign matter.

Remove resin and other accumulations from feed rollers and table with a soft rag and non-flammable solvent.

Periodically check all the chains for proper tension and adjust accordingly if required.

TIP: If a foreign object nicks the knives, instead of throwing them away or trying to grind out the deep nick, simply stagger the knives in the head, moving one knife no more than 1/4" to the right and another knife no more than 1/4" to the left. The nick should no longer be noticeable.

The table should be kept clean and free of rust. Some users prefer a paste wax coating. Another option is talcum powder applied with a blackboard eraser rubbed in vigorously once a week; this will fill casting pores and form a moisture barrier. This method provides a table top that is slick and allows rust rings to be easily wiped from the surface. Important also is the fact that talcum powder will not stain wood or mar finishes as wax pickup does.

Lubrication

The bearings on the cutterhead are factory lubricated and sealed for life – no lubrication is required.

GEARBOX LUBRICANT

The lubricant in the gear box must be replaced every 2,500 hours. Multi-purpose gear box lubricant will be suitable.

To replace the lubricant:

1. Remove the drain plug (A, Figure 33) with a 14mm wrench, and remove filler plug (B-Figure 33). Drain dirty oil thoroughly.
2. Tighten the drain plug (A, Figure 33).
3. Fill with clean lubricant through hole (B, Figure 33).
4. Reinstall and tighten filler plug (B, Figure 33).

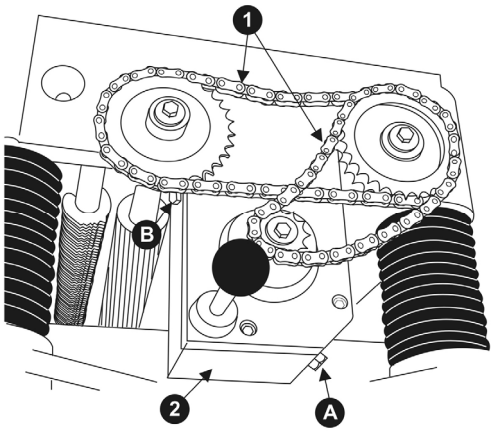


Figure 33

The item numbers on this chart are referenced to the surrounding illustrations.

No.	Position	Interval	Suitable Types of Lubricant	Figure No.
1	Drive Chain	Frequently	Grease	33
2	Gear Box	When operated more than 2,500 hours	Standard gear oil, 70-90 weight Capacity: 0.46L (0.122 gal.)	33
3	Return Rollers	Frequently	SAE-30	35
4	Worm Gear	Frequently	Grease	36
5	Lead Screw	Frequently	Grease	36
6	Column	Frequently	Clean and SAE-30	36
7	Table Chain	Frequently	Grease	37
8	Feed Rollers	Frequently	SAE-30	38

Figure 34

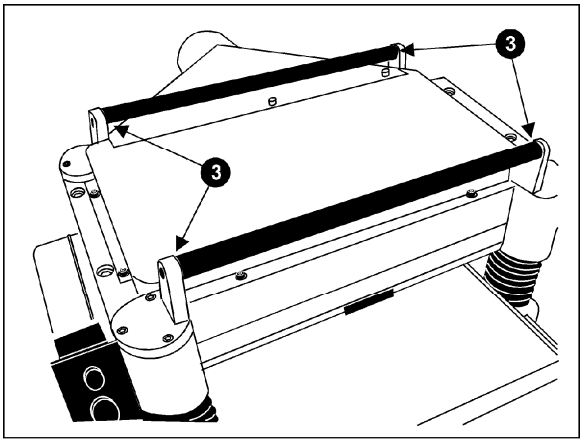


Figure 35

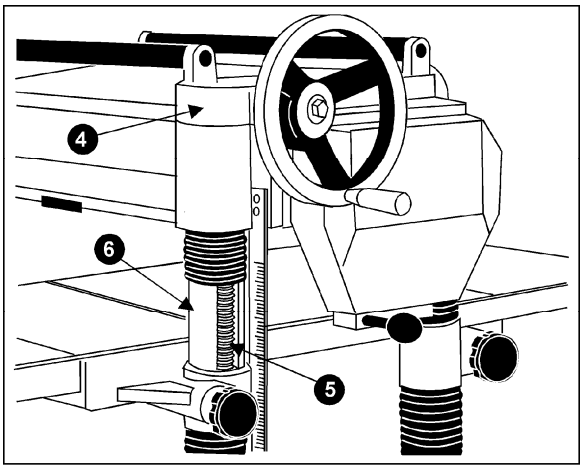


Figure 36

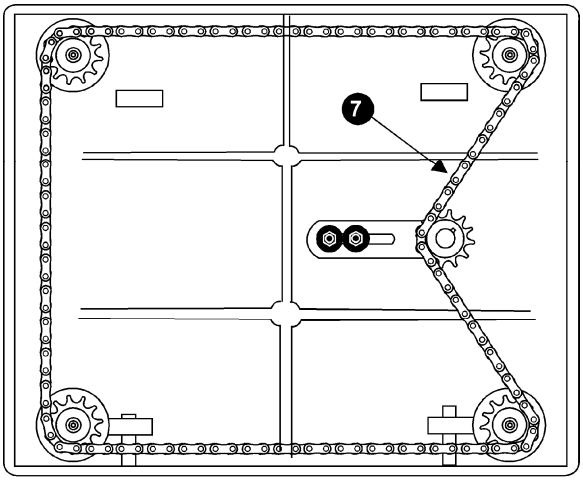


Figure 37

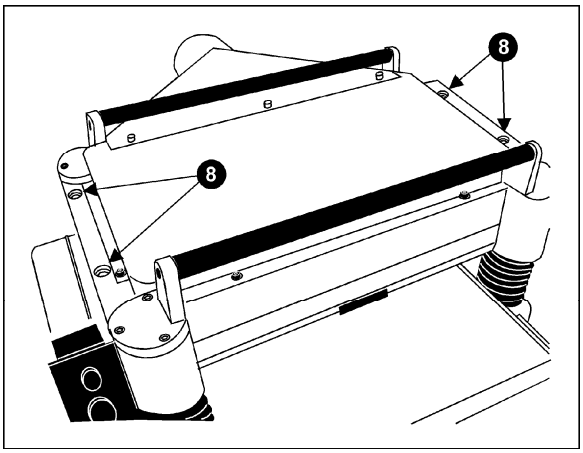


Figure 38

Troubleshooting: Operating Problems

Trouble	Probable Cause	Remedy
Snipe. *(NOTE: Snipe cannot be eliminated, but can be so minimized as to be negligible.)*	Table rollers not set properly.	Adjust rollers to proper height.
	Inadequate support of long boards.	Support long boards with extension rollers.
	Uneven feed roller pressure front to back.	Adjust feed roller pressure.
	Dull knives or knife inserts.	209: Sharpen or replace knives. 209HH: Rotate or replace inserts.
	Lumber not butted properly.	Butt end to end each piece of stock as they pass through.
Fuzzy grain.	Planing wood with high moisture content.	Remove moisture by drying, or use different stock.
	Dull knives or knife inserts.	209: Sharpen or replace knives. 209HH: Rotate or replace inserts.
Torn grain.	Too heavy a cut.	Adjust proper depth of cut.
	Knives (or inserts) cutting against the grain.	Cut along the grain where possible.
	Dull knives or knife inserts.	209: Sharpen or replace knives. 209HH: Rotate or replace inserts.
Rough/raised grain.	Dull knives or knife inserts.	209: Sharpen or replace knives. 209HH: Rotate or replace inserts.
	Too heavy a cut.	Adjust proper depth of cut.
	Planing wood with high moisture content.	Remove moisture by drying, or use different stock.
Rounded, glossy surface.	Dull knives or knife inserts.	209: Sharpen or replace knives. 209HH: Rotate or replace inserts.
	Feed rate too slow.	Increase feed rate.
	Cutting depth too shallow.	Increase cutting depth.
Poor feeding of lumber.	Inadequate feed roller pressure.	Adjust feed roller tension. If proper tension cannot be achieved, replace feed rollers.
	Planer table rough or dirty.	Clean pitch and residue from table, and apply paste wax.
	Belt slipping on pulleys.	Tighten belt.
	Surface of feed rollers too smooth.	Lightly roughen the feed roller surface with sandpaper.

Troubleshooting: Mechanical and Electrical Problems

Trouble	Probable Cause	Remedy
Uneven depth of cut side to side.	Knife projection from cutterhead is incorrect (209 only)	Adjust knife projection.
	Table not parallel to cutterhead.	Adjust table/cutterhead parallelism.
Board thickness does not match depth of cut scale.	Depth of cut scale is incorrect.	Adjust depth of cut scale.
Chain is jumping.	Inadequate tension.	Adjust chain tension.
	Sprockets misaligned.	Align sprockets.
	Sprockets are worn.	Replace sprockets.
Machine will not start/restart or repeatedly trips circuit breaker or blows fuses.	No incoming power.	Verify power connections to planer.
	Overload automatic reset has not reset.	When planer overloads on the circuit breaker built into the motor starter, it takes time for the machine to cool down before restart. Allow unit to adequately cool before attempting restart. If problem persists, check amp setting on the motor starter inside the electrical box.
	Planer frequently trips.	One cause of overloading trips which is not electrical in nature is too heavy a cut. The solution is to take a lighter cut. If too deep a cut is not the problem, then check the amp setting on the overload relay. Match the full load amps on the motor as noted on the motor plate. If amp setting is correct then there is probably a loose electrical lead. Check amp setting on motor starter.
	Building circuit breaker trips or fuse blows.	Verify that planer is on a circuit of correct size. If circuit size is correct, there is probably a loose electrical lead. Check amp settting on motor starter.
	Loose electrical connections.	Go through all the electrical connections on the planer including motor connections, verifying the tightness of each. Look for any signs of electrical arcing which is a sure indicator of loose connections or circuit overload.

Trouble	Probable Cause	Remedy
Machine will not start/restart or repeatedly trips circuit breaker or blows fuses. (cont.)	Motor starter failure.	Examine motor starter for burned or failed components. If damage is found, replace motor starter. If motor starter looks okay but is still suspect, you have two options: have a qualified electrician test the motor starter for function, or purchase a new starter and establish if that was the problem on changeout. If you have access to a voltmeter, you can separate a starter failure from a motor failure by first, verifying incoming voltage at 230+/-10 and second, checking the voltage between starter and motor at 230+/-10. If incoming voltage is incorrect, you have a power supply problem. If voltage between starter and motor is incorrect, you have a starter problem. If voltage between starter and motor is correct, you have a motor problem.
	Motor failure.	If electric motor is suspect, you have two options: Have a qualified electrician test the motor for function or remove the motor and take it to a quality electric motor repair shop and have it tested.
	Miswiring of the unit.	Check to confirm all electrical connections are correct and properly tight. Make any needed corrections.
	On/off switch failure.	If the on/off switch is suspect, you have two options: Have a qualified electrician test the switch for function, or purchase a new on/off switch and establish if that was the problem on changeout.

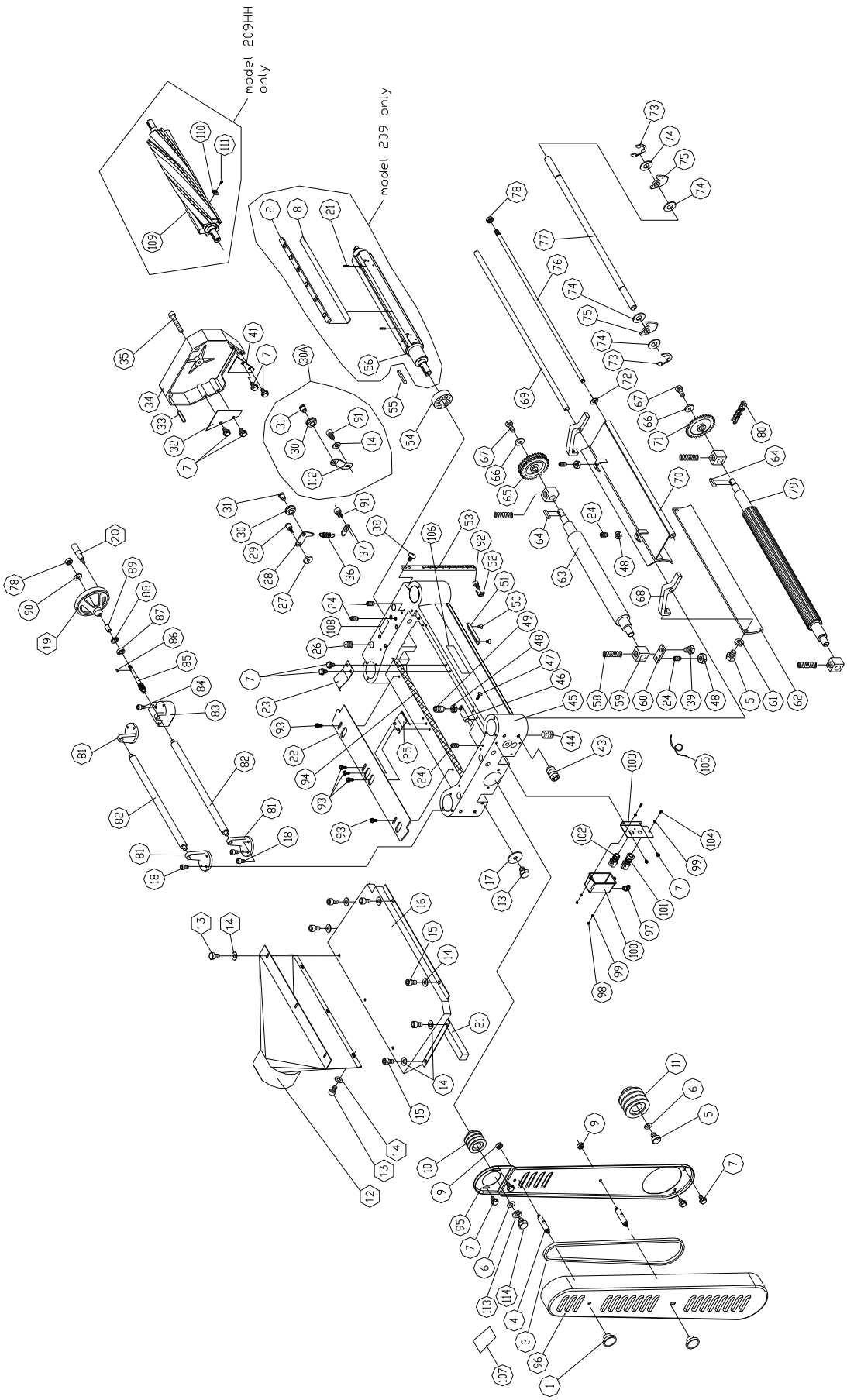
Optional Accessories

6292621 Knives, Single-Sided (set of 4) *for model 209 only*
1791212 Knife Inserts (set of 10) *for model 209HH only*
708520 DRO Scale Retrofit Kit

Replacement Parts

Replacement parts are listed on the following pages. To order parts or reach our service department, call 1-800-274-6848, Monday through Friday (see our website for business hours, www.powermatic.com). Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

Cutterhead Assembly



Parts List: Cutterhead Assembly

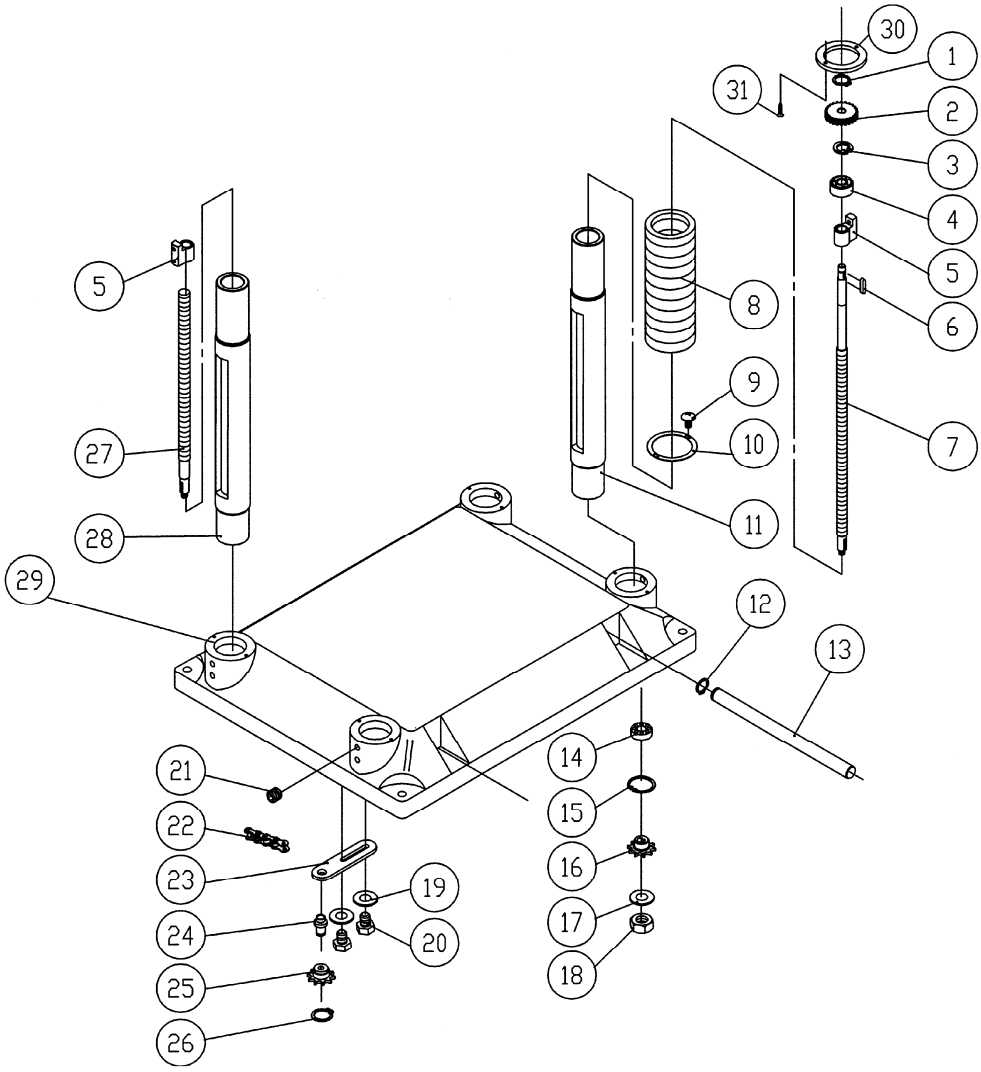
Index No.	Part No.	Description	Size	Qty
1	6012204	Nut	5/16-18NC	2
2	6292622	Knife Locking Bar *		4
3	VB-M59	Belt (model 209)		3
	209HH-1003	Belt (model 209HH)		3
4	6292696	Bolt		2
5	6292639	Hex Head Bolt	M8 x 1.25P x 20L	2
6	6292631	Washer	8 x 30 x 3	1
7	6292660	Hex Head Bolt With Washer	M6 x 1.25P x 12L	16
8	6292621	Knife (set of 4) *		1
9	6292698	Hex Nut	5/16”-18NC	2
10	6292630	Machined Pulley		1
11	6292633	Motor Pulley		1
12	6292672	Collector Tube		1
13	6292654	Hex Head Bolt	M6 x 1.0P x 12L	10
14	6292653	Washer	1/4	12
15	TS-1482011	Hex Cap Screw	M6 x 1.0P x 10L	6
16	6292670	Upper Cover		1
17	6292814	Flat Washer	8.5 x 23 x2T	4
18	6292675	Hex Cap Screw	M6 x 1.0P x 16L	9
19	6292682	Handwheel		1
20	6292684	Handle		1
21	6292620	Spring *		8
22	6292663	Chip Deflector		1
23	6292652	Plate Spring		3
24	6292640	Set Screw	M6 x 1.0P x 16	9
25	6292662	Plate Spring	0.6	1
26	6292637	Screw	M22 x 1.5P x 20	4
27	6292720	Collar		1
28	6292716	Bracket		1
29	6292717	Shaft		1
30A	209HH-IPA	Idle Pulley Assembly – model 209HH (index no. 14,30,31,91,112)		1
30	6292715	Idle Pulley		2
31	6292714	Shaft		2
32	6292693	Safety Hatch		1
33	6292690	Spring Pin	6 Dia x20	2
34	6292689	Cover		1
35	6292694	Socket Head Cap Screw	M8 x 1.25P x 40L	1
36	6292719	Spring		1
37	6292718	Hanger		1
38	6292817	Round Head Screw	M6 x 1.0P x 12L	1
39	6292818	Hex Head Bolt	M8 x 1.25P x 18L	4
41	6292693	Safety Hatch		1
43	6292618	Set Screw	M10 x 1.5P x 12L	8
44	TS-1524031	Set Screw	M8 x 1.25P x 12L	5
45	6292617	Casting Head		1
46	6292659	Shaft		2
47	6292705	Rivet		4
48	6292641	Hex Nut	M6 x 1.0P	8
49	6292661	Set Screw	M6 x 1.0 x 20L	2
50	6292669	Flat Head Machine Screw	M6 x 0.8P x 8L	2
51	6292668	Cut Limiter Plate		1
52	6292687	Cut Limiter Pointer		1
53	6292685	Scale		1
54	BB-6206ZZ	Bearing	6206ZZ-2NSE	1
55	6292629	Key	8 x 8 x 36	1
56	6292619	Cutterhead *		1
58	6292636	Spring		4
59	6292635	Bushing		4

* Index Nos. 2, 8, 21 and 56 are used only on the Model 209 Planer.

Index No.	Part No.	Description	Size	Qty
60	6292638	Plate		4
61	6292658	Lock Washer		2
62	6292657	Pressure Plate		1
63	6292646	Outfeed Roller		1
64	6292642	Key	5 x 5 x 23	2
65	6292647	Sprocket		1
66	6292644	Washer	6.2 x 20 x 3T	2
67	6292645	Hex Head Bolt	M6 x 1.0P x 16L	2
68	6292656	Bracket		1
69	6292655	Shaft		1
70	6292650	Chip Breaker		1
71	6292643	Sprocket	31T	1
72	6292649	Retaining Ring	STW-12	2
73	6292667	Retaining Ring		2
74	6292665	Collar		56
75	6292664	Anti-kickback Finger		55
76	6292648	Locking Bolt		1
77	6292666	Shaft		1
78	6292651	Nut	M12 x 1.75P	2
79	6292634	Infeed Roller		1
80	6292706	Chain	06B	1
81	6292673	Roller Stand		3
82	6292674	Roller		2
83	6292678	Worm Gear Box		1
84	6292677	Hex Socket Cap Screw	M6 x 1.0P x 50L	3
85	6292676	Worm		1
86	6292681	Key	4 x 4 x 10	1
87	6292679	Bearing	6201Z	1
88	6292680	Retaining Ring	RTW-32	1
89	6292713	Collar		1
90	6292683	Washer	1/2	1
91	6292813	Hex Socket Cap Screw	M6 x 1.0P x 10L	1
92	6292821	Hex Socket Cap Screw	M5 x 0.8P x 10L	3
93	6292815	Hex Head Bolt	M6 x 1.0P x 16L	5
94	209-1094	Sponge		2
95	209-1095	Pulley Guard		1
96	209-1096	Pulley Cover		1
97	209-1097A	Strain Relief, Momentary Switch Cord		1
98	TS-1540031	Hex Nut	M5	2
99	TS-1550031	Flat Washer	M5	4
100	209-1100A	Switch Box		1
101	209-1101	Switch, Off		1
102	209-1102	Switch, On		1
103	209-1103	Switch Plate		1
104	TS-1481041	Hex Cap Screw	M5 x 0.8P x 16L	2
105	209-1105	Cord	1Ph, 300V	1
	209-1105A	Cord	3Ph, 600V	1
106	6012192	Warning Label		1
107	6292820	Label		1
108	6292819	Label, Lubrication		1
109	1791275A	Helical Cutterhead ** *(serial no. 1702209HH4949 and higher)*		1
110	1791212A	Knife Insert (set of 10) **	15x15x2.5mm	... total 100
111	15HH-2102A	Knife Insert Screw **	T25P, #10-32 x1/2	 100
112	209HH-1112	Bracket		1
113	TS-2361081	Lock Washer	M8	1
114	TS-1490051	Hex Cap Screw	M8 x 1.25P x 30	1
115	6292816	Feed Rate Label (not shown)		1

** Index Nos. 109, 110 and 111 are used only on the Model 209HH helical cutterhead.

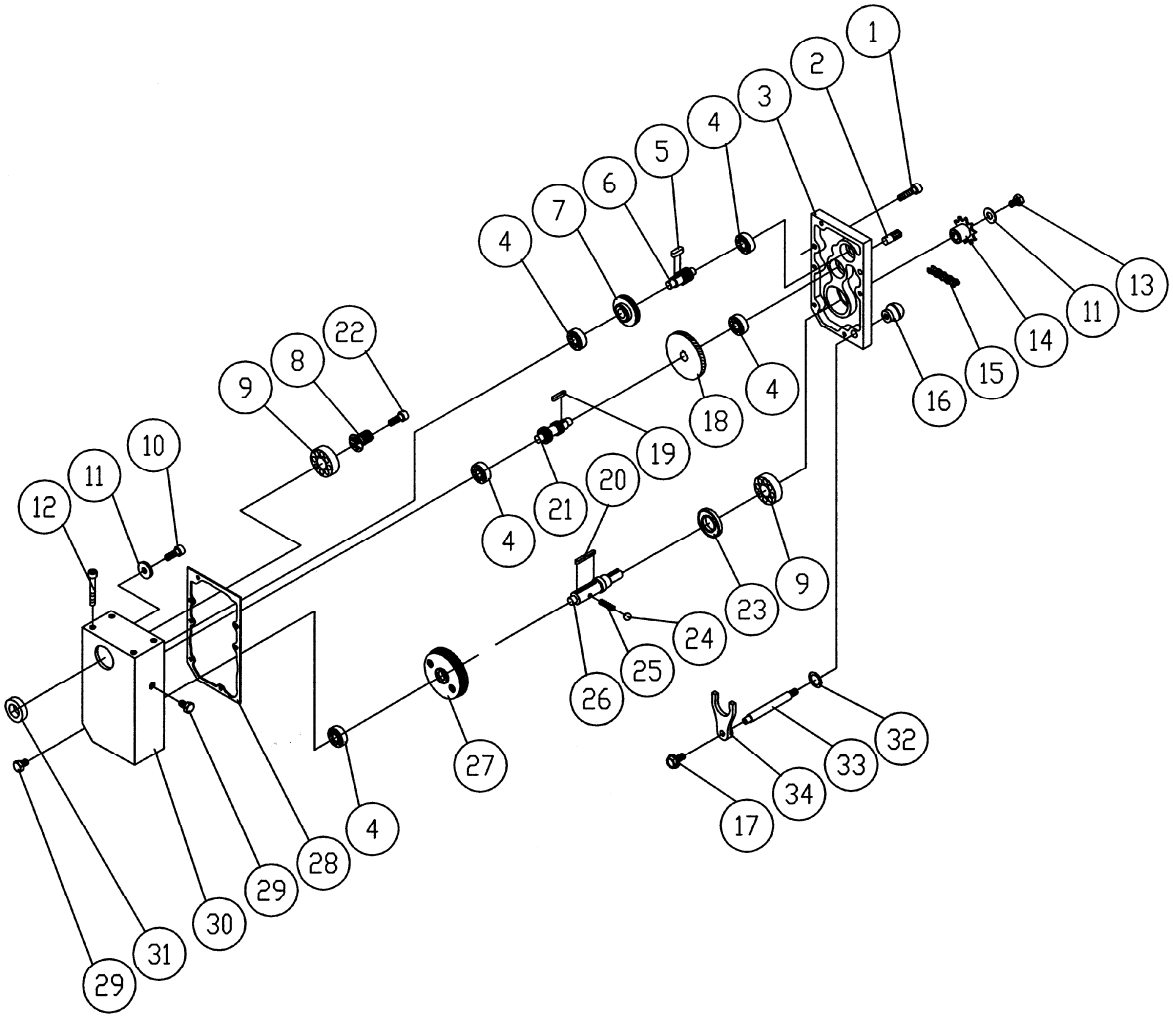
Base Assembly



Parts List: Base Assembly

Index No.	Part No.	Description	Size	Qty
1	6292649	Ring, Retaining	STW-12	1
2	6292742	Gear	24T	1
3	6292740	Retaining Ring	RTW-38	1
4	6292739	Bushing		1
5	6292738	Nut		4
6	6292741	Key	4 x 4 x 10	1
7	6292737	Lead Screw		1
8	6292758	Expansion Bend		8
9	209-309	Machined Screw	M5 x 2.12P x 10L	30
10	6292756	Pipe Band		16
11	6292735	Column		1
12	6292755	Retaining Ring, ETW-19		4
13	6292754	Crane Post		4
14	6285855	Bearing	6202ZZ	4
15	6292744	Retaining Ring, RTW-35		4
16	6292746	Sprocket	10T	4
17	209-317	Flat Washer	10 x 19 x 1.5T	4
18	6292627	Hex Nut	M10 x 1.25P	4
19	6292747	Flat Washer	8.2 x 22 x 3T	2
20	6292748	Hex Head Bolt	M8 x 1.25P x 25L	2
21	6292618	Set Screw	M10 x 1.5P x 12	8
22	6292753	Chain	#40 x 166P	1
23	6292749	Bracket		1
24	6292750	Shaft		1
25	6292751	Sprocket	10T	1
26	6292752	Retaining Ring	STW-15	1
27	6292736	Lead Screw		1
28	6292734	Column		3
29	6292733	Base		1
30	209-330	Gasket		1
31	209-331	Screw	M5 x 0.8P x 18L	2

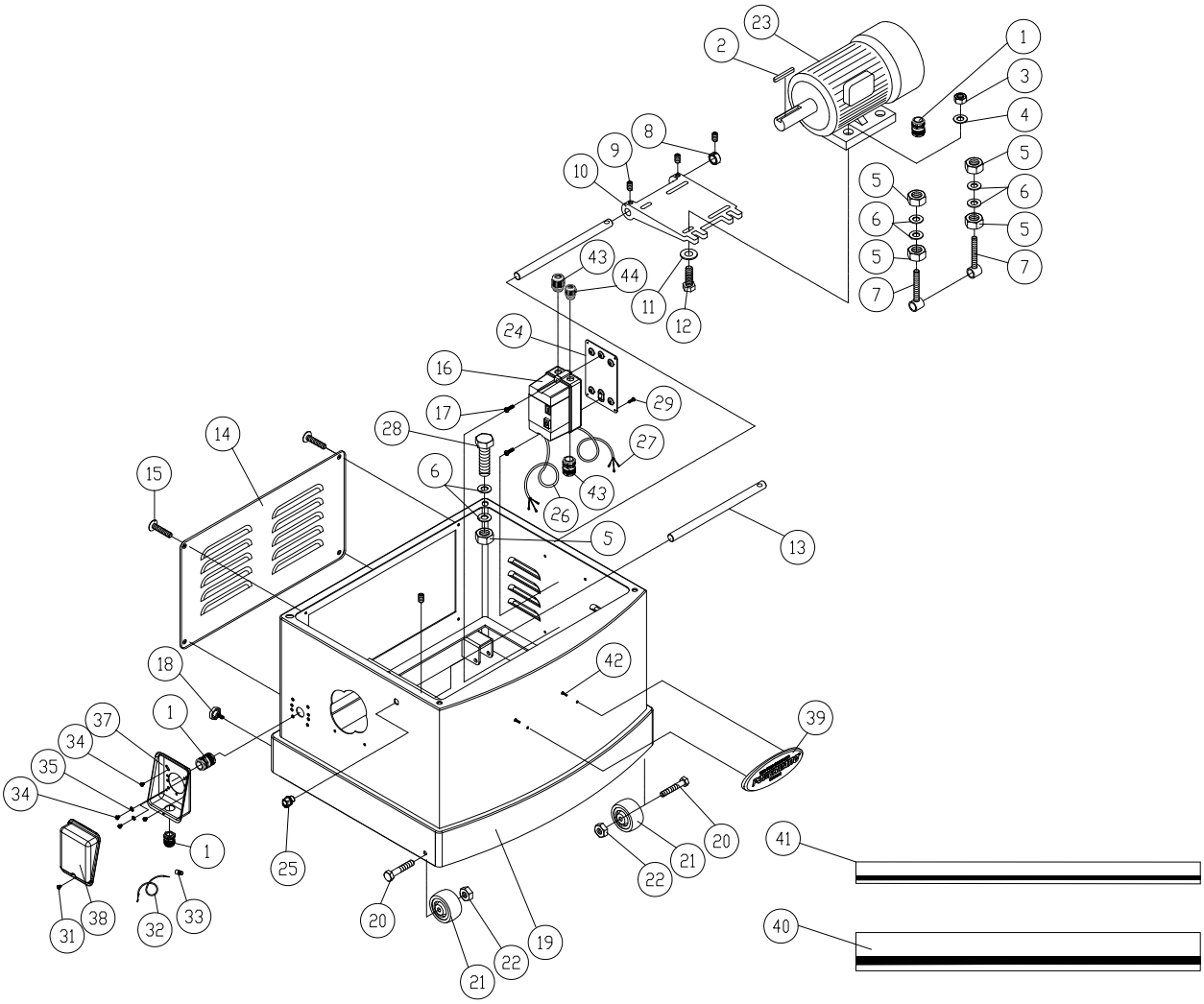
Gearbox Assembly



Parts List: Gearbox Assembly

Index No.	Part No.	Description	Size	Qty
1	6292788	Socket Head Cap Screw	M6 x 1.0P x 25L	5
2	6292785	Pin	8 x20	2
3	6292787	Cover		1
4	6292765	Bearing	6201	4
5	6292768	Key	5 x 5 x12	1
6	6292767	Shaft	18T	1
7	6292766	Gear	47T	1
8	6292762	Gear	16T	1
9	BB-6204ZZ	Bearing	6204ZZ	2
10	TS-1503041	Socket Head Cap Screw	M6 x 1.0P x 16L	1
11	6292764	Flat Washer		1
12	6292790	Hex Socket Cap Screw	M8 x 1.25P x 50L	4
13	TS-1482031	Hex Head Bolt	M6 x 1.0P x 16L	1
14	6292779	Sprocket	12T	1
	6292791	Sprocket	18T	1
15	6292780	Chain	06B x 50P	1
	209HH-415	Chain	06B x 53P	1
	6292822	Low Speed Gear Kit (includes #14-6292779 and #15-6292780)		
16	6292784	Knob		1
17	6292654	Hex Head Bolt	M6 x 1.0P x 12L	1
18	6292769	Gear	71T	1
19	6292770	Key	5 x 5 x 10	1
20	6292774	Key	6 x 6 x 40	1
21	6292771	Shaft	18T	1
22	6292763	Hex Socket Cap Screw	M6 x 1.0P x 20L	1
23	6292778	Oil Seal	SC24 x 47 x 6	1
24	6292775	Ball	∅ 6	1
25	6292776	Spring		1
26	6292777	Shaft		1
27	6292772	Gear Assembly		1
28	6292786	Piece Packing		1
29	6292789	Oil Plug	PT1/4”-19	2
30	6292759	Gear Box		1
31	6292760	Oil Seal		1
32	6292783	Oil Ring		1
33	6292782	Handle		1
34	6292781	Clutch		1

Stand Assembly

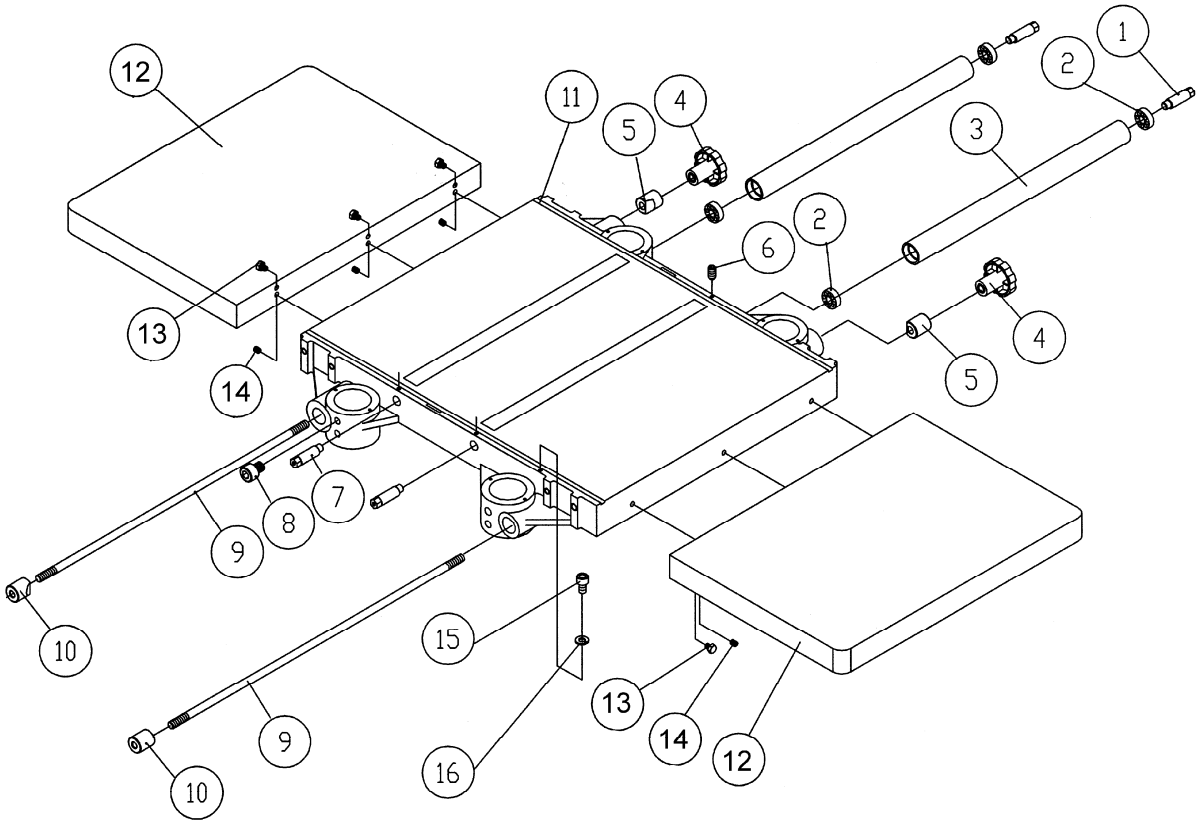


Parts List: Stand Assembly

Index No.	Part No.	Description	Size	Qty
1	209-5001	Strain Relief, Motor & Junction Box		3
2	6292804	Key		1
3	6292802	Hex Nut	M8 x 1.25P	4
4	TS-1550061	Flat Washer	M8	4
5	6292651	Hex Nut	M12 x 1.75P	8
6	6292683	Washer	1/2	12
7	6292799	Adjusting Bolt		2
8	6292798	Collar		1
9	6292711	Set Screw	M8 x 1.25P x 8L	5
10	6292797	Motor Mount (model 209 only)		1
	209HH-5010	Motor Mount (model 209HH only)		1
11	TS-1550061	Washer	8.5 x 23 x 2T	4
12	TS-1490071	Hex Head Bolt	M8 x 1.25P x 40L	4
13	6292796	Bar		2
14	6292794	Cover		1
15	6292795	Machine Screw	M6 x 1.0P x 20	4

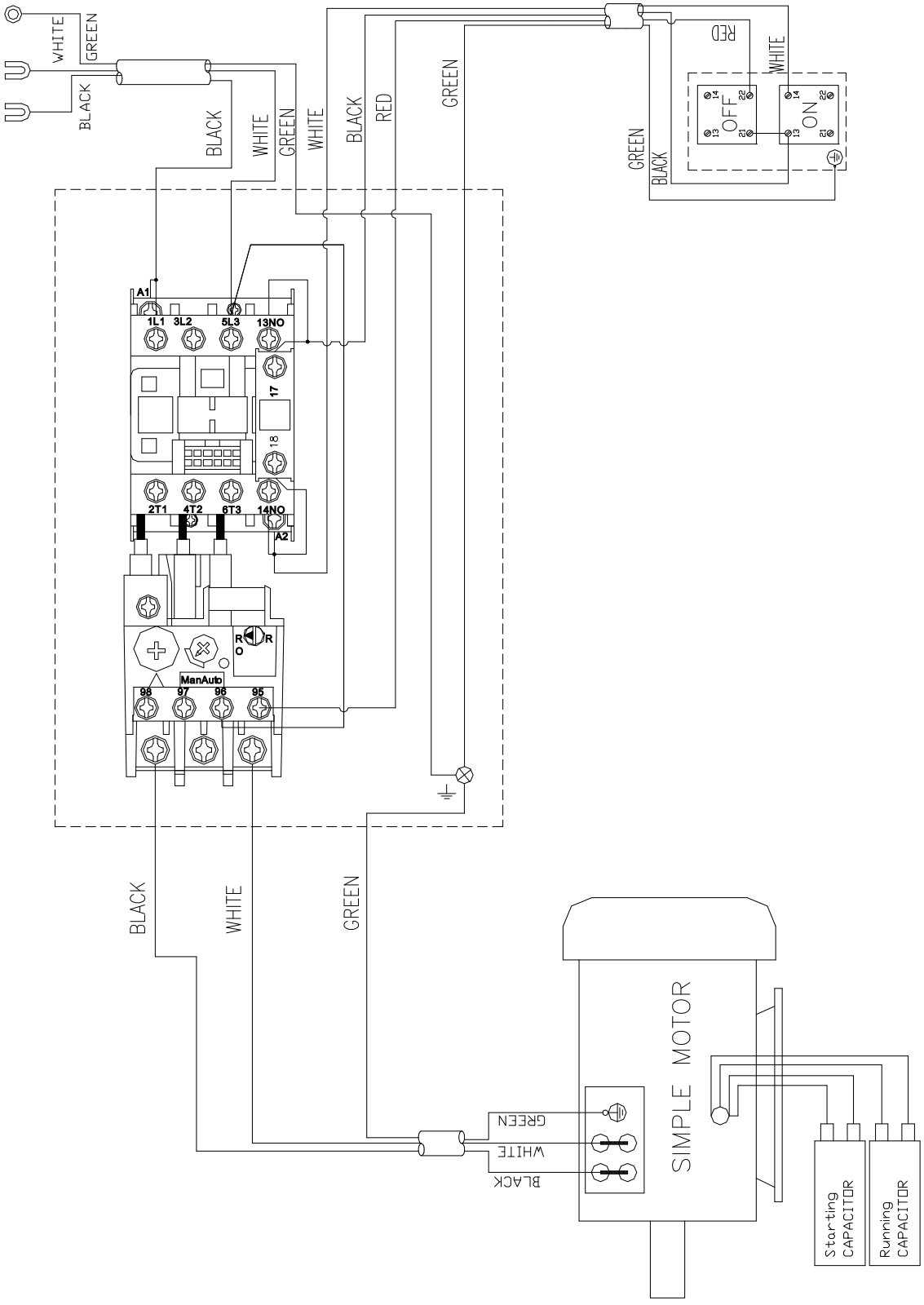
Index No.	Part No.	Description	Size	Qty
16	209-5016B	Magnetic Switch (model 209 only)	5HP 1PH 230V	1
	209-5016BC	Contactor (not shown)		1
	209-5016BO	Overload (model 209 only, not shown)		1
	209-5016C	Magnetic Switch (model 209HH only)	5HP 1PH 230V	1
	209-5016BC	Contactor (not shown)		1
	209-5016CO	Overload (model 209HH only, not shown)		1
	209-5016F	Magnetic Switch	5HP 3PH 230V	1
	209-5016DC	Contactor (not shown)		1
	209-5016DO	Overload (not shown)		1
	209-5016G	Magnetic Switch	5HP 3PH 460V	1
	209-5016EC	Contactor (not shown)		1
	209-5016EO	Overload (not shown)		1
17	6296136	Pan Head Machine Screw	#10-24NC x 1/2L	2
18	209-5018	Lock Knob	5/16-18NC x 3/4	2
19	209-5019A	Stand (model 209 only)		1
	209HH-5019A	Stand (model 209HH only)		1
20	TS-1490031	Hex Cap Screw	M8 x 1.25P x 20	4
21	209-5021	Wheel		4
22	TS-1541031	Nylon Hex Nut	M8	4
23	209-5023	Motor (209)	5HP, 1Ph, 230V	1
	209-5023F	Motor Fan (not shown)		1
	209-5023FC	Motor Fan Cover (not shown)		1
	209-5023CS	Centrifugal Switch (not shown)		1
	209-5023SC	Start Capacitor (not shown)		1
	209-5023RC	Running Capacitor (not shown)		1
	209-5023B	Motor (209)	5HP, 3Ph, 230/460V	1
	209-5023F	Motor Fan (not shown)		1
	209-5023FC	Motor Fan Cover (not shown)		1
	209HH-5023	Motor (209HH)	5HP, 1Ph, 230V	1
	209HH-5023F	Motor Fan (not shown)		1
	209HH-5023FC	Motor Fan Cover (not shown)		1
	209HH-5023CS	Centrifugal Switch (not shown)		1
	209HH-5023SC	Start Capacitor (not shown)	800MFD 250VAC	1
	209HH-5023RC	Running Capacitor (not shown)	50μF 350VAC	1
	209HH-5023C	Motor (209HH)	5HP, 3Ph, 230/460V	1
	209-5023F	Motor Fan (not shown)		1
	209-5023FC	Motor Fan Cover (not shown)		1
24	209-524	Switch Plate		1
25	209-525	Strain Relief, Stand		1
26	209-526A	Power Cord	1Ph, 300V	1
	209-526B	Power Cord	3Ph, 600V	1
27	209-527A	Cord, Motor to Switch	1Ph, 300V	1
	209-527B	Cord, Motor to Switch	3Ph, 600V	1
28	6292805	Hex Head Bolt	M12 x 1.75P x 60L	4
29	6292757	Machined Screw	M5 x 0.8P x 8L	4
31	TS-0810012	Slotted Round Head Machine Screw	#10-24 x 1/4	1
32	209-5032	Grounding Cord		1
33	209-5033	Cord Connection		1
34	209-5034	Screw	M5 x 0.8P x 6	4
35	209-5035	Star Washer	M5	2
36	209-5036	Strain Relief		1
37	209-5037A	Junction Box		1
38	209-5038	Junction Box Cover		1
39	PM2000-105	Powermatic Name Plate		1
40	PM2700-440	Wide Stripe		*sold per ft.*
41	PM2700-441	Narrow Stripe		*sold per ft.*
42	TS-0813022	Pan Head Screw	1/4-20 x 3/8	2
43	209-5043	Strain Relief, Power & Motor Cord		2
44	209-5044	Strain Relief, Magnetic Switch		1

Parts List: Table Assembly

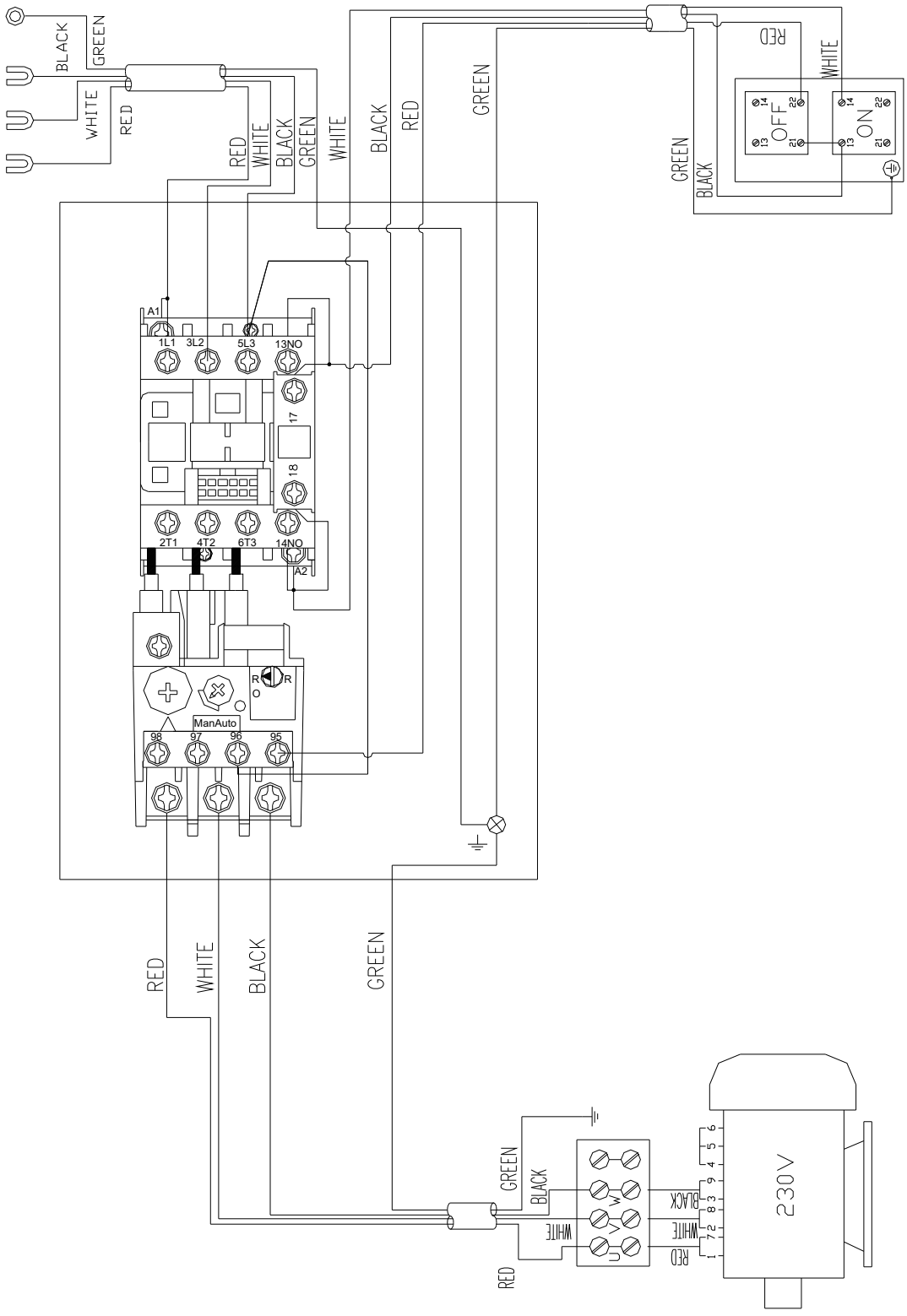


Index No.	Part No.	Description	Size	Qty
1	6292724	Eccentric Shaft		4
2	6292679	Bearing	6201Z	4
3	6292722	Roll		2
4	6292728	Knob		2
5	6292727	Locksmith		2
6	TS-1523041	Set Screw	M6 x 12L	4
7	6292724	Eccentric Shaft		4
8	6292729	Socket Head Cap Screw	M8 x 1.25P x 20L	8
9	6292726	Locking Bolt		2
10	6292725	Locking Bar		2
11	209-2011	Table		1
12	209-2012	Extension		2
13	TS-1490041	Hex Cap Screw	M8 x 25L	6
14	TS-1504041	Socket Head Cap Screw	M8 x 20L	6

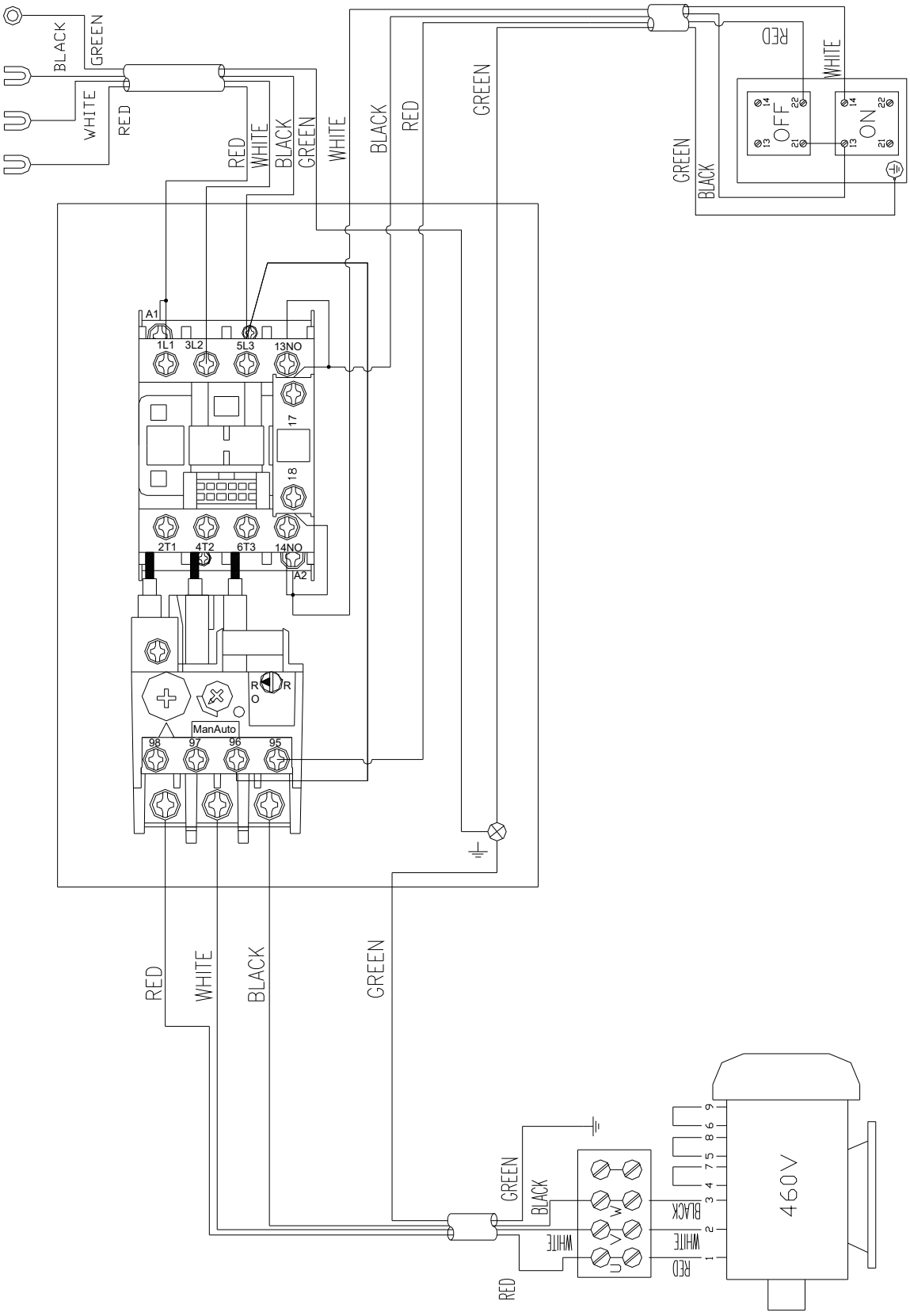
Electrical Connections – Single Phase, 230 Volt only



Electrical Connections – 3 Phase, 230 Volt only



Electrical Connections – 3 Phase, 460 Volt only



Preventive Maintenance

Checklist for Model 209 and 209HH Planers

[ ] Work area around machine marked off clearly.

[ ] Non-skid floor strips in area where operator normally stands.

[ ] Inspect entire machine for loose bolts, nuts, screws. Tighten and replace as necessary.

[ ] Clean table and cutterhead area, removing sawdust and chips with a soft bristle brush. Remove gum and pitch with oven cleaner.

[ ] Lubricate appropriate places with a good grade non-hardening grease.

[ ] Clean table surface. If rusted, use paste mixture of household ammonia, a good commercial detergent and 000 steel wool. Wash surface down with hot, soapy water, rinse and dry thoroughly. Coat surface with talcum powder, rubbing briskly into surface with a clean blackboard eraser.

[ ] Check blade condition; should be sharp and free of nicks or grooves.

[ ] Check belt condition. Replace as needed. Dress with belt dressing. Check belt tension.

[ ] Check motor for loose wiring and sawdust congestion, pulleys tight and in line.

[ ] Check bearings. Replace any bad or suspect bearings immediately.

[ ] Check leveling of extension tables with main table.



427 New Sanford Rd.
LaVergne, TN 37086
Phone: 800-274-6848
www.powermatic.com