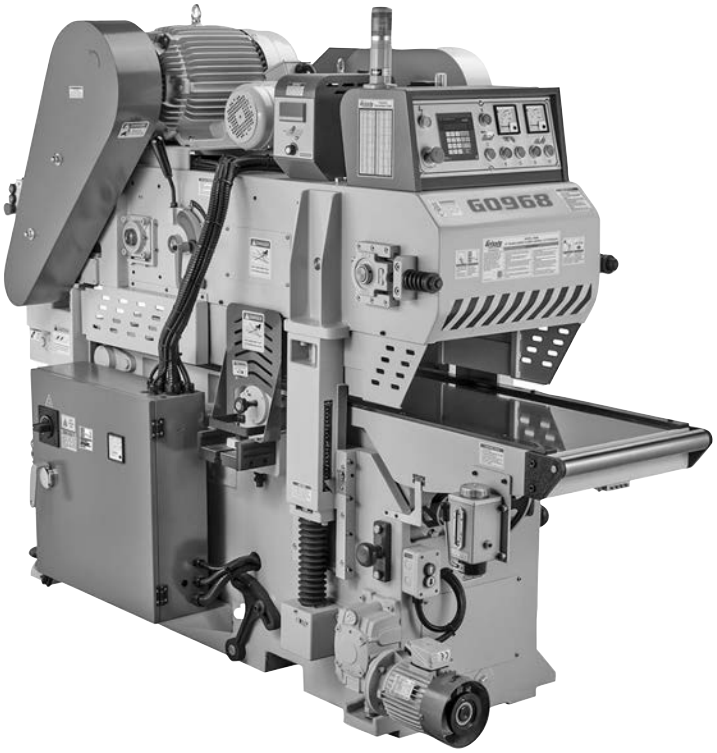
MODEL G0968
16" DOUBLE-SIDED PLANER w/SPIRAL CUTTERHEADS
OWNER'S MANUAL
(For models manufactured since 08/23)



#MNLW23072 PRINTED IN TAIWAN V1.06.24

******Keep for Future Reference******

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

⚠ WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Table of Contents

INTRODUCTION

Contact Info

We stand behind our machines! If you have questions or need help, contact us with the information below. Before contacting, make sure you get the **serial number** and **manufacture date** from the machine ID label. This will help us help you faster.

Grizzly Technical Support
1815 W. Battlefield
Springfield, MO 65807
Phone: (570) 546-9663
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

Grizzly Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

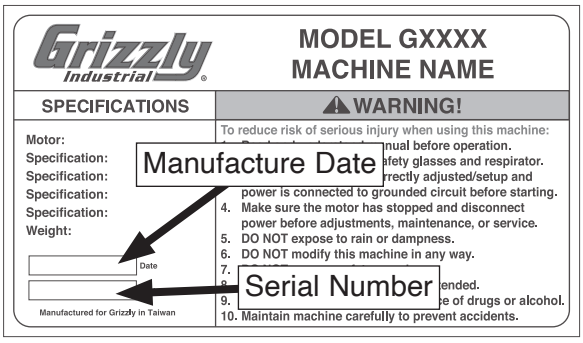
Manual Accuracy

We are proud to provide a high-quality owner's manual with your new machine!

We made every effort to be exact with the instructions, specifications, drawings, and photographs in this manual. Sometimes we make mistakes, but our policy of continuous improvement also means that **sometimes the machine you receive is slightly different than shown in the manual**.

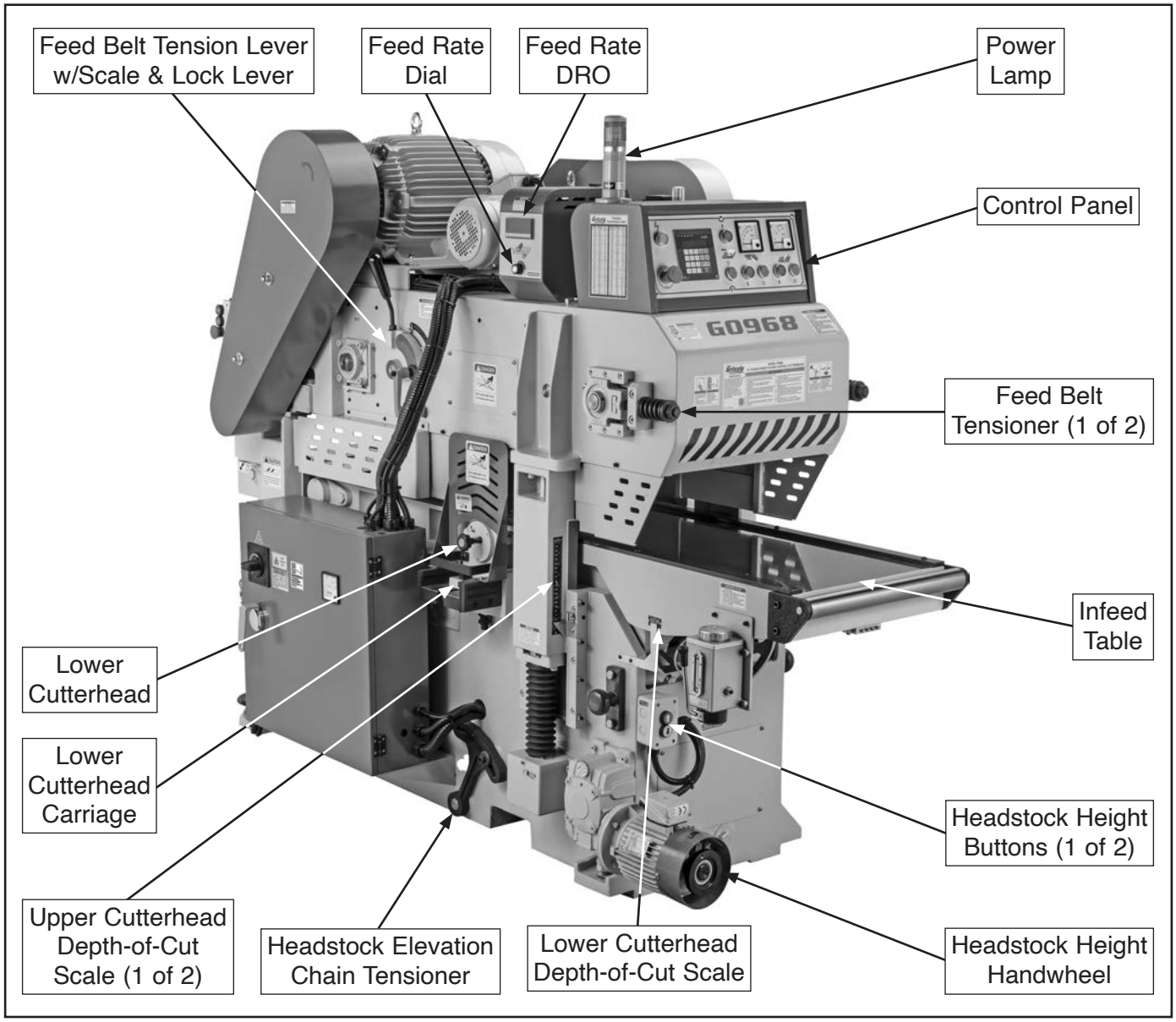
If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at **www.grizzly.com**.

Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **manufacture date** and **serial number** from the machine ID label (see below). This information is required for us to provide proper tech support, and it helps us determine if updated documentation is available for your machine.



Identification (Front)

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.



⚠WARNING

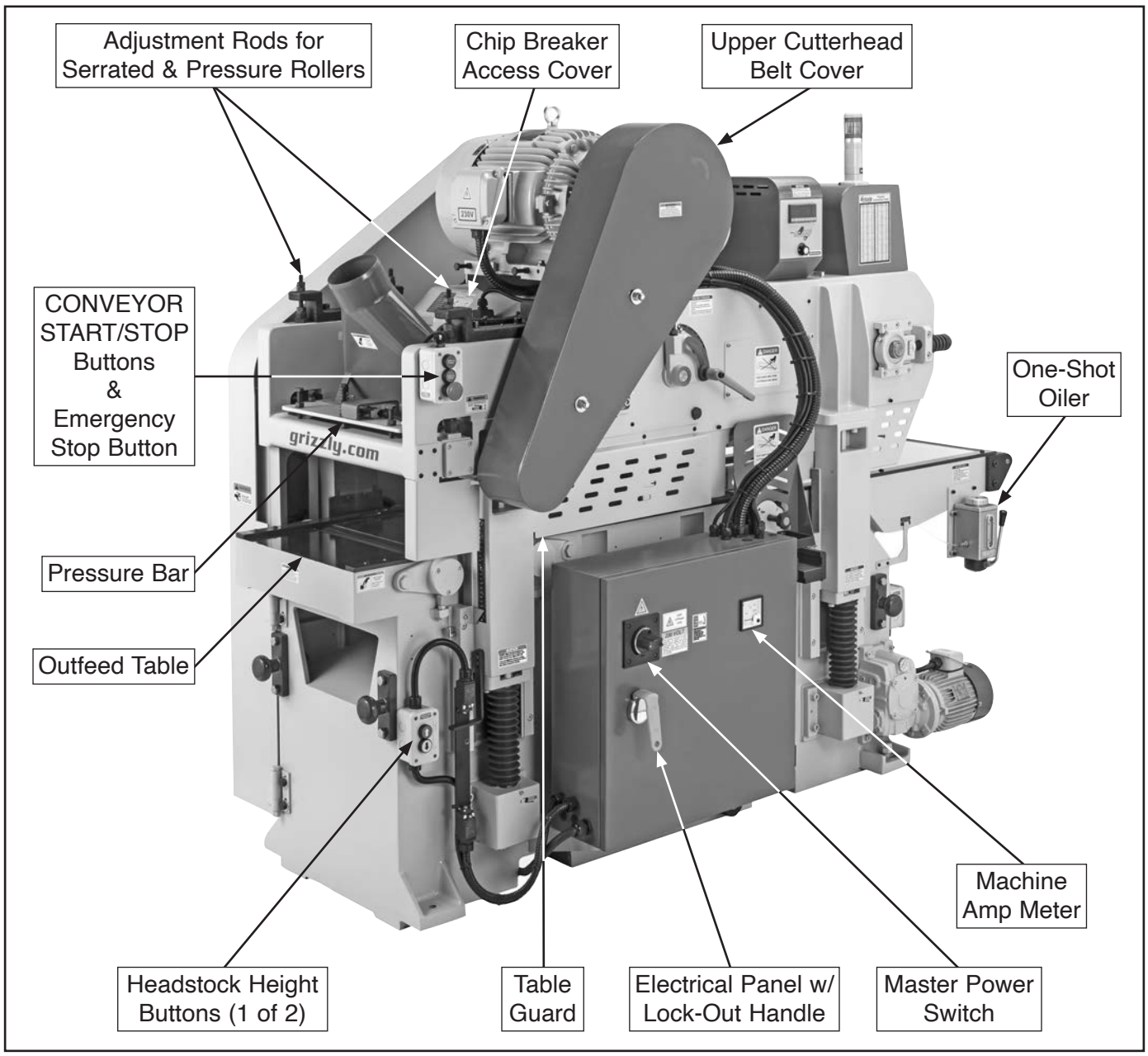
Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

⚠CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

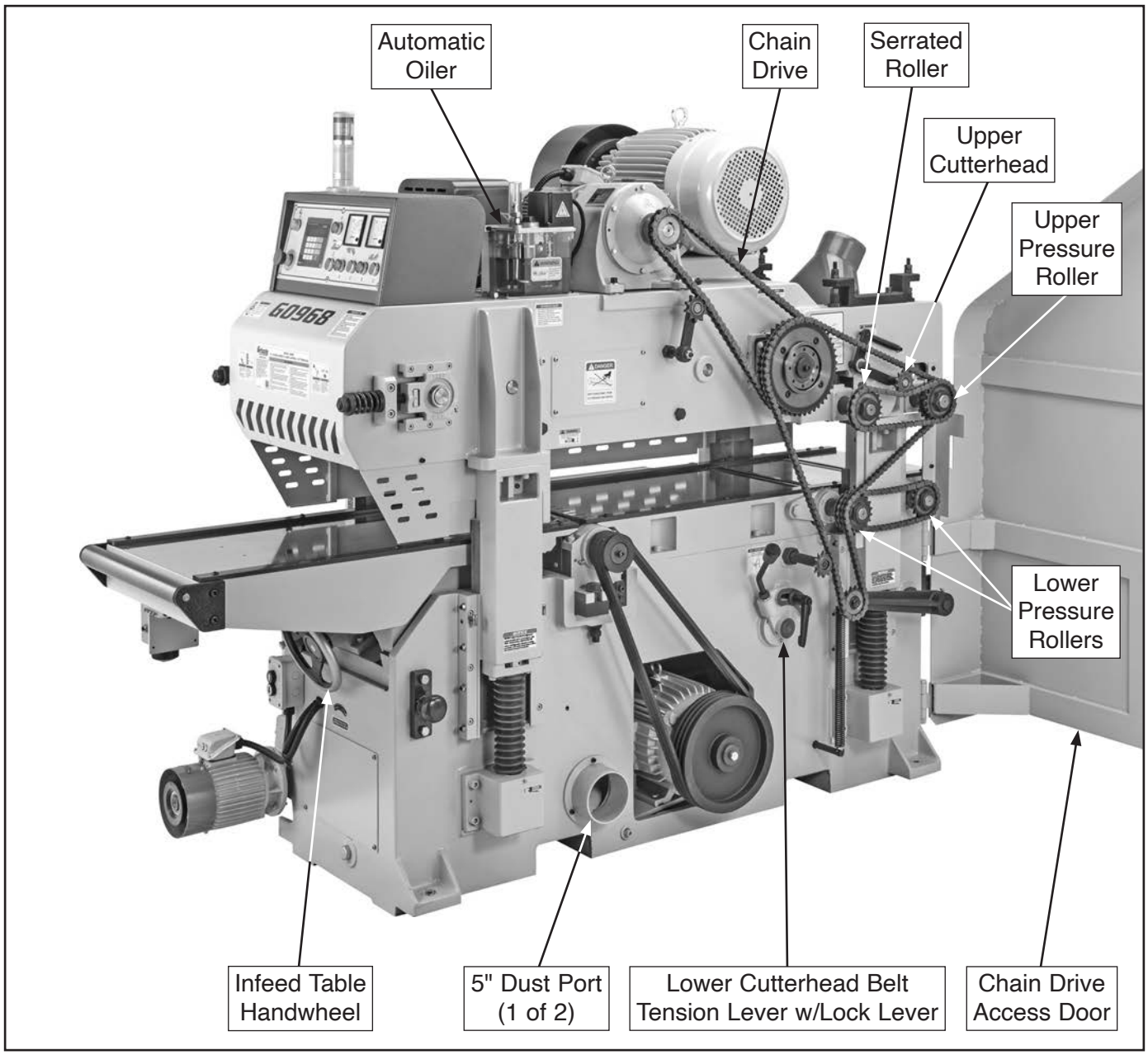
Identification (Rear)

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.

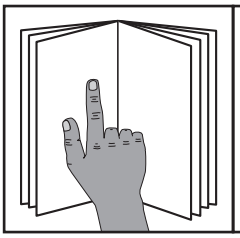


Identification (Right)

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.



Controls & Components



⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

Refer to **Figures 1–7** and the following descriptions to become familiar with the basic controls and components of this machine. Understanding these items and how they work will help you understand the rest of the manual and how to properly operate this machine.

Control Panel

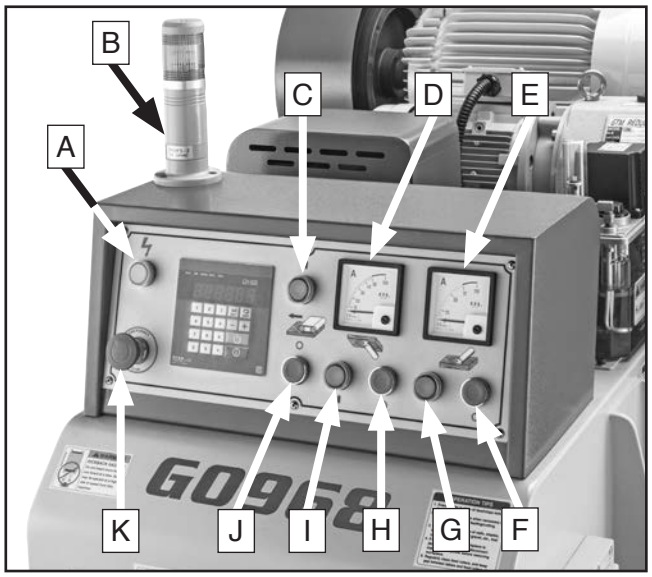


Figure 1. Control panel.

A. Power Button: Enables power to all motors and electrical systems (if EMERGENCY STOP buttons are *not* pressed in).

B. Power Lamp: Illuminates when machine is connected to power.

C. Conveyor Start Button (1 of 2): Starts conveyor system, which includes: feed belt, serrated roller, pressure rollers, and chain drive. Button only functions once cutterheads reach full speed.

D. Lower Cutterhead Motor Amp Meter: Displays lower cutterhead motor amp draw.

E. Upper Cutterhead Motor Amp Meter: Displays upper cutterhead motor amp draw.

F. Upper Cutterhead OFF Button: Turns upper cutterhead motor ***OFF***. (Upper cutterhead requires 30–40 seconds to come to complete stop.)

G. Upper Cutterhead ON Button: Turns upper cutterhead motor ***ON***. (Upper cutterhead requires 5–15 seconds to reach full speed.)

H. Lower Cutterhead OFF Button: Turns lower cutterhead motor ***OFF***. (Lower cutterhead requires 30–40 seconds to come to complete stop.)

I. Lower Cutterhead ON Button: Turns lower cutterhead motor ***ON***. (Lower cutterhead requires 5–15 seconds to reach full speed.)

J. Conveyor Stop Button (1 of 2): Stops conveyor system.

K. EMERGENCY STOP Button (1 of 2): Stops all machine functions and disables power button. Remains in depressed position until manually reset. Reset by twisting button clockwise until it springs outward.

Digital Control Pad

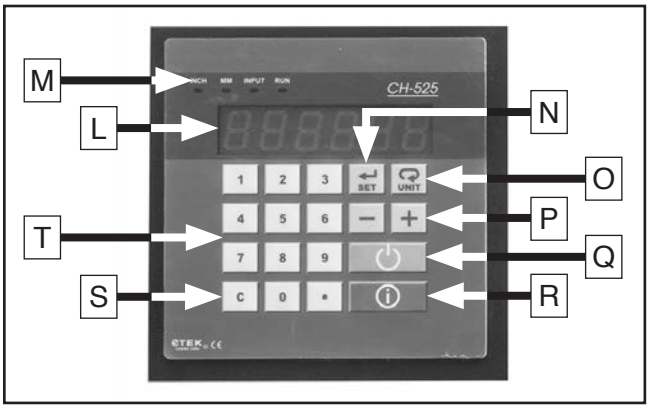


Figure 2. Digital control pad.

Note: *Digital control pad is used to enter a value for final workpiece thickness (i.e., distance from bottom dead center (BDC) of upper cutterhead to planer table).*

L. Digital Display: Shows current final workpiece thickness (i.e., distance from BDC of upper cutterhead to planer table).

M. Unit/Mode Display: Identifies active unit of measurement (INCH or MM) and mode (INPUT or RUN) of digital control pad.

N. SET Key [SET]: Enters Input mode. INPUT is highlighted in unit/mode display. Input mode must be active to enter a final workpiece thickness value.

O. UNIT Key [UNIT]: Switches between inches or millimeters as unit of measurement for digital control pad. Selected unit (INCH or MM) is highlighted in unit/mode display.

P. Plus & Minus Keys [+] [−]: Quickly raise or lower headstock, which increases or decreases final workpiece thickness (i.e., distance from BDC of upper cutterhead to planer table). Push and hold buttons to raise or lower headstock steadily, or push and release buttons to raise or lower headstock in 0.01" or 0.1mm increments.

Q. Start Key [⏻]: Enters Run mode. The headstock will move up or down, depending on entered final workpiece thickness (i.e., distance from BDC of upper cutterhead to planer table).

R. Stop Key [⏻]: Immediately stops headstock when it is moving while in Run mode.

S. Clear Key [C]: Clears current final workpiece thickness value while in Input mode.

T. Numerical Key Pad: Enter specific values for final workpiece thickness. Press 0–9 and decimal keys as needed to enter desired final workpiece thickness. Displayed value flashes until [⏻] key is pressed.

Example: *To enter a final workpiece thickness of 2½", press [SET] key, then press following keys: [2] [•] [5] [0], and then press [⏻] key.*

Headstock (Front)

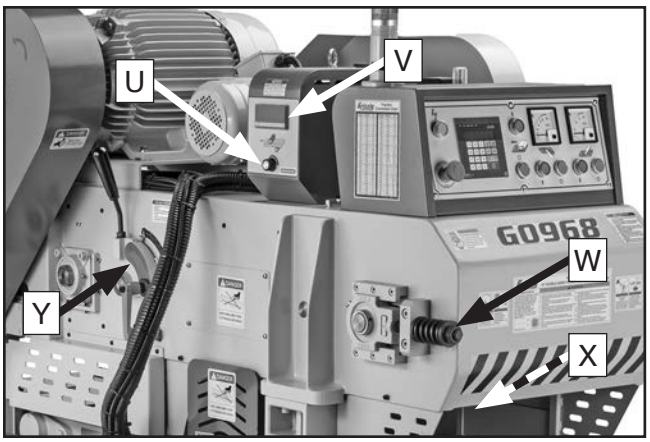


Figure 3. Headstock (front) controls & components.

U. Feed Rate Dial: Sets machine feed rate from 0–100% (20–69 FPM). Feed rate is speed in Feet Per Minute (FPM) conveyor system moves workpieces through machine.

V. Feed Rate DRO: Displays current feed rate value.

W. Feed Belt Tensioner (1 of 2): Tighten or loosen spring-loaded hex bolt to increase or decrease tension on feed belt.

X. Feed Belt: Feeds workpiece into lower cutterhead and toward serrated roller (refer to **Feed Belt** on **Page 10** for more information).

Y. Feed Belt Pressure Adjustment w/Scale & Lock Lever: Increases or decreases feed belt pressure on workpiece. Set pressure to "0" for normal planing operations. If track slips on workpiece, increase downward pressure by no more than 0.5mm at a time.

Base (Front)

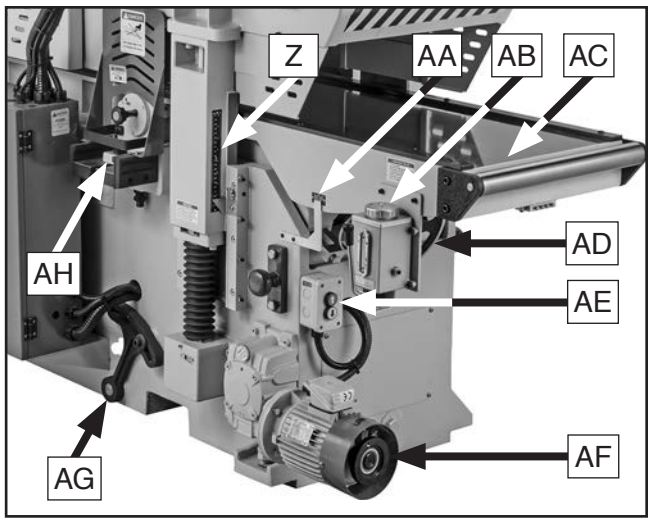


Figure 4. Base (front) controls & components.

Z. Upper Cutterhead Depth-of-Cut Scale (1 of 2): Indicates final workpiece thickness (i.e., distance from BDC of upper cutterhead to planer table) in inches and millimeters.

AA. Lower Cutterhead Depth-of-Cut Scale: Indicates amount of material to be removed from bottom of workpiece (i.e., table offset) in millimeters.

AB. One-Shot Oiler: Pull lever down to dispense oil onto infeed table surface. Oiling table surface reduces friction between workpieces and table surface. Use oiler sparingly to avoid saturating workpieces.

AC. Infeed Table: Provides smooth and level surface to feed workpieces into lower cutterhead (refer to **Infeed Table** on **Page 10** for more information).

AD. Infeed Table Handwheel: Raises or lowers infeed table (refer to **Infeed Table** on **Page 10** for more information). One revolution equals 1.5mm (1/16") of table movement.

AE. Headstock Height Buttons (1 of 2): Raise or lower headstock. Set final workpiece thickness (i.e., distance from BDC of upper cutterhead to planer table).

AF. Headstock Height Handwheel: Precisely raises or lowers headstock. One revolution equals in 0.1mm (0.004 in.) of headstock movement.

AG. Elevation Chain Tensioner: Increases or decreases elevation chain tension.

AH. Lower Cutterhead Carriage w/Handle: Provides access to lower cutterhead for service/maintenance.

Headstock (Rear)

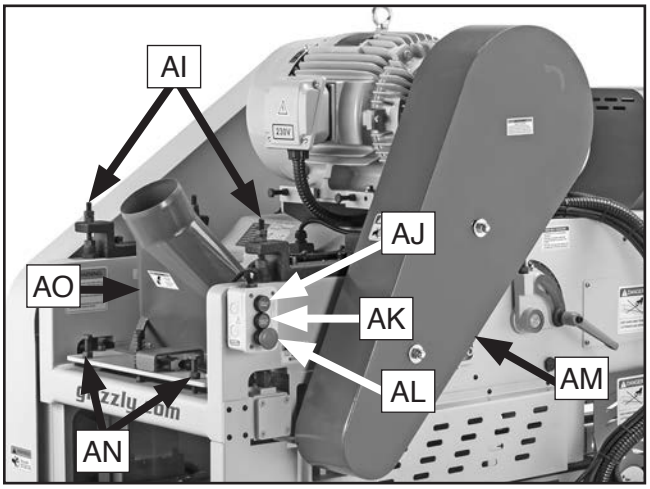


Figure 5. Headstock (rear) controls & components.

AI. Serrated and Upper Pressure Roller Adjustment Rods (2 of 4): Set serrated and upper pressure roller height. Jam nuts lock adjustment rods in position.

AJ. Conveyor START Button (1 of 2): Starts conveyor system, which includes: feed belt, serrated roller, pressure rollers, and chain drive. Button only functions once cutterheads reach full speed.

AK. Conveyor STOP Button (1 of 2): Stops conveyor system.

AL. EMERGENCY STOP Button (1 of 2): Stops all machine functions and disables power button. Remains in depressed position until manually reset. Reset by twisting button clockwise until it springs outward.

AM. Upper Cutterhead Belt Guard: Protects operator from spinning upper cutterhead belts and pulleys during operation. Remove cover to access belts and pulleys for maintenance.

AN. Pressure Bar Adjustment Bolts: Set pressure bar height. Jam nuts lock adjustment bolts in position.

AO. Dust Hood w/5" Dust Port: Covers upper cutterhead to extract wood particles. 5" dust port provides connection to dust-collection system. Remove hood to access upper cutterhead, pressure bar, and pressure rollers for maintenance.

Base (Rear)

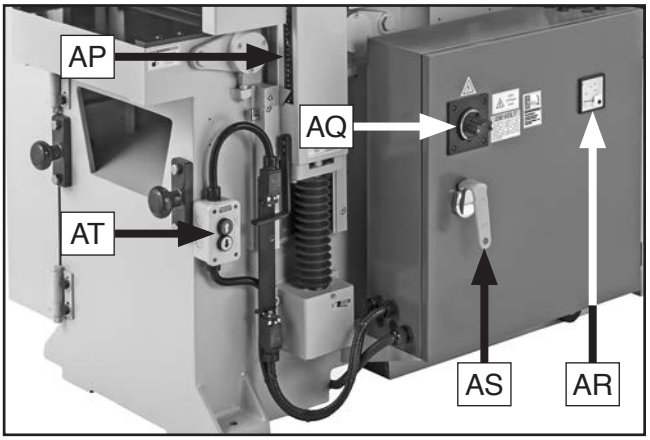


Figure 6. Base (rear) controls & components.

AP. Upper Cutterhead Depth-of-Cut Scale (1 of 2): Indicates final workpiece thickness (i.e., distance from BDC of upper cutterhead to planer table) in inches and millimeters.

AQ. Master Power Switch: Trips when amperage draw exceeds set threshold. Turn switch to reset tripped breaker. Switch has lock-out feature to disable machine start up.

AR. Machine Amp Meter: Displays total machine amperage draw.

AS. Electrical Panel w/Lock-out Handle: Provides access to machine wiring for initial setup. Lock-out handle is easily removable to prevent unauthorized access.

AT. Headstock Height Buttons (1 of 2): Raise or lower headstock. Set final workpiece thickness (i.e., distance from BDC of upper cutterhead to planer table).

Machine (Right)

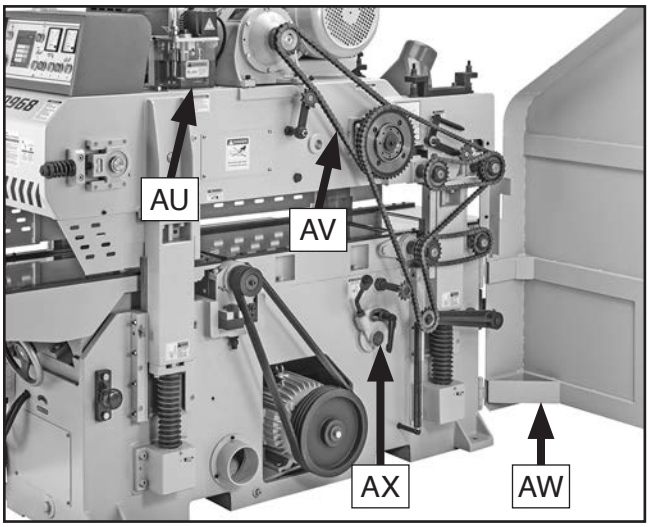


Figure 7. Machine (right) controls & components.

AU. Automatic Oiler: Slowly oils feed belt gear and chain.

AV. Chain Drive: Transfers power to feed belt, serrated roller, and pressure rollers.

AW. Chain Drive Access Door: Protects operator from moving gears and chain during operation. Open door to access upper cutterhead, serrated roller, pressure rollers, and drive chain for maintenance.

AX. Lower Cutterhead Belt Tension Lever w/ Lock Lever: Increases or decreases belt tension on lower cutterhead.

Internal Components

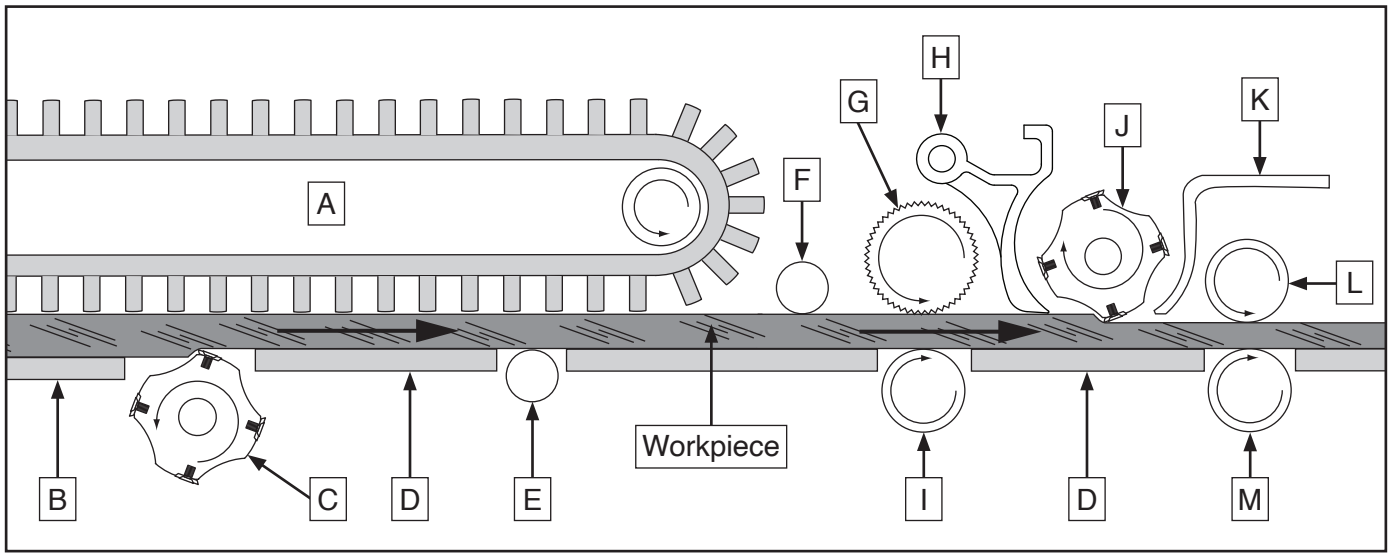


Figure 8. Major planing components (side cutaway view).

A. Feed Belt: Chain-driven conveyor belt that securely grabs, holds, and feeds workpiece into lower cutterhead and toward upper cutterhead. Belt has spring-loaded fingers to grip workpieces.

B. Infeed Table: Provides smooth, level path for workpiece as it is fed into lower cutterhead. Table height is adjustable. Infeed table can be set 0–15mm (0.0"–0.60") lower than planer table (**D**), depending on how much material needs to be removed from bottom of workpiece.

C. Lower Cutterhead: Belt-driven cutterhead holds 60 indexable carbide inserts in V-spiral pattern. Spins at 5000 RPM to remove material from bottom of workpiece.

D. Planer Table: Provides smooth, level path for workpiece as it is fed into and through upper cutterhead. Table height is not adjustable.

E. Table Roller: Provides rolling surface to help feed workpiece toward upper cutterhead.

F. Idler Roller: Spring-loaded roller holds workpiece down as it is fed toward serrated roller.

G. Serrated Roller: Chain-driven roller grabs and pulls workpieces into upper cutterhead.

H. Chip Breaker: Breaks off chips created by upper cutterhead to reduce tearout, and assists in deflecting wood particles toward dust hood.

I. Lower Pressure Roller: Chain-driven roller pulls workpieces into upper cutterhead.

J. Upper Cutterhead: Belt-driven cutterhead holds 60 indexable carbide inserts in V-spiral pattern. Spins at 5000 RPM to remove material from top of workpiece.

K. Pressure Bar: Stabilizes workpiece as it leaves upper cutterhead and assists in deflecting wood particles toward dust hood.

L. Upper Pressure Roller: Chain-driven roller pulls workpieces through upper cutterhead.

M. Lower Pressure Roller: Chain-driven roller pulls workpieces through upper cutterhead.

MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

MODEL G0968
16" DOUBLE-SIDED PLANER W/SPIRAL CUTTERHEADS

Product Dimensions:

Weight	4233 lbs.
Width (side-to-side) x Depth (front-to-back) x Height	40-1/2 x 88-1/2 x 70-1/2 in.
Footprint (Length x Width)	64 x 25 in.

Shipping Dimensions:

Type	Wood Crate
Content	Machine
Weight	4531 lbs.
Length x Width x Height	94 x 42 x 75 in.
Must Ship Upright	Yes

Electrical:

Power Requirement	230V or 460V, 3-Phase, 60 Hz
Prewired Voltage	230V
Full-Load Current Rating	72.8A at 230V, 36.5A at 460V
Minimum Circuit Size	100A at 230V, 50A at 460V
Connection Type	Permanent (Hardwired to Shutoff Switch)
Switch Type	Magnetic w/Overload Protection
Inverter Type	Hitachi NES1-015LB
Inverter Size	2 HP

Motors:

Upper Cutterhead

Horsepower	15 HP
Phase	3-Phase
Amps	39A/19.5A
Speed	1750 RPM
Type	TEFC Induction
Power Transfer	Belt
Bearings	Sealed & Permanently Lubricated

Lower Cutterhead

Horsepower	10 HP
Phase	3-Phase
Amps	26A/13A
Speed	1740 RPM
Type	TEFC Induction
Power Transfer	Belt
Bearings	Sealed & Permanently Lubricated

Feed System

Horsepower	2 HP
Phase	3-Phase
Amps	5.9A/3A
Speed	1710 RPM
Type	TEFC Induction
Power Transfer	Gearbox
Bearings	Sealed & Permanently Lubricated

Headstock Elevation

Horsepower	1/2 HP
Phase	3-Phase
Amps	1.9A/1A
Speed	1720 RPM
Type	TEFC Induction
Power Transfer	Gearbox
Bearings	Sealed & Permanently Lubricated

Main Specifications:

Main Specifications

Planer Size	15-3/4 in.
Max. Cut Width	15-3/4 in.
Max. Cut Height	7-7/8 in.
Min. Stock Length	9-7/8 in.
Min. Stock Width	2 in.
Min. Stock Thickness	5/16 in.
Number of Cuts Per Inch	125 - 36
Number of Cuts Per Minute	30,000
Cutterhead Speed	5000 RPM
Planing Feed Rate	20 - 69
Max. Cut Depth Upper Cutterhead Full Width	5/32 in.
Max. Cut Depth Upper Cutterhead 6-Inch Wide Board	1/4 in.
Max. Cut Depth Lower Cutterhead Full Width	5/32 in.
Max. Cut Depth Lower Cutterhead 6-Inch Wide Board	1/4 in.

Cutterhead Information (Upper)

Cutterhead Type	Spiral
Cutterhead Diameter	4 in.
Number of Cutter Rows	6
Number of Indexable Cutters	60
Cutter Insert Type	Indexable Carbide
Cutter Insert Size Length	30mm
Cutter Insert Size Width	12mm
Cutter Insert Size Thickness	1.5mm

Cutterhead Information (Lower)

Cutterhead Type	Spiral
Cutterhead Diameter	4 in.
Number of Cutter Rows	6
Number of Indexable Cutters	60
Cutter Insert Type	Indexable Carbide
Cutter Insert Size Length	30mm
Cutter Insert Size Width	12mm
Cutter Insert Size Thickness	1.5mm

Table Information

Table Bed Size Length	86 in.
Table Bed Size Width	16 in.
Table Bed Size Thickness	3-3/16 - 6-1/4 in.
Floor-to-Table Height	31-5/16 in.

Construction

Table	Precision-Ground, Chrome Plated
Body	Cast Iron
Cutterhead Assembly	Steel
Infeed Roller	Steel
Outfeed Roller	Steel
Paint Type/Finish	Enamel

Other

Measurement Scale	Inch & Metric
Number of Dust Ports	2
Dust Port Size	5 in.
One-Shot Oiler Capacity	0.6L
Automatic Oiler Capacity	2L

Other Specifications:

Country of Origin	Taiwan
Warranty	1 Year
Approximate Assembly & Setup Time	1 Hour
Serial Number Location	ID Label
Sound Rating	89.6 dB

Features:

Dual Spiral Cutterheads With 60 Indexable Cutters (Each)
Variable Feed Speed From 20 - 69 FPM
Automatic Oiler for Easy Feed System Lubrication
One-Shot Table Oiler
Three Steel Bed Rollers
Programmable Height Adjustment With DRO
Two 5" Dust Ports
Emergency Stop Buttons at Front and Rear of Machine
Lower Cutterhead Slides Out Horizontally for Easy Maintenance

Accessories:

Toolbox
Oil Bottle
Adjustable Wrench 12"
Open-Ended Wrenches: 12/14, 19/21mm
Hex Wrench Set: 2.5-10mm
T-Handle Hex Wrenches 5mm (5)
Replacement Carbide Inserts 30 X 12 X 1.5mm (10)
Replacement Insert Holders (5)
Cast-Iron Foot Pads (4)
Hex Bolts M18-2.5 X 80 (3)
Hex Nuts M18-2.5 (3)
Block Gauge

SECTION 1: SAFETY

For Your Own Safety, Read Instruction Manual Before Operating This Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures. Always use common sense and good judgment.

⚠DANGER **Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠WARNING **Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠CAUTION **Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.**

NOTICE **Alerts the user to useful information about proper operation of the machine to avoid machine damage.**

Safety Instructions for Machinery

⚠WARNING

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine.

TRAINED OPERATORS ONLY. Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make your workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

MENTAL ALERTNESS REQUIRED. Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

ELECTRICAL EQUIPMENT INJURY RISKS. You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

DISCONNECT POWER FIRST. Always disconnect machine from power supply BEFORE making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are NOT approved safety glasses.

⚠WARNING

WEARING PROPER APPAREL. Do not wear loose clothing, gloves, neckties, or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce risk of slipping and losing control or accidentally contacting cutting tool or moving parts.

HAZARDOUS DUST. Dust created by machinery operations may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material. Always wear a NIOSH-approved respirator to reduce your risk.

HEARING PROTECTION. Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

REMOVE ADJUSTING TOOLS. Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

USE CORRECT TOOL FOR THE JOB. Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

CHILDREN & BYSTANDERS. Keep children and bystanders at a safe distance from the work area. Stop using machine if they become a distraction.

GUARDS & COVERS. Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly BEFORE operating machine.

FORCING MACHINERY. Do not force machine. It will do the job safer and better at the rate for which it was designed.

NEVER STAND ON MACHINE. Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

STABLE MACHINE. Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

USE RECOMMENDED ACCESSORIES. Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

UNATTENDED OPERATION. To reduce the risk of accidental injury, turn machine ***OFF*** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

DAMAGED PARTS. Regularly inspect machine for damaged, loose, or mis-adjusted parts—or any condition that could affect safe operation. Immediately repair/replace BEFORE operating machine. For your own safety, DO NOT operate machine with damaged parts!

MAINTAIN POWER CORDS. When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

EXPERIENCING DIFFICULTIES. If at any time you experience difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.

Additional Safety for Double-Sided Planers

⚠WARNING

Amputation, serious cuts, entanglement, or death can occur from contact with rotating cutterheads, feed belt, or other moving parts! Flying chips can cause eye injuries or blindness. Workpieces or inserts thrown by cutterheads can strike nearby operator or bystanders with deadly force. To reduce the risk of these hazards, operator and bystanders MUST completely heed hazards and warnings below.

AVOID CONTACT WITH FEED BELT. The feed belt grabs, holds, and pulls material with great force into spinning cutterheads. To reduce risk of being pulled into machine and spinning cutterheads, keep hands, loose clothing, jewelry, and long hair away from feed belt during operation.

FEED WORKPIECES PROPERLY. To reduce risk of contacting feed belt and being pulled into machine, stand at arms length away from infeed table when feeding workpieces into machine. To reduce risk of kickback and jams, only feed workpieces into machine when feed system is ***ON***, and DO NOT change feed rate speed during cutting operation.

CLEARING JAMMED WORKPIECES. Feeding too much material into machine at one time or using improper feed techniques will likely cause workpieces to become jammed. If workpieces get jammed in machine, turn machine ***OFF*** and disconnect power before clearing jam. NEVER reach inside machine or use a piece of wood to clear a jam during operation or while machine is connected to power. Otherwise, you could be seriously injured if you accidentally touch the spinning cutterheads or get entangled in moving parts.

KICKBACK. Kickback occurs when workpieces are ejected from the machine at a high rate of speed. To reduce risk of kickback and serious impact injuries, only use proper workpieces and feed techniques, and NEVER start cutterhead motors with workpieces touching cutterheads.

CUTTING LIMITATIONS. To reduce risk of kickback and jams, DO NOT exceed maximum depth of cut or minimum board size dimensions found in **Machine Data Sheet**. DO NOT cut multiple boards of thicknesses varying more than 3⁄16" side-by-side at same time.

INSPECTING STOCK. To reduce risk of kickback, jams, and machine damage, thoroughly inspect and prepare stock before cutting. Verify workpieces are free of nails, staples, loose knots, debris, and foreign objects.

PLANING CORRECT MATERIAL. Only plane natural wood stock with this machine. DO NOT plane MDF, OSB, plywood, laminates or other synthetic materials that can break up inside machine and be ejected towards operator or bystanders.

AVOID CONTACT WITH MOVING PARTS. NEVER reach inside planer or open chain drive access door or belt cover during operation or while machine is connected to power. Serious injury or death can occur if you contact cutterheads or get entangled in moving chain drive or belts.

LOOKING INSIDE MACHINE. Wood chips fly around inside machine at a high rate of speed during operation. To avoid injury from flying wood chips, DO NOT look inside planer during operation.

SECURE INSERTS. Improperly secured inserts can break apart or come loose and become dangerous projectiles. Always verify inserts are secure and properly adjusted before operation.

DULL/DAMAGED INSERTS. Dull or damaged inserts increase risk of kickback and jams and cause poor workpiece finish. Only use sharp, undamaged inserts.

WORKPIECE SUPPORT. To reduce risk of kickback and jams, always make sure workpieces can move completely across tables without rocking or tipping. For long stock, use auxiliary support stands on infeed and outfeed ends of machine.

SECTION 2: POWER SUPPLY

Availability

Before installing the machine, consider the availability and proximity of the required power supply circuit. If an existing circuit does not meet the requirements for this machine, a new circuit must be installed. To minimize the risk of electrocution, fire, or equipment damage, installation work and electrical wiring must be done by an electrician or qualified service personnel in accordance with all applicable codes and standards.

⚠WARNING

Electrocution, fire, shock, or equipment damage may occur if machine is not properly grounded and connected to power supply.

Full-Load Current Rating

The full-load current rating is the amperage a machine draws at 100% of the rated output power. On machines with multiple motors, this is the amperage drawn by the largest motor or sum of all motors and electrical devices that might operate at one time during normal operations.

Full-Load Current Rating at 230V..72.8 Amps
Full-Load Current Rating at 460V..36.5 Amps

The full-load current is not the maximum amount of amps that the machine will draw. If the machine is overloaded, it will draw additional amps beyond the full-load rating.

If the machine is overloaded for a sufficient length of time, damage, overheating, or fire may result—especially if connected to an undersized circuit. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets the specified circuit requirements.

Circuit Information

A power supply circuit includes all electrical equipment between the breaker box or fuse panel in the building and the machine. The power supply circuit used for this machine must be sized to safely handle the full-load current drawn from the machine for an extended period of time. (If this machine is connected to a circuit protected by fuses, use a time delay fuse marked D.)

⚠CAUTION

For your own safety and protection of property, consult an electrician if you are unsure about wiring practices or electrical codes in your area.

Note: *Circuit requirements in this manual apply to a dedicated circuit—where only one machine will be running on the circuit at a time. If machine will be connected to a shared circuit where multiple machines may be running at the same time, consult an electrician or qualified service personnel to ensure circuit is properly sized for safe operation.*

Circuit Requirements for 230V

This machine is prewired to operate on a power supply circuit that has a verified ground and meets the following requirements:

Nominal Voltage 220V, 230V, 240V
Cycle ..... 60 Hz
Phase 3-Phase
Power Supply Circuit ..... 100 Amps

Circuit Requirements for 460V

This machine can be converted to operate on a power supply circuit that has a verified ground and meets the requirements listed below. (Refer to **Voltage Conversion** instructions for details.)

Nominal Voltage 440V, 480V
Cycle ..... 60 Hz
Phase 3-Phase
Power Supply Circuit ..... 50 Amps

Connection Type

A permanently connected (hardwired) power supply is typically installed with wires running through mounted and secured conduit. A disconnecting means, such as a locking switch (see following figure), must be provided to allow the machine to be disconnected (isolated) from the power supply when required. This installation must be performed by an electrician in accordance with all applicable electrical codes and ordinances.

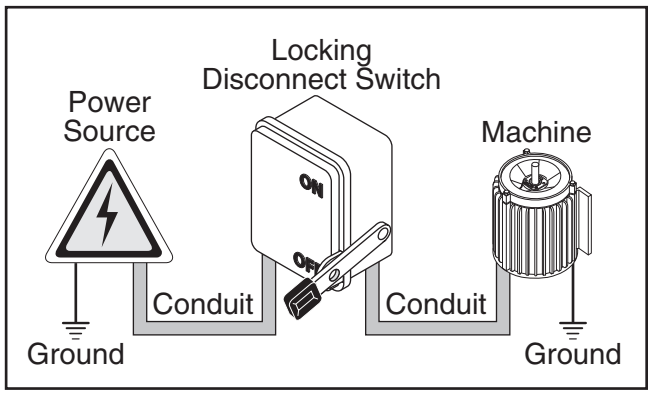


Figure 9. Typical setup of a permanently connected machine.

Grounding Instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electrical current to reduce the risk of electric shock. A permanently connected machine must be connected to a grounded metal permanent wiring system; or to a system having an equipment-grounding conductor. All grounds must be verified and rated for the electrical requirements of the machine. Improper grounding can increase the risk of electric shock!

⚠WARNING

Serious injury could occur if you connect machine to power before completing setup process. DO NOT connect to power until instructed later in this manual.

Extension Cords

Since this machine must be permanently connected to the power supply, an extension cord cannot be used.

NOTICE

DO NOT use a phase converter to supply 3-Phase power, as it could damage or decrease life of electrical components. Damage caused by running this machine with a phase converter will not be covered under warranty.

Converting Voltage to 460V

The voltage conversion MUST be performed by a qualified electrician.

To perform the conversion: 1) Disconnect the machine from power, 2) replace the inverter, 3) replace the overload relays, 4) rewire the transformer, and 5) rewire the upper cutterhead, lower cutterhead, and feed motors.

If the diagrams included in this manual conflict with those on the motors, the motors may have changed since the manual was printed. Use the diagrams on the motors.

Items Needed	Qty
Phillips Head Screwdriver #2	1
Open-End Wrenches 8, 10mm	1 Ea.
Hex Wrench 5mm	1
Shinlin Overload Relay MR-65R-32	1
Shinlin Overload Relay MR-32S-18	1
Shinlin Overload Relay MR-32S-4	1
Hitachi Inverter NES1-015HB 2HP 460V	1

To convert machine to 460V:

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Remove (4) Phillips head screws from either side of inverter housing (see **Figure 10**) and slide out back panel.

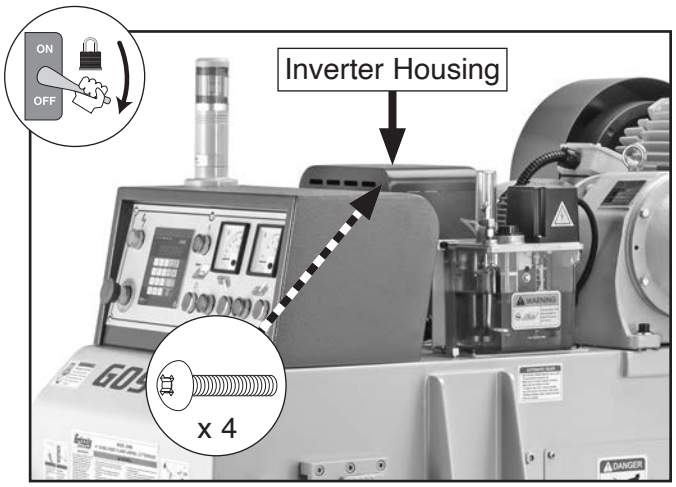


Figure 10. Location of inverter housing.

3. Remove existing inverter from panel, install Hitachi 460V inverter, and install back panel in housing with (4) Phillips head screws removed in **Step 2**.

   Tip: *Performing this step will be easier if (4) cap screws are removed from automatic oiler mounting plate, and automatic oiler is moved out of the way.*

4. Open electrical cabinet.

5. Remove overload relay for upper cutterhead motor (see **Figure 11**) and replace with Shinlin MR-65R-32 overload relay (see wiring schematic on **Page 82**). Set amperage dial to 24.5A.

6. Remove overload relay for lower cutterhead motor (see **Figure 11**) and replace with Shinlin MR-32S-18 overload relay (see wiring schematic on **Page 82**). Set amperage dial to 16A.

7. Remove overload relay for feed system motor (see **Figure 11**) and replace with Shinlin MR-32S-4 overload relay (see wiring schematic on **Page 82**). Set amperage dial to 3.2A.

8. Locate transformer and move "R1" wire to 460V terminal (see **Figures 11–12**).

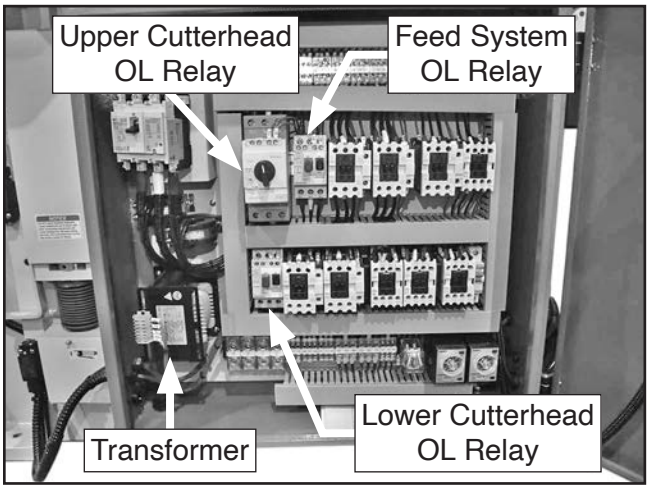


Figure 11. Location of overload relays and transformer.

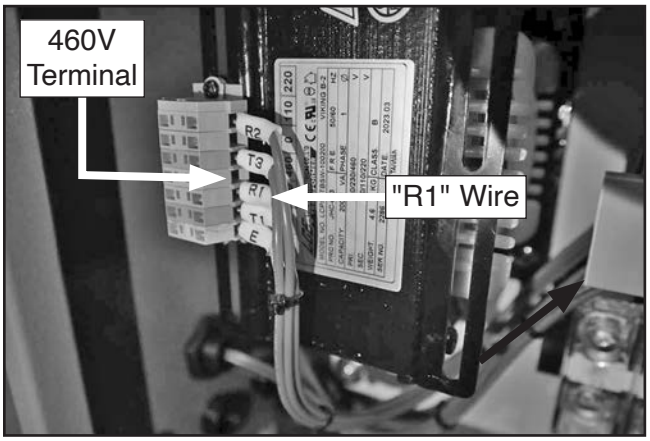


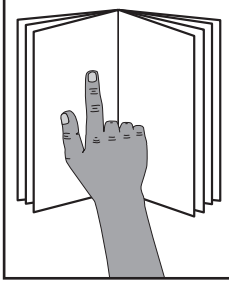
Figure 12. Location of "R1" wire and 460V terminal on transformer.

9. Close electrical cabinet.

10. Remove junction box covers on upper cutterhead, lower cutterhead, feed system, and headstock elevation motors, and rewire for 460V operation (see wiring schematics on **Page 83**).

11. Install junction box covers on upper cutterhead, lower cutterhead, feed system, and headstock elevation motors.

SECTION 3: SETUP

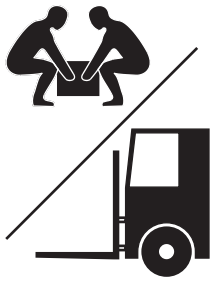


⚠WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!

⚠WARNING

Wear safety glasses during the entire setup process!



⚠WARNING

HEAVY LIFT!

Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from other people and use a forklift (or other lifting equipment) rated for weight of this machine.

Needed for Setup

The following items are needed, but not included, for the setup/assembly of this machine.

Description	Qty
• Additional People	2
• Safety Glasses (Per Person)	1 Pr.
• Cleaner/Degreaser	As Needed
• Disposable Shop Rags	As Needed
• Disposable Gloves	As Needed
• Mineral Spirits	As Needed
• Stiff Brush	1
• Grease Gun	1
• Lifting Equipment (Rated for At Least 6000 lbs.	1
• Precision Level (At Least 12" Long)	1
• Phillips Head Screwdriver #2	1
• Dust Collection System	1
• Dust Hoses 5"	2
• Hose Clamps 5"	4
• Open-End Wrench 27mm	1
• Open-End Wrench 30mm	1
• ISO 32 Oil (T26685)	As Needed
• ISO 68 Oil (T23962)	As Needed
• ISO 320 Oil (T28042)	As Needed
• NLGI#2 Grease (T26419)	As Needed

Unpacking

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. ***If items are damaged, please call us immediately at (570) 546-9663.***

IMPORTANT: Save all packaging materials until you are completely satisfied with the machine and have resolved any issues between Grizzly or the shipping agent. *You MUST have the original packaging to file a freight claim. It is also extremely helpful if you need to return your machine later.*

Inventory

The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

Inventory (Figures 13–14)	Qty
A. Double-Sided Planer	1
B. Toolbox	1
C. T-Handle Hex Wrenches 5mm	5
D. Cutterhead Insert Clamp Screws	5
E. Leveling Pads	4
F. Cutterhead Insert Clamps	5
G. Replacement Inserts 30 x 12 x 1.5mm	10
H. Hex Bolts M18-2.5 x 70 w/Hex Nuts M18-2.5	3
I. Oil Bottle	1
J. Hex Wrench Set (2.5, 3, 4, 5, 6, 8, 10mm)	1
K. Adjustable Wrench 12"	1
L. Block Gauge	1
M. Master Power Switch	1
N. Open-End Wrench 19/21mm	1
O. Open-End Wrench 12/14mm	1

NOTICE

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

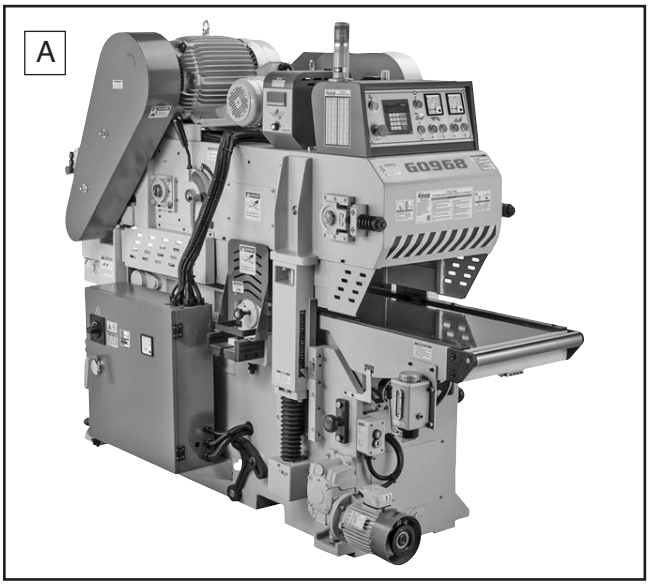


Figure 13. Inventory—machine.

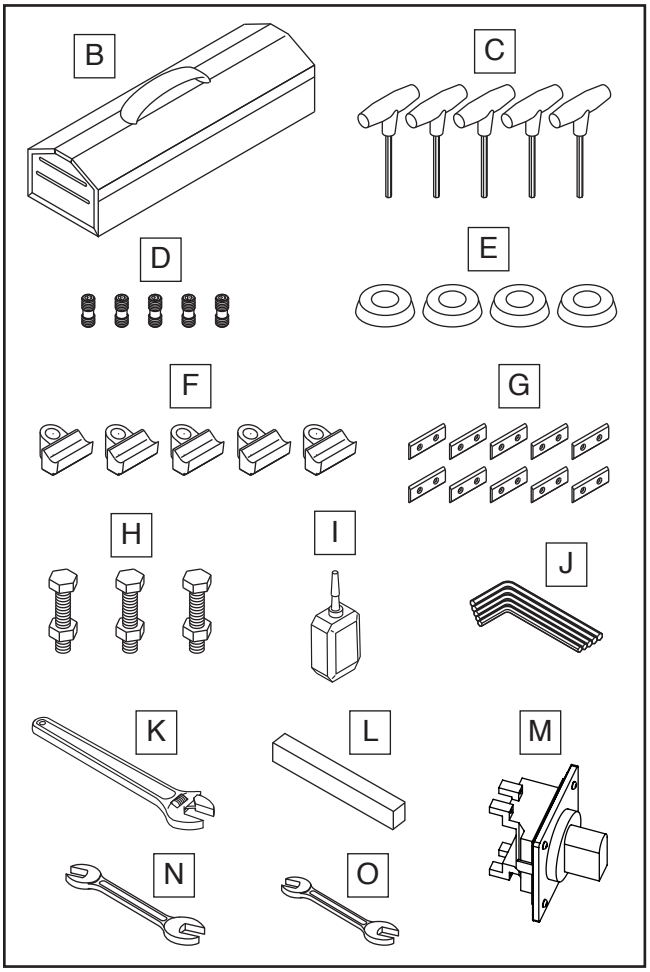


Figure 14. Inventory—tools.

Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage. This rust preventative works extremely well, but it will take a little time to clean.

Be patient and do a thorough job cleaning your machine. The time you spend doing this now will give you a better appreciation for the proper care of your machine's unpainted surfaces.

There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

Before cleaning, gather the following:
- Disposable rags
- Cleaner/degreaser (WD•40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

Basic steps for removing rust preventative:

1. Put on safety glasses.

2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.

3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.

4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.

⚠WARNING

Gasoline and petroleum products have low flash points and can explode or cause fire if used to clean machinery. Avoid using these products to clean machinery.

⚠CAUTION

Many cleaning solvents are toxic if inhaled. Only work in a well-ventilated area.

NOTICE

Avoid harsh solvents like acetone or brake parts cleaner that may damage painted surfaces. Always test on a small, inconspicuous location first.

T23692—Orange Power Degreaser
A great product for removing the waxy shipping grease from the ***non-painted*** parts of the machine during clean up.

Order online at
www.grizzly.com
OR
Call 1-800-523-4777

Figure 15. T23692 Orange Power Degreaser.

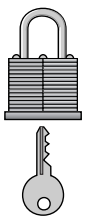
Site Considerations

Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

Space Allocation

Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**



⚠CAUTION

Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.

Physical Environment

The physical environment where the machine is operated is important for safe operation and longevity of machine components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range exceeds 41°–104°F; the relative humidity range exceeds 20%–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave enough space around machine to disconnect power supply or apply a lockout/tagout device, if required.

Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

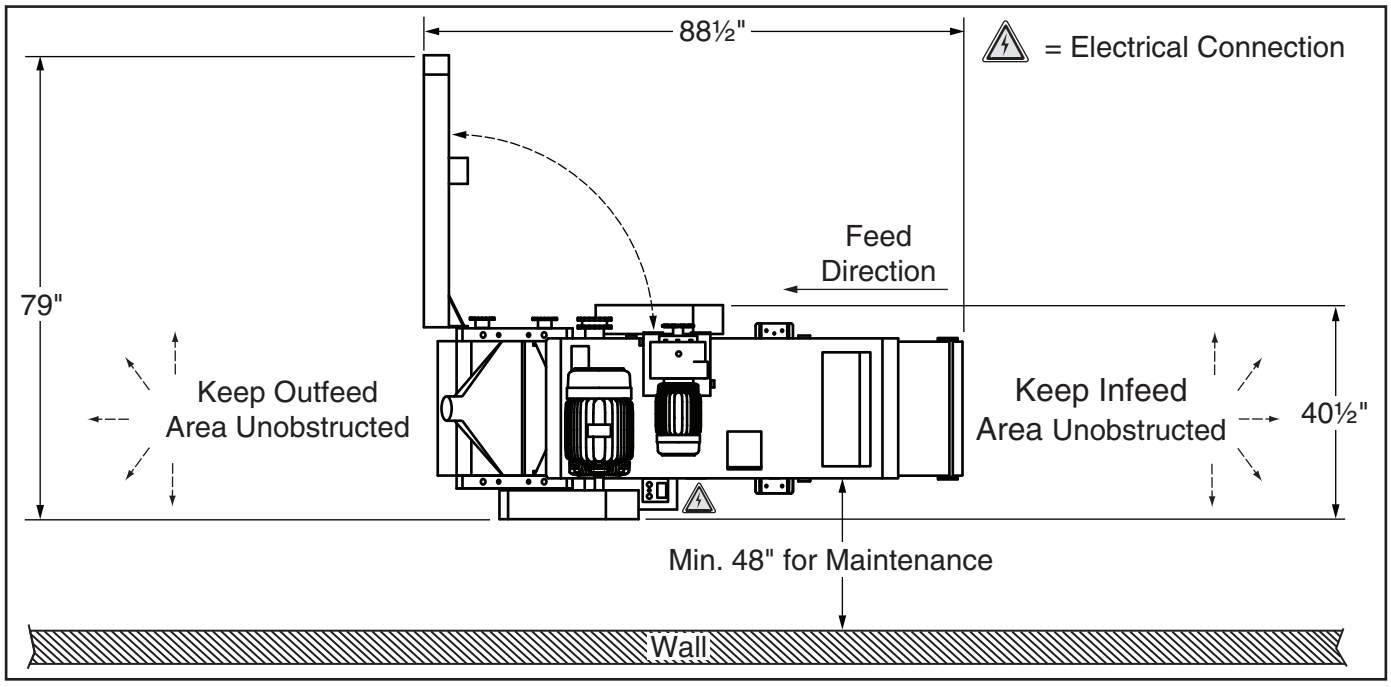


Figure 16. Minimum working clearances.

Lifting & Placing

⚠WARNING

This is an extremely heavy machine! Serious personal injury or death may occur if safe lifting and moving methods are not followed. To be safe, you will need assistance and power equipment when moving shipping crate and removing machine from crate. Seek assistance from professional rigger if you are unsure about your abilities or maximum load ratings of your lifting equipment.

DO NOT attempt to lift or move the machine without using the proper lifting equipment (such as a forklift or crane) and assistance from other people. Each piece of lifting equipment must be rated for **at least 6000 lbs.** to support the dynamic loads that may be applied while lifting. Refer to **Needed for Setup** on **Page 20** for a complete list of needed equipment for setup and installation.

Review the **Power Supply** section beginning on **Page 17**, then prepare a permanent location for the machine.

IMPORTANT: Make sure prepared location is clean and level.

To lift and place machine:

1. Move machine near its prepared location while still inside shipping crate.

2. Remove top and sides of shipping crate, then place small items aside in safe location.

3. Remove (4) lag screws and flat washers that secure machine to shipping pallet (see **Figure 17**).

   IMPORTANT: Take care not to damage threaded holes in machine footings when removing lag screws.

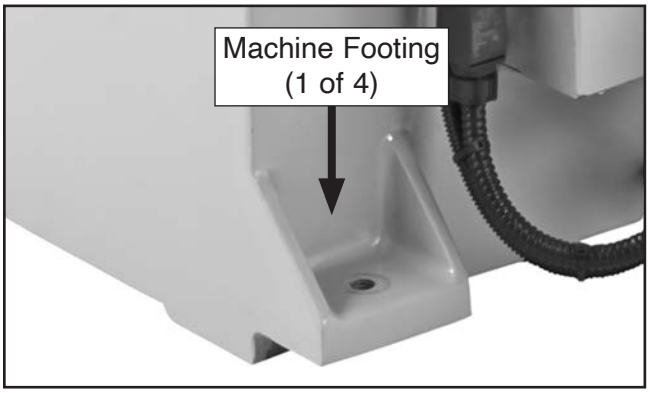


Figure 17. Location of machine footings.

4. Carefully lift machine off shipping crate. Below are two methods for performing this operation. Use best method for your situation.

   — Secure lifting straps around (4) cleats on machine (see **Figure 18**) and attach straps to lifting equipment with heavy-duty shackles or other rigging equipment. Cleats are positioned on machine to balance weight of machine when using four lifting straps of equal length.

   IMPORTANT: Eye bolts on top of motors are for lifting the motors only. DO NOT lift machine by eye bolts.

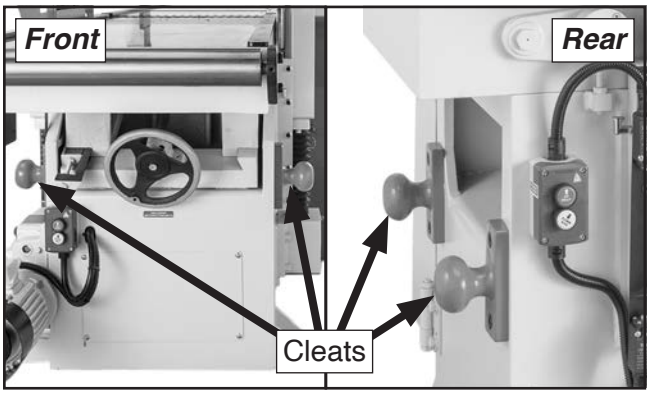


Figure 18. Example of lifting cleat locations.

— Insert forklift forks through slots on bottom of machine (see **Figure 19**). Slots are 36" on center and accept forks up to 6" wide.

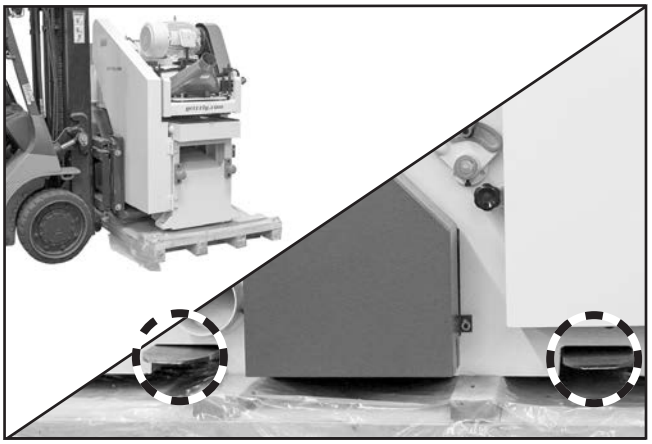


Figure 19. Example of lifting machine with forklift.

5. Raise machine a couple of inches and check balance of load. If using straps, have two other people carefully steady machine to help prevent it from swinging.

6. Raise machine enough to clear shipping pallet and carefully remove pallet.

7. Before lowering machine into final position, perform steps in **Leveling** on this page.

Leveling

⚠CAUTION

For accurate planing results and to prevent warping or twisting of cast-iron base, machine MUST be leveled side to side and front to back on both ends.

Check machine 24 hours after installation, two weeks after that, and then annually to make sure it remains level.

Leveling machinery helps precision components remain straight and flat during the lifespan of the machine. Components on an improperly leveled machine may slowly twist due to the dynamic loads placed on the machine during operation.

To level machine:

1. Slide (4) leveling pads under (4) footings at corners of machine, as shown in **Figure 20**. Make sure center of threaded hole in footing aligns with center of leveling pad.

2. Insert (3) M18-2.5 x 70 hex bolts with (3) M18-2.5 jam nuts into (3) threaded holes in footings, as shown in **Figure 20**.

   Note: *Hex bolt and jam nut on left, front footing are pre-installed.*

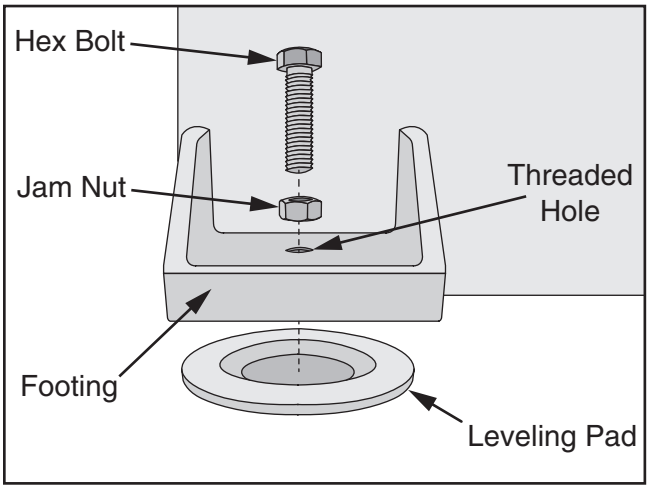


Figure 20. Leveling hardware orientation (1 of 4).

3. Thread (4) M18-2.5 x 70 hex bolts until they just touch center of leveling pad.

4. Place level on planer table, and make necessary adjustments to hex bolts on each footing so table is level from side to side and front to back; then tighten jam nuts to secure these adjustments.

   This process will help machine components remain straight and flat.

   Note: *For best results, use a precision level that is at least 12" long and sensitive enough to measure movement to 0.003".*

H2683—Master Machinist's Level 12"
This incredibly accurate level is used for setting up fine machinery. It measures to 0.0005" (half a thousandths of an inch) within a 10" span.

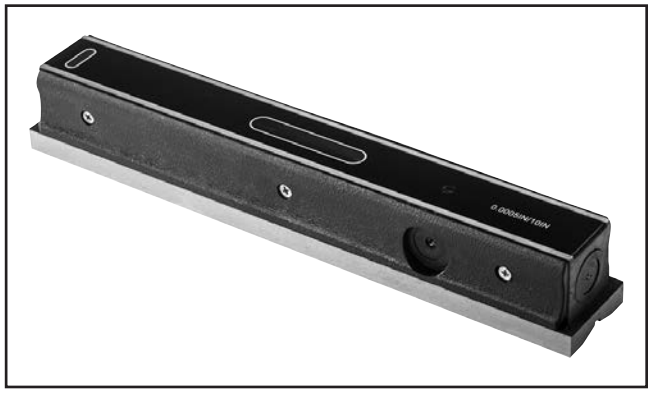


Figure 21. Model H2683 Master Machinist's Level.

Assembly

The machine must be fully assembled before it can be operated. Before beginning the assembly process, refer to **Needed for Setup** and gather all listed items. To ensure the assembly process goes smoothly, first clean any parts that are covered or coated in heavy-duty rust preventative (if applicable).

To assemble machine:

1. Remove rust-preventing plastic film from upper and lower cutterheads (refer to **Rotating/Replacing Cutterhead Inserts** on **Page 43** for more information about accessing cutterheads).

2. On front of electrical cabinet door, remove paper seal (see **Figure 22**) covering hole for master power switch.

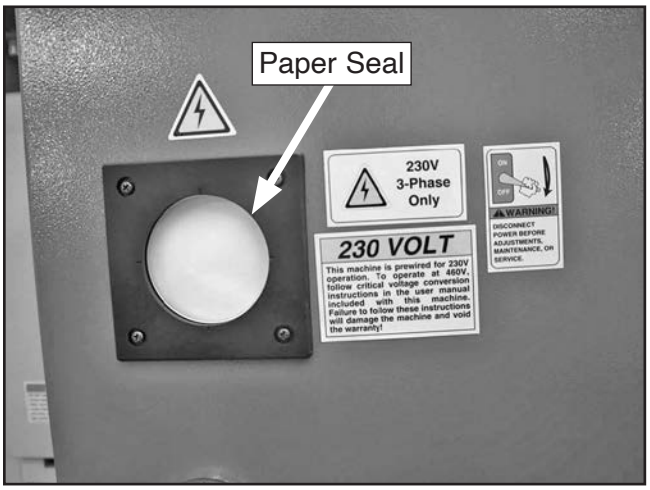


Figure 22. Paper seal on electrical cabinet door.

3. Attach master power switch to face of circuit breaker (see **Figure 23**) in upper left-hand corner of electrical cabinet using (2) Phillips head screws, flat washers, and lock washers pre-installed in master power switch.

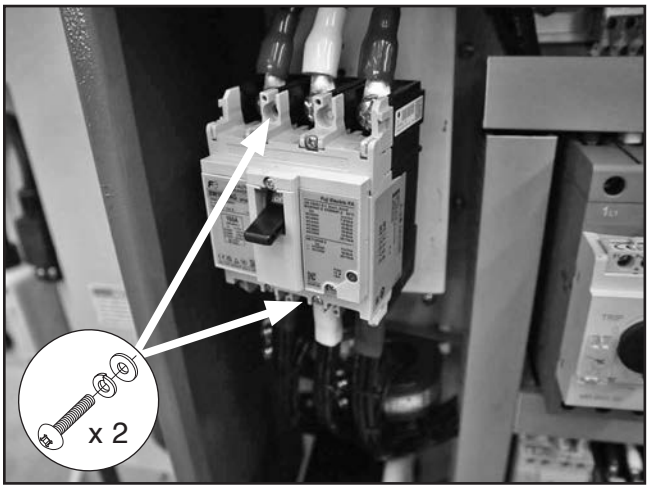


Figure 23. Attachment points on circuit breaker.

4. Ensure switch is turned full right (see **Figure 24**), then close electrical cabinet door.

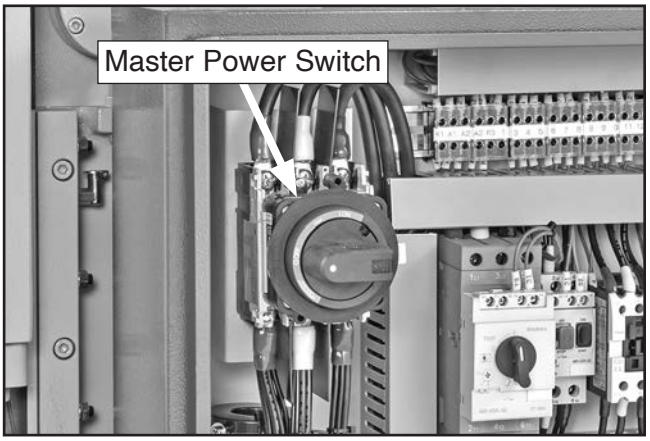


Figure 24. Master power switch installed.

Lubricating Machine

The elevation system and conveyor system gearboxes and the automatic oiler and one-shot oiler reservoirs must have the proper amount of oil in them before the machine can be operated.

IMPORTANT: Damage caused to the bearings, gears, and chains from running the machine without oil in the gearboxes and reservoirs will not be covered under warranty. Refer to the **Lubrication** section, beginning on **Page 50**, for checking and adding oil.

In addition to the gearboxes and reservoirs, we also recommend that you lubricate all other points on the machine at this time. To do this, follow the steps provided in the lubrication schedule on **Page 50**.

Dust Collection

⚠CAUTION

This machine creates a lot of wood chips/dust during operation. Breathing airborne dust on a regular basis can result in permanent respiratory illness. Reduce your risk by wearing a respirator and capturing the dust with a dust-collection system.

Minimum CFM at Each 5" Dust Port: 600 CFM
Do not confuse this CFM recommendation with the rating of the dust collector. To determine the CFM at the dust port, you must consider these variables: (1) CFM rating of the dust collector, (2) hose type and length between the dust collector and the machine, (3) number of branches or wyes, and (4) amount of other open lines throughout the system. Explaining how to calculate these variables is beyond the scope of this manual. Consult an expert or purchase a good dust collection "how-to" book.

To connect dust collection hoses:

1. Fit (2) 5" dust hoses over dust ports and secure in place with hose clamps (see **Figure 25**).

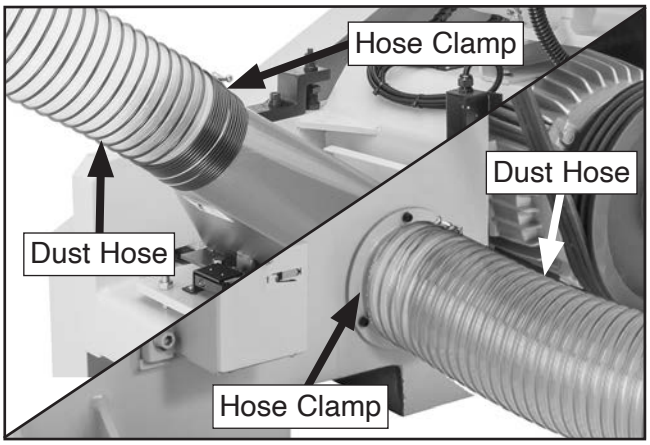


Figure 25. Dust hoses attached to dust ports.

2. Tug hoses to make sure they do not come off.

   Note: *A tight fit is necessary for proper performance.*

Power Connection

Before the machine can be connected to the power source, an electrical circuit and connection device must be prepared per the **POWER SUPPLY** section in this manual; and all previous setup instructions in this manual must be complete to ensure that the machine has been assembled and installed properly. The disconnect switch installed by the electrician (as recommended) is the primary means for disconnecting or connecting the machine to the power source.

Connecting to Power Source

Move the disconnect switch handle to the ON position, as illustrated below. The machine is now connected to the power source.

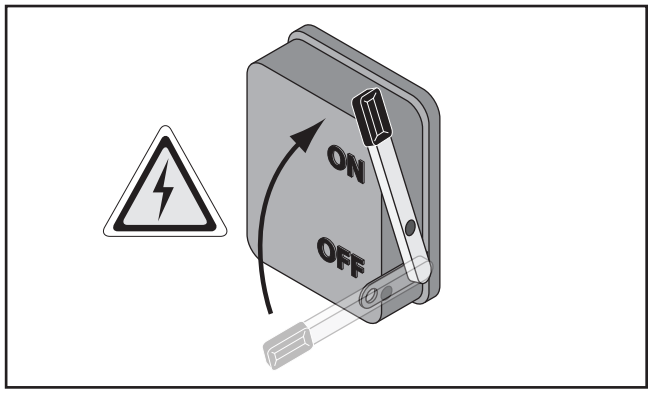


Figure 26. Connecting power to machine.

Disconnecting from Power Source

Move the disconnect switch handle to the OFF position, as illustrated below. The machine is now disconnected from the power source.

Note: *Lock the switch in the OFF position to restrict others from starting the machine.*

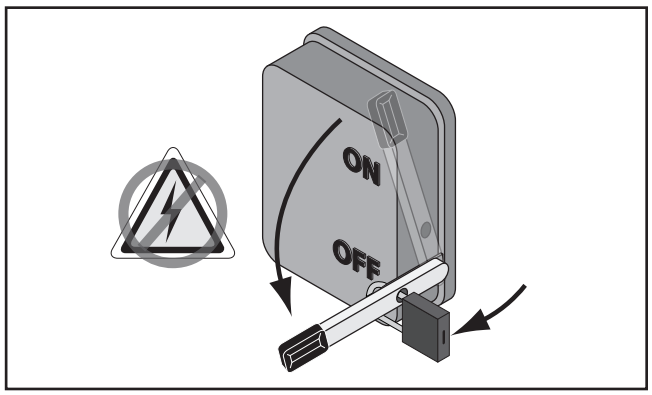
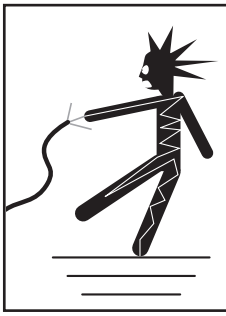


Figure 27. Disconnecting power from machine.



⚠WARNING

Electrocution, fire, shock, or equipment damage may occur if machine is not properly grounded and connected to power supply.

NOTICE

DO NOT use a phase converter to supply 3-phase power, as it could damage or decrease life of electrical components. Damage caused by running this machine with a phase converter will not be covered under warranty.

IMPORTANT: *Due to the complexity required for planning, bending, and installing the conduit necessary for a code-compliant hardwire setup, an electrician or other qualified person MUST perform this type of installation. Hardwire setups typically require power supply wires to be enclosed inside of a solid or flexible conduit, which is securely mounted at both ends with the appropriate conduit fittings. All work must adhere to the required electrical codes.*

To connect machine to power:

1. Open electrical cabinet.

2. Connect conduit to electrical panel through access hole (see **Figure 28**).

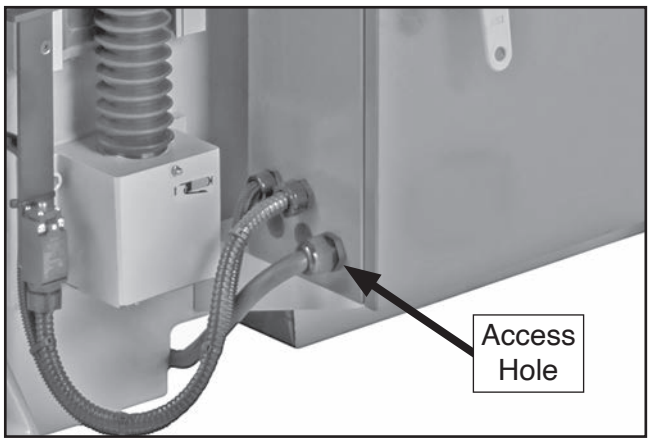


Figure 28. Location of electrical panel access hole.

3. Feed wires through conduit to electrical panel. Make sure wires have enough slack inside electrical panel so they are not pulled tight or stretched.

4. Connect ground wire to ground terminal (see **Figure 29**), then connect incoming power wires to power terminals (see **Figure 29**).

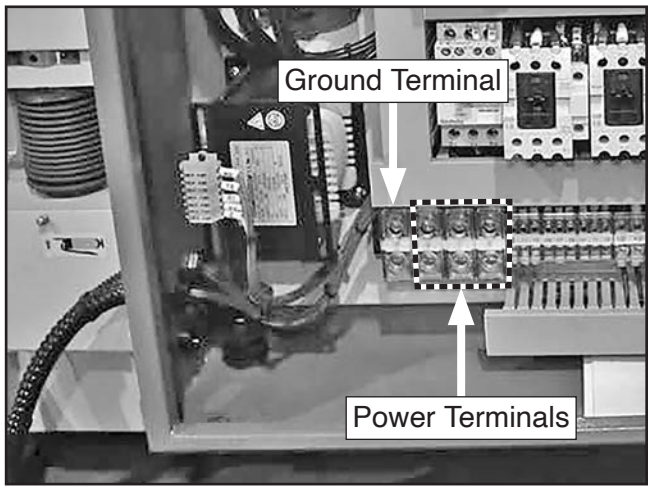


Figure 29. Terminal locations to connect ground wire and incoming power wires.

5. Close and secure electrical panel door, then perform **Test Run** in following section to verify correct power phase polarity.

Test Run

Once assembly is complete, test run the machine to ensure it is properly connected to power and safety components are functioning correctly.

If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and fix the problem BEFORE operating the machine again. The **Troubleshooting** table in the **SERVICE** section of this manual can help.

The Test Run consists of verifying the following: 1) Power supply polarity is correct, 2) motors power up and run correctly, 3) conveyor system runs correctly, 4) EMERGENCY STOP buttons work correctly, and 5) headstock height limit switches work correctly.

⚠WARNING

Serious injury or death can result from using this machine BEFORE understanding its controls and related safety information. DO NOT operate, or allow others to operate, machine until the information is understood.

⚠WARNING

DO NOT start machine until all preceding setup instructions have been performed. Operating an improperly set up machine may result in malfunction or unexpected results that can lead to serious injury, death, or machine/property damage.

To test run machine:

1. Clear all setup tools and loose items away from machine.

2. Push both EMERGENCY STOP buttons: (1) on control panel (see **Figure 30**) and (1) on rear headstock (see **Figure 31**).

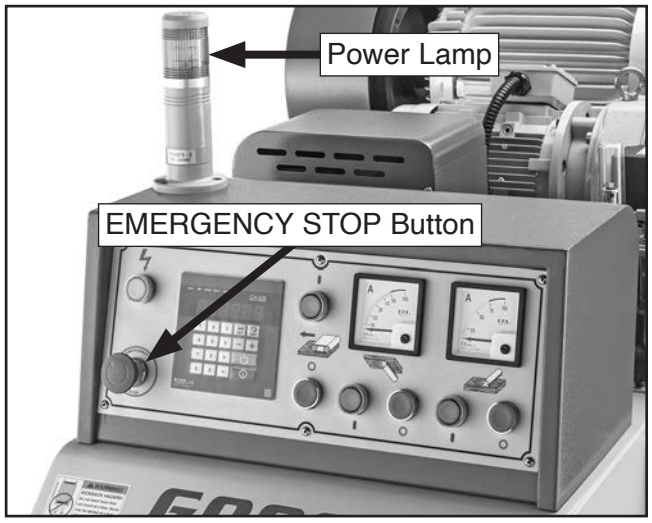


Figure 30. Location of EMERGENCY STOP button and power lamp on control panel.

Figure 31. Location of EMERGENCY STOP button on rear headstock.

3. Connect machine to power source (refer to **Power Connection** on **Page 28**) and move master power switch (see **Figure 32**) to ON position. Power lamp (see **Figure 30**) mounted on control panel will illuminate to indicate power is connected.

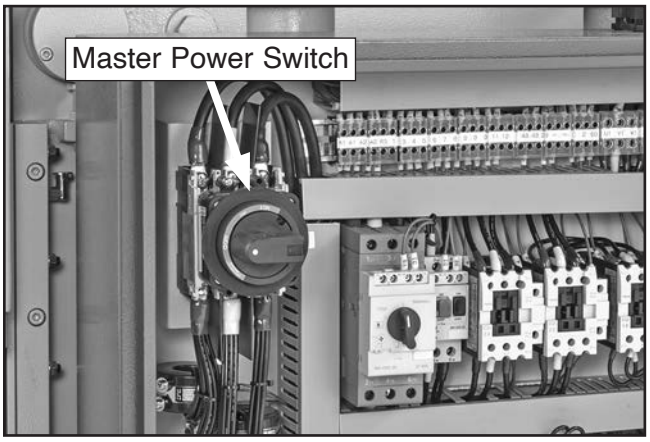


Figure 32. Location of master power switch.

4. Twist both EMERGENCY STOP buttons clockwise until they pop out (see **Figure 33**). This resets buttons so machine will start.

Figure 33. Resetting EMERGENCY STOP buttons.

5. Push power button (see **Figure 34**) to enable power to motors and electrical system.

   Note: *Button will only illuminate and become active once both EMERGENCY STOP buttons are reset.*

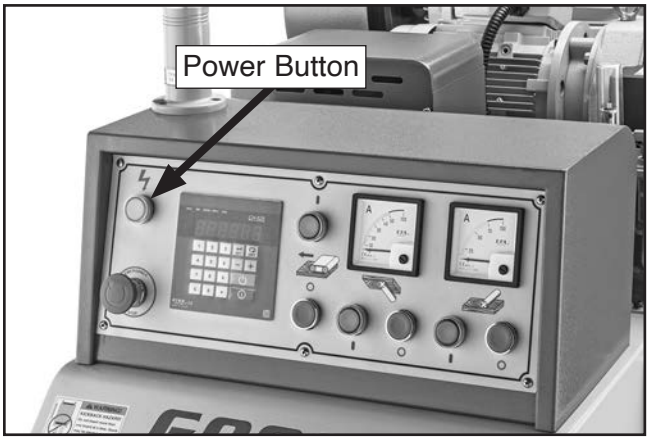


Figure 34. Location of power button.

6. Verify power supply polarity by using headstock height buttons (see **Figure 35**) at front of machine to raise and lower headstock.

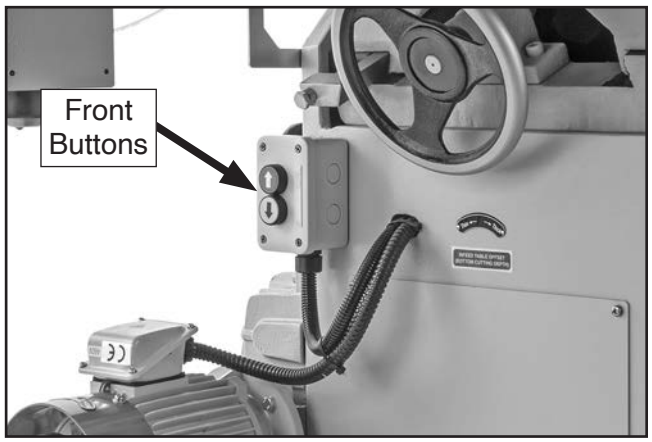


Figure 35. Location of headstock height buttons.

— If headstock *raises* when up ⊡ button is pushed and *lowers* when down ⊡ button is pushed, then phase polarity *is correct*. Proceed to **Step 7**.

— If headstock *lowers* when up ⊡ button is pushed and *raises* when down ⊡ button is pushed, then power phase polarity *is not correct*. Push both EMERGENCY STOP buttons, disconnect machine from power source, switch any two of three incoming power supply wires inside electrical panel (refer to **Figure 29** on **Page 29**), then restart Test Run.

7. Push lower cutterhead ON button (see **Figure 36**) to turn lower cutterhead ***ON***. Wait 5–15 seconds for cutterhead to reach full speed. Correctly operating cutterhead motor will run smoothly with little or no vibration or rubbing noises.

8. Push upper cutterhead ON button (see **Figure 36**) to turn upper cutterhead ***ON***. Wait 5–15 seconds for cutterhead to reach full speed. Correctly operating cutterhead motor will run smoothly with little or no vibration or rubbing noises.

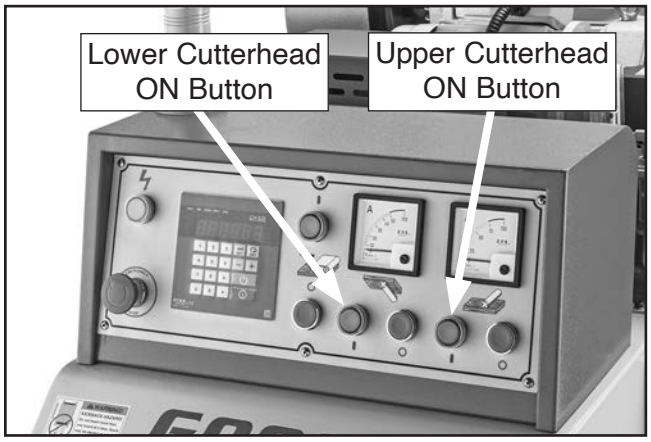


Figure 36. Location of lower and upper cutterhead ON buttons.

9. Push conveyor start button (see **Figure 37**) to start feed belt and chain drive.

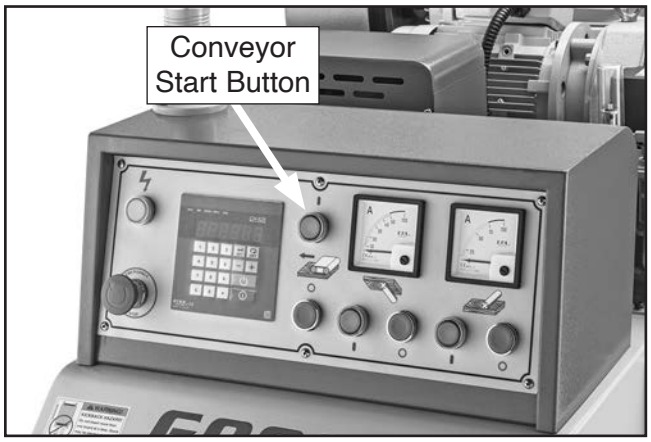


Figure 37. Location of conveyor start button.

Note: *Upper and lower cutterhead motors must be* ***ON*** *for conveyor system to start.*

10. Slowly rotate feed rate dial (see **Figure 38**) back and forth to increase/decrease feed rate. A correctly operating conveyor system will run smoothly and change speeds with moderate to little vibration and no grinding noises. Feed rate will appear in DRO measured in feet per minute (FPM).

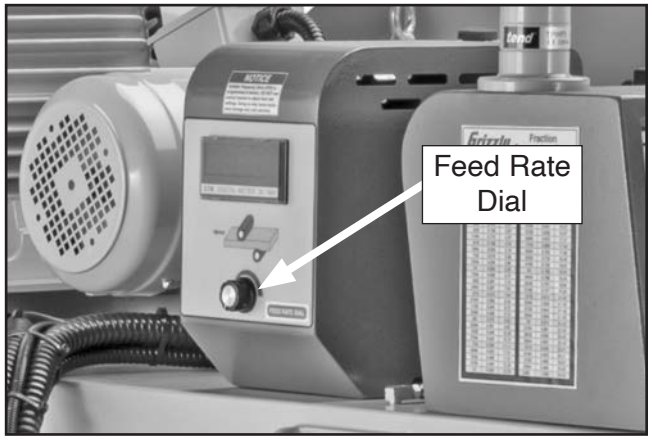


Figure 38. Location of feed rate dial.

11. Push EMERGENCY STOP button on control panel (see **Figure 30** on **Page 30**) and wait 30–40 seconds for cutterheads to come to complete stop.

12. WITHOUT resetting EMERGENCY STOP button on control panel, press lower cutterhead ON button, upper cutterhead ON button, and conveyor start button.

— If motors and conveyor system *do not* start, then control panel EMERGENCY STOP button safety feature is working correctly. Proceed to **Step 13**.

— If any motors or conveyor system *do* start, immediately disconnect power to machine. Control panel EMERGENCY STOP button safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.

13. Twist EMERGENCY STOP button on control panel to reset.

14. Push power button (see **Figure 34** on **Page 30**) to enable power to motors and electrical system.

15. Repeat **Steps 7–10**.

16. Push EMERGENCY STOP button on rear of headstock (see **Figure 39**) and wait 30–40 seconds for cutterheads to come to complete stop.

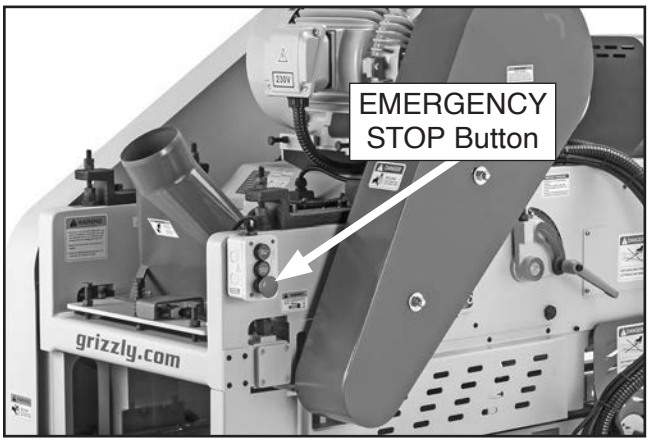


Figure 39. Location of EMERGENCY STOP button at rear of headstock.

17. WITHOUT resetting EMERGENCY STOP button on rear of headstock, press lower cutterhead ON button, upper cutterhead ON button, and conveyor start button.

— If all motors and conveyor system *do not* start, then rear headstock EMERGENCY STOP button safety feature is working correctly. Proceed to **Step 18**.

— If any motors or conveyor system *do* start, immediately disconnect power to machine. Rear headstock EMERGENCY STOP button safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.

18. Twist EMERGENCY STOP button on rear of headstock to reset.

19. Push power button (see **Figure 34** on **Page 30**) to enable power to motors and electrical system.

20. Locate headstock height buttons at rear of machine (see **Figure 40**). Press and hold Up ⚿ button. When height gauge presses upper safety switch, headstock should stop.

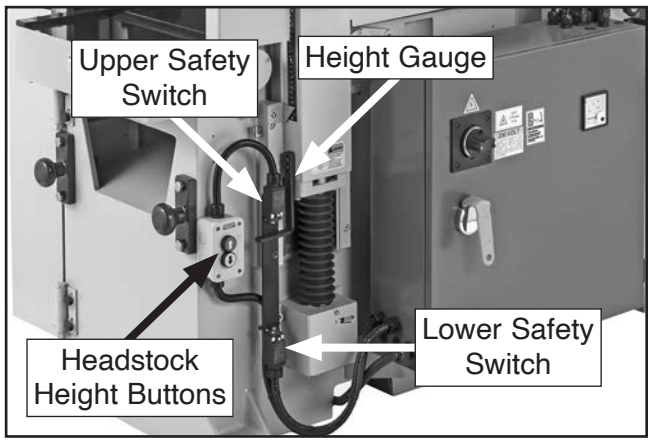


Figure 40. Location of headstock height buttons, height gauge, and safety switches.

— If headstock *does* stop, upper safety switch is working correctly.

— If headstock *does not* stop, immediately disconnect power to machine. Headstock upper safety switch is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.

21. Press power button on control panel, then repeat **Step 20** using down ⚿ button.

Congratulations! Test Run is complete.

Inspections & Adjustments

The following list of adjustments were performed at the factory before the machine was shipped.

- Replacing/tensioning V-belts (**Page 61**).
- Checking/aligning lower cutterhead (**Page 65**).
- Calibrating lower cutterhead depth-of-cut scale (**Page 66**).
- Checking/squaring headstock (**Page 68**).
- Adjusting upper cutterhead components (**Page 70**).

Be aware that machine components can shift during the shipping process. Pay careful attention to these adjustments as you test run the machine. If you find that the adjustments are not set according to the procedures in this manual or your personal preferences, re-adjust them.

NOTICE

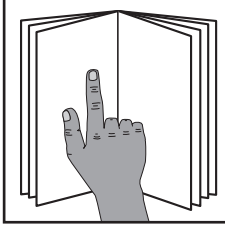
After approximately 16 hours of operation, V-belts will stretch and seat into pulley grooves and need to be properly tensioned to ensure good power transfer from motor and avoid severely reducing life of V-belts. Refer to Replacing/Tensioning V-Belts on Page 61 for detailed instructions.

SECTION 4: OPERATIONS

Operation Overview

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls/components discussed later in this manual are easier to understand.

Due to the generic nature of this overview, it is **not** intended to be an instructional guide. To learn more about specific operations, read this entire manual, seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.

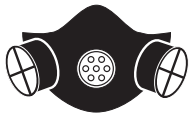


⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

⚠WARNING

Eye injuries, respiratory problems, or hearing loss can occur while operating this tool. Wear personal protective equipment to reduce your risk from these hazards.



NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

To complete a typical operation, the operator does the following:

1. Examines workpiece to make sure it is suitable for planing.
2. Calculates amount of material to be removed by lower cutterhead to create a flat surface on bottom of workpiece. (Refer to **Setting Depth of Cut on Lower Cutterhead** on **Page 38** for more information.)
3. Calculates amount of material to be removed by upper cutterhead to produce final workpiece thickness. (Refer to **Setting Depth of Cut on Upper Cutterhead** on **Page 39** for more information).
4. Puts on safety glasses or face shield, a respirator, and hearing protection.
5. Connects machine to power, and presses power button to turn machine ***ON***.
6. Sets lower cutterhead depth of cut (refer to **Setting Depth of Cut on Lower Cutterhead** on **Page 38** for detailed instructions).
7. Sets upper cutterhead depth of cut (refer to **Setting Depth of Cut on Upper Cutterhead** on **Page 39** for detailed instructions).
8. Makes sure feed rate dial is turned all the way counterclockwise.
9. When all safety precautions have been taken, starts dust collector, turns lower cutterhead, upper cutterhead, and conveyor system ***ON***.

   Note: *To prevent excessive amp draw, allow lower cutterhead to come to full speed before turning upper cutterhead **ON**.*

⚠CAUTION

To avoid kickback, only feed workpiece into machine when conveyor system is *ON*. To reduce likelihood of jams, DO NOT change feed rate speed during cutting operations

10. Sets feed rate for planing operation (refer to **Setting Feed Rate** on **Page 42** for more information).

11. Places workpiece on table with flat side down and feeds workpiece into front of machine until feed belt grabs it.

— If workpiece is bowed, operator surface planes workpiece on a jointer until one side is flat. Doing so ensures that it sits solidly on planer table during operation.

Note: *Conveyor system controls feed rate of workpiece as it passes through machine. Operator does not push or pull on workpiece.*

— If depth of cut is too great and machine bogs down, immediately turn it ***OFF***. Allow cutterheads to come to complete stop, then raise headstock and remove workpiece. Reduce depth of cut and repeat **Step 11**.

12. Once workpiece is clear of machine and stops moving, operator removes workpiece from planer table and measures workpiece thickness. If further planing is required, operator "zeroes" lower cutterhead depth of cut, adjusts upper cutterhead to slightly increase depth of cut, and feeds workpiece into front of machine again.

13. Continues process until desired workpiece thickness is achieved, then turns machine and dust collector ***OFF***.

Planing Tips

- Inspect your lumber for twisting or cupping, and surface one face on a jointer if necessary before planing workpiece.
- Carefully inspect all stock to make sure it is free of large knots or foreign objects that may damage your inserts, cause kickback, or be ejected from the planer.
- Scrape off all glue when planing glued-up panels. Dried glue can quickly dull inserts.
- Do not plane two boards of varying thickness at the same time.
- Never remove more than the recommended amount of material on each pass. Only remove a small amount of material on each pass when planing wide or dense stock.
- Support the workpiece on both ends. Get assistance from another person if you are planing long lumber, or use roller stands to support the workpiece.
- Measure the workpiece thickness with calipers to get exact results.
- When possible, plane equal amounts on each side of the board to reduce the chance of twisting or cupping.
- Use the entire width of the planer to wear inserts evenly. With narrow workpieces, alternate between far left, far right, and the middle of the table. Your inserts will remain sharp much longer.
- To avoid "chip marks," always plane WITH the grain direction of the wood. Never plane cross-grain or end-grain.
- Plane ONLY natural wood fiber. Do not plane wood composites or other materials that could break up in the planer and cause operator injury or damage to planer.

Workpiece Inspection

Some workpieces are not safe to use or may require modification before they are. **Before cutting, inspect all workpieces for the following:**

- **Material Type:** This machine is only intended for workpieces of natural wood fiber Attempting to use workpieces of any other material that may break apart during operation could lead to serious personal injury and property damage.

- **Foreign Objects:** Inspect lumber for defects and foreign objects (nails, staples, embedded gravel, etc,). If you have any question about the quality of your lumber, DO NOT use it. Remember, wood stacked on a concrete floor can have small pieces of stone or concrete pressed into the surface.

- **Large/Loose Knots:** Loose knots can become dislodged during operation. Large knots can cause kickback and machine damage. Always use workpieces that do not have large/loose knots.

- **Wet or "Green" Stock:** Avoid using wood with a high water content. Wood with more than 20% moisture content or wood exposed to excessive moisture (such as rain or snow), will cut poorly and cause excessive wear to the machine. Excess moisture can also hasten rust and corrosion of the machine and/or individual components.

- **Excessive Warping:** Workpieces with excessive cupping, bowing, or twisting are dangerous to cut because they are unstable and often unpredictable when being cut. DO NOT use workpieces with these characteristics!

- **Minor Cupping:** Workpieces with slight cupping can be safely supported if the cupped side is facing the table. On the contrary, a workpiece supported on the bowed side will rock during operation and could cause severe injury from kickback.

- **Grain Direction:** Cutting against the grain increases the likelihood of kickback, as well as tear-out on the workpiece. Cutting with the grain is described as feeding the stock into the lower cutterhead so the grain points down and toward you as viewed on the edge of the stock (see **Figure 41**).

  Note: *If the grain changes direction along the edge of the board, decrease the cutting depth and make additional passes.*

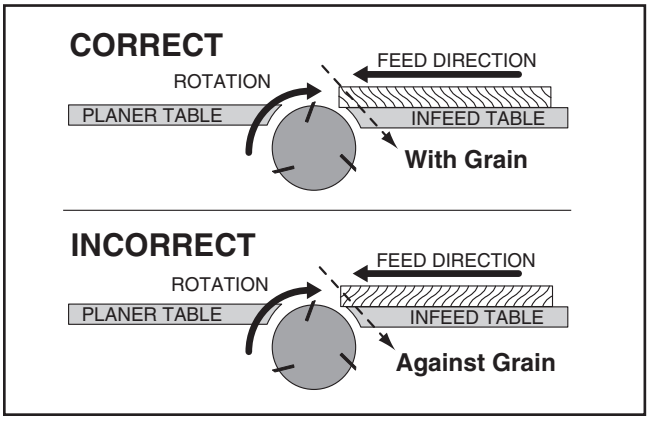


Figure 41. Proper grain alignment with lower cutterhead.

- **Dimension Requirements:** Make sure your workpiece exceeds the minimum dimension requirements shown below before processing it through the machine, or the workpiece may break or kick back during the operation.

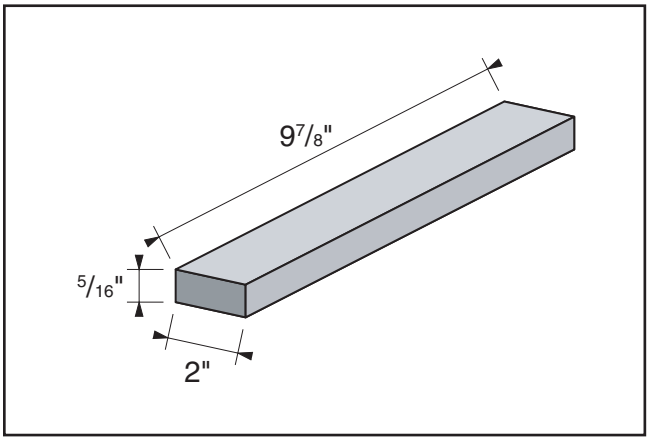


Figure 42. Minimum stock dimensions.

Wood Types

The species of wood, as well as its condition, greatly affects the depth of cut the machine can effectively take with each pass.

The chart in the figure below shows the Janka Hardness Rating for a number of commonly used species. The higher the number, the harder the workpiece, and the less material should be removed in any one pass for good results.

Note: *The Janka Hardness Rating is expressed in pounds of force required to embed a 0.444" steel ball into the surface of the wood to a depth equal to half the ball's diameter.*

Species	Janka Hardness
Ebony	3220
Red Mahogany	2697
Rosewood	1780
Red Pine	1630
Sugar Maple	1450
White Oak	1360
White Ash	1320
American Beech	1300
Red Oak	1290
Black Walnut	1010
Teak	1000
Black Cherry	950
Cedar	900
Sycamore	770
Douglas Fir	660
Chestnut	540
Hemlock	500
White Pine	420
Basswood	410
Eastern White Pine	380
Balsa	100

Figure 43. Janka Hardness Rating for some common wood species.

Cutting Problems

Below is a list of wood characteristics you may encounter when planing. The following descriptions of defects will give you some possible answers to problems you may encounter while planing different materials. Possible solutions follow the descriptions.

Chipped Grain

Problem: Usually a result of cutting against the grain, planing lumber with knots or excessive amount of cross grain, or using dull inserts.

Note: *Some amount of chipping is normal with highly figured wood.*

Solution: Decrease the depth of cut. Reduce the feed rate. Inspect your lumber and determine if its grain pattern is causing the problem. If the lumber does not show substantial crossgrain, inspect your inserts.

Fuzzy Grain

Problem: Usually caused by surfacing lumber with too high of a moisture content. Sometimes fuzzy grain is an unavoidable characteristic of some woods, such as basswood. Fuzzy grain can also be caused by dull inserts.

Solution: Check the lumber with a moisture meter. If moisture is greater than 20%, sticker the lumber and allow it to dry. Otherwise, inspect the insert condition.

Snipe

Problem: Occurs when board ends have more material removed than the rest of the board. Usually caused when the workpiece is not properly supported as it goes through the machine. In many cases, however, a small amount of snipe is inevitable.

Solution: Hold workpiece up slightly as it leaves the outfeed end of the planer. The best way to deal with snipe is by planing lumber longer than your intended work length and then cutting off the excess after planing is completed.

Pitch & Glue Build-up

Problem: Glue and resin buildup on the rollers and cutterheads will cause overheating by decreasing cutting sharpness while increasing drag in the feed mechanism. The result can include scorched lumber, uneven insert marks, and chatter.

Solution: Clean the rollers and cutterheads.

Chip Marks or Indentations

Problem: Chip indentation or chip bruising is the result of wood chips not being thrown away from the cutterheads and out of the machine. Instead they are carried around the cutterheads, deposited on the planed surface and crushed by the outfeed roller. Some of the causes of chip indentation are:

- Wood chips/sawdust not being properly expelled from the cutterheads.
- The type of lumber being planed. Certain species have a tendency to chip bruise.
- A high moisture content (over 20%) or surface moisture (refer to **Workpiece Inspection**).
- Dull inserts.
- Excessive depth of cut.

Solution:

- Use a proper dust-collection system; adjust chip deflector as necessary.
- Lumber must be completely dry, preferably kiln-dried (KD). Air-dried (AD) lumber must be seasoned properly and have no surface moisture. DO NOT surface partially-air-dried (PAD) lumber.
- Make sure inserts are sharp.
- Reduce depth of cut.

Rippled Cut

Problem: Regularly spaced indentations across face of workpiece are caused by excessive outfeed roller pressure or excessive feed rate.

Solution: Reduce outfeed roller pressure; reduce feed rate.

Setting Depth of Cut on Lower Cutterhead

The lower cutterhead performs the surface planing of the workpiece (see **Figure 44**). This makes a flat face on the workpiece, preparing it for thickness planing by the upper cutterhead. Depth of cut means the amount of material that is removed from the bottom of the workpiece as it passes over the lower cutterhead.

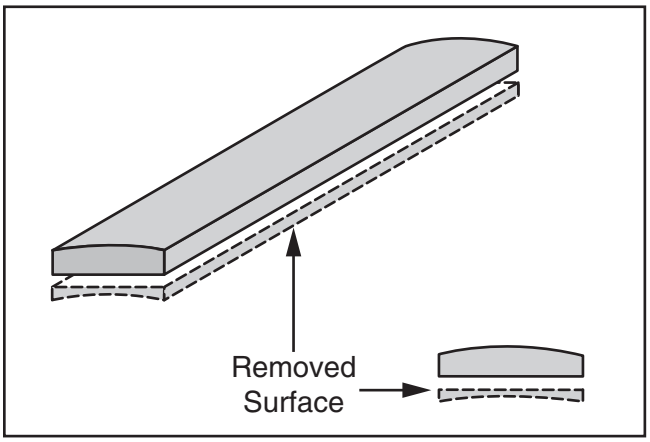


Figure 44. Example of surface planing.

Lower cutterhead depth of cut is determined by the height of the infeed table. During operations, the position of the lower cutterhead is fixed. Infeed table height is adjusted with the handwheel (see **Figure 45**) and measured with the depth-of-cut scale on the front left side of the machine (see **Figure 45**).

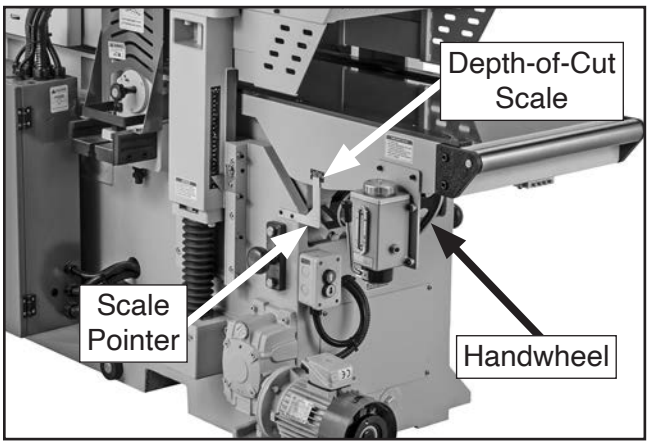


Figure 45. Location of infeed table handwheel and depth-of-cut scale.

To set depth of cut on lower cutterhead:

1. Calculate amount of material to remove from bottom of workpiece to create a flat surface.

   Tip: *When determining lower cutterhead depth of cut, take into consideration final workpiece thickness. Make sure enough material will remain on workpiece after surface planing for thickness planing operation with upper cutterhead.*

2. While viewing lower cutterhead depth-of-cut scale, use infeed table handwheel to lower or raise infeed table to desired height. Turn handwheel clockwise to lower infeed table and counterclockwise to raise it.

Setting Depth of Cut on Upper Cutterhead

The upper cutterhead performs the thickness planing of the workpiece (see **Figure 46**). Depth of cut means the amount of material that is removed from the top of the workpiece as it passes underneath the upper cutterhead.

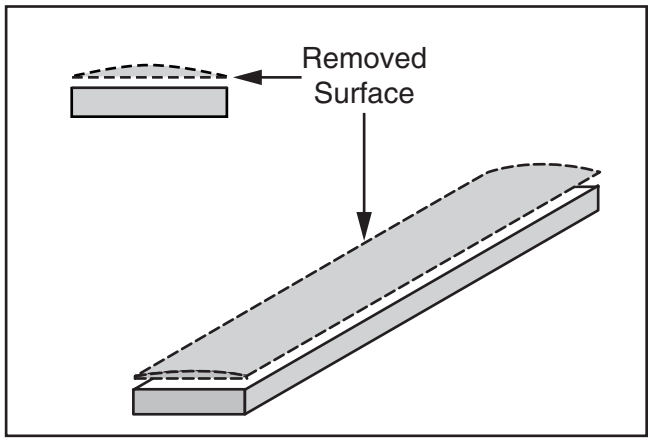


Figure 46. Example of thickness planing.

The upper cutterhead is housed in the headstock of the machine, and depth of cut is controlled by adjusting the distance from the upper cutterhead inserts to the planer table. This distance is the thickness of the workpiece minus the depth of cut.

There are two methods for setting the upper cutterhead depth of cut:

- Use the digital control pad on the control panel (see **Figure 47**) to enter a final workpiece thickness.

Figure 47. Location of digital control pad.

- Use the headstock height buttons and depth-of-cut scales (see **Figures 48–49**) to set a final workpiece thickness.

  Note: *Alternatively, you can use the headstock height handwheel (see **Figure 48**) to precisely set depth of cut*

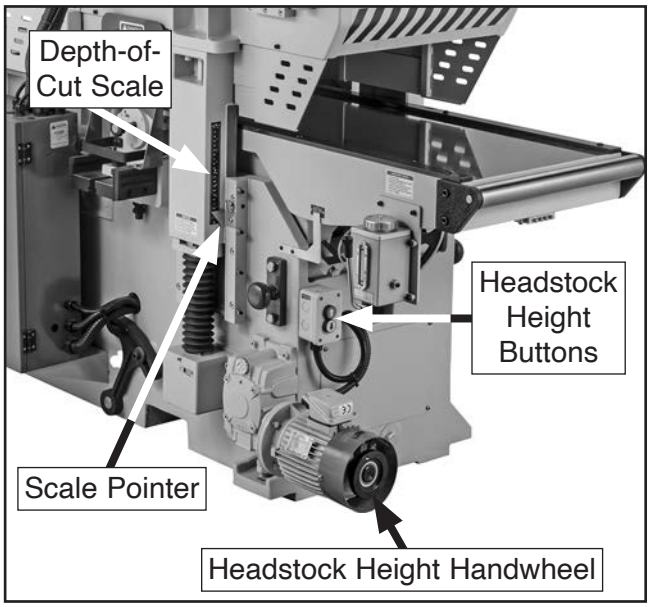


Figure 48. Depth-of-cut controls for upper cutterhead at front of machine.

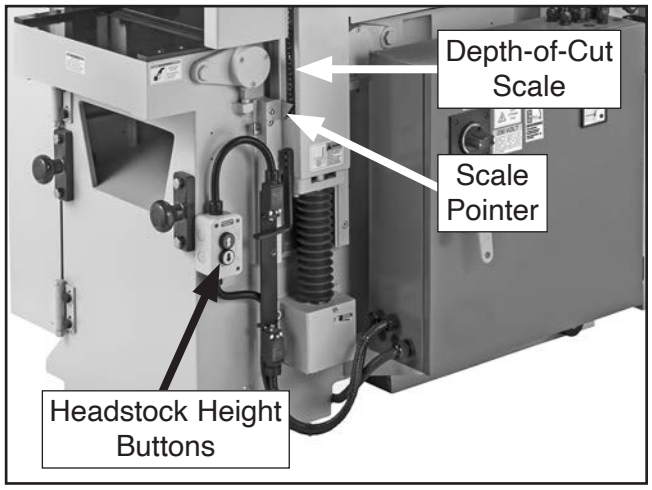


Figure 49. Depth-of-cut controls for upper cutterhead at rear of machine.

Although the correct depth of cut varies according to wood hardness and workpiece width, we recommend the maximum depth of cut (per pass) be no more than ¼" for boards less than 6" wide. A series of light cuts will give better end results and put less stress on the machine than trying to take off too much material in a single pass.

To set upper cutterhead depth of cut:

1. Calculate amount of material to remove from top of workpiece (i.e., final workpiece thickness).

   Tip: *When determining upper cutterhead depth of cut, take into consideration amount of material to be removed by lower cutterhead*

2. Adjust headstock height:

   — Enter final workpiece thickness using digital control pad (refer to **Using Digital Controls** for instructions).

   — While viewing upper cutterhead depth-of-cut scale, push up ⇧ or down ⇩ button to raise or lower headstock to desired final workpiece thickness. Use headstock height handwheel for fine adjustment.

Using Digital Controls

The digital control pad (see **Figure 50**) is located on the control panel at the front of the machine. The control pad is the primary tool for setting final workpiece thickness (i.e., the distance from the bottom dead center (BDC) of the upper cutterhead to the planer table). Refer to **Digital Control Pad** on **Page 6** for functional descriptions of each button on the pad.

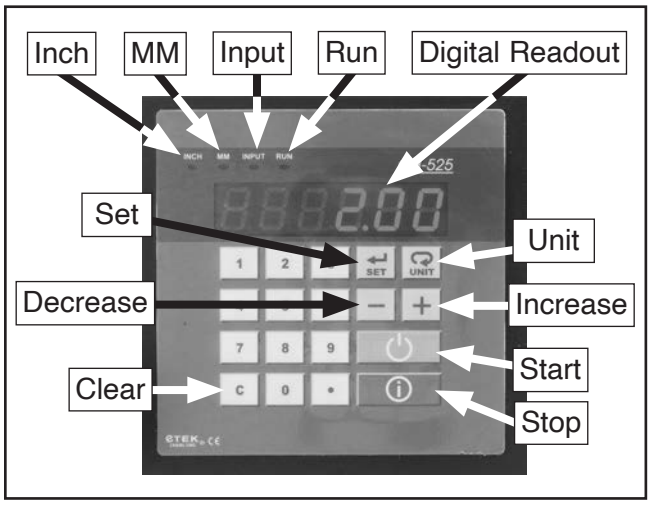


Figure 50. Digital control pad layout.

Using the digital control pad, you can quickly perform the following functions:

- Accurately enter a final workpiece thickness.
- Raise or lower (i.e., jog) headstock to quickly increase or decrease current final workpiece thickness.
- Enter a value to quickly increase or decrease current final workpiece thickness.
- Save and quickly access up to ten preset final workpiece thicknesses in digital memory.

Changing Unit of Measure

The digital control pad functions in standard and metric units of measure. Press the UNIT (UNIT) key to toggle between inches and millimeters. The active unit of measure (INCH or MM) is highlighted in the digital controls (see **Figure 50**).

Entering Final Workpiece Thickness

The simplest method to set final workpiece thickness is to use the digital control pad to enter a value and allow the machine to automatically set the headstock height.

The digital control pad remains in Input mode unless the headstock is moving, then it changes to Run mode. The active mode (INPUT or RUN) is highlighted in the digital controls (see **Figure 50** on **Page 40**).

Using Control Pad

1. Connect machine to power and turn it ***ON***. Digital readout displays value for last entered final workpiece thickness.

2. Press [SET] (SET) key. Digital readout displays a flashing zero (0).

3. Use number (0–9) and decimal (.) keys to enter final workpiece thickness value.

   For example, to enter a final workpiece thickness of 2½", press [2] [•] [5] [0]. Value flashes on digital readout as it is entered.

4. Press [⏻] key. Headstock automatically adjusts to entered final workpiece thickness, and digital readout displays current value in real time.

   — If you need to cancel for any reason, press [ⓘ] key and headstock will stop immediately. Digital readout displays current final workpiece thickness value.

Using Plus/Minus Keys

1. Connect machine to power and turn it ***ON***. Digital readout displays value for last entered final workpiece thickness.

2. Press [+] or [−] keys to raise or lower headstock in 0.01" or 0.1mm increments.

   Note: *Press UNIT key [UNIT] to switch between inches and millimeters.*

Using Control Pad to Change Final Workpiece Thickness

1. Connect machine to power and turn it ***ON***. Digital readout displays last value entered for final workpiece thickness.

2. Press [SET] (SET) key. Digital readout displays a flashing zero (0).

3. Use number (0–9) and decimal (.) keys to enter value.

   — To increase current final workpiece thickness by entered value, press [+] key. Headstock automatically adjusts new final workpiece thickness, and digital readout displays current value in real time.

   — To decrease final workpiece thickness by entered value, press [−] key. Headstock automatically adjusts new final workpiece thickness, and digital readout displays current value in real time.

Creating and Using Presets

The digital control pad can save up to ten final workpiece thickness values. The saved values or "presets", allow you to quickly adjust the headstock height. Using presets is a convenient way to process batches of material to common final workpiece thicknesses.

Creating a Preset

1. Connect machine to power and turn it ***ON***. Digital readout displays value for last entered workpiece thickness.

2. Press a number key (0–9) to identify preset. For example, press [2] key to create preset #2. Last entered value begins to flash.

3. Press [C] key to clear last entered value. Digital readout displays a flashing zero (0).

4. Use number (0–9) and decimal (.) keys to enter value.

   For example, to enter final workpiece thickness of 2½", press the following keys: [2] [•] [5] [0]. Value flashes on digital readout as it is entered.

5. Press and hold [SET] (SET) key for 3 seconds to save entered final workpiece thickness value. Digital readout displays preset value.

Using Presets

1. Connect machine to power and turn it ***ON***. Digital readout displays value last entered for workpiece thickness.

2. Press preset number key.

   For example, press [2] key for preset #2. Digital readout displays preset value.

   — To set final workpiece thickness to preset value, Press [⏻] key. Headstock automatically adjusts to preset final workpiece thickness, and digital readout displays current value in real time.

   — To increase final workpiece thickness by preset value, press [+] key. Headstock automatically adjusts new final workpiece thickness, and digital readout displays current value in real time.

   — To decrease final workpiece thickness by preset value, press [−] key. Headstock automatically adjusts new final workpiece thickness, and digital readout displays current value in real time.

Setting Feed Rate

The Model G0968 conveyor system includes a feed belt, serrated roller, three pressure rollers, and a chain drive. The conveyor system moves workpieces through the machine while keeping them flat and providing a consistent rate of movement. The speed at which the conveyor system moves the workpieces through the machine is the feed rate.

The feed rate dial (see **Figure 51**) allows you to adjust the feed rate from 20–69 feet per minute (FPM). The correct speed to use depends on the type of stock you are using (hardwood vs. softwood) and the stage of finish with that workpiece. Generally, low feed rates are used for dimensioning passes, while higher feed rates are used for finishing passes.

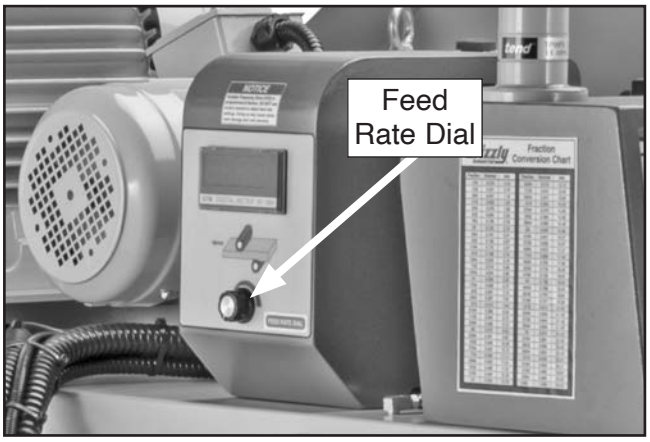


Figure 51. Location of feed rate dial.

NOTICE

ALWAYS start conveyor system with feed dial rotated all the way counterclockwise at 20 FPM, and DO NOT attempt to change feed rate during cutting operations or damage to machine may result.

Adjusting Feed Belt Pressure

If you notice the feed belt slipping on workpieces during planing operations, adjust the downward pressure of the feed belt. For normal operations, set the feed belt to "0". Only adjust the downward pressure of the feed belt 0.5mm at a time.

NOTICE

Heavy use of downward feed belt pressure will accelerate wear of feed belt components.

To adjust feed belt pressure:

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Loosen pressure lock lever (see **Figure 52**) and pull down on pressure lever until scale pointer indicates "0.5mm." While holding pressure lever in position, tighten pressure lock lever.

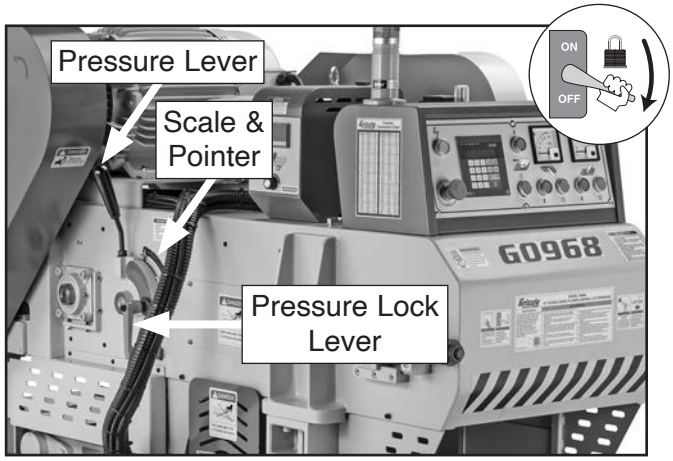


Figure 52. Location of feed belt pressure adjustment components.

3. Connect machine to power and test feed belt pressure. If feed belt continues to slip on workpieces, repeat **Steps 1–3** until proper feed belt pressure is achieved.

Rotating/Replacing Cutterhead Inserts

The spiral cutterhead is equipped with 2-sided indexable carbide inserts. Each insert can be removed, rotated, and re-installed to use either one of its two cutting edges. Therefore, if one cutting edge becomes dull or damaged, simply rotate it 180˚ to use a sharp cutting edge.

Items Needed	Qty
Indexable Carbide Inserts	As Needed
Clamp Screws M10-1.5 x 10, 24	As Needed
T-Handle Hex Wrench 5mm	1
Torque Wrench	1
Hex Bit 5mm	1
Adjustable Wrench	1
Open-End Wrench 30mm	1
Air Compressor or Shop Vacuum	1
Stiff Brush	1
Work Gloves	1 Pr.
T26685 or ISO 32 Equivalent Oil	As Needed

Rotating/Replacing Lower Cutterhead Inserts

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Open chain drive access door.

3. Loosen tension lock lever (see **Figure 53**) and pull up on tension lever until there is slack between V-belts and lower cutterhead pulley. While pulling tension lever up, tighten tension lock lever.

   Tip: *To ensure each V-belt remains with its matching pulley, use a paint pen to number each belt.*

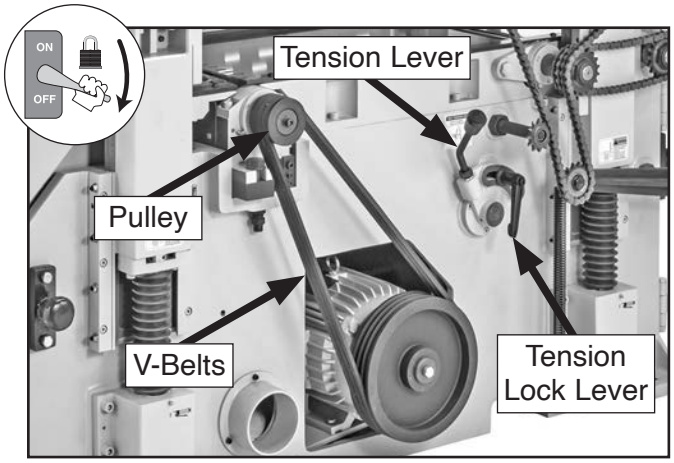


Figure 53. Lower cutterhead components.

4. Remove V-belts from lower cutterhead pulley. Leave V-belts on motor pulley.

5. Loosen hex bolt and hex nut (see **Figure 54**) that secure lower cutterhead to carriage.

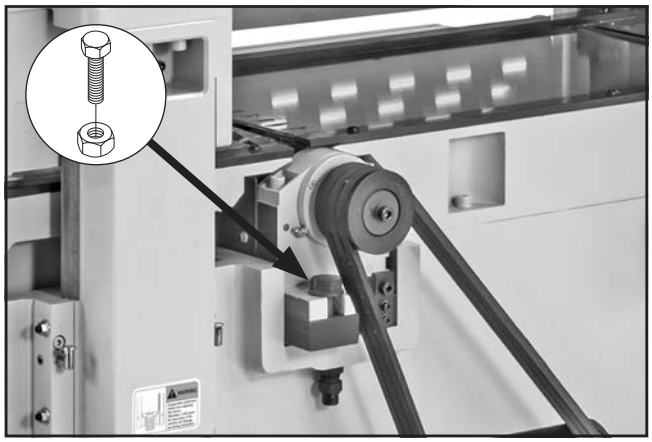


Figure 54. Location of lower cutterhead fasteners.

⚠CAUTION

Indexable carbide inserts are sharp! Wear work gloves to protect fingers and hands from lacerations when rotating/replacing inserts.

6. Repeat **Step 5** on opposite side of machine, then use handle to pull out lower cutterhead carriage (see **Figure 55**).

7. Rotate cutterhead as needed to make inserts accessible, and then tighten cutterhead lock knob (see **Figure 55**) to secure while cleaning, rotating, and replacing inserts

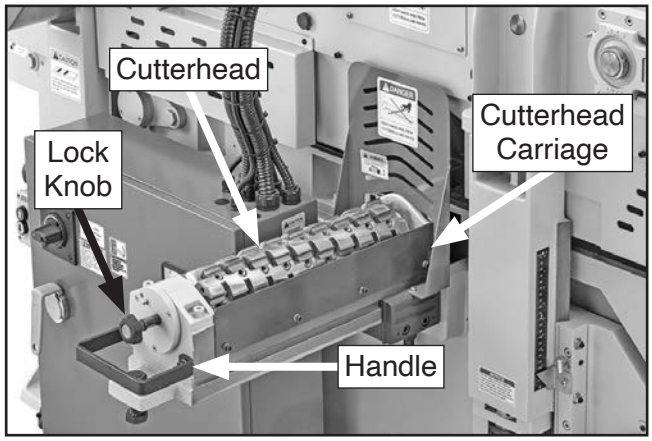


Figure 55. Lower cutterhead carriage pulled out.

8. Thoroughly clean away all sawdust or debris from clamp, clamp screw, top of insert, and surrounding area (see **Figure 56**).

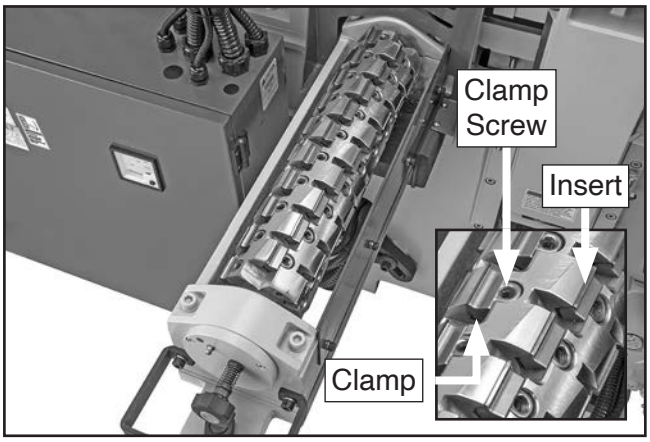


Figure 56. Location of lower cutterhead inserts, clamps, and clamp screws.

9. Remove clamp screw and insert, then thoroughly clean away all dust and debris from insert and insert pocket in cutterhead.

   IMPORTANT: This step is critical for achieving a smooth finish with cutting operations. Dirt or dust trapped around insert during installation will slightly raise insert in cutterhead, which will leave marks on final workpiece.

   Tip: *Use low-pressure compressed air or vacuum nozzle to clean cutterhead pocket.*

10. Install insert with a sharp cutting edge facing outward. Make sure insert is properly seated in cutterhead pocket before securing.

    — If both insert cutting edges have been used, replace insert with a new one.

    Tip: *To help avoid leaving inserts loose or unrotated, use a paint pen to mark completed inserts.*

11. Torque clamp screws to 133–204 inch/pounds.

12. Use handle to push lower cutterhead carriage back into machine.

13. Install V-belts, making sure belts are seated in pulley grooves.

14. Tighten hex bolts and hex nuts loosened in **Steps 5–6**.

15. Tension V-belts (refer to **Steps 3–4** of **Tensioning Lower Cutterhead V-Belts** on **Page 61**).

16. Close chain drive access door.

Rotating/Replacing Upper Cutterhead Inserts

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Remove upper cutterhead belt cover (see **Figure 57**).

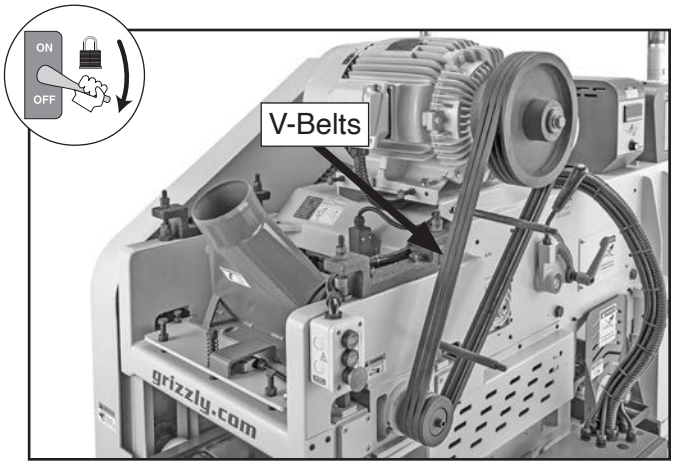


Figure 57. Upper cutterhead belt cover removed and V-belts exposed.

3. Remove upper cutterhead dust hood (see **Figure 58**).

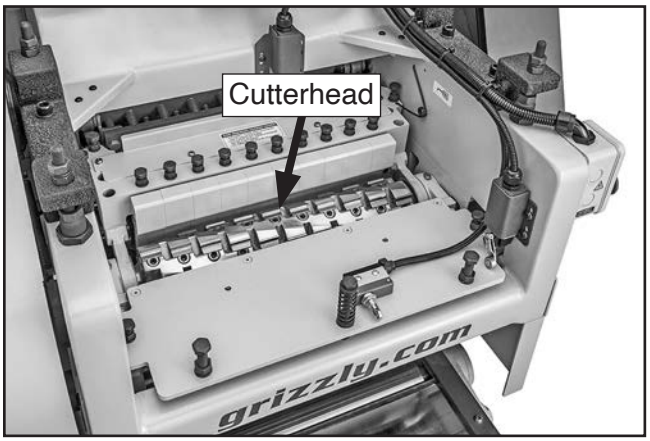


Figure 58. Upper cutterhead dust hood removed.

4. Rotate pulley as needed to make inserts accessible for removal.

⚠CAUTION

Indexable carbide inserts are sharp! Wear work gloves to protect fingers and hands from lacerations when rotating/replacing inserts.

5. Thoroughly clean away all sawdust or debris from clamp, clamp screw, top of insert, and surrounding area (see **Figure 59**).

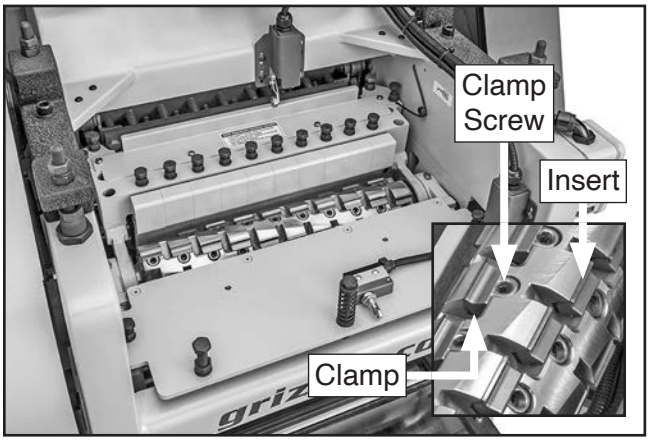


Figure 59. Location of upper cutterhead inserts, clamps, and clamp screws.

6. Remove clamp screw and insert, then thoroughly clean away all dust and debris from insert and insert pocket in cutterhead.

   IMPORTANT: This step is critical for achieving a smooth finish with cutting operations. Dirt or dust trapped around insert during installation will slightly raise insert in cutterhead, which will leave marks on final workpiece.

   Tip: *Use low-pressure compressed air or vacuum nozzle to clean cutterhead pocket.*

7. Install insert with a sharp cutting edge facing outward. Make sure insert is properly seated in cutterhead pocket before securing.

   — If both insert cutting edges have been used, replace insert with a new one.

8. Torque clamp screws to 133–204 inch/pounds.

   Tip: *To help avoid leaving inserts loose or unrotated, use a paint pen to mark completed inserts.*

9. Close chain drive access door, then install upper cutterhead dust hood and belt cover.

SECTION 5: ACCESSORIES

⚠WARNING

Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

NOTICE

Refer to our website or latest catalog for additional recommended accessories.

W1218A—Rotacator™ Precision Planer Tool
The Rotacator is a dial indicator on a magnetic base and is designed for quickly and accurately setting the critical tolerances needed when adjusting any planer, so that nasty surprises such as non-parallel and chattered cuts can be eliminated. Helps adjust infeed/outfeed rollers, pressure bars, chip breakers, and bed rollers. Also a great setup tool for other machines! Accurate to 0.001". Indicator rotates 360°

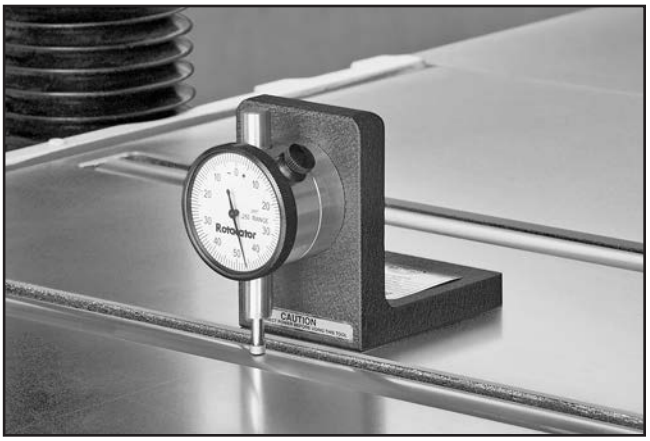


Figure 60. W1218A Rotacator™ Precision Planer Tool.

T34008—Indexable Carbide Inserts, 10-Pk.
Each insert in this 10-pack of Grizzly replacement indexable carbide inserts measures 30 x 12 x 1.5mm.

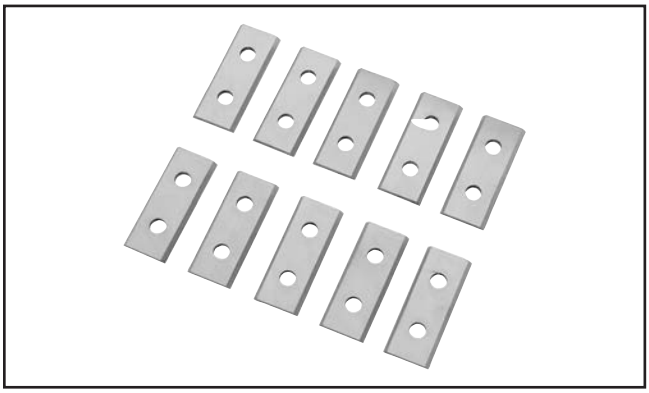


Figure 61. T34008 Replacement Indexable Carbide Inserts.

T25231—Magnetic Micro Square
The Magnetic Micro Square makes squaring up your machine effortless. The square sticks firmly to cast iron tables and allows hands-free adjustment of machine components.

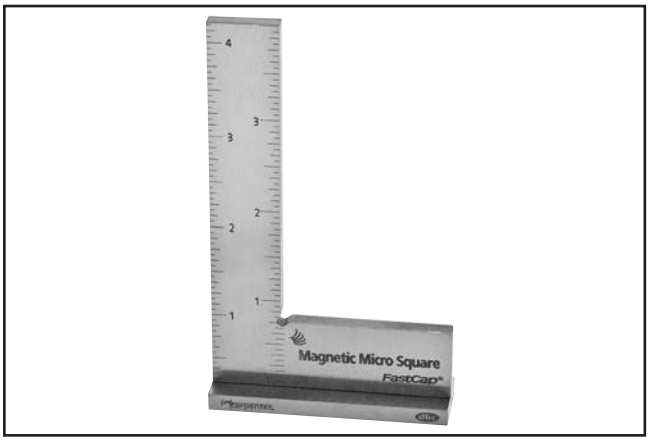


Figure 62. T25231 Magnetic Micro Square.

T28369—14" x 78" Heavy-Duty Roller Table
Increase material handling and processing efficiency with this heavy-duty roller table. Simply place a roller table on one or both sides of your machine and production time is automatically improved. Adjustable legs for 24" to 40" working height, and 1540 lb. capacity!

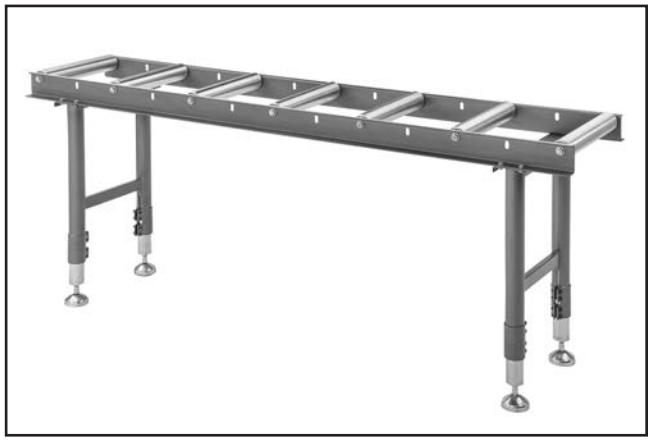


Figure 63. T28369 Heavy-Duty Roller Table.

D2273—Single Roller Stand
D2274—5 Roller Stand
These large diameter ball bearing roller stands features smooth operation for a variety of processing and work support applications. Each stand is equipped with a heavy pedestal base for added stability.

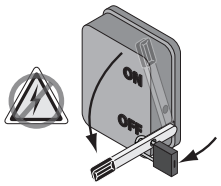
Figure 64. Roller stands.

G0638HEP—10 HP Cyclone Dust Collector
Equipped with a dual-filtration HEPA filter system. Features a primary filter efficiency of 99.9% at 0.2–2 microns, and a secondary HEPA filter efficiency of 99.97% at 0.3 microns in size. Our largest cyclone dust collector features a whopping 4029 CFM capacity and can handle any large duct system with a static pressure loss less than 16.8". Dual collection drums minimize the downtime when emptying dust and chips, and the noise-reducing exhaust mufflers keep the noise level below 90 dB. The ramped air intake is so efficient, there is very little fine dust that makes it to the plastic filter bags—and with a 99.9% filter efficiency rating, essentially no dust escapes. The perfect choice for large shops with multiple woodworking machines operating at the same time, all day long.

Figure 65. G0638HEP 10 HP Cyclone Dust Collector.

SECTION 6: MAINTENANCE

Schedule



⚠WARNING
To reduce risk of shock or accidental startup, always disconnect and lock-out machine from power source before adjustments, maintenance, or service.

For optimum performance from this machine, this maintenance schedule must be strictly followed.

Ongoing
To maintain a low risk of injury and proper machine operation, if you ever observe any of the items below, shut down the machine immediately and fix the problem before continuing operations:

- Dull or damaged cutterhead inserts (see **Page 43**).
- Excessive resin or wood chip build-up.
- Worn or damaged V-belts.
- Worn or damaged wires.
- Any other unsafe condition.

Every 200 Hours of Operation
- Lubricate chain drive (see **Page 51**).
- Lubricate elevation slideways (see **Page 52**).
- Lubricate chip breaker segments (see **Page 52**).
- Check automatic oiler and one-shot oiler for sufficient levels (see **Page 51**).

Every 240 Hours of Operation
- Lubricate feed belt bearings and slideways (see **Page 52**).

Every 720 Hours of Operation
- Lubricate chip breaker/pressure bar hinges (see **Page 53**).
- Lubricate infeed table slideways (see **Page 53**).
- Lubricate cutterhead bearings (see **Page 54**).

Every 1200 Hours of Operation
- Lubricate elevation leadscrew bearings and elevation leadscrews (see **Page 54**).

Every 1500 Hours of Operation
- Lubricate table roller bearings (see **Page 55**).

Yearly Check
- Change oil in conveyor system gearbox (see **Page 55**).
- Change oil in elevation system gearbox (see **Page 56**).

Cleaning & Protecting

Cleaning the Model G0968 is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. If any resin has built up, use a resin-dissolving cleaner to remove it.

Protect the unpainted cast-iron surfaces with regular applications of products like SLIPIT®.

Recommended Metal Protectants

G5562—SLIPIT® 1 Qt. Gel
G5563—SLIPIT® 11 Oz. Spray

Figure 66. Recommended products for protecting unpainted cast iron/steel parts on machinery.

Lubrication

This machine has numerous moving metal-to-metal contacts that require regular and proper lubrication to ensure efficient and long-lasting operation, and to protect your investment.

Before performing any lubrication task, DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

Use the schedule and information contained in the following tables as a guide for lubrication tasks.

NOTICE

The recommended lubrication is based on light-to-medium usage. Keeping in mind that lubrication helps to protect the value and operation of the machine, these lubrication tasks may need to be performed more frequently than recommended here, depending on usage.

Failure to follow reasonable lubrication practices as instructed in this manual could lead to premature failure of machine components and will void the warranty.

Items Needed	Qty
Funnel	1
Shop Rags	As Needed
Grease Brush	1
Stiff Brush	1
Mineral Spirits	As Needed
Grease Gun	1
Pump-Type Oil Can	1
Oil Pump	1
Drain Pan	1
Adjustable Wrench	1
Hex Wrench 5mm (Optional)	1
Zip Ties 8"	4

Lubrication Frequency

Lubrication Task	Frequency	Page Ref.
Automatic Oiler Reservoir	Weekly	**51**
One-Shot Oiler Reservoir	Weekly	**51**
Chain Drive	200 hrs.	**51**
Elevation Slideways	200 hrs.	**52**
Chip Breaker (9 Holes)	200 hrs.	**52**
Feed Belt Bearings & Slideways	240 hrs.	**52**
Chip Breaker/Pressure Bar Hinges	720 hrs.	**53**
Infeed Table Slideways	720 hrs.	**53**
Cutterhead Bearings	720 hrs.	**54**
Elevation Leadscrew Bearings	1200 hrs.	**54**
Elevation Leadscrews	1200 hrs.	**54**
Table Roller Bearings	1500 hrs.	**55**
Conveyor System Gearbox	Yearly	**55**
Elevation System Gearbox	Yearly	**56**

Lubrication Amount & Type

Lubrication Task	Oil Type	Amount
Automatic Oiler Reservoir	ISO 32	68 oz.
One-Shot Oiler Reservoir	ISO 32	0.6 Liters
Chain Drive	NLGI#2	Light Coat
Feed Belt Bearings & Slideways	NLGI#2	2 Pumps
Elevation Slideways	ISO 68	Full Cup
Chip Breaker (9 Holes)	ISO 32	1-3 Drops
Chip Breaker/Pressure Bar Hinges	ISO 68	Full Cup
Infeed Table Slideways	ISO 68	Full Cup
Cutterhead Bearings	NLGI#2	2 Pumps
Elevation Leadscrew Bearings	NLGI#2	2 Pumps
Elevation Leadscrews	NLGI#2	Medium Coat
Table Roller Bearings	NLGI#2	2 Pumps
Conveyor Gearbox	ISO 320	74 oz.
Elevation Gearbox	ISO 320	17 oz.

Automatic Oiler

Oil Type .....T26685 or ISO 32 Equivalent
Oil Amount..... As Needed
Oil Frequency ..... Check Weekly

The automatic oiler (see **Figure 67**) lubricates the feed belt chain and gear during operation. Check the automatic oiler reservoir level weekly and fill as necessary to keep oil level at proper level indicated on reservoir. When filling reservoir, clean the vented fill plug, and if clogged, clear vent with low-pressure compressed air.

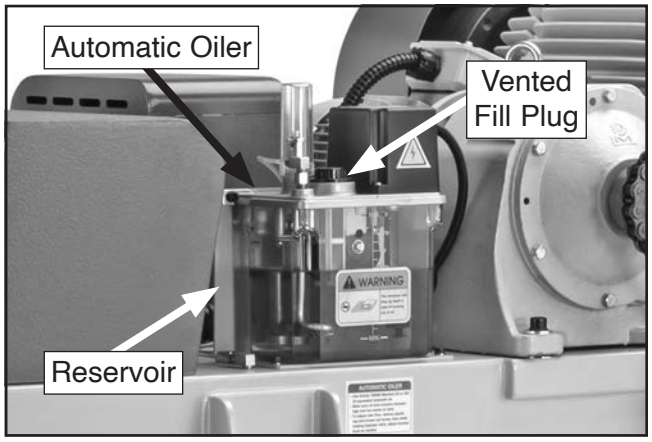


Figure 67. Location of automatic oiler.

One-Shot Oiler

Oil Type .....T26685 or ISO 32 Equivalent
Oil Amount..... As Needed
Oil Frequency ..... Check Weekly

The one-shot oiler (see **Figure 68**) dispenses a small amount of oil onto the infeed table when the lever is pulled down. Check the one-shot oiler reservoir level weekly and fill as necessary to keep oil level at proper level indicated on reservoir.

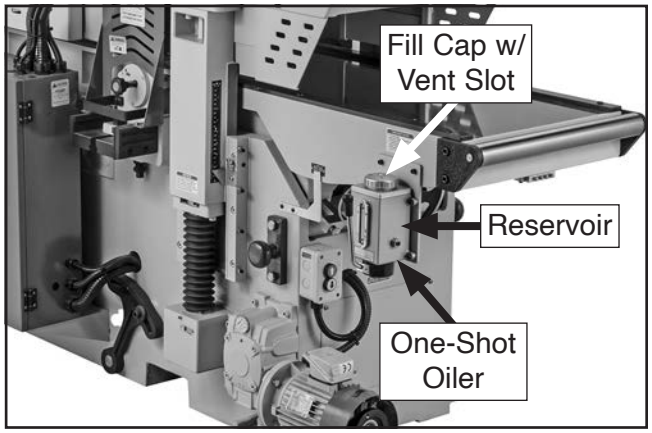


Figure 68. Location of one-shot oiler.

Chain Drive

Grease Type..... T26419 or NLGI#2 Equivalent
Grease Amount .....Light Coat
Grease Frequency.....200 Hours

The chain drive (see **Figure 69**) supplies power to the feed belt, serrated roller, and pressure rollers. To ensure smooth power delivery, clean chain drive with mineral spirits, stiff brush, and shop rags, and allow chain to dry, then lightly grease the chain drive at several points.

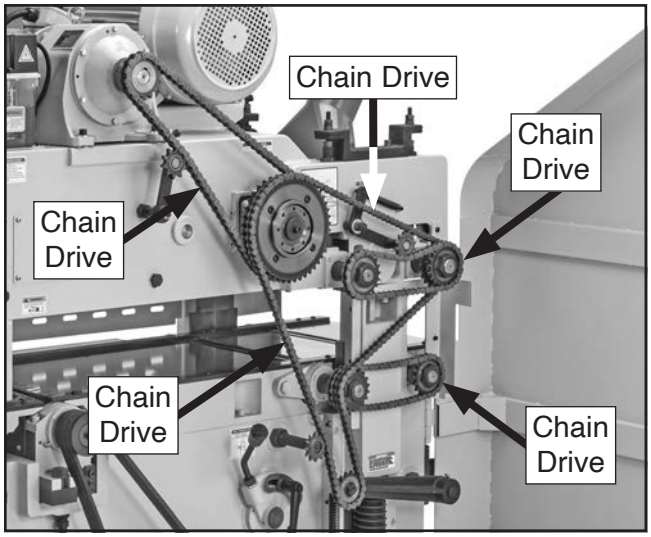


Figure 69. Location of chain drive.

Feed Belt Bearings & Slideways

Grease Type ..... T26419 or NLGI#2 Equivalent
Grease Amount ..... 2 Pumps
Grease Frequency ..... 240 Hours

The feed belt bearings and associated slideways require a small amount of grease to ensure smooth feed belt movement and tensioning. The feed belt bearings and slideways are lubricated by grease fittings (see **Figures 70–71**). Wipe grease fittings clean and use a grease gun to deliver two pumps of grease into fittings, then wipe away any excess grease with a rag.

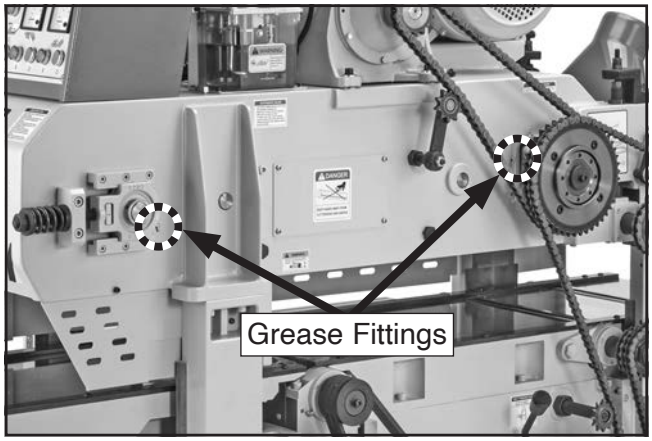


Figure 70. Location of feed belt roller bearing grease fittings—right side.

Figure 71. Location of feed belt roller bearing grease fittings—left side.

Elevation Slideways

Oil Type ..... T23962 or ISO 68 Equivalent
Oil Amount ..... Full Cup
Oil Frequency ..... 200 Hours

The elevation system slideways (see **Figure 72**) require lubrication to ensure smooth movement of the headstock. To lubricate elevation slideways, wipe oil cups clean and fill with oil (see **Figure 72**). After all eight cups are filled, move headstock to its minimum and maximum heights to distribute oil along full length of the slideways.

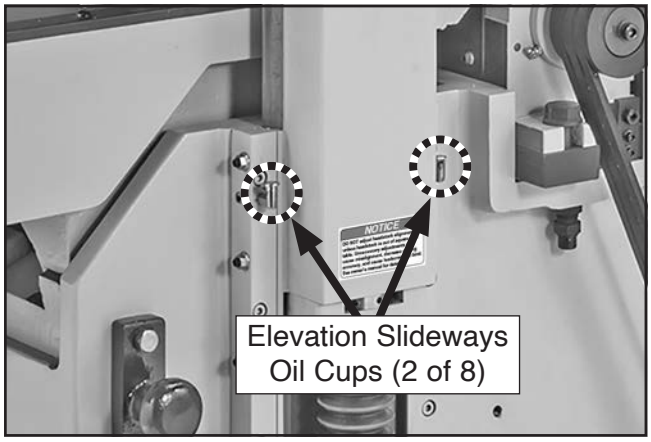


Figure 72. Location of elevation slideway oil cups (2 of 8).

If an oil cup is full and not draining into machine, the oil passage may be clogged. If this is the case, remove the oil cup and use low-pressure compressed air to clear the oil passage. Install and fill oil cup after oil passage is cleared.

Chip Breaker Segments

Oil Type ..... T26685 or ISO 32 Equivalent
Oil Amount ..... 1 to 3 Drops
Oil Frequency ..... 200 Hours

The chip breaker (see **Figure 73**) requires lubrication to ensure segments do not bind and apply even pressure across the workpiece. Remove the cover, then place one to three drops of oil in the oil hole of each chip breaker segment.

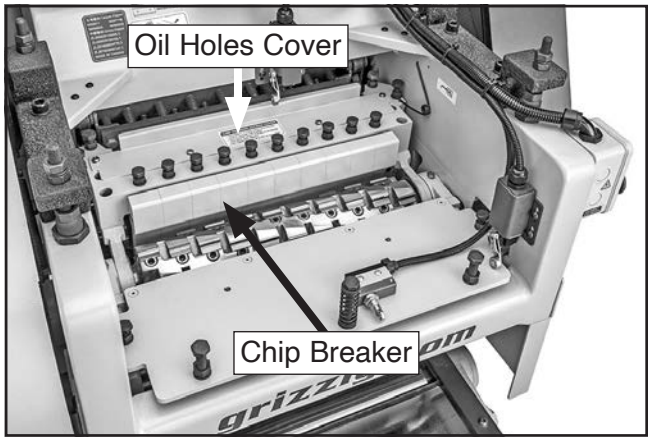


Figure 73. Location of chip breaker and oil holes cover.

Chip Breaker/Pressure Bar Hinges

Lube Type .....T23962 or ISO 68 Equivalent
Lube Amount.....Full Cup
Lube Frequency .....720 Hours

The chip breaker/pressure bar hinges require lubrication to ensure the chip breaker and pressure bar move without binding. To lubricate the chip breaker/pressure bar hinges, wipe oil cups clean and fill them with oil (see **Figure 74**).

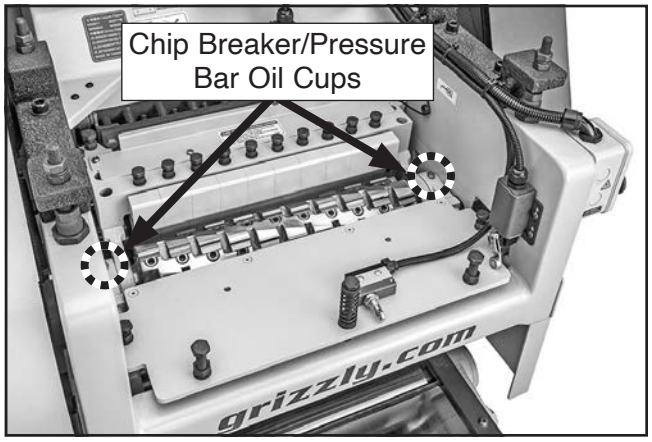


Figure 74. Location of chip breaker/pressure bar oil cups.

If an oil cup is full and not draining into machine, the oil passage may be clogged. If this is the case, remove the oil cup and use low-pressure compressed air to clear the oil passage. Install and refill oil cup after oil passage is cleared.

Infeed Table Slideways

Oil Type .....T23962 or ISO 68 Equivalent
Oil Amount.....Full Cup
Oil Frequency .....720 Hours

The infeed table slideways require lubrication to ensure smooth movement of the infeed table. To lubricate infeed table slideways, wipe oil cups clean and fill with oil (see **Figure 75**).

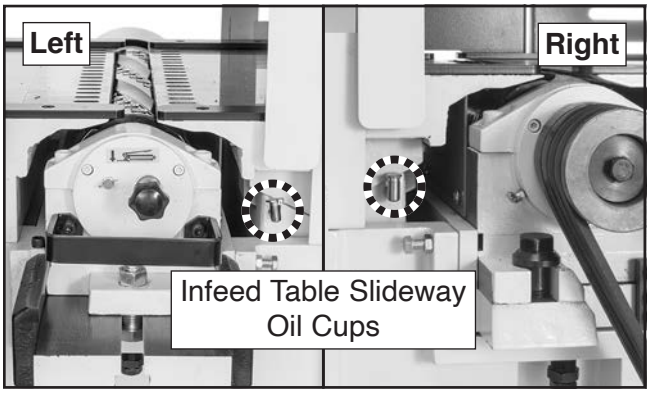


Figure 75. Location of infeed table slideway oil cups.

If an oil cup is full and not draining into machine, the oil passage may be clogged. If this is the case, remove the oil cup and use low-pressure compressed air to clear the oil passage. Re-install and fill oil cup after oil passage is cleared.

Cutterhead Bearings

Grease Type ..... T26419 or NLGI#2 Equivalent
Grease Amount ..... 2 Pumps
Grease Frequency ..... 720 Hours

The upper and lower cutterhead bearings require lubrication to ensure smooth operation and prevent premature failure. The cutterhead bearings are lubricated by grease fittings (see **Figures 76–77**). Wipe grease fittings clean and use a grease gun to deliver two pumps of grease into fittings, then wipe away any excess grease with a rag.

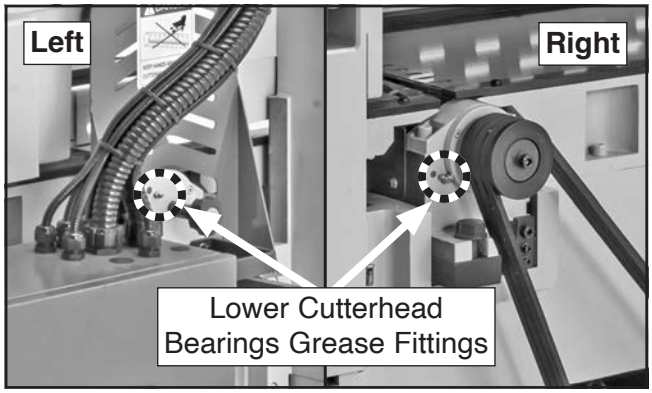


Figure 76. Location of lower cutterhead grease fittings.

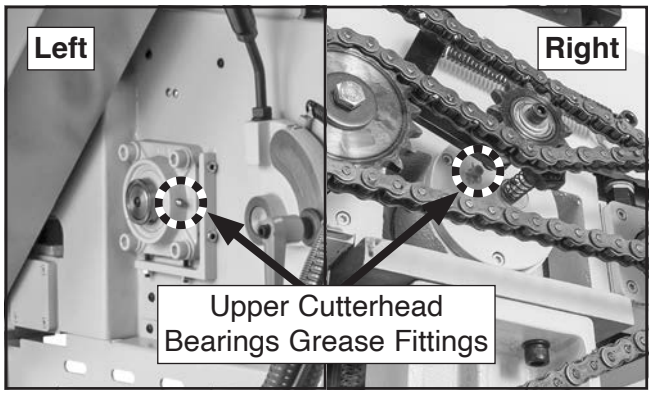


Figure 77. Location of upper cutterhead grease fittings.

Elevation Leadscrew Bearings

Grease Type ..... T26419 or NLGI#2 Equivalent
Grease Amount ..... 2 Pumps
Grease Frequency ..... 1200 Hours

The elevation leadscrew bearings require lubrication to ensure smooth movement of the headstock. The leadscrew bearings are lubricated by grease fittings (see **Figure 78**). Wipe grease fittings clean and use a grease gun to deliver two pumps of grease into fittings, then wipe away any excess grease with a rag.

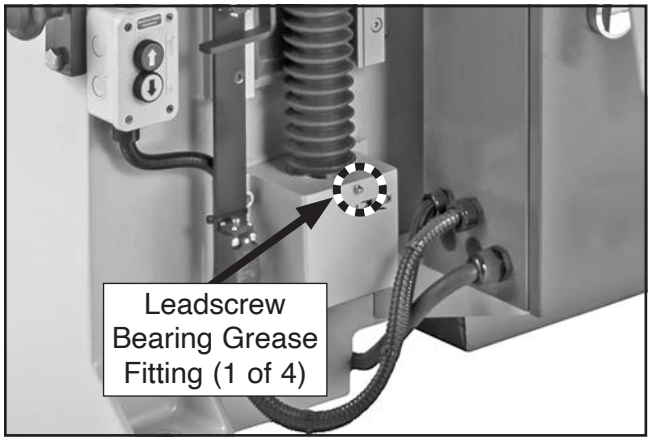


Figure 78. Location of elevation leadscrew bearing grease fitting.

Elevation Leadscrews

Grease Type ..... T26419 or NLGI#2 Equivalent
Grease Amount ..... Medium Coat
Grease Frequency ..... 1200 Hours

The leadscrews (see **Figure 79**) raise and lower the headstock. To ensure smooth movement and proper alignment of the headstock, clean leadscrews with mineral spirits, a stiff brush, and shop rags, and allow chain to dry, then moderately grease the leadscrews. To access the leadscrews, raise the headstock to at least 7", remove the zip tie securing the bottom of each boot, then raise the boot, as shown in **Figure 79**. When finished with the procedure, secure the boots with new zip ties to ensure the leadscrews remain protected.

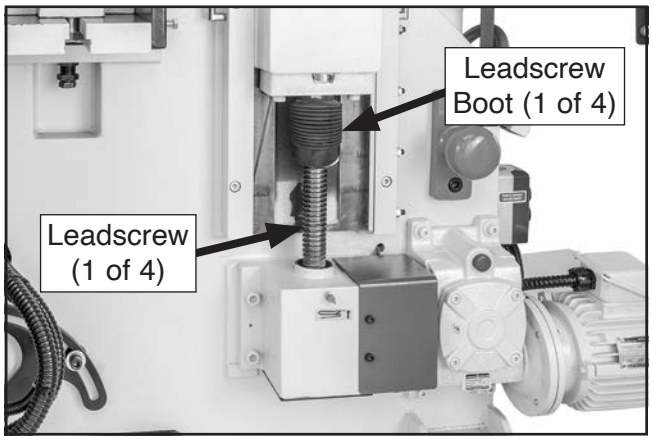


Figure 79. Example of boot lifted to expose leadscrew.

Table Roller Bearings

Grease Type ..... T26419 or NLGI#2 Equivalent
Grease Amount ..... 2 Pump
Grease Frequency ..... 1500 Hours

The table roller bearings require lubrication to ensure material rolls smoothly across the planer table. The table roller bearings are lubricated by grease fittings (see **Figure 80**). Wipe grease fittings clean and use a grease gun to pump a small amount of grease into fittings, then wipe away any excess grease with a rag.

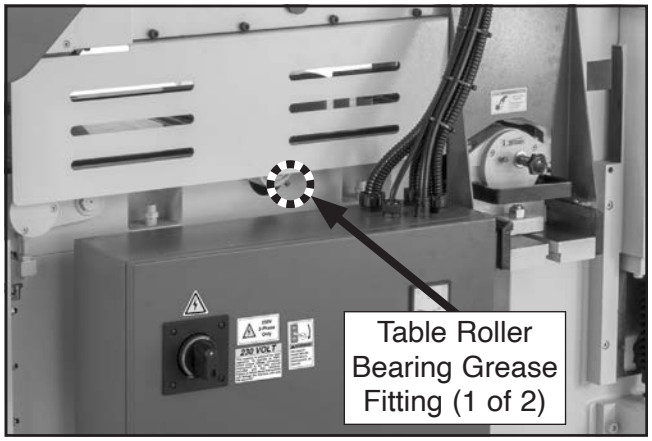


Figure 80. Location of table roller bearing grease fitting (1 of 2).

Conveyor System Gearbox

Oil Type ..... T28042 or ISO 320 Equivalent
Oil Amount ..... 74 oz. (2.2 Liters)
Oil Frequency ..... Yearly

The conveyor system gearbox (see **Figure 81**) requires draining and refilling yearly to prevent premature failure. Check the oil level in the sight glass weekly.

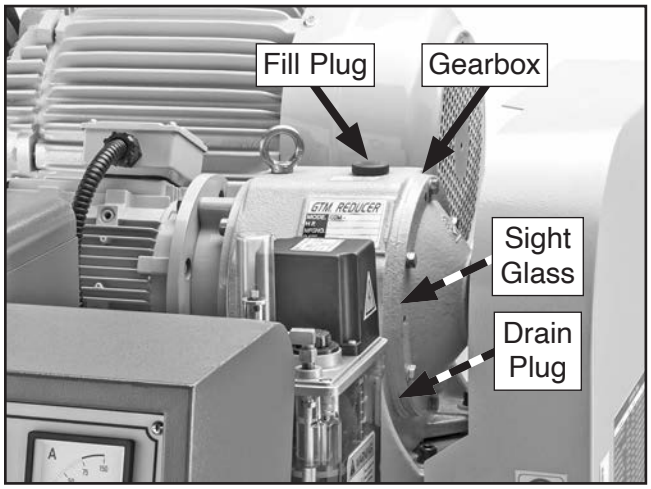


Figure 81. Location of chain drive gearbox and components.

Checking Conveyor System Gearbox Oil Level

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Open chain drive access door.

3. Check oil level in sight glass.

   — If oil level in sight glass *is* half full, nothing more needs to be done. Close and secure chain drive access door.

   — If oil level in sight glass *is less* than half full, oil must be added. Proceed to **Step 4**.

4. Remove fill plug (see **Figure 81**) and add ISO 320 or equivalent oil until oil level is halfway in sight glass.

5. Wipe away any excess oil, clean and replace fill plug, then close and secure chain drive access door.

Draining & Refilling Conveyor System Gearbox

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Open chain drive access door.

3. Remove fill plug (see **Figure 81** on **Page 55**), place oil drain pan beneath drain plug located on bottom side of gearbox, then remove drain plug.

   Tip: *Performing this step will be easier if (4) cap screws are removed from automatic oiler mounting plate, and automatic oiler is moved out of the way.*

4. Allow oil to drain out, then clean drain plug, wrap threads with thread-sealing tape, and install plug in gearbox.

5. Use fill hole to add approximately 74 oz. (2.2 liters) of ISO 320 or equivalent oil until oil level is halfway in sight glass. Wait 10 seconds to allow oil to settle in sight glass before taking reading.

6. Wipe away any excess oil, clean and replace fill plug, then close and secure chain drive access door.

Elevation System Gearbox

Oil Type .....T28042 or ISO 320 Equivalent
Oil Amount.....17 oz. (0.5 Liters)
Oil Frequency .....Yearly

The elevation system gearbox (see **Figure 82**) requires pumping out and refilling yearly to prevent premature failure. Check the oil level in the sight glass monthly.

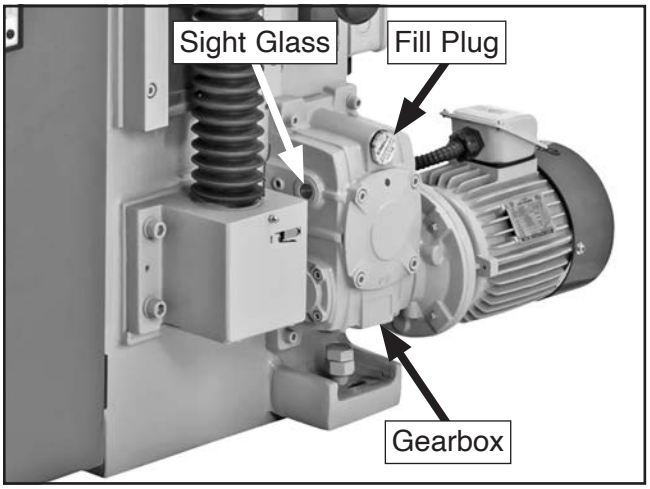


Figure 82. Location of elevation system gearbox.

Checking Elevation System Gearbox Oil Level

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Check oil level in sight glass.

   — If oil level in sight glass *is* half full, nothing more needs to be done.

   — If oil level in sight glass *is less* than half full, oil must be added. Proceed to **Step 3**.

3. Remove fill plug (see **Figure 82**) and add ISO 320 or equivalent oil until oil level is halfway in sight glass.

4. Wipe away any excess oil, then clean and replace fill plug.

Draining & Refilling Elevation System Gearbox

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Remove fill plug (see **Figure 82**), and pump oil out of gearbox until empty.

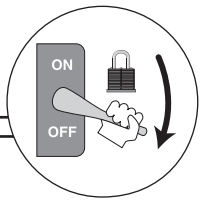
3. Use fill hole to add exactly 17 oz. (0.5 liters) of ISO 320 or equivalent oil.

4. Wipe away any excess oil, then clean and replace fill plug.

SECTION 7: SERVICE

Review the troubleshooting procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support. **Note:** *Please gather the serial number and manufacture date of your machine before calling.*

Troubleshooting



Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start, or power supply breaker immediately trips after startup.	1. Master power switch in OFF position.	1. Turn master power switch to ON position.
	2. EMERGENCY STOP button(s) depressed/at fault.	2. Rotate EMERGENCY STOP button heads to reset. Ensure EM1 and EM2 both reset (**Page 85**). Replace if at fault.
	3. Headstock limit switch engaged/at fault.	3. Raise or lower headstock; adjust height gauge; replace switch.
	4. Machine circuit breaker(s) tripped.	4. Reset circuit breaker(s) in electrical box. Verify OL1, OL2, and OL3 have reset (**Page 85**).
	5. Incorrect power supply voltage or circuit size.	5. Ensure correct power supply voltage and circuit size.
	6. VFD potentiometer at fault.	6. Test/replace if at fault.
	7. Power supply circuit breaker tripped or fuse blown.	7. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse.
	8. Motor wires connected incorrectly.	8. Correct motor wiring connections (**Page 83**).
	9. Thermal overload relay has tripped/at fault.	9. Reset. Adjust or replace if at fault.
	10. Contactor not energized/at fault.	10. Test all legs for power. Verify LS5 and LS6 have not tripped (**Page 85**). Replace if necessary.
	11. Wiring broken, disconnected, or corroded.	11. Fix broken wires or disconnected/corroded connections.
	12. ON/OFF button(s) at fault.	12. Replace button(s).
	13. Circuit breaker(s) at fault.	13. Replace circuit breakers.
	14. Pressure bar safety switch engaged/at fault.	14. Ensure switch is disengaged; test/replace if at fault.
	15. Chip breaker safety switch engaged/at fault.	15. Ensure switch is disengaged; test/replace if at fault
	16. Dust hood safety switch disengaged/at fault.	16. Engage switch with dust hood; replace if at fault.
	17. Inverter/control box at fault.	17. Inspect inverter/controller box; replace if at fault.
	18. Transformer(s) at fault.	18. Inspect transformer(s); replace if at fault.
	19. Start delay module(s) at fault.	19. Adjust to correct delay/replace.
	20. Motor or motor bearings at fault.	20. Replace motor.
Control panel not responsive.	1. Master power switch in OFF position.	1. Turn master power switch to ON position.
	2. EMERGENCY STOP button(s) engaged or at fault.	2. Rotate EMERGENCY STOP button heads to reset. Ensure EM1 and EM2 both reset (**Page 85**). Replace if at fault.
	3. Incorrect power supply voltage or circuit size.	3. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse.
	4. Power supply circuit breaker tripped or fuse blown.	4. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse.
	5. Wiring broken, disconnected, or corroded.	5. Fix broken wires or disconnected/corroded connections.

Motor & Electrical (Cont.)

Symptom	Possible Cause	Possible Solution
Elevation system will not raise/lower headstock.	1. Headstock elevation limit switch(es) engaged/at fault. 2. Headstock height buttons at fault. 3. Wiring broken, disconnected, or corroded.	1. Raise/lower headstock; adjust height gauge; test/repair/replace. Ensure limit switches LS1, LS2, LS3, LS4 have not tripped (**Page 85**). 2. Test/repair/replace. 3. Fix broken wires or disconnected/corroded connections.
Elevation system will not raise/lower headstock (cont.).	4. Contactor not energized/at fault. 5. Motor wires not connected correctly. 6. Headstock not square to table. 7. Motor/gearbox at fault.	4. Test all legs for power; replace if necessary. 5. Correct motor wiring connections (**Page 83**). 6. Square headstock (**Page 68**). 7. Test/repair/replace.
Machine operates in reverse.	1. Power connections wired out of phase.	1. Correct phase polarity (**Page 31**).
Upper and/or lower cutterhead will not start up.	1. Safety interlock switch(es) triggered at fault. 2. Wiring open/has high resistance. 3. Cutterhead ON button(s) at fault. 4. Magnetic contactor(s) at fault. 5. Contactor not energized/at fault. 6. Motor wires not connected correctly. 7. Motor(s) at fault.	1. Adjust limit switch(es); test/repair/replace. 2. Check/fix broken, disconnected, or corroded wires. 3. Test/repair/replace. 4. Test/repair/replace contactors inside electrical panel; contact certified electrician for repair. 5. Test all legs for power; replace if necessary. 6. Correct motor wiring connections (**Page 83**). 7. Test/repair/replace.
Conveyor system will not start up.	1. Start delay sequence not completed. 2. Wiring open/has high resistance. 3. Motor wires not connected correctly. 4. Motor at fault.	1. Upper and lower cutterheads must be ***ON*** and reach full speed before conveyor system will start up. 2. Check/fix broken, disconnected, or corroded wires. 3. Correct motor wiring connections (**Page 83**). 4. Test/repair/replace.
Machine stalls or is underpowered.	1. Workpiece material unsuitable for machine. 2. Feed rate too fast. 3. Excessive depth of cut. 4. Dust collection ducting problem. 5. Conveyor system gearbox at fault. 6. Belt(s) slipping/pulleys misaligned. 7. Motor wires connected incorrectly. 8. Dust collector undersized. 9. Pulley/sprocket slipping on shaft. 10. Machine undersized for task. 11. Motor overheated, tripping machine circuit breaker. 12. Contactor(s) not energized/at fault. 13. Motor or motor bearings at fault. 14. Start delay module(s) at fault.	1. Only cut wood/ensure moisture is below 20% (**Page 36**). 2. Decrease feed rate (**Page 42**). 3. Reduce depth of cut (**Pages 38–39**). (Hardwoods require a shallower depth of cut than soft woods.) 4. Clear blockages, seal leaks, use smooth wall duct, eliminate bends, close other branches. 5. Check fluid level in conveyor system gearbox (**Page 55**); replace if at fault. 6. Clean/tension/replace belt(s) (**Page 61**); ensure pulleys are aligned (**Page 63**). 7. Correct motor wiring connections (**Page 83**). 8. Move closer to machine/redesign ducting layout/upgrade dust collector. 9. Tighten/replace loose pulley/shaft. 10. Use sharp inserts; reduce feed rate (**Page 42**)/depth of cut (**Pages 38–39**). 11. Clean motor, let cool, and reduce workload. Reset breaker. 12. Test all legs for power; repair/replace if at fault. 13. Replace motor. 14. Adjust to correct delay/replace module.

Motor & Electrical (Cont.)

Symptom	Possible Cause	Possible Solution
Power lamp does not illuminate.	1. Bulb burnt out. 2. Circuit breaker tripped. 3. Incorrect power supply voltage or circuit size. 4. Power supply circuit breaker tripped or fuse blown.	1. Replace bulb. 2. Ensure correct power supply voltage and circuit size. 3. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse. 4. Fix broken wires or disconnected/corroded connections.
Machine has vibration or noisy operation.	1. Motor(s) or components loose. 2. V-belt(s) worn, loose, pulleys misaligned or belt slapping cover. 3. Insert(s) at fault. 4. Pulley(s) loose. 5. Chain drive access door not secured. 6. Chain drive not seated correctly on sprockets. 7. Machine not leveled. 8. Motor mount loose/broken. 9. Bed rollers protruding unevenly. 10. Cutterhead bearings at fault. 11. Motor fan rubbing on fan cover. 12. Motor bearings at fault. 13. Conveyor system gearbox at fault.	1. Replace damaged or missing bolts/nuts or tighten if loose. 2. Inspect/replace belts with a new matched set (**Page 61**). Re-align pulleys if necessary (**Page 63**). 3. Rotate/replace insert(s) (**Page 43**). 4. Secure pulley(s) on shaft (**Page 63**). 5. Secure chain drive access door. 6. Ensure chain is properly seated on sprockets. 7. Level machine (**Page 25**). 8. Tighten/replace. 9. Adjust bed rollers (**Pages 74–75**). 10. Replace bearing(s)/re-align cutterhead. 11. Fix/replace fan cover; replace loose/damaged fan. 12. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. 13. Rebuild gearbox to replace bad gears/bearings.

Operations

Symptom	Possible Cause	Possible Solution
Excessive snipe (gouge in end of board that is uneven with rest of cut). **Note:** A small amount of snipe is inevitable with all types of planers—the key is to minimize it.	1. Lower pressure rollers set too high. 2. Table extension wings (or aftermarket support table) not aligned with main table. 3. Chip breaker/pressure bar set too high. 4. Workpiece not supported as it leaves planer. 5. Some snipe is inevitable.	1. Adjust lower pressure rollers (**Pages 74–75**). 2. Shim outfeed extension wing level with main table. 3. Lower height of chip breaker/pressure bar (**Pages 72–73**). 4. Hold workpiece up slightly as it leaves outfeed end of planer. 5. Plane lumber longer than your intended workpiece length, then cut off excess after planing is complete.
Workpiece stops/ slows before reaching upper cutterhead.	1. Excessive depth of cut. 2. Lower pressure rollers set too low or too high. 3. Pitch and glue buildup on planer components.	1. Raise infeed table height to reduce lower cutterhead depth of cut (**Page 38**). 2. Lower/raise lower pressure rollers (**Pages 74–75**). 3. Clean internal cutterhead components with pitch/resin dissolving solvent.
Chipping (consistent pattern).	1. Knots or conflicting grain direction in wood. 2. Excessive depth of cut. 3. Feeding workpiece too fast. 4. Mis-adjusted chip breaker/pressure bar. 5. Nicked, chipped, or dull insert.	1. Inspect workpiece for knots and grain direction; only use clean stock, and cut WITH the grain. 2. Reduce depth of cut (**Pages 38–39**). (Reduce cutting depth when planing hard woods.) 3. Reduce feed rate (**Page 42**). 4. Adjust height of chip breaker/pressure bar (**Pages 72–73**). 5. Rotate/replace insert (**Page 43**).

Operations (Cont.)

Symptom	Possible Cause	Possible Solution
Chipping/ indentation in workpiece surface (inconsistent pattern).	1. Chips aren't being properly expelled from cutterhead. 2. Chip breaker not set correctly.	1. Use proper dust collection system. 2. Correctly adjust chip breaker (**Page 72**).
Fuzzy grain.	1. Wood may have high moisture content or surface wetness. 2. Dull insert(s).	1. Check moisture content is below 20% and allow to dry if moisture is too high. 2. Rotate/replace insert(s) (**Page 43**).
Long lines or ridges that run along length of board.	1. Nicked or chipped insert(s).	1. Rotate/replace insert(s) (**Page 43**).
Uneven cutting marks, wavy surface, or chatter marks across face of board.	1. Feeding workpiece too fast. 2. Chip breaker/pressure bar set unevenly or not low enough. 3. Insert(s) not properly installed. 4. Worn cutterhead bearings.	1. Reduce feed rate (**Page 42**). 2. Adjust height of chip breaker/pressure bar (**Pages 72–73**). 3. Remove insert(s), properly clean mounting pocket and re-install (**Page 43**). 4. Check/replace cutterhead bearings.
Glossy surface; scorching or burn marks on workpiece.	1. Dull insert(s). 2. Feed rate too slow. 3. Cutting depth too shallow.	1. Rotate/replace insert(s) (**Page 43**). 2. Increase feed rate (**Page 42**). 3. Increase depth of cut (**Pages 38–39**).
Uneven cut across entire bottom side of workpiece.	1. Lower cutterhead not parallel with table. 2. Lower pressure roller(s) not parallel with table.	1. Check/align lower cutterhead height (**Page 38**). 2. Check/adjust lower pressure roller(s) height (**Page 75**).
Uneven cut across entire top side of workpiece.	1. Upper cutterhead not parallel with table. 2. Upper pressure rollers not parallel with table.	1. Square headstock (**Page 68**). 2. Check/adjust upper pressure roller (**Page 75**).
Workpiece chipping, tear-out, indentations, or overall rough cuts.	1. Workpiece not suitable for planing. 2. Operator not feeding workpiece to cut "with" the grain. 3. Feeding workpiece too fast. 4. Excessive depth of cut. 5. Dull inserts. 6. Dust collection problems.	1. Ensure workpiece is suitable for planing. 2. Turn the workpiece 180° before feeding again. 3. Reduce feed rate (**Page 42**). 4. Reduce depth of cut (**Pages 38–39**). 5. Rotate/replace inserts (**Page 43**). 6. Clear blockages, seal leaks, move machine closer to dust collector, upgrade dust collector.
Finished workpiece not matching entered workpiece thickness value.	1. Lower cutterhead removing too much material. 2. Slack in elevation chain. 3. Digital controls and headstock height not synchronized.	1. Raise infeed table height to reduce lower cutterhead depth of cut (**Pages 38–39**). 2. Increase elevation chain tension. 3. Reset headstock height (**Page 70**).
Workpiece twists in machine.	1. Pressure bar set unevenly. 2. Uppler/lower pressure rollers not parallel with table.	1. Adjust height of pressure bar (**Page 73**). 2. Adjust upper/lower pressure rollers (**Pages 74–75**).

Replacing/Tensioning V-Belts

V-belts transfer power from the motors to the cutterheads. To ensure efficient transfer of power, make sure the V-belts are always properly tensioned and in good condition.

If the V-belts are worn, cracked, or damaged, replace them. Always replace the V-belts at the same time with a matched set, or belt tension may not be even among the belts, causing premature belt failure or weakened power transfer.

⚠CAUTION

V-belts and pulleys will be hot after operation. Allow them to cool before handling.

Replacing Lower Cutterhead V-Belts

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Open chain drive access door (see **Figure 83**).

3. Loosen tension lock lever (see **Figure 83**) and pull up on tension lever until there is slack between V-belts and pulleys. While pulling tension lever up, tighten tension lock lever.

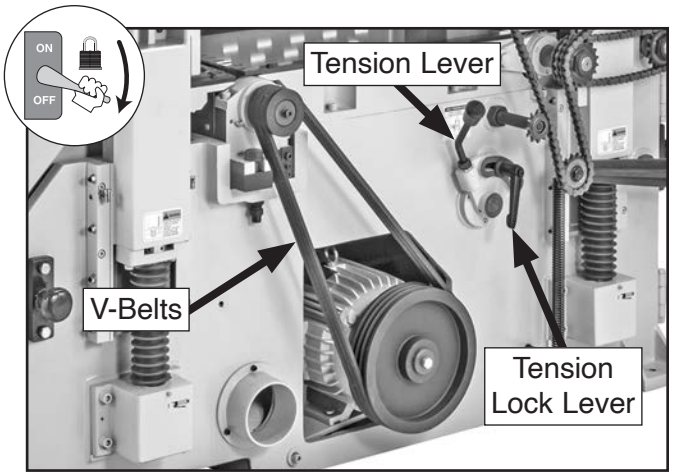


Figure 83. Location of lower cutterhead V-belts and tension controls.

4. Remove V-belts and replace them with a matched set. Make sure ribs of V-belts are seated in pulley grooves.

5. Proceed to **Step 3** in **Tensioning Lower Cutterhead V-Belts** below.

Tensioning Lower Cutterhead V-Belts

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Open chain drive access door (see **Figure 83**).

3. Check belt tension. Each belt is properly tensioned when there is approximately ⅜" deflection when belt is pushed with moderate pressure, as shown in **Figure 84**.

   — If there *is* approximately ⅜" deflection when V-belts are pushed with moderate pressure, V-belts are properly tensioned and no adjustment is necessary. Proceed to **Step 5**.

   — If there *is not* approximately ⅜" deflection when V-belts are pushed with moderate pressure, V-belts are not properly tensioned. Proceed to **Step 4**.

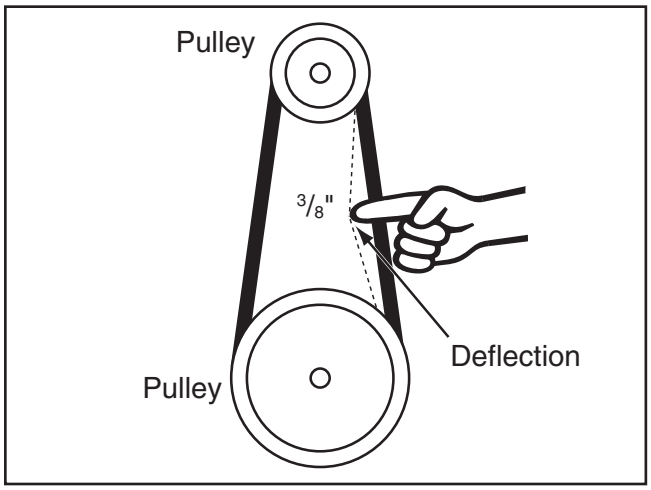


Figure 84. Correct belt deflection when properly tensioned.

4. Loosen tension lock lever (see **Figure 83**) and press down on tension lever until there is proper tension on V-belts. While holding tension lever down, tighten tension lock lever.

5. Close chain drive access door.

Replacing Upper Cutterhead V-Belts

Items Needed **Qty**
Wrenches Open-End or Socket 17mm..... 2
Wrench Open-End or Socket 19mm 1

To replace upper cutterhead V-belts:

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Remove upper cutterhead belt cover (see **Figure 85**).

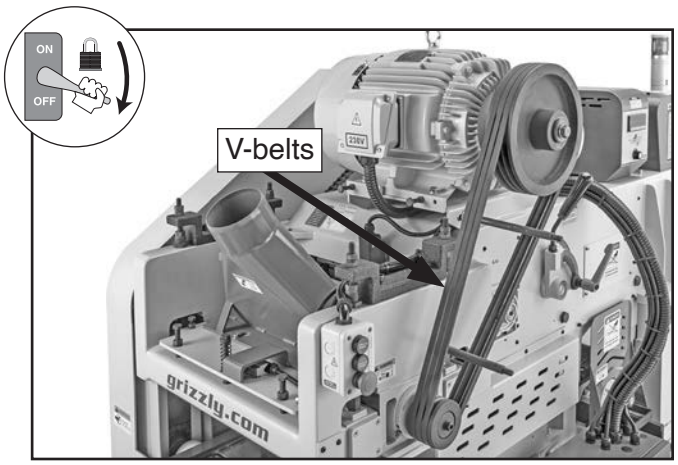


Figure 85. Location of upper cutterhead V-belts.

3. Loosen hex nuts on (4) hex bolts that secure motor to mounting plate (see **Figure 86**).

4. Loosen jam nuts on (3) motor stop hex bolts (see **Figure 86**). Front bolt not shown here.

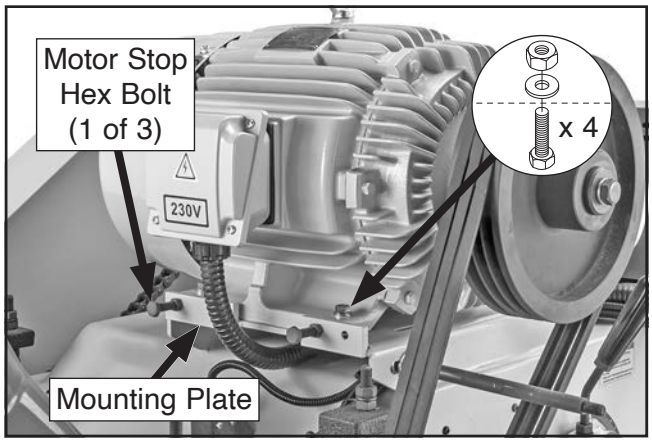


Figure 86. Location of upper cutterhead motor.

5. Loosen (2) rear motor stop hex bolts 3–5 turns.

   IMPORTANT: Turn each motor stop hex bolt same number of times.

6. Slide upper cutterhead motor toward rear of machine until there is slack between V-belts and pulleys.

7. Remove V-belts and replace them with a matched set. Make sure ribs of V-belts are seated in pulley grooves.

8. Slide upper cutterhead motor toward *front* of machine until there is no slack between V-belts and pulleys.

9. Proceed to **Step 3** in **Tensioning Upper Cutterhead V-Belts** below.

Tensioning Upper Cutterhead V-Belts

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Remove upper cutterhead belt cover (see **Figure 85**).

3. Check belt tension. Each belt is properly tensioned when there is approximately ⅜" deflection when belt is pushed with moderate pressure, as shown in **Figure 84** on **Page 61**.

   — If there *is* approximately ⅜" deflection when V-belts are pushed with moderate pressure, V-belts are properly tensioned and no adjustment is necessary. Proceed to **Step 5**.

   — If there *is not* approximately ⅜" deflection when V-belts are pushed with moderate pressure, V-belts are not properly tensioned. Proceed to **Step 4**.

4. Perform **Steps 3–4** in **Replacing Upper Cutterhead V-Belts**.

5. Adjust front and rear motor stop hex bolts. It is important that each rear bolt is turned the same number of times.

6. Once V-belts are properly tensioned, tighten fasteners loosened in **Step 4** to secure motor.

7. Install upper cutterhead belt cover.

Checking/Adjusting Pulley Alignment

Proper pulley alignment prevents premature V-belt wear and proper power transfer from the motor. The pulleys are properly aligned when they are parallel with each other and in the same plane.

Checking/Adjusting Lower Cutterhead Pulleys

Tools Needed	Qty
Wrench Open-Ends or Socket 14mm	1
Wrenches Open-Ends or Sockets 30mm	2
Hex Wrench 5mm	1
Straightedge 36"	1

To check/adjust lower cutterhead pulleys:

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Open chain drive access door.

3. Use straightedge to check pulleys are aligned and in the same plane. V-belts should be straight up and down (see **Figure 87**).

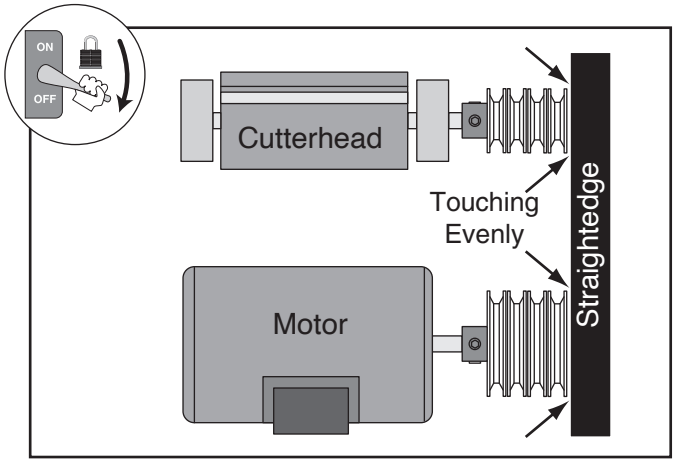


Figure 87. Pulleys correctly aligned.

— If pulleys *are* parallel and in the same plane, no adjustment is necessary. Close chain drive access door.

— If pulleys *are not* parallel and in the same plane, proceed to **Step 4**.

4. Loosen hex bolt and hex nut (see **Figure 88**) that secure cutterhead carriage.

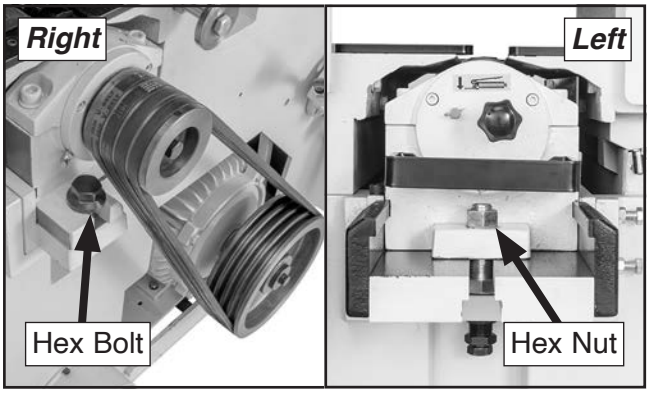


Figure 88. Location of lower cutterhead hex bolt and hex nut.

5. Loosen jam nut on lower cutterhead position set screw (see **Figure 89**).

Figure 89. Location of lower cutterhead position set screw.

6. Adjust set screw to move lower cutterhead and align cutterhead pulley with motor pulley.

7. Without moving set screw, tighten jam nut to secure lower cutterhead in position.

8. Tighten hex bolt and hex nut loosened in **Step 4**.

9. Close chain drive access door.

Checking/Adjusting Upper Cutterhead Pulleys

Items Needed	Qty
Wrenches or Sockets 17mm	2
Wrench or Socket 19mm	1
Straightedge 36"	1
Assistant	1

To check/adjust upper cutterhead pulleys:

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Remove upper cutterhead belt cover.

3. Use straightedge to check pulleys are aligned and in the same plane (see **Figure 90**). V-belts should be straight up and down.

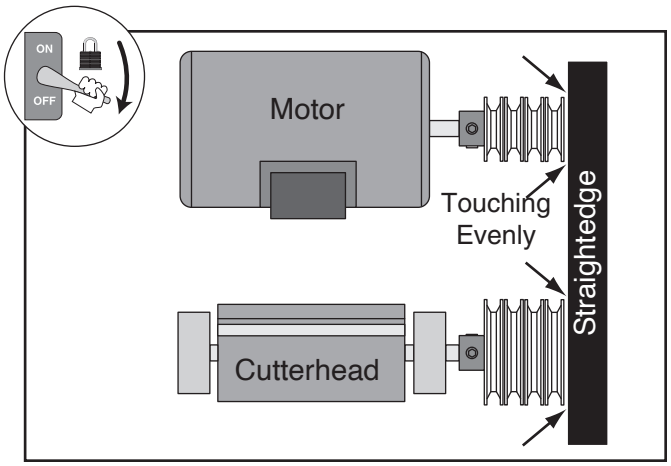


Figure 90. Pulleys aligned correctly.

— If pulleys *are* parallel and in the same plane, no adjustment is necessary. Install upper cutterhead belt cover.

— If pulleys *are not* parallel and in the same plane, proceed to **Step 4**.

4. Loosen hex nuts on (4) hex bolts that secure motor to mounting plate (see **Figure 91**).

5. Loosen jam nuts on (3) motor stop hex bolts (see **Figure 91**). Front bolt not shown here.

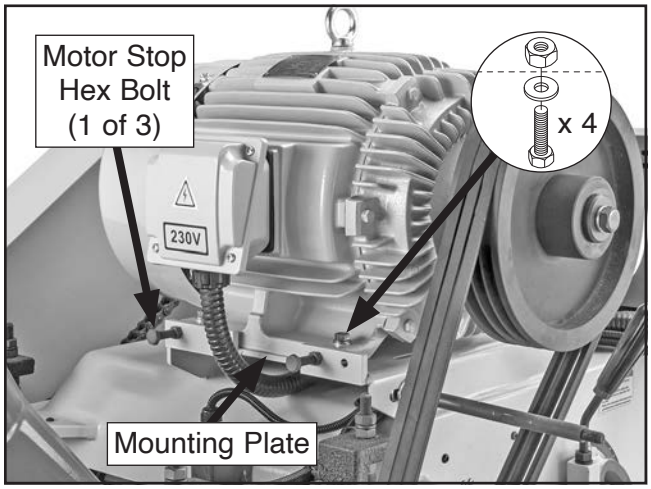


Figure 91. Location of upper cutterhead motor mounting hardware.

6. Loosen rear motor stop hex bolts 1 turn.

7. With help from another person, move upper cutterhead motor as needed to align motor pulley with cutterhead pulley.

8. Tighten motor stop hex bolts.

9. Tension V-belts. (Refer to **Steps 3–5** of **Tensioning Upper Cutterhead V-Belts** on **Page 62**).

10. Once V-belts are properly tensioned, tighten jam nuts to secure motor in position.

11. Install upper cutterhead belt cover.

Checking/Aligning Lower Cutterhead

Proper lower cutterhead alignment ensures an even cut across the entire workpiece during surface planing.

Tools Needed	Qty
Adjustable Wrench 12"	1
Block Gauge (Supplied w/Machine)	1

To check/align lower cutterhead:

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Open chain drive access door.

3. Rotate cutterhead pulley until one cutterhead insert is at top dead center (its highest point during rotation), as shown in **Figure 92**.

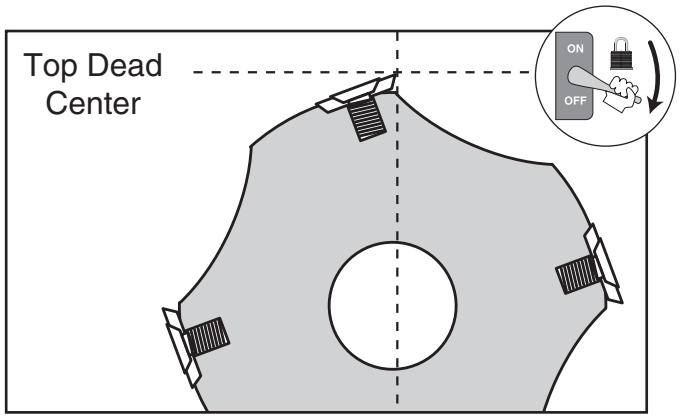


Figure 92. Cutterhead insert at top dead center.

4. Place block gauge on planer table in each position shown in **Figure 93** so it hangs over lower cutterhead.

   Note: *Make sure side B of block gauge is face down.*

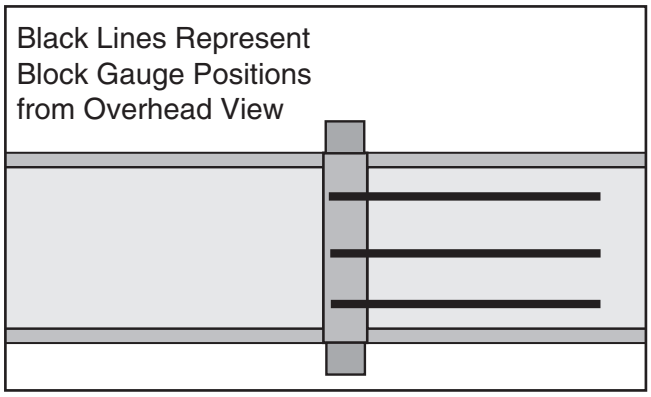


Figure 93. Block gauge positions for checking lower cutterhead.

   Inserts should barely touch block gauge as cutterhead is rotated back and forth with pulley, as shown in **Figure 94**.

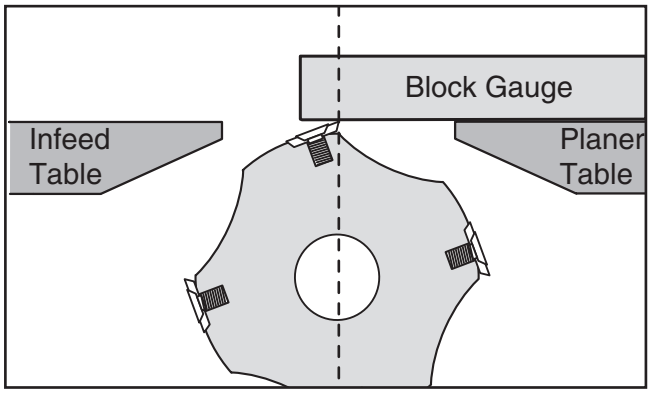


Figure 94. Using block gauge to check lower cutterhead height.

   — If cutterhead inserts barely touch block gauge as cutterhead is rotated back and forth, then cutterhead is parallel with planer table. No adjustments are necessary.

   — If cutterhead inserts lift block gauge off planer table or sit below block gauge, then cutterhead is not parallel with planer table and must be adjusted.

5. Use carriage height adjustment bolts (see **Figures 95–96**) to adjust lower cutterhead parallel with planer table.

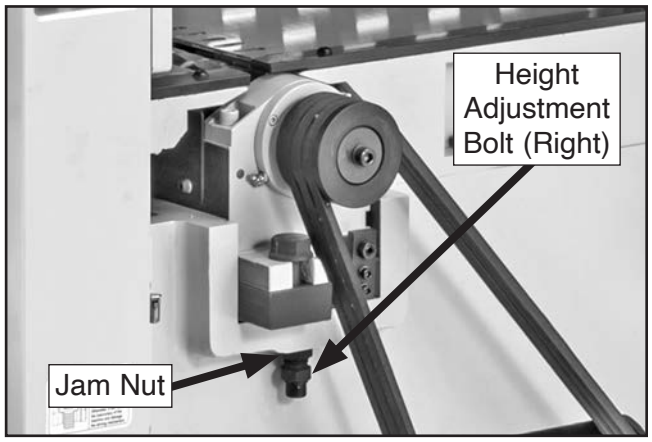


Figure 95. Location of lower cutterhead carriage hardware (right).

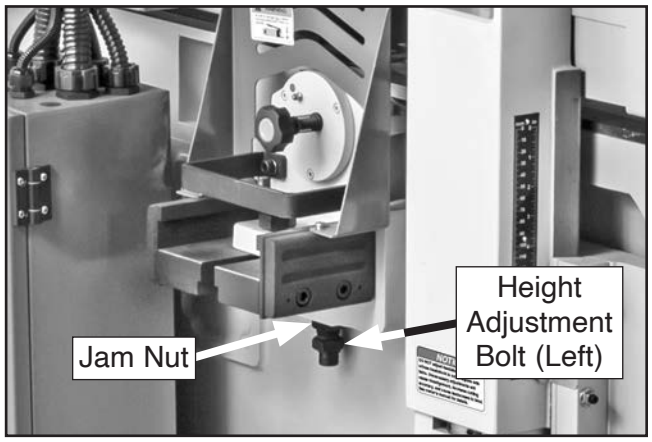


Figure 96. Location of lower cutterhead carriage hardware (left).

6. Repeat **Steps 5–6** as needed until cutterhead is parallel with table at positions shown in **Figure 93** on **Page 65**.

7. Tighten jam nuts to secure carriage position.

8. Close chain drive access door.

Calibrating Lower Cutterhead Depth-of-Cut Scale

The lower cutterhead depth-of-cut scale can be calibrated or "zeroed" to make sure the cutting depth shown on the scale matches the actual cutting depth (per pass).

Items Needed	**Qty**
Phillips Head Screwdriver #2	1
Block Gauge (Supplied w/Machine)	1

To calibrate lower cutterhead depth-of-cut scale:

1. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

2. Ensure lower cutterhead is correctly aligned with table. (Refer to **Checking/Aligning Lower Cutterhead** on **Page 65**.)

3. Place block gauge across infeed and planer tables, as shown in **Figure 97**.

   Note: *Make sure side B of block gauge is face down.*

4. Use infeed table handwheel to adjust infeed table even with planer table, as shown in **Figure 97**. Make sure there are no gaps between infeed table and block gauge and planer table and block gauge.

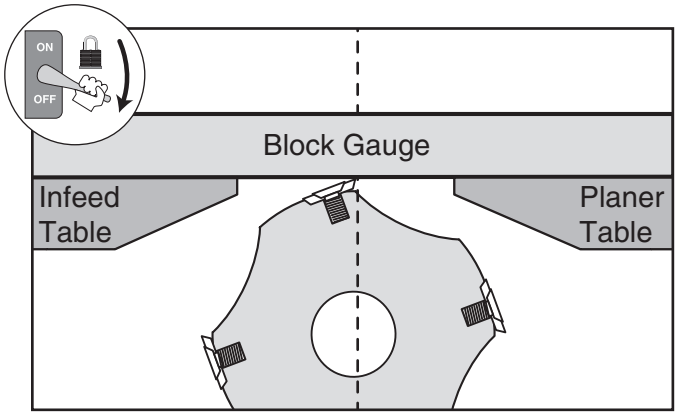


Figure 97. Infeed table even with planer table.

5. Loosen (2) Phillips head screws that secure scale indicator to base (see **Figure 98**), precisely adjust scale pointer to "0", then tighten caps screws.

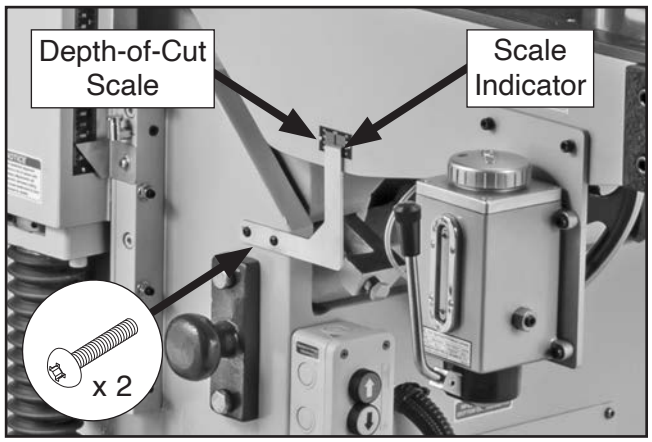


Figure 98. Adjusting scale pointer to "0".

Setting Upper Cutterhead at BDC

Prior to squaring the headstock and adjusting the upper cutterhead components, the upper cutterhead must be set at bottom dead center (BDC), as shown in **Figure 99**.

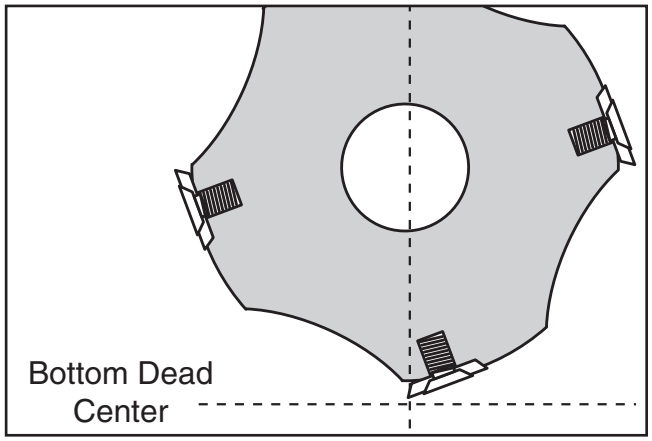


Figure 99. Upper cutterhead at BDC.

Items Needed	**Qty**
Rotacator or Dial Indicator w/Base	1
Open-End Wrench or Socket 19mm	1

To set upper cutterhead at BDC:

1. Set headstock height to 4".

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Remove upper cutterhead belt cover and open chain drive access door.

4. Use upper cutterhead pulley to rotate cutterhead so insert on edge of cutterhead is close to BDC.

5. Place Rotacator or dial indicator on planer table directly under edge of insert (see **Figure 100**) and use handwheel to lower headstock until insert just touches Rotacator or dial indicator plunger.

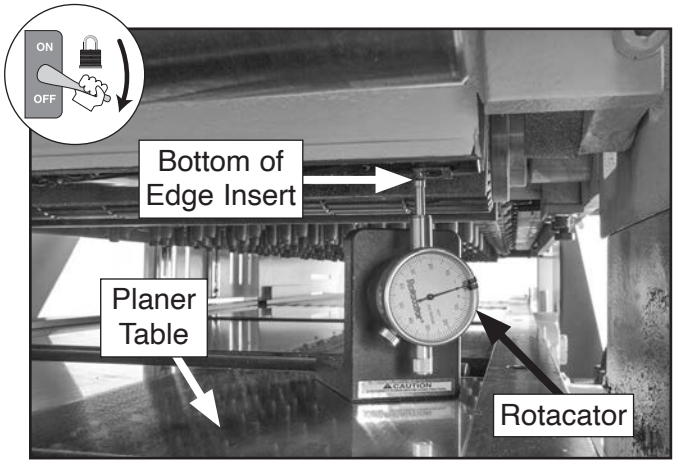


Figure 100. Example of headstock lowered to just touch Rotacator plunger.

6. Find BDC by slowly rocking cutterhead pulley back and forth so edge of insert just makes contact with plunger, and then set Rotacator or dial indicator to zero, and proceed to **Checking/Squaring Headstock** on **Page 68**.

Checking/Squaring Headstock

NOTICE

ONLY perform the following procedures if you are certain the headstock is out-of-square. Attempting these procedure on an already square headstock will cause additional misalignment.

The headstock is properly squared to the planer table at the factory and should only require adjustment if the elevation leadscrews become misaligned. Elevation leadscrews may become misaligned if they are not lubricated regularly, or there is a limit switch failure and the leadscrews are driven past the headstock height capacity. If you notice the headstock binds when raising or lowering it, then check to see if the headstock is square to the planer table.

Items Needed	Qty
Rotacator or Dial Indicator w/Base	1
Carpenter's Square	1
Calipers	1
Hex Wrench 8mm	1
Pin or Rod 5mm Dia.	1

Checking/Squaring Headstock Front-to-Rear

1. Set headstock height to 4".

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Check front and rear upper cutterhead depth-of-cut scales.

   — If scales indicate headstock height *is* 4", then proceed to **Checking/Squaring Headstock Side-to-Side** on **Page 69**.

   — If scales indicate headstock height *is not* 4", then determine which end is higher and proceed to **Step 4**.

4. On end of machine where headstock is higher, loosen (4) cap screws securing leadscrew nuts (see **Figure 101**).

5. Turn elevation leadscrew nuts (see **Figure 101**) counterclockwise until front and rear upper cutterhead depth-of-cut scales indicate headstock height is even front to back. Make sure to adjust both elevation leadscrews equally.

   IMPORTANT: Turn elevation leadscrew nuts in measurable increments (i.e. quarter-turns or half-turns).

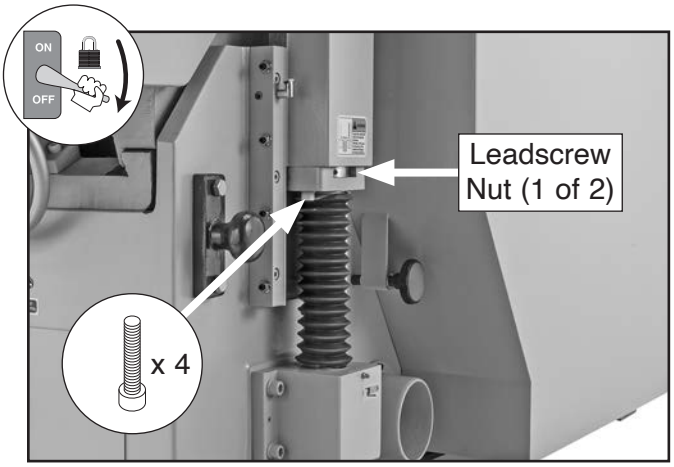


Figure 101. Location of elevation leadscrew nuts and cap screws.

6. Tighten (4) cap screws securing elevation leadscrew nuts.

7. Proceed to **Checking/Squaring Headstock Side-to-Side** on **Page 69**.

Checking/Squaring Headstock Side-to-Side

1. Set upper cutterhead at BDC. (Refer to **Setting Upper Cutterhead at BDC** on **Page 67**).

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Place Rotacator or dial indicator on planer table directly under inserts on left and right edge of upper cutterhead (see **Figure 102**).

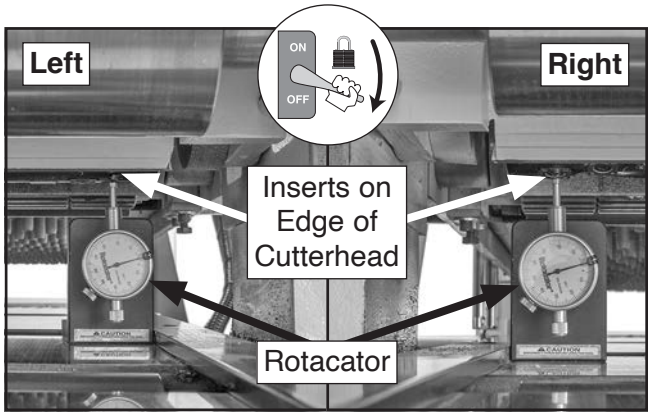


Figure 102. Rotacator placed under inserts on edge of upper cutterhead.

— If inserts *are* at BDC from side to side, then proceed to **Step 6**.

— If edge inserts *are not* at BDC from side to side, then determine which side is higher and proceed to **Step 4**.

4. On side of machine where headstock is higher, loosen (2) cap screws securing elevation leadscrew nut (see **Figure 101** on **Page 68**).

5. Turn elevation leadscrew nut (see **Figure 101** on **Page 68**) counterclockwise until inserts on left side and right side edge of upper cutterhead are at BDC, and then tighten (2) cap screws securing elevation leadscrew nut.

6. Place carpenter's square on right side and left side of infeed table under front edge of headstock (see **Figure 103**).

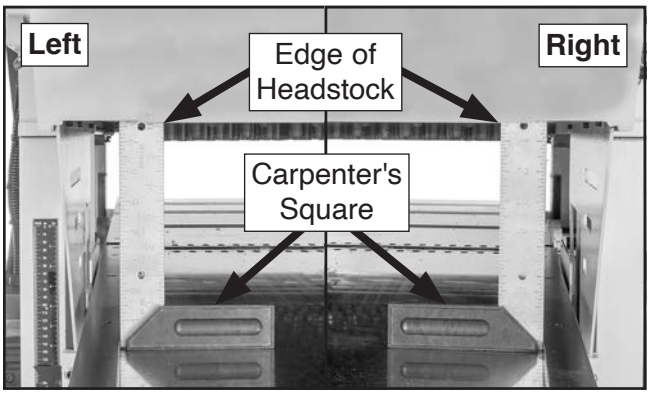


Figure 103. Example of carpenter's square placed under front edge of headstock.

— If left side and right side of headstock *are* within 0.050" of one another, then no further adjustments are necessary.

— If left side and right side of headstock *are not* within 0.050" of one another, then determine which side is higher and proceed to **Step 7**.

7. On side of machine where headstock is higher, loosen (2) cap screws securing elevation leadscrew nut (see **Figure 101** on **Page 68**).

8. Turn elevation leadscrew nut (see **Figure 101** on **Page 68**) counterclockwise until left side and right side of headstock are even, and then tighten (2) cap screws securing elevation leadscrew nut.

9. To ensure nothing has changed during this process, perform **Checking/Squaring Headstock Front-to-Rear** one more time.

10. Set headstock height. (Refer to **Setting Headstock Height** on **Page 70**.)

Setting Headstock Height

To achieve accurate planing results, the headstock height (i.e., distance from bottom dead center (BDC) of upper cutterhead to planer table) must be synchronized with the digital controls. Prior to setting headstock height in the digital controls, the headstock must be square to the table. (Refer to **Checking/Squaring Headstock** on **Page 68**.)

Items Needed	Qty
Calipers	1
Workpiece	1

To set headstock height in digital controls:

1. Set lower cutterhead depth of cut to "0" and use digital control pad to set workpiece thickness.

2. Run test workpiece through machine and measure result with calipers.

   — If measured workpiece thickness *is* same as value entered in **Step 1**, then proceed to **Step 3**.

   — If measured workpiece thickness *is not* same as value entered in **Step 1**, then repeat **Checking/Squaring Headstock** procedures, starting on **Page 68**.

3. Press ↵ SET (SET) key on digital control pad and enter same value entered in **Step 1**.

4. Press and hold ↵ SET (SET) key for three seconds. Entered value is now displayed as current height.

5. Run another test workpiece through machine to verify setting.

Adjusting Upper Cutterhead Components

It is essential that the idler roller, serrated roller, chip breaker, pressure bar, and pressure rollers are set at the correct distance below the upper cutterhead inserts at Bottom Dead Center (BDC). It is also essential that the lower pressure rollers are set at the correct distance above the planer table. When these components are set correctly, workpieces will move through the machine evenly and at the correct distance from the upper cutterhead inserts.

To ensure accurate results use a Rotacator for these adjustments (see **Accessories** on **Page 47**).

Adjusting Idler Roller

For the best thickness planing results, set the idler roller 0.080"–0.120" above BDC, as shown in **Figure 104**. Prior to adjusting the idler roller, the headstock must be square to the table. (Refer to **Checking/Squaring Headstock** on **Page 68**.)

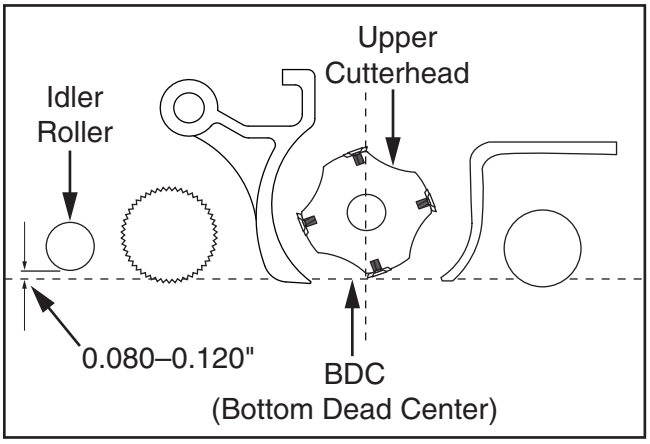


Figure 104. Correct idler roller height.

Items Needed	Qty
Rotacator or Dial Indicator w/Base	1
Open-End Wrench or Socket 13mm	2
Open-End Wrench 14mm	1
Hex Wrench 5mm	1

To adjust idler roller:

1. Set upper cutterhead at BDC. (Refer to **Setting Upper Cutterhead at BDC** on **Page 67**).

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Place Rotacator or dial indicator on planer table underneath left-side of idler roller (see **Figure 105**).

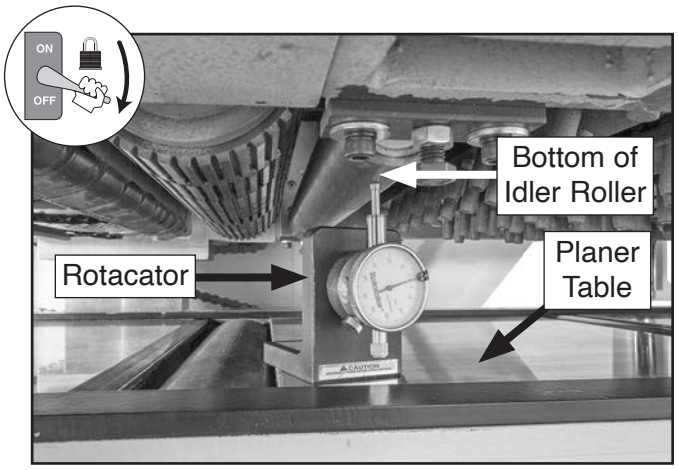


Figure 105. Rotacator placed underneath left-side of idler roller.

4. Slide Rotacator or dial indicator back and forth across bottom of idler roller.

   — If idler roller height *is* 0.080–0.120" above BDC, then no height adjustment is necessary. Proceed to **Step 7**.

   — If idler roller height *is not* 0.080–0.120" above BDC, then adjust height of idler roller. Proceed to **Step 5**.

5. Loosen idler roller jam nut and height adjustment screw (see **Figure 106**).

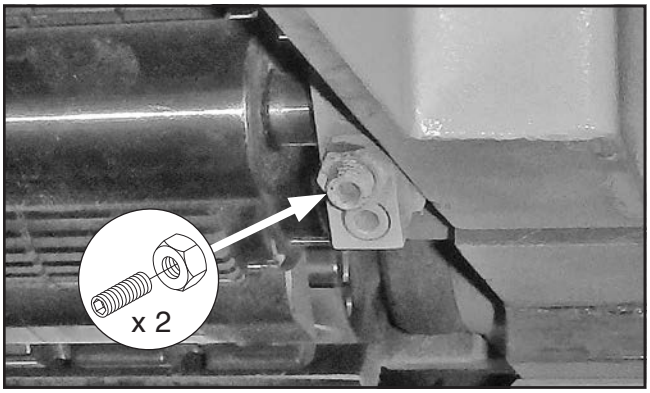


Figure 106. Location of idler roller height adjustment screw (1 of 2).

6. Tighten or loosen height adjustment screw as needed to set correct idler roller height, and then tighten jam nut to secure correct height setting.

7. Repeat **Steps 3–6** on right-side of idler roller.

8. If needed, repeat **Steps 3–7** until entire idler roller height is correct.

Adjusting Serrated Roller

For the best thickness planing results, set the serrated roller 0.000"–0.005" below BDC, as shown in **Figure 107**. Prior to adjusting the serrated roller, the headstock must be square to the table. (Refer to **Checking/Squaring Headstock** on **Page 68**.)

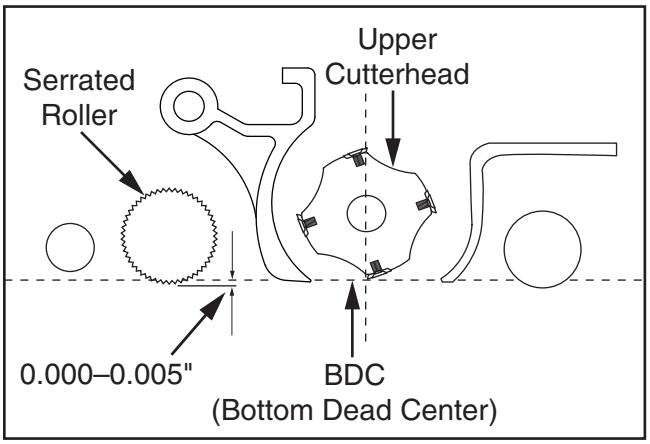


Figure 107. Correct serrated roller height.

Items Needed	Qty
Rotacator or Dial Indicator w/Base	1
Open-End Wrenches 19mm	2

To adjust serrated roller:

1. Set upper cutterhead at BDC. (Refer to **Setting Upper Cutterhead at BDC** on **Page 67**).

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Place Rotacator or dial indicator on planer table underneath left side of serrated roller (see **Figure 108**).

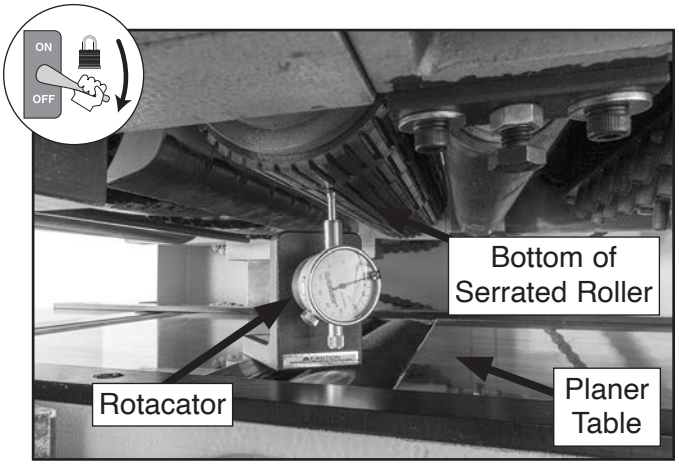


Figure 108. Rotacator placed underneath left side of serrated roller

4. Slide Rotacator or dial indicator back and forth across bottom of serrated roller.

   — If serrated roller height *is* 0.000"–0.005" below BDC, then no height adjustment is needed. Proceed to **Step 7**.

   — If serrated roller height *is not* 0.000"–0.005" below BDC, then adjust height of serrated roller. Proceed to **Step 5**.

5. Loosen serrated roller jam nut and hex nut on spring-loaded height adjustment rod (see **Figure 109**).

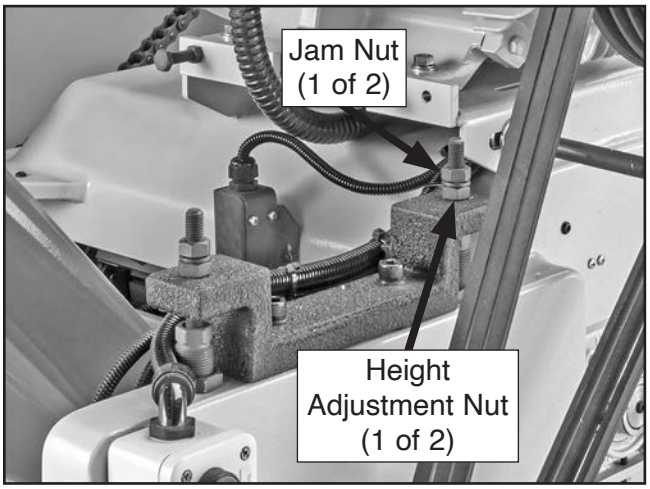


Figure 109. Location of serrated roller height adjustment hardware.

6. Tighten or loosen hex nut on height adjustment rod as needed to set correct serrated roller height, and then tighten jam nut to secure correct height setting.

7. Repeat **Steps 3–6** on right side of serrated roller.

8. If needed, repeat **Steps 3–7** until entire serrated roller height is correct.

Adjusting Chip Breaker

For the best thickness planing results, set the chip breaker segments 0.000"–0.008" below BDC, as shown in **Figure 110**. Prior to adjusting the chip breaker, the headstock must be square to the table. (Refer to **Checking/Squaring Headstock** on **Page 68**.)

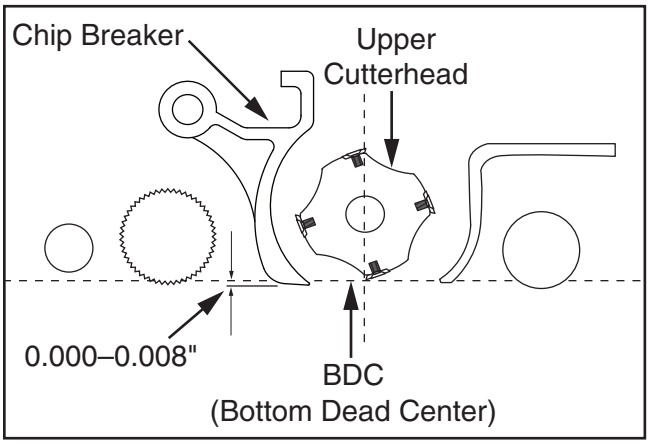


Figure 110. Correct chip breaker height.

Tools Needed **Qty**
Rotacator or Dial Indicator w/Base..... 1
Open-End Wrenches 14, 17mm .....1 Ea.

To adjust chip breaker:

1. Set upper cutterhead at BDC. (Refer to **Setting Upper Cutterhead at BDC** on **Page 67**).

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Place Rotacator or dial indicator on planer table underneath chip breaker segments (see **Figure 111**).

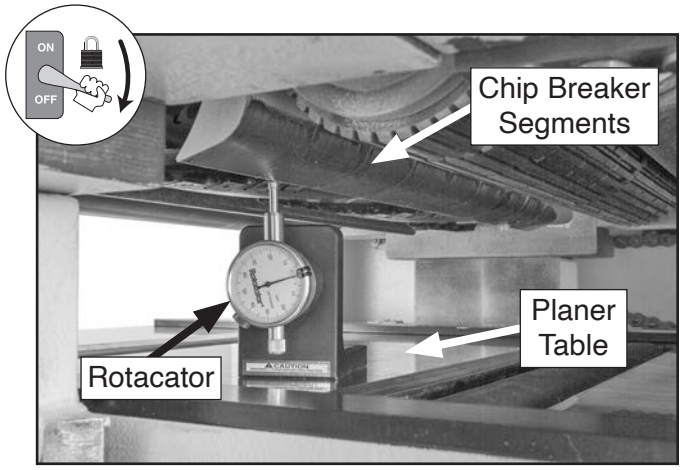


Figure 111. Rotacator placed underneath chip breaker segments.

4. Slide Rotacator or dial indicator back and forth across bottom of each chip breaker segment.

   — If chip breaker segment height *is* 0.000"–0.008" below BDC, then no height adjustment is necessary. Proceed to **Step 7**.

   — If chip breaker segment height *is not* 0.000"–0.008" below BDC, then adjust height of chip breaker segment. Proceed to **Step 5**.

5. Loosen chip breaker segment jam nut and height adjustment bolt (see **Figure 112**).

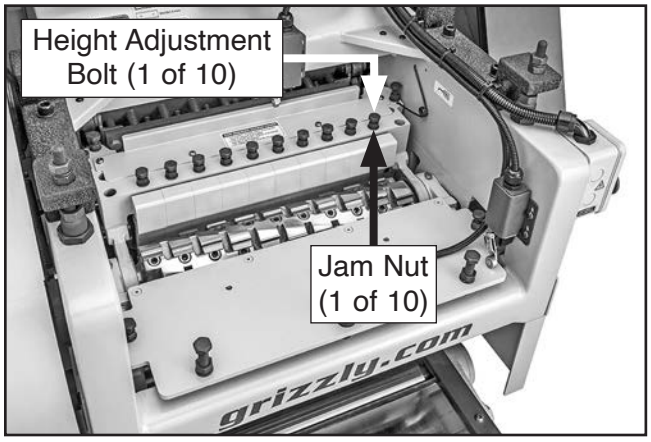


Figure 112. Location of chip breaker height adjustment hardware. (Dust port removed for clarity.)

6. Tighten or loosen height adjustment bolt as needed to set correct chip breaker segment height, and then tighten jam nut to secure setting.

7. Repeat **Steps 3–6** on remaining (9) chip breaker segments.

Adjusting Pressure Bar

For the best thickness planing results, set the pressure bar 0.010"–0.015" below BDC, as shown in **Figure 113**. Prior to adjusting the pressure bar, the headstock must be square to the table. (Refer to **Checking/Squaring Headstock** on **Page 68**.)

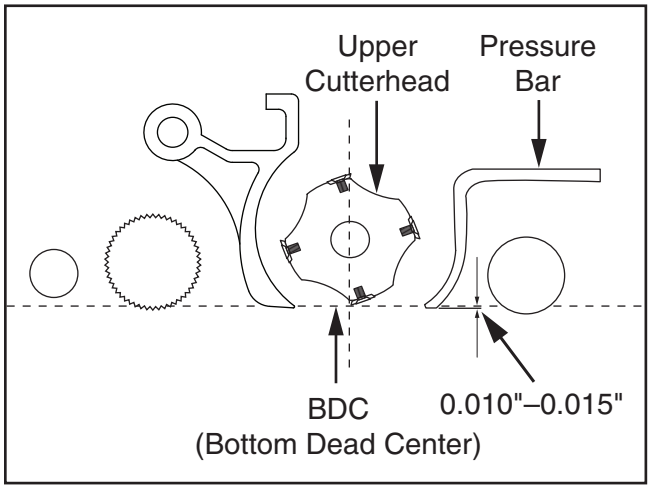


Figure 113. Correct pressure bar height.

Items Needed **Qty**
Rotacator or Dial Indicator w/Base..... 1
Open-End Wrenches or Sockets 19mm..... 2

To adjust pressure bar:

1. Set upper cutterhead at BDC. (Refer to **Setting Upper Cutterhead at BDC** on **Page 67**).

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Place Rotacator or dial indicator on planer table underneath left side of pressure bar (see **Figure 114**).

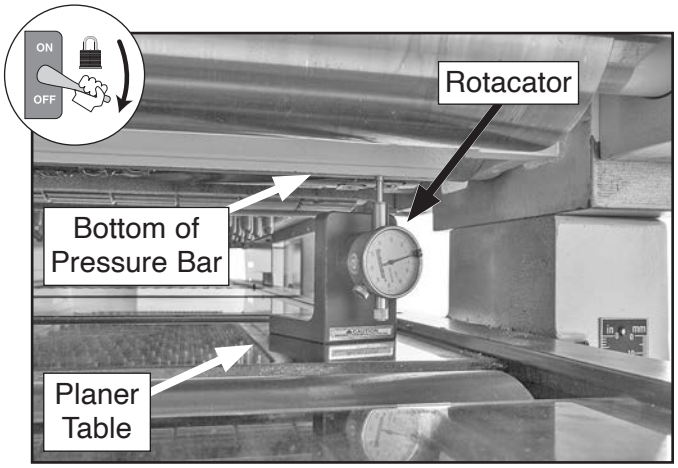


Figure 114. Rotacator placed underneath left-side of pressure bar.

4. Slide Rotacator or dial indicator back and forth across bottom of pressure bar.

   — If pressure bar height *is* 0.010"–0.015" below BDC, then no height adjustment is needed. Proceed to **Step 7**.

   — If pressure bar height *is not* 0.010"–0.015" below BDC, then adjust height of pressure bar. Proceed to **Step 5**.

5. Loosen pressure bar jam nut and height adjustment bolt (see **Figure 115**).

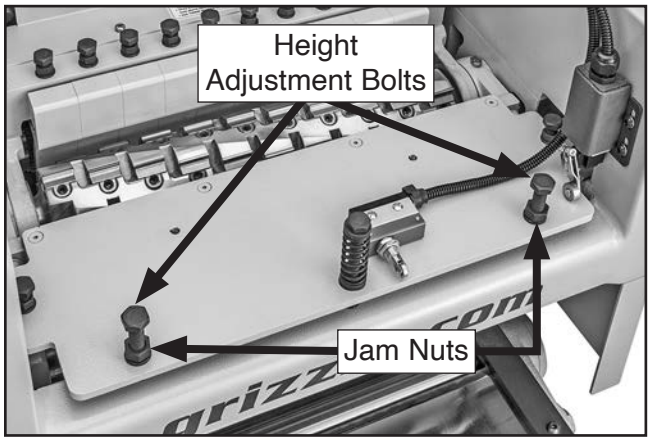


Figure 115. Location of pressure bar height adjustment hardware. (Dust port removed for clarity.)

6. Tighten or loosen height adjustment bolt as needed to set correct pressure bar height, and then tighten jam nut to secure setting.

7. Repeat **Steps 3–6** on right side of pressure bar.

8. If needed, repeat **Steps 3–7** until entire pressure bar height is correct.

Adjusting Upper Pressure Roller

For the best thickness planing results, set the upper pressure roller 0.02"–0.06" below BDC, as shown in **Figure 116**. Prior to adjusting the pressure roller, the headstock must be square to the table. (Refer to **Checking/Squaring Headstock** on **Page 68**.)

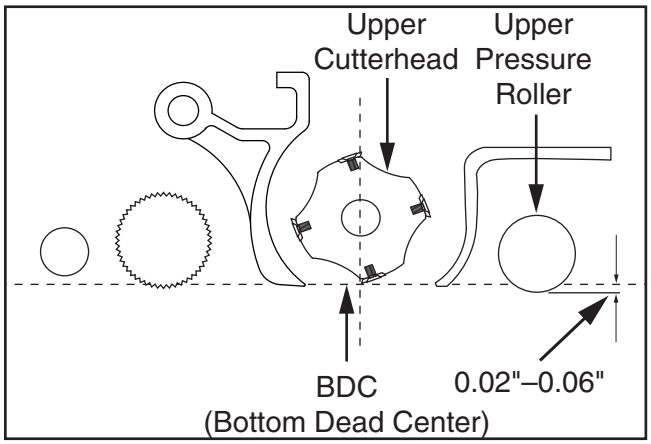


Figure 116. Correct upper pressure roller height.

Tools Needed	Qty
Rotacator or Dial Indicator w/Base	1
Wrench Open-Ends or Socket 19mm	2

To adjust upper pressure roller:

1. Set upper cutterhead at BDC. (Refer to **Setting Upper Cutterhead at BDC** on **Page 67**).

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Place Rotacator or dial indicator on planer table underneath left side of upper pressure roller (see **Figure 117**).

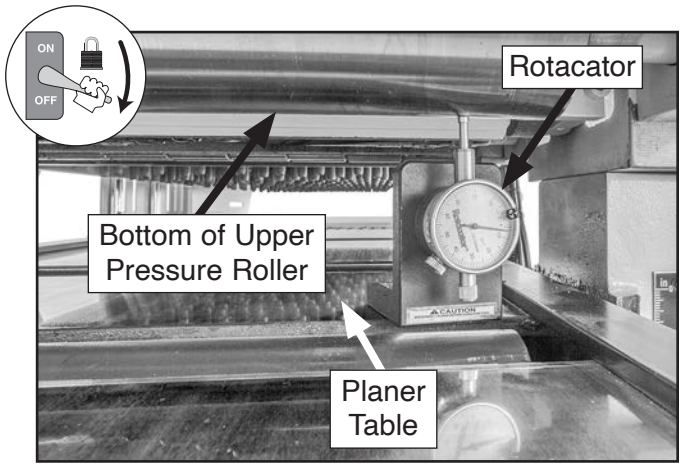


Figure 117. Rotacator placed underneath left-side of upper pressure roller.

4. Slide Rotacator or dial indicator back and forth across bottom of upper pressure roller.

   — If upper pressure roller height *is* 0.02"–0.06" below BDC, then no height adjustment is needed. Proceed to **Step 7**.

   — If upper pressure roller height *is not* 0.02"–0.06" below BDC, then adjust height of upper pressure roller. Proceed to **Step 5**.

5. Loosen upper pressure roller jam nut and hex nut on spring-loaded height adjustment rod (see **Figure 118**).

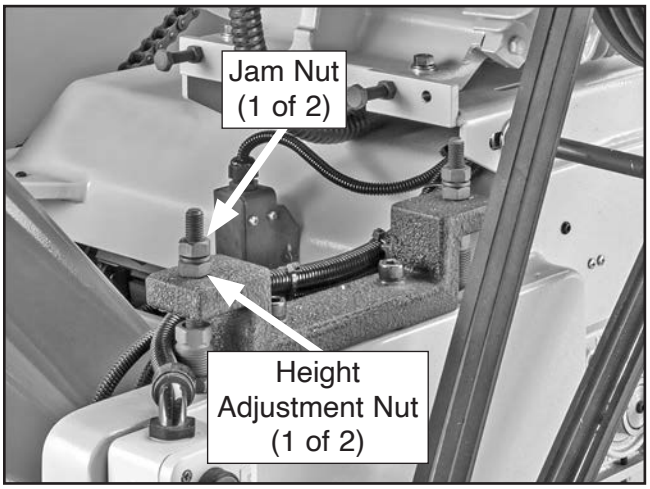


Figure 118. Location of upper pressure roller height adjustment hardware.

6. Tighten or loosen hex nut on height adjustment rod as needed to set correct upper pressure roller height, and then tighten jam nut to secure correct height setting.

7. Repeat **Steps 3–6** on right side of upper pressure roller.

8. If needed, repeat **Steps 3–7** until upper pressure roller height is correct.

Adjusting Lower Pressure Rollers

For the best thickness planing results, set the lower pressure rollers 0.004"–0.008" above the planer table surface, as shown in **Figure 119**.

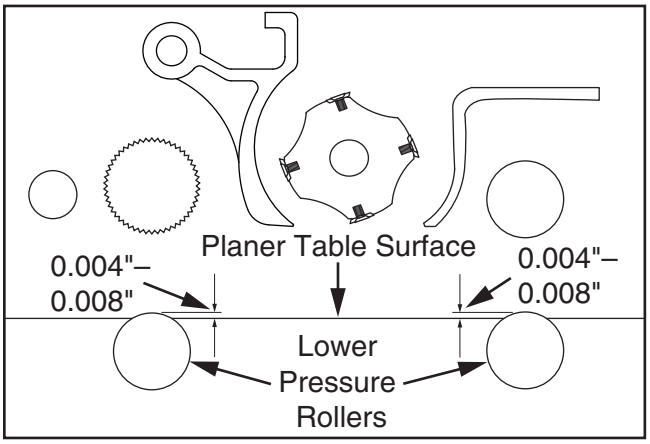


Figure 119. Correct lower pressure rollers height.

Tools Needed	Qty
Block Gauge (Supplied w/Machine)	1
Open-End Wrenches 14, 17mm	1 Ea.

To adjust lower pressure rollers:

1. Set headstock height to at least 4".

2. DISCONNECT AND LOCK-OUT MACHINE AT POWER SOURCE!

3. Open chain drive access door.

4. Place block gauge on planer table across one side of front lower pressure roller (see **Figure 120**).

   Note: *Make sure side A of block gauge is face down and notch (see **Figure 121**) is centered over top of lower pressure roller.*

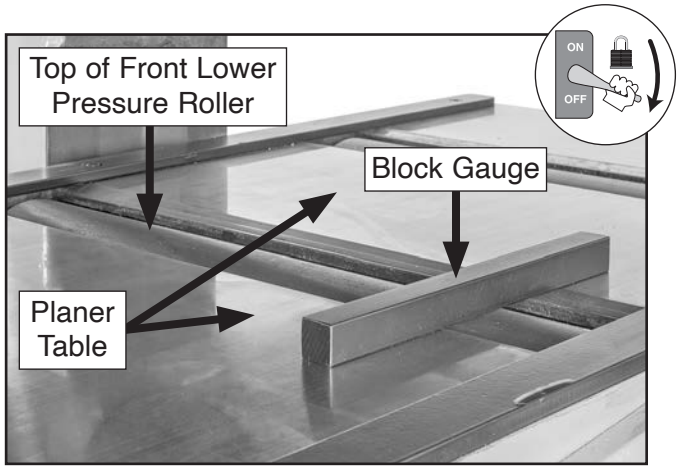


Figure 120. Block gauge placed over front lower pressure roller.

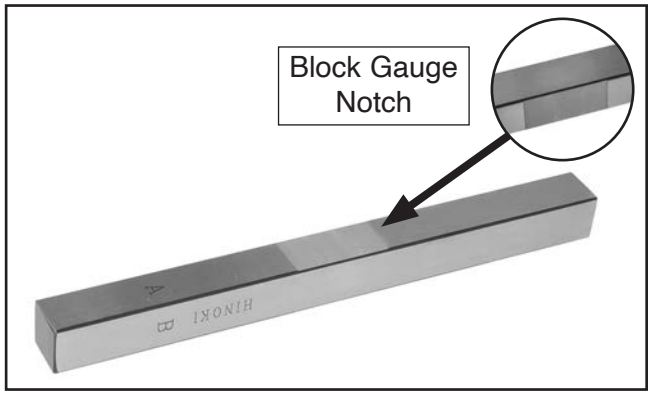


Figure 121. Block gauge—side A.

5. Slowly rock lower pressure roller back and forth.

   — If block gauge *does* lay flat across planer table and *does* move when pressure roller is rocked back and forth height, then no height adjustment is needed. Proceed to **Step 8**.

   — If block gauge *does not* lay flat across planer table or *does not* move when pressure roller is rocked back and forth, then adjust height of lower pressure roller. Proceed to **Step 6**.

6. Loosen corresponding lower pressure roller jam nut and height adjustment bolt (see **Figures 122–123**).

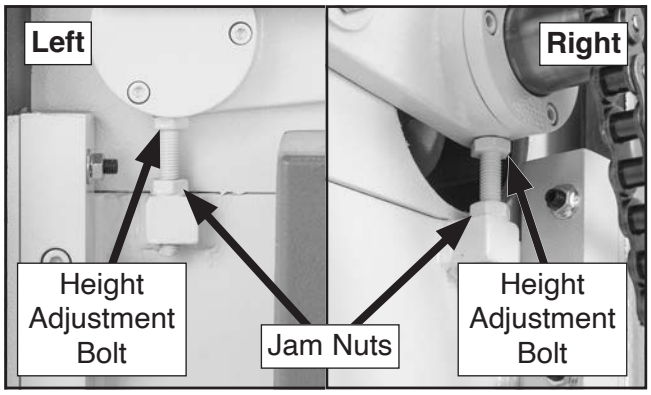


Figure 122. Location of front lower pressure roller height adjustment hardware.

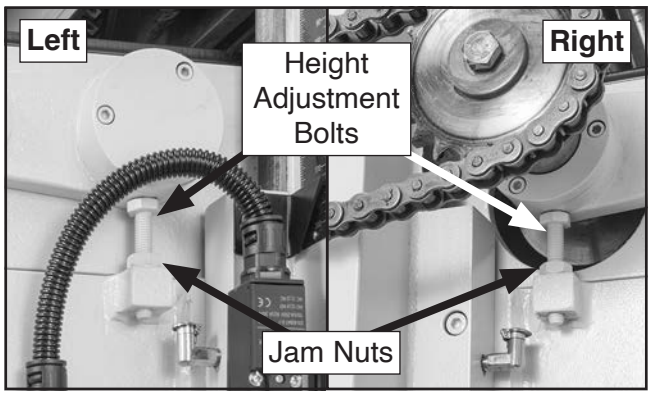


Figure 123. Location of rear lower pressure roller height adjustment hardware.

7. Tighten or loosen height adjustment bolt as needed to set correct pressure roller height, and then tighten jam nut to secure setting.

8. Repeat **Steps 4–7** on other side of front lower pressure roller.

9. Repeat **Steps 4–8** on rear lower pressure roller.

10. If needed, repeat **Steps 4–9** until front and rear lower pressure roller heights are correct.

Tensioning Elevation Chain

The elevation chain is properly tensioned at the factory and should only require adjustment after several years of operation. If you notice the headstock is not raising or lowering smoothly, the elevation chain may require tensioning.

Items Needed **Qty**
Hex Wrenches 8, 10mm.....1 Ea.

To tension elevation chain:

1. DISCONNECT AND LOCK-OUT MACHINE FROM POWER!

2. Open chain drive access door, and loosen elevation chain tension screw (see **Figure 124**).

   IMPORTANT: When tensioning elevation chain, DO NOT allow chain to come off sprockets. Returning chain to its proper location on sprockets is a difficult task.

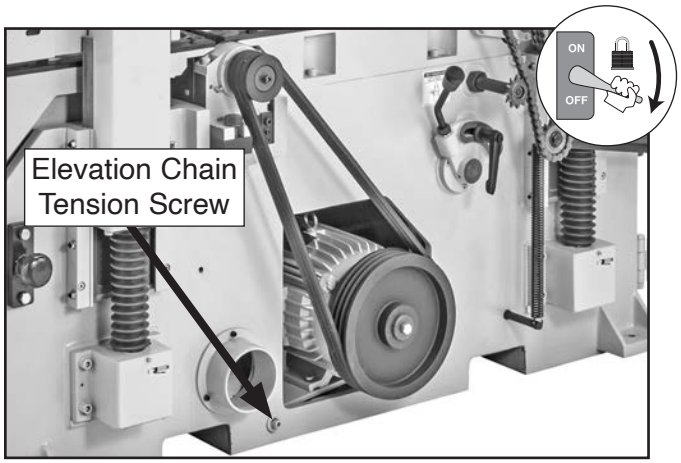


Figure 124. Location of elevation chain tension screw.

3. Loosen cap screw (see **Figure 125**) that secures elevation chain bracket in place.

4. Push elevation chain bracket (see **Figure 125**) downward with moderate pressure. While maintaining pressure, tighten cap screw to secure setting.

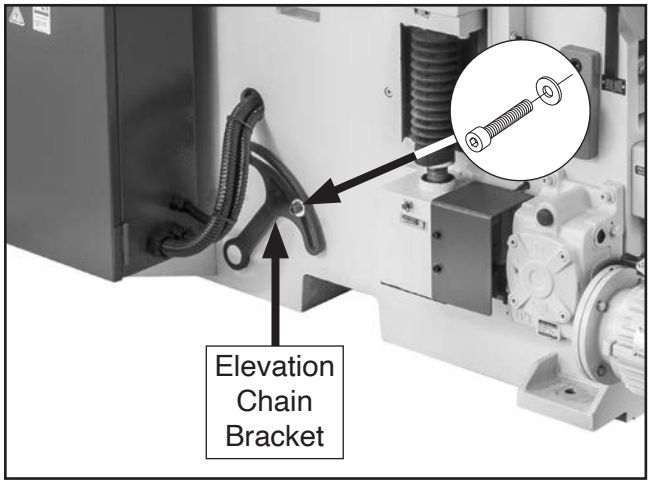


Figure 125. Location of elevation chain tensioning components.

5. Tighten elevation chain tension screw.

6. Close chain drive access door.

Tensioning Feed Belt

The feed belt is properly tensioned at the factory and should only require adjustment after several years of operation. If you notice the feed belt is sagging and making a "slapping" sound during operation, the feed belt may require tensioning.

Items Needed	Qty
Open-End Wrench or Socket 30mm	1
Calipers	1

To tension feed belt:

1. DISCONNECT AND LOCK-OUT MACHINE FROM POWER!

2. Measure length of (2) compression springs (see **Figure 126**) to establish baselines.

3. Turn hex nut (see **Figure 126**) on one side of machine to increase or decrease tension.

— Turn hex nut clockwise to compress spring and increase feed belt tension.

— Turn hex nut counterclockwise to decompress spring and decrease feed belt tension.

IMPORTANT: Turn lock nut in measurable increments (i.e., quarter-turns or half-turns).

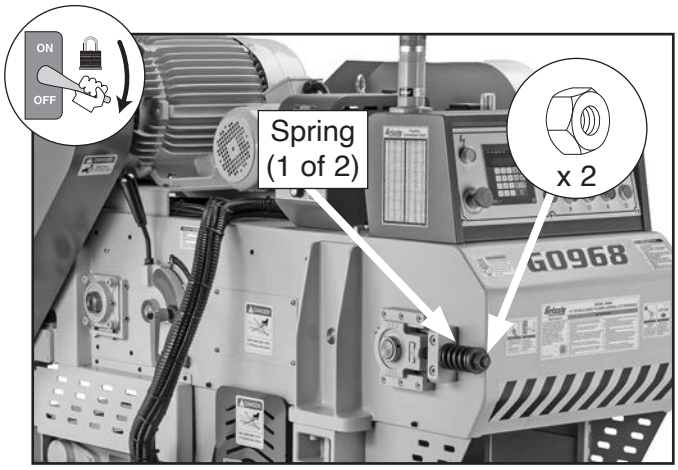


Figure 126. Location of feed belt tensioning components.

4. Repeat **Step 3** with hex nut on other side of machine.

IMPORTANT: Turn second hex nut same number of turns as first lock nut.

5. Measure length of springs again to ensure both springs have been adjusted equally.

6. Connect machine to power and run feed belt to check adjustment.

7. Repeat **Steps 2–6** until correct feed belt tension is achieved.

Adjusting Gibs

The function of the gibs is to eliminate excessive play in the headstock and table movement. Tight gibs make movement more accurate but stiff. Loose gibs make movement easier but sloppy. The goal of gib adjustment is to remove unnecessary sloppiness without causing the ways to bind.

Adjusting Headstock Gibs

Tools Needed **Qty**
Open-End Wrench 12mm 1
Hex Wrench 4mm 1

To adjust headstock gibs:

1. DISCONNECT AND LOCK-OUT MACHINE FROM POWER!

2. Loosen (4) jam nuts on (4) gib set screws (see **Figure 127**) at four corners of headstock.

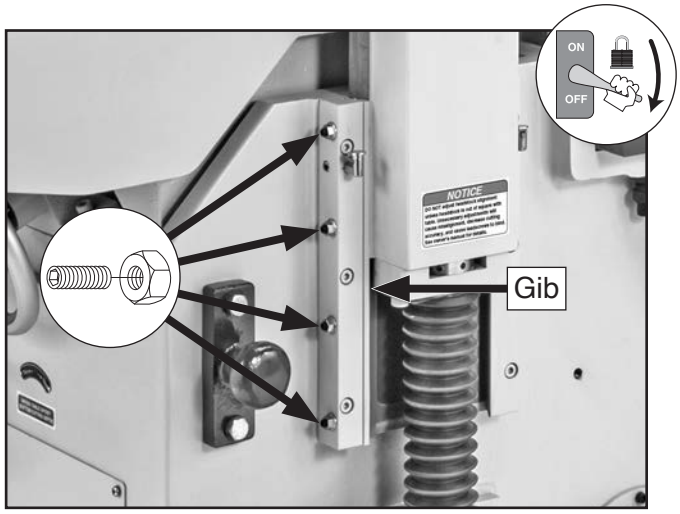


Figure 127. Location of headstock gib components.

3. Evenly tighten gib set screws a small amount, then check headstock by moving it up and down with handwheel. Adjust set screws as needed until friction of headstock movement is balanced between minimal play and ease of movement.

4. When satisfied with results, tighten jam nuts on all set screws, being careful not to let set screws move.

Adjusting Infeed Table Gib

Tools Needed **Qty**
Open-End Wrenches 14, 17mm ..... 1 Ea.

To adjust infeed table gib:

1. DISCONNECT AND LOCK-OUT MACHINE FROM POWER!

2. Loosen (2) jam nuts on gib adjustment bolt (see **Figure 128**).

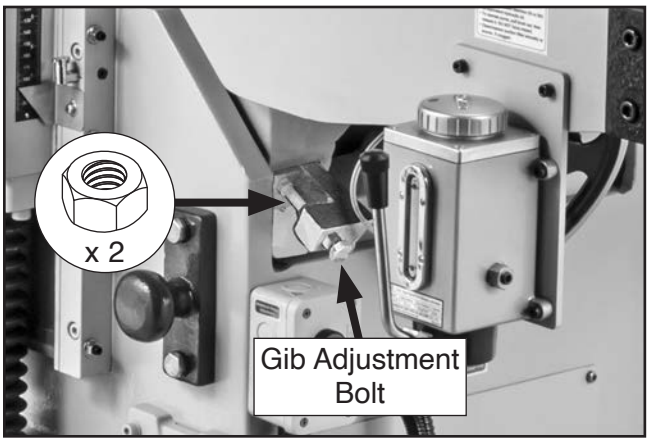


Figure 128. Location of infeed table gib components.

3. Tighten gib adjustment bolt a small amount, then check infeed table by moving it up and down with handwheel. Adjust bolt as needed until friction of infeed table movement is balanced between minimal play and ease of movement.

4. When satisfied with results, tighten (2) jam nuts loosened in **Step 2**, being careful not to let gib adjustment bolt move.

SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Compare the manufacture date of your machine to the one stated in this manual, and study this section carefully.

If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine. An updated wiring diagram may be available. **Note:** *Please gather the serial number and manufacture date of your machine before calling. This information can be found on the main machine label.*

⚠WARNING
Wiring Safety Instructions

SHOCK HAZARD. Working on wiring that is connected to a power source is extremely dangerous. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Disconnect the power from the machine before servicing electrical components!

MODIFICATIONS. Modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire. This includes the installation of unapproved aftermarket parts.

WIRE CONNECTIONS. All connections must be tight to prevent wires from loosening during machine operation. Double-check all wires disconnected or connected during any wiring task to ensure tight connections.

CIRCUIT REQUIREMENTS. You MUST follow the requirements at the beginning of this manual when connecting your machine to a power source.

WIRE/COMPONENT DAMAGE. Damaged wires or components increase the risk of serious personal injury, fire, or machine damage. If you notice that any wires or components are damaged while performing a wiring task, replace those wires or components.

MOTOR WIRING. The motor wiring shown in these diagrams is current at the time of printing but may not match your machine. If you find this to be the case, use the wiring diagram inside the motor junction box.

CAPACITORS/INVERTERS. Some capacitors and power inverters store an electrical charge for up to 10 minutes after being disconnected from the power source. To reduce the risk of being shocked, wait at least this long before working on capacitors.

EXPERIENCING DIFFICULTIES. If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (570) 546-9663.

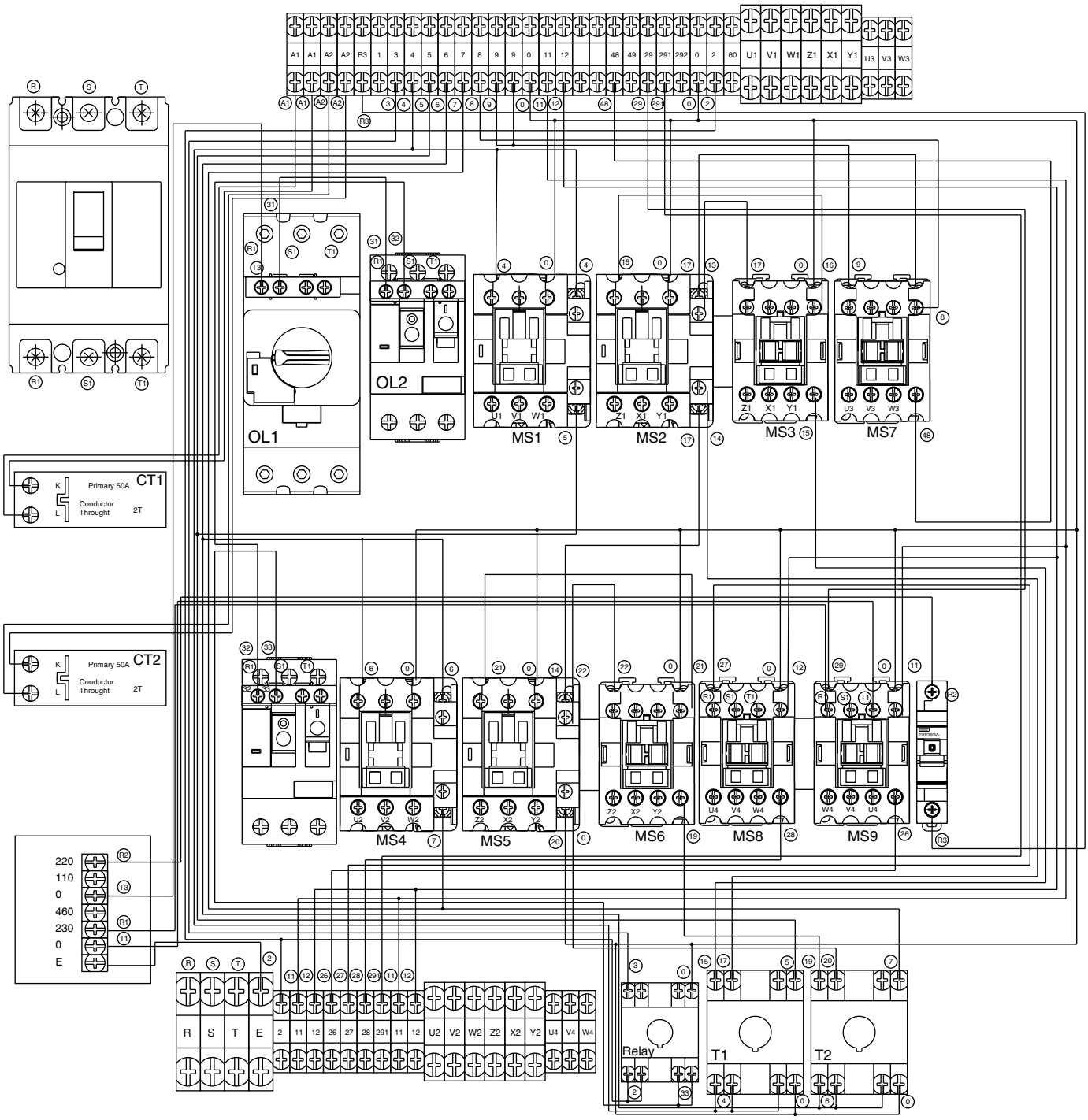
NOTICE

The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

COLOR KEY

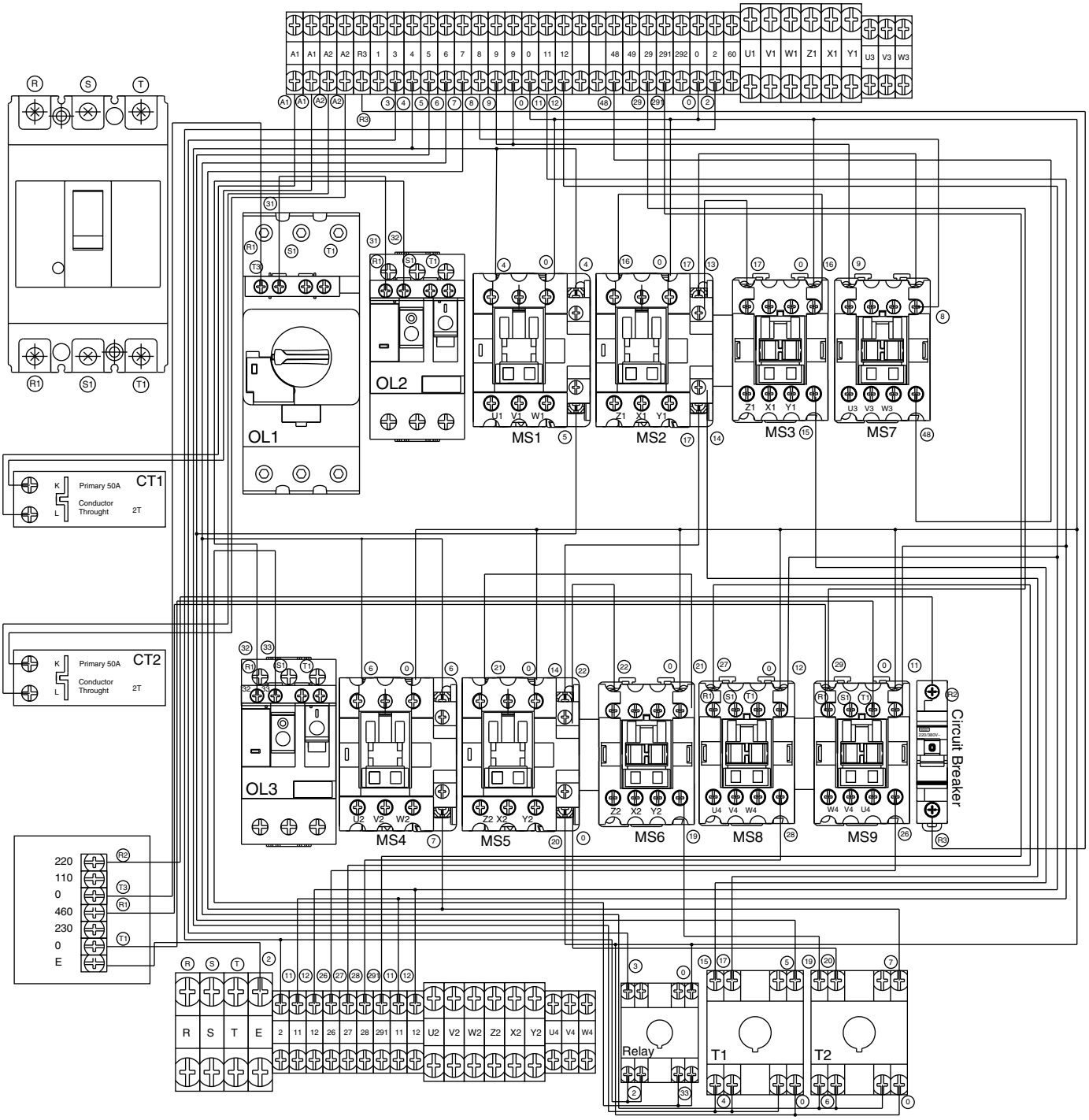
BLACK	Bk	BLUE	Bl	YELLOW	Yl	LIGHT BLUE	Lb
WHITE	Wt	BROWN	Br	YELLOW GREEN	Yg	BLUE WHITE	Bw
GREEN	Gn	GRAY	Gy	PURPLE	Pu	TURQUOISE	Tu
RED	Rd	ORANGE	Or	PINK	Pk		

Electrical Cabinet Schematic (230V)



STOP READ ELECTRICAL SAFETY ON PAGE 80!

Electrical Cabinet Schematic (460V)



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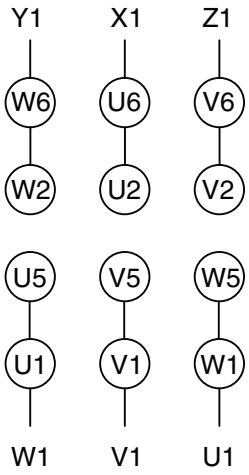
Motor Junction Box Schematic

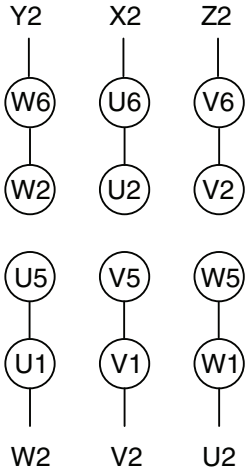
Upper Cutterhead Motor

230V



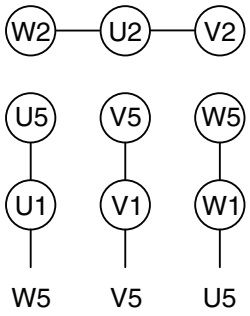
Lower Cutterhead Motor

230V



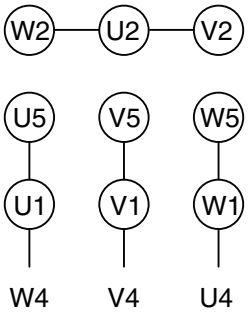
Feed System Motor

230V



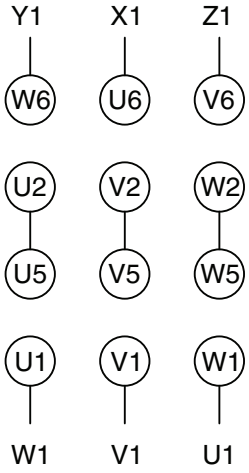
Elevation Motor

230V



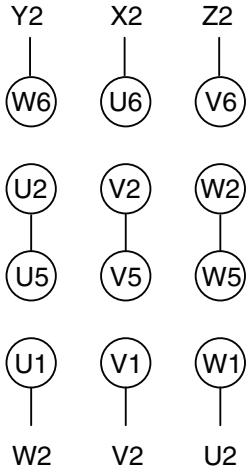
Upper Cutterhead Motor

460V



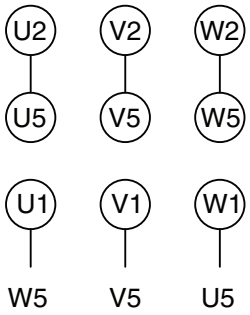
Lower Cutterhead Motor

460V



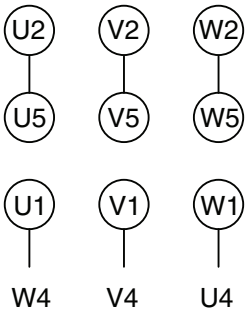
Feed System Motor

460V

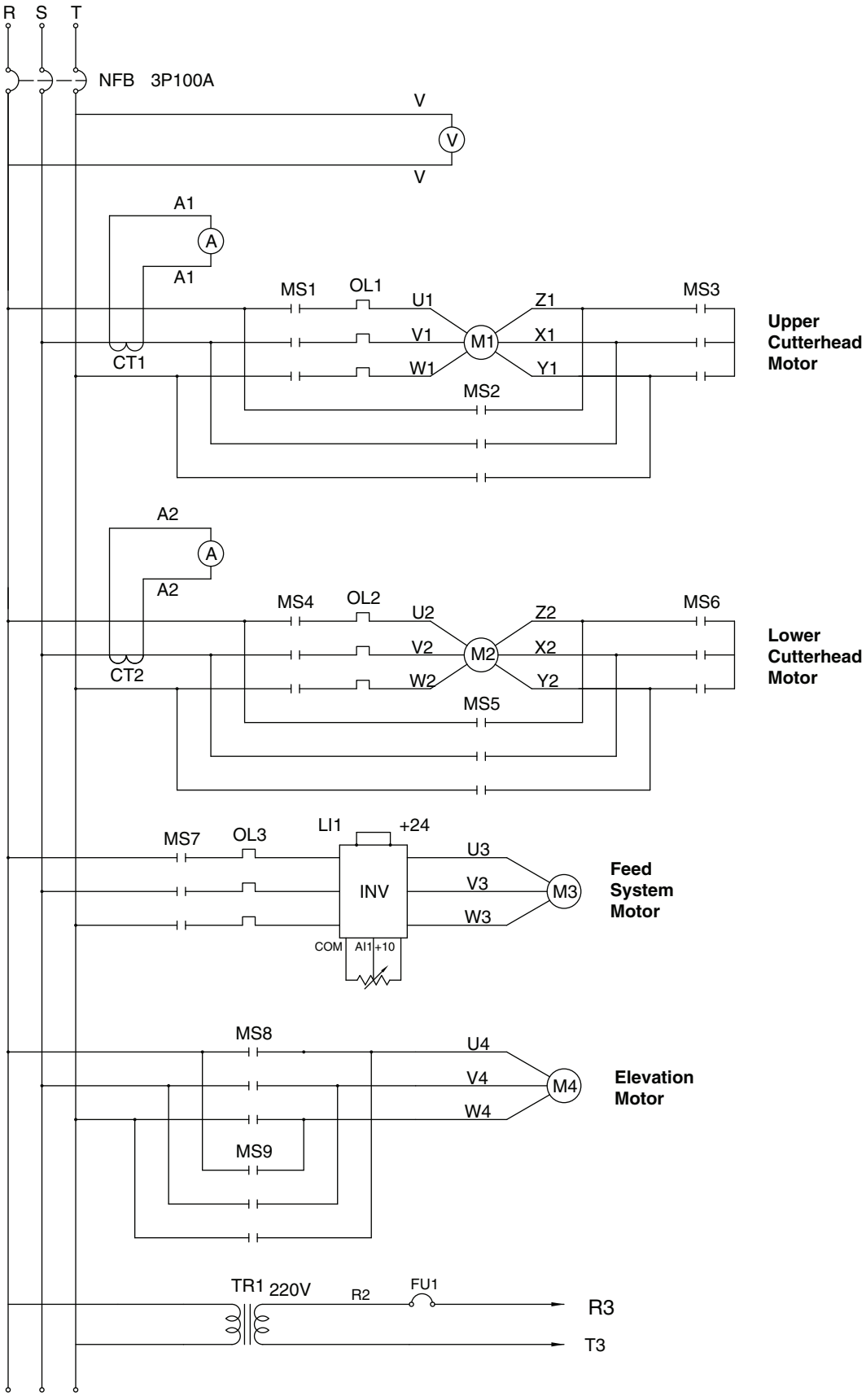


Elevation Motor

460V

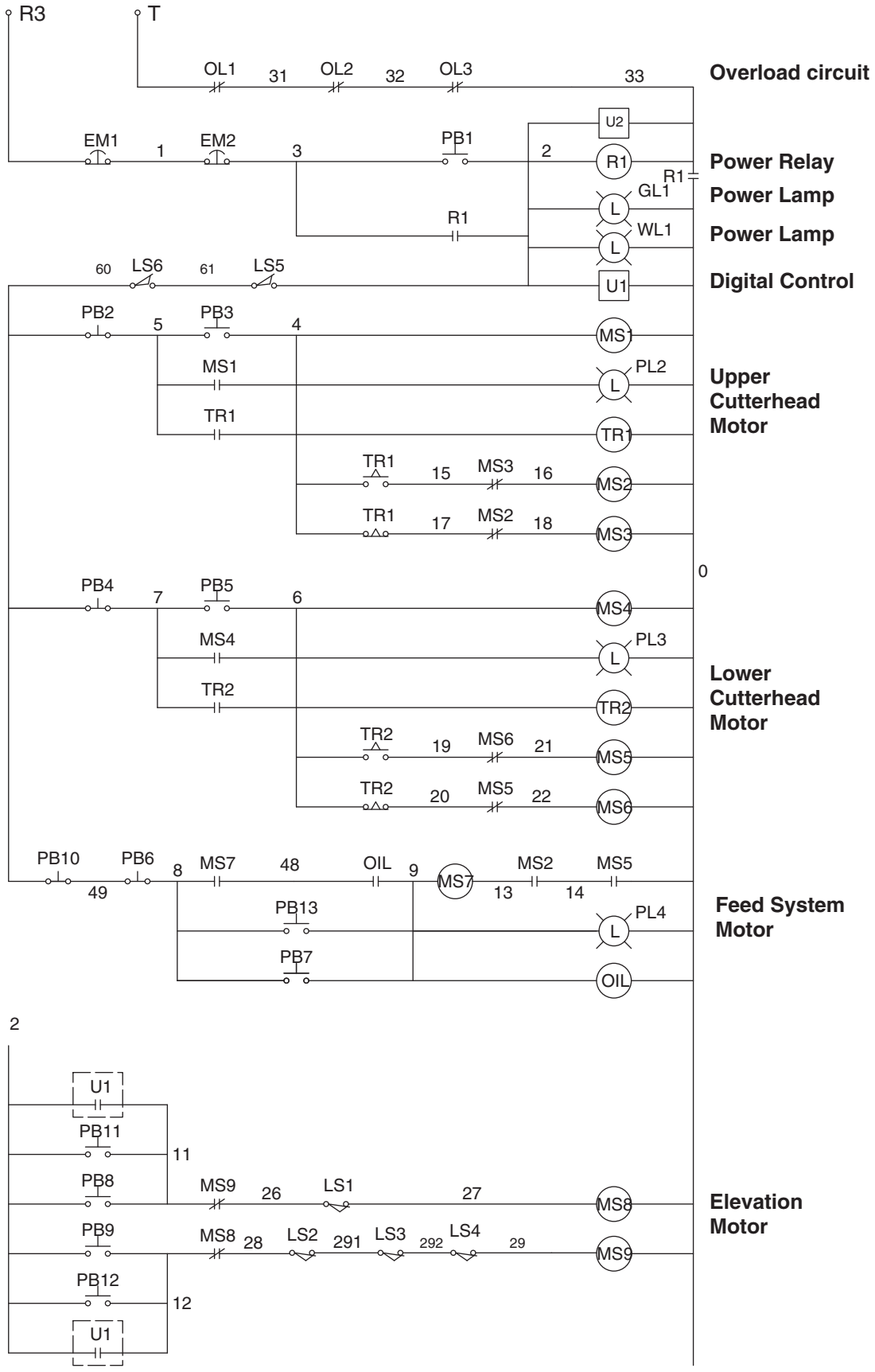


Motor Power System Schematic

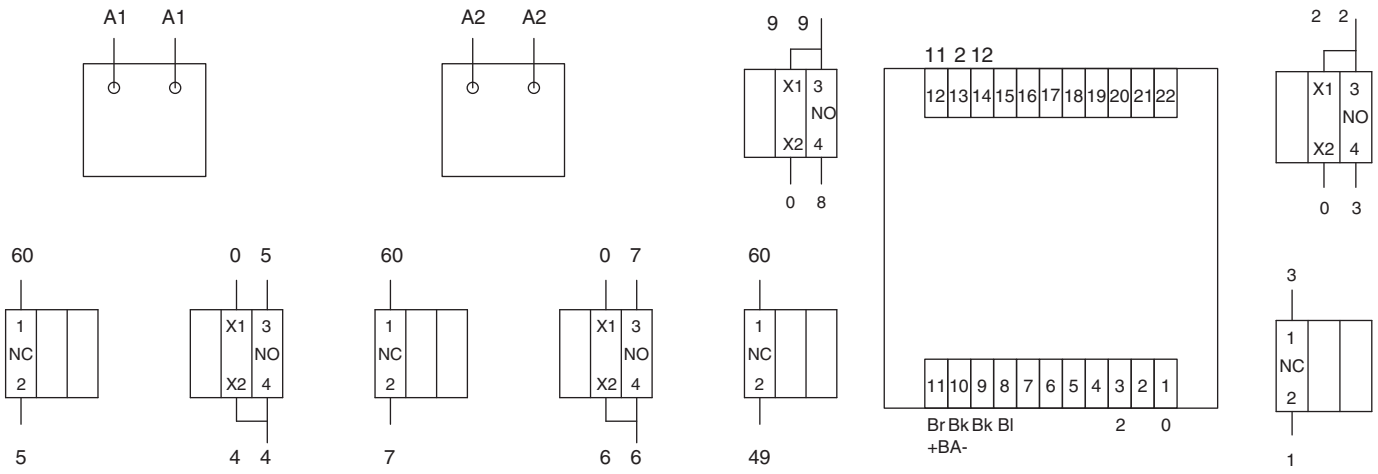


READ ELECTRICAL SAFETY ON PAGE 80!

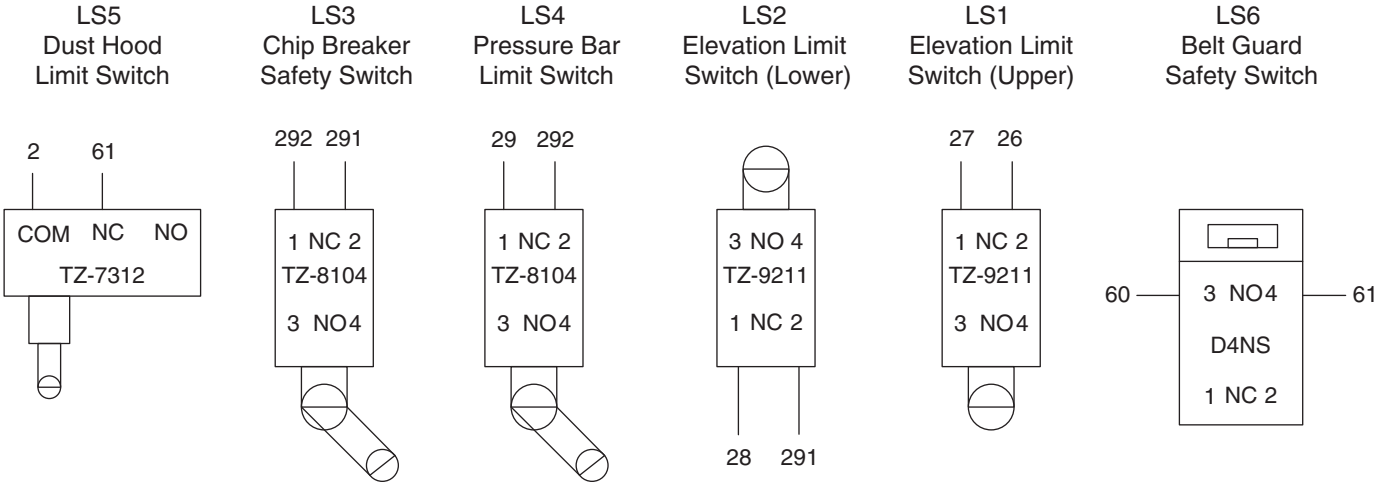
Power System Schematic



Control Panel Schematic



Safety/Limit Switch Schematic



STOP *READ ELECTRICAL SAFETY ON PAGE 80!*

Electrical Components

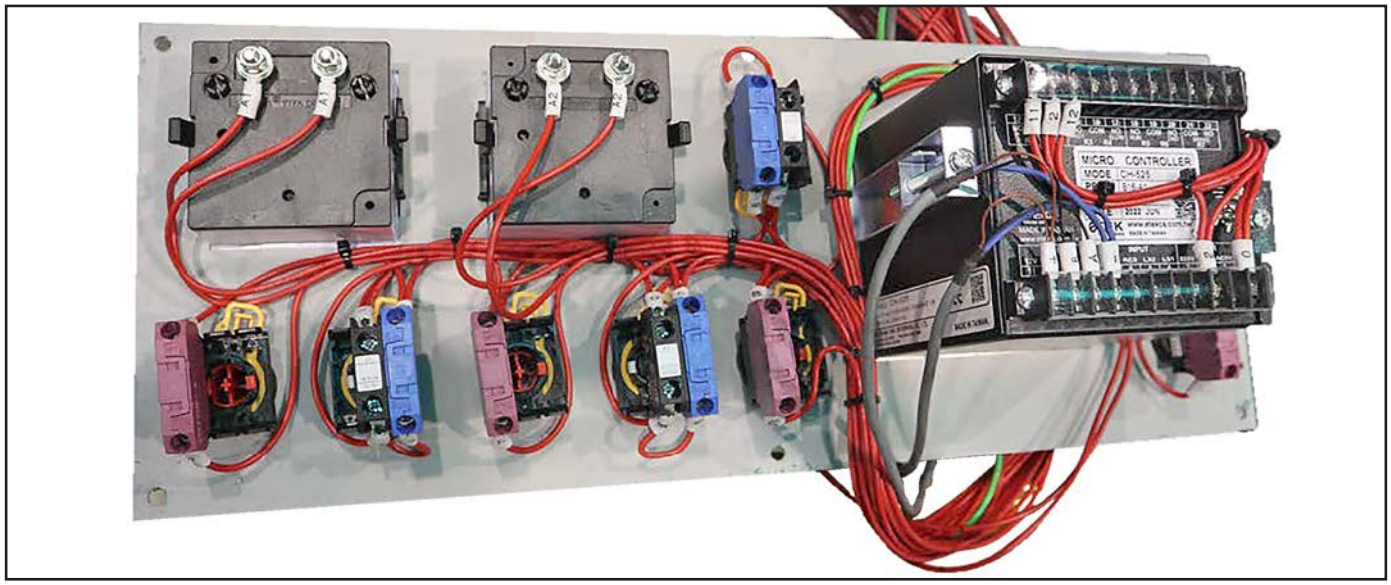


Figure 129. Control panel.

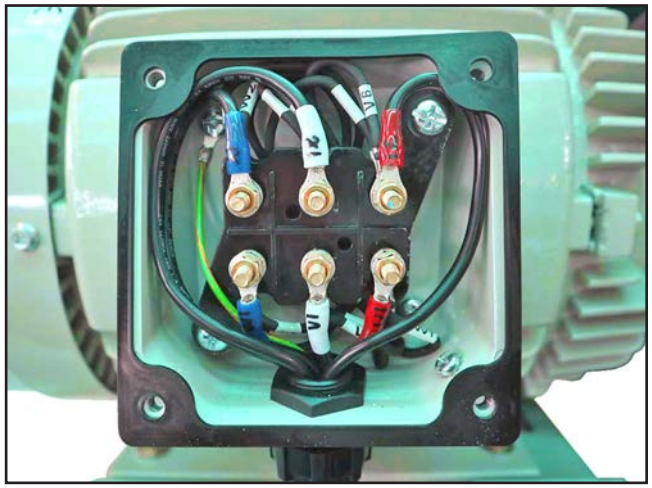


Figure 130. Upper cutterhead motor.

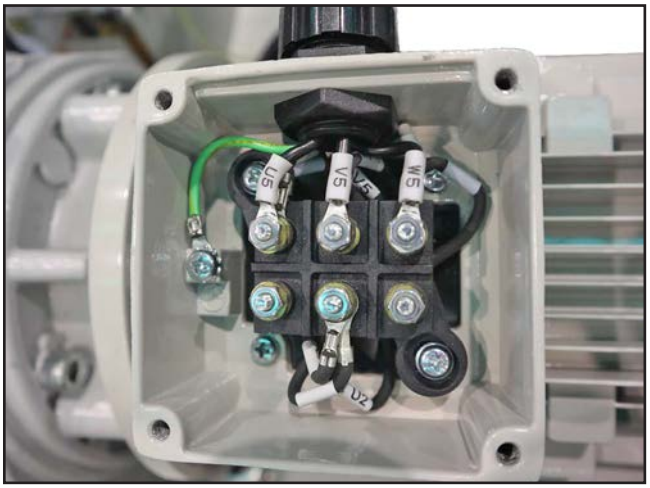


Figure 132. Conveyor motor.

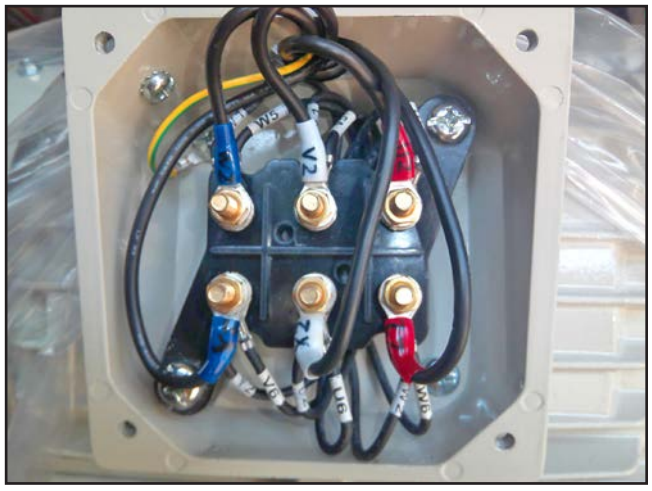


Figure 131. Lower cutterhead motor.

Figure 133. Elevation motor.

Figure 134. Upper elevation limit switch (LS1).

Figure 135. Lower elevation limit switch (LS2).

Figure 136. Chip breaker safety switch (LS3).

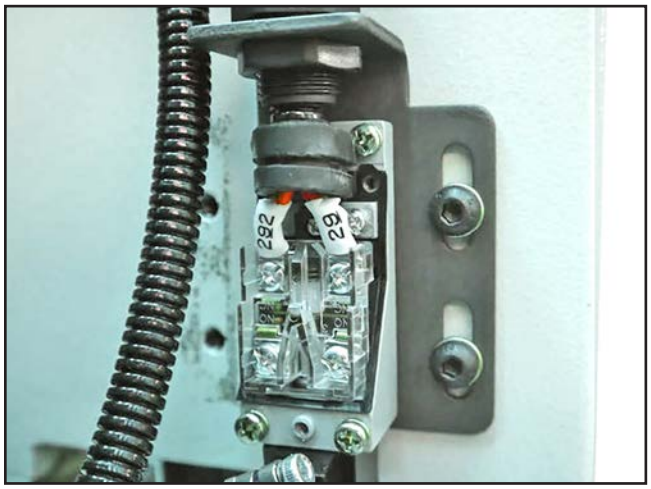


Figure 137. Pressure bar safety switch (LS4).

Figure 138. Dust hood safety switch (LS5).

Figure 139. Belt guard safety switch (LS6).

STOP *READ ELECTRICAL SAFETY ON PAGE 80!*

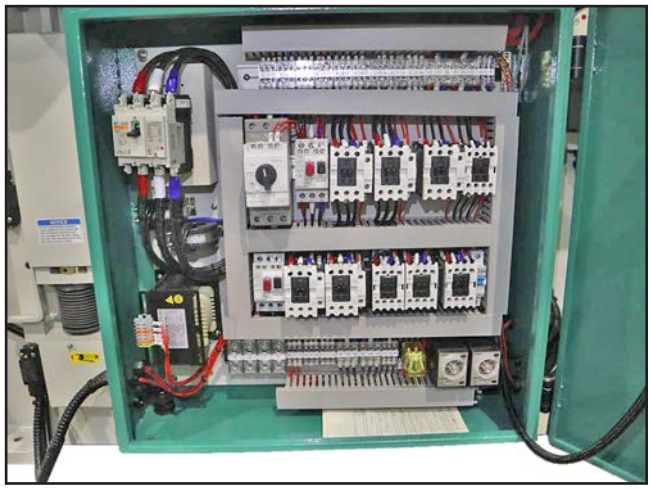


Figure 140. Electrical box.

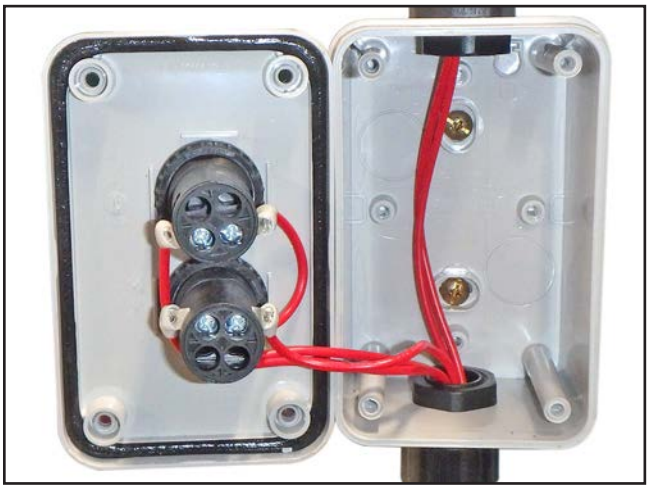


Figure 143. Headstock elevation buttons.

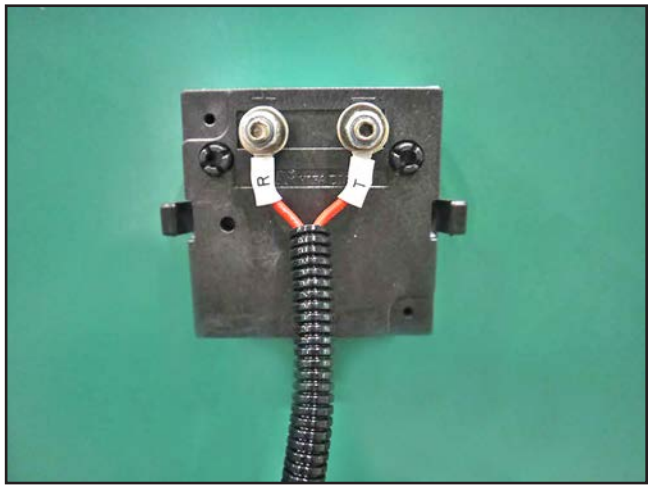


Figure 141. Electrical box volt meter.

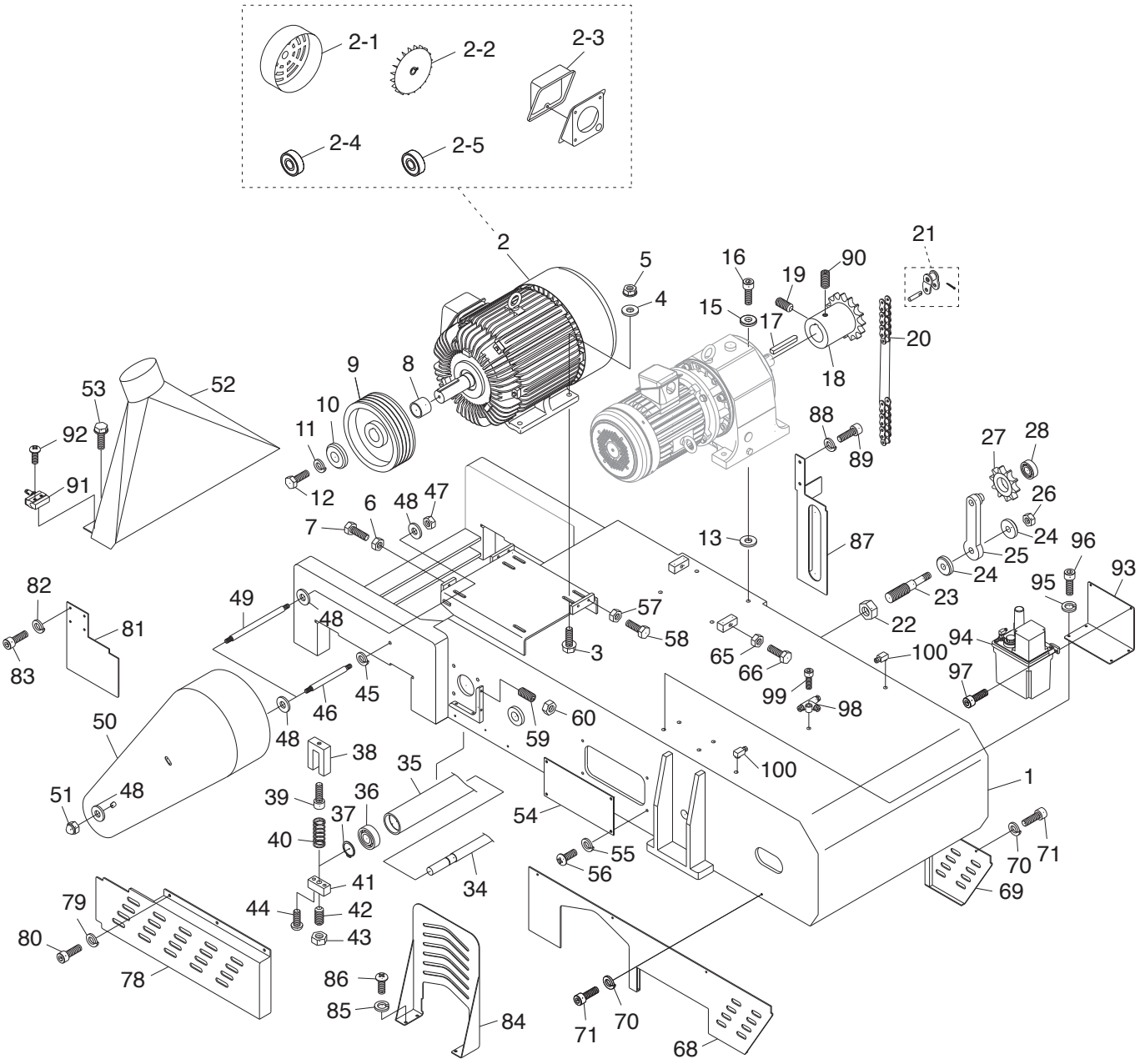
Figure 144. Power lamp.

Figure 142. Conveyor start/stop/E-stop buttons.

SECTION 9: PARTS

We do our best to stock replacement parts when possible, but we cannot guarantee that all parts shown are available for purchase. Call **(800) 523-4777** or visit **www.grizzly.com/parts** to check for availability.

Upper Frame

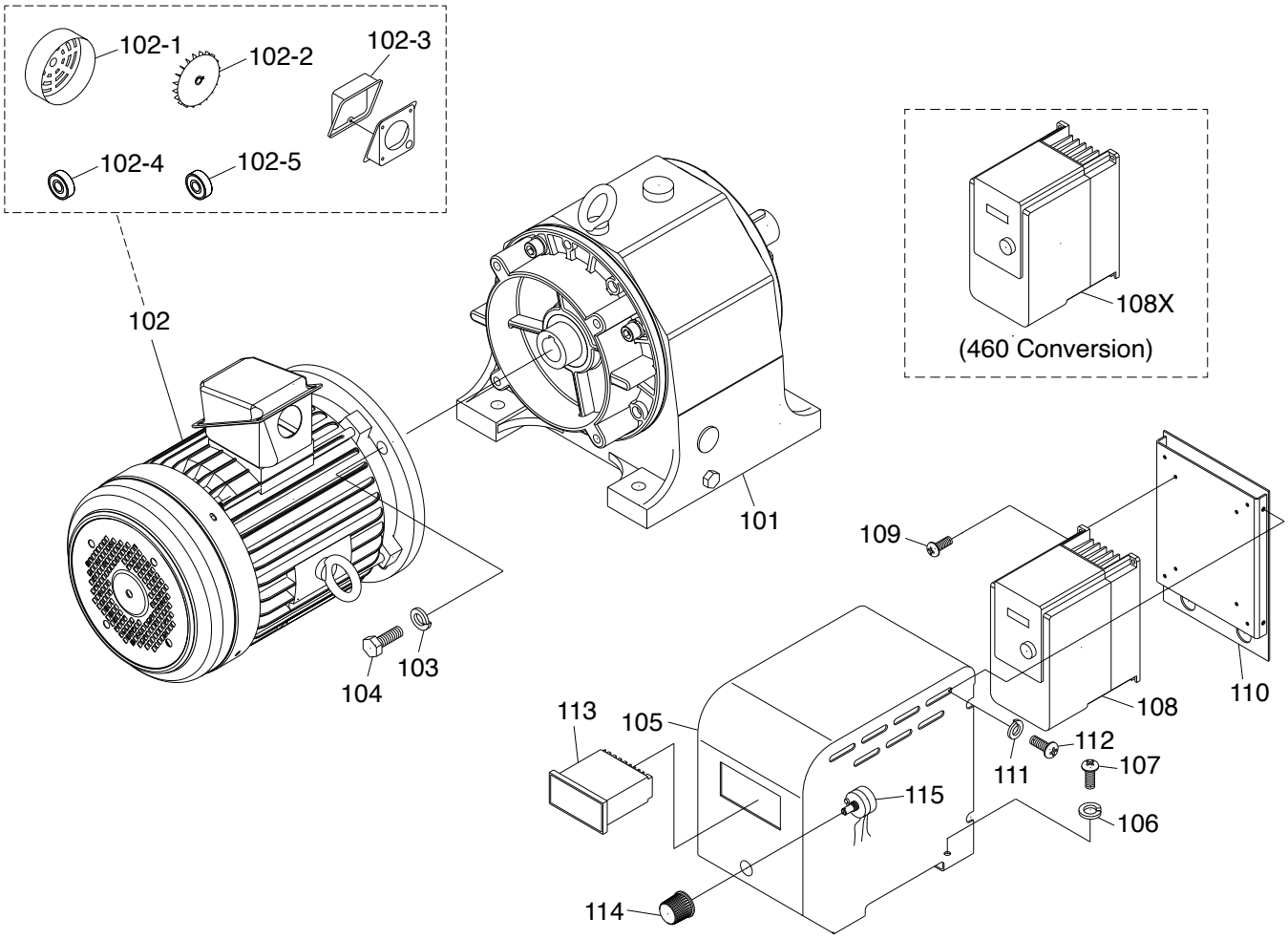


Upper Frame Parts List

REF	PART #	DESCRIPTION
1	P09680001	UPPER FRAME
2	P09680002	MOTOR 15HP 220V 3PH
2-1	P09680002-1	MOTOR FAN COVER
2-2	P09680002-2	MOTOR FAN
2-3	P09680002-3	JUNCTION BOX
2-4	P09680002-4	BALL BEARING 6307ZZ (REAR)
2-5	P09680002-5	BALL BEARING 6309ZZ (FRONT)
3	P09680003	HEX BOLT M10-1.5 X 35
4	P09680004	FLAT WASHER 10MM
5	P09680005	FLANGE NUT M10-1.5
6	P09680006	HEX NUT M10-1.5
7	P09680007	HEX BOLT M10-1.5 X 50
8	P09680008	BUSHING 42ID X 55OD X 40L
9	P09680009	MOTOR PULLEY
10	P09680010	SPACER 15ID X 50OD X 8L
11	P09680011	LOCK WASHER 16MM
12	P09680012	HEX BOLT M16-2 X 35
13	P09680013	FLAT WASHER 12MM
15	P09680015	FLAT WASHER 12MM
16	P09680016	CAP SCREW M12-1.75 X 45
17	P09680017	KEY 8 X 10 X 45
18	P09680018	SPROCKET 15T
19	P09680019	SET SCREW M8-1.25 X 16
20	P09680020	CHAIN R60 X 81L
21	P09680021	CHAIN LINK
22	P09680022	HEX NUT M20-2.5
23	P09680023	STUD-UDE M20-2.5 X 46, M12-1.75 X 16, 107
24	P09680024	SPACER 12ID X 38OD X 8L
25	P09680025	BRACKET
26	P09680026	HEX NUT M12-1.75
27	P09680027	SPROCKET 10T
28	P09680028	BALL BEARING 6002-2RS
34	P09680034	SHAFT
35	P09680035	OUTFEED ROLLER
36	P09680036	BALL BEARING 6002-2RS
37	P09680037	EXT RETAINING RING 17MM
38	P09680038	ADJUSTMENT BRACKET
39	P09680039	CAP SCREW M8-1.25 X 16
40	P09680040	COMPRESSION SPRING 1.4 X 16 X 48
41	P09680041	ADJUSTMENT BLOCK
42	P09680042	SET SCREW M10-1.5 X 30
43	P09680043	HEX NUT M10-1.5
44	P09680044	BUTTON HD CAP SCR M6-1 X 25
45	P09680045	LOCK WASHER 12MM

REF	PART #	DESCRIPTION
46	P09680046	STUD-DE M12-1.75 X 20, 195
47	P09680047	HEX NUT M12-1.75
48	P09680048	FLAT WASHER 12MM
49	P09680049	STUD-DE M12-1.75 X 20, 250
50	P09680050	V-BELT GUARD
51	P09680051	ACORN NUT M12-1.75
52	P09680052	DUST HOOD
53	P09680053	FLANGE BOLT M8-1.25 X 16
54	P09680054	ACCESS PLATE
55	P09680055	LOCK WASHER 6MM
56	P09680056	PHLP HD SCR M6-1 X 12
57	P09680057	HEX NUT M10-1.5
58	P09680058	HEX BOLT M10-1.5 X 70
59	P09680059	SET SCREW M6-1 X 20
60	P09680060	HEX NUT M6-1
65	P09680065	HEX NUT M10-1.5
66	P09680066	HEX BOLT M10-1.5 X 65
68	P09680068	SLIDE GUARD (L)
69	P09680069	SLIDE GUARD (R)
70	P09680070	LOCK WASHER 6MM
71	P09680071	CAP SCREW M6-1 X 16
78	P09680078	FRONT GUARD COVER
79	P09680079	LOCK WASHER 6MM
80	P09680080	CAP SCREW M6-1 X 16
81	P09680081	BACK GUARD COVER
82	P09680082	LOCK WASHER 6MM
83	P09680083	CAP SCREW M6-1 X 16
84	P09680084	GUARD
85	P09680085	LOCK WASHER 6MM
86	P09680086	PHLP HD SCR M6-1 X 12
87	P09680087	CHAIN GUARD
88	P09680088	LOCK WASHER 6MM
89	P09680089	CAP SCREW M6-1 X 16
90	P09680090	SET SCREW M8-1.25 X 10
91	P09680091	LIMIT SWITCH TZ-7312
92	P09680092	PHLP HD SCR M4-.7 X 30
93	P09680093	OIL INJECTOR BRACKET
94	P09680094	OIL INJECTOR
95	P09680095	LOCK WASHER 6MM
96	P09680096	CAP SCREW M6-1 X 20
97	P09680097	CAP SCREW M6-1 X 16
98	P09680098	T-CONNECTOR
99	P09680099	CAP SCREW M5-.8 X 16
100	P09680100	PROPORTION CONNECTOR

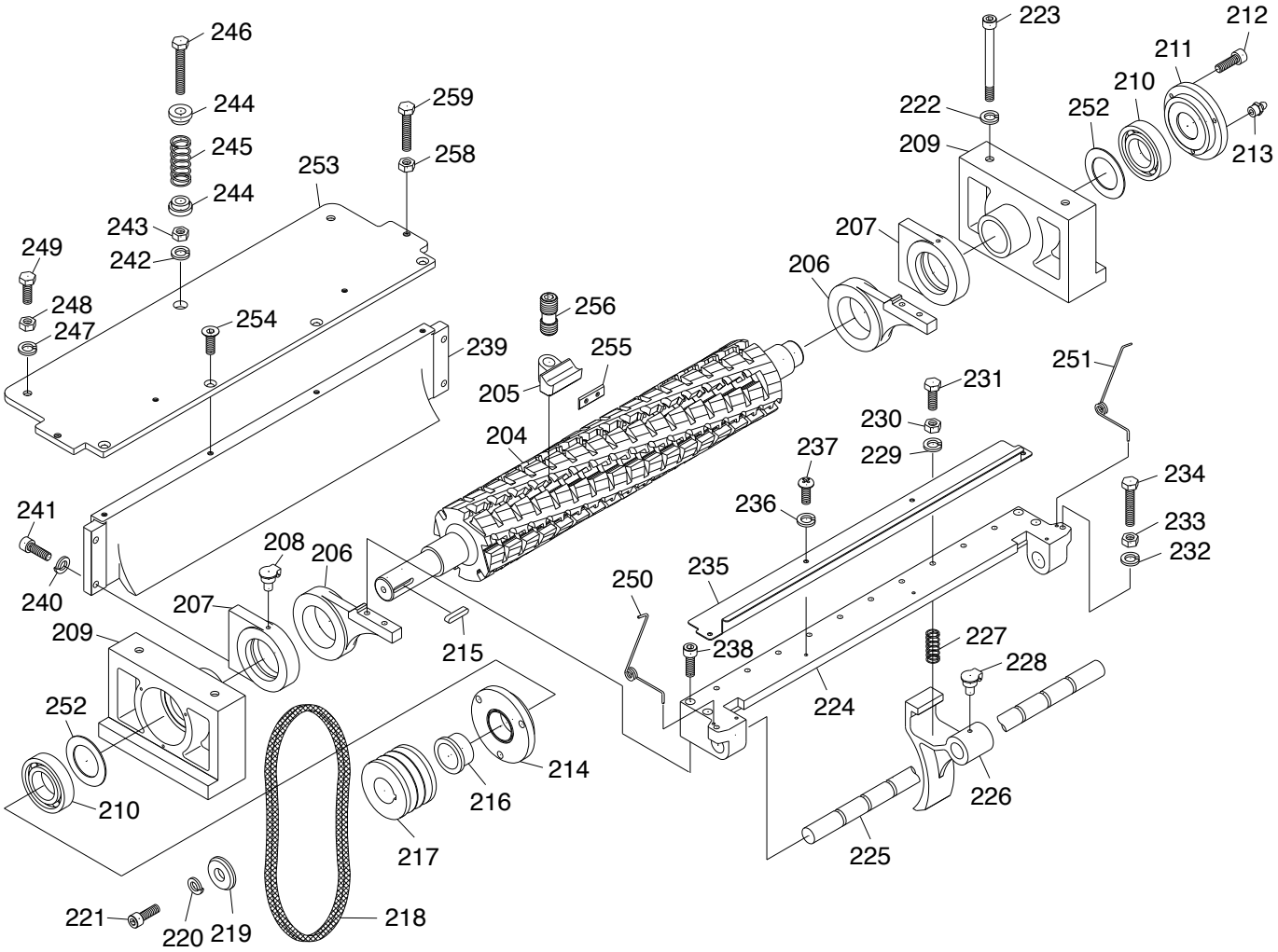
Variable Speed Infeed Unit



REF	PART #	DESCRIPTION
101	P09680101	GEAR REDUCER LIMING HB-207
102	P09680102	MOTOR 2HP 220V 3PH
102-1	P09680102-1	MOTOR FAN COVER
102-2	P09680102-2	MOTOR FAN
102-3	P09680102-3	JUNCTION BOX
102-4	P09680102-4	BALL BEARING 6304ZZ (REAR)
102-5	P09680102-5	BALL BEARING 6305ZZ (FRONT)
103	P09680103	LOCK WASHER 12MM
104	P09680104	HEX BOLT M12-1.75 X 40
105	P09680105	INVERTER HOUSING
106	P09680106	LOCK WASHER 6MM

REF	PART #	DESCRIPTION
107	P09680107	PHLP HD SCR M6-1 X 12
108	P09680108	INVERTER HITACHI NES1-022LB
108X	P09680108X	INVERTER HITACHI NES1-015HB
109	P09680109	PHLP HD SCR M4-.7 X 12
110	P09680110	INVERTER MOUNTING PLATE
111	P09680111	LOCK WASHER 5MM
112	P09680112	PHLP HD SCR M5-.8 X 8
113	P09680113	RPM DISPLAY
114	P09680114	POTENTIOMETER KNOB
115	P09680115	POTENTIOMETER RV24. YN20S

Upper Cutterhead

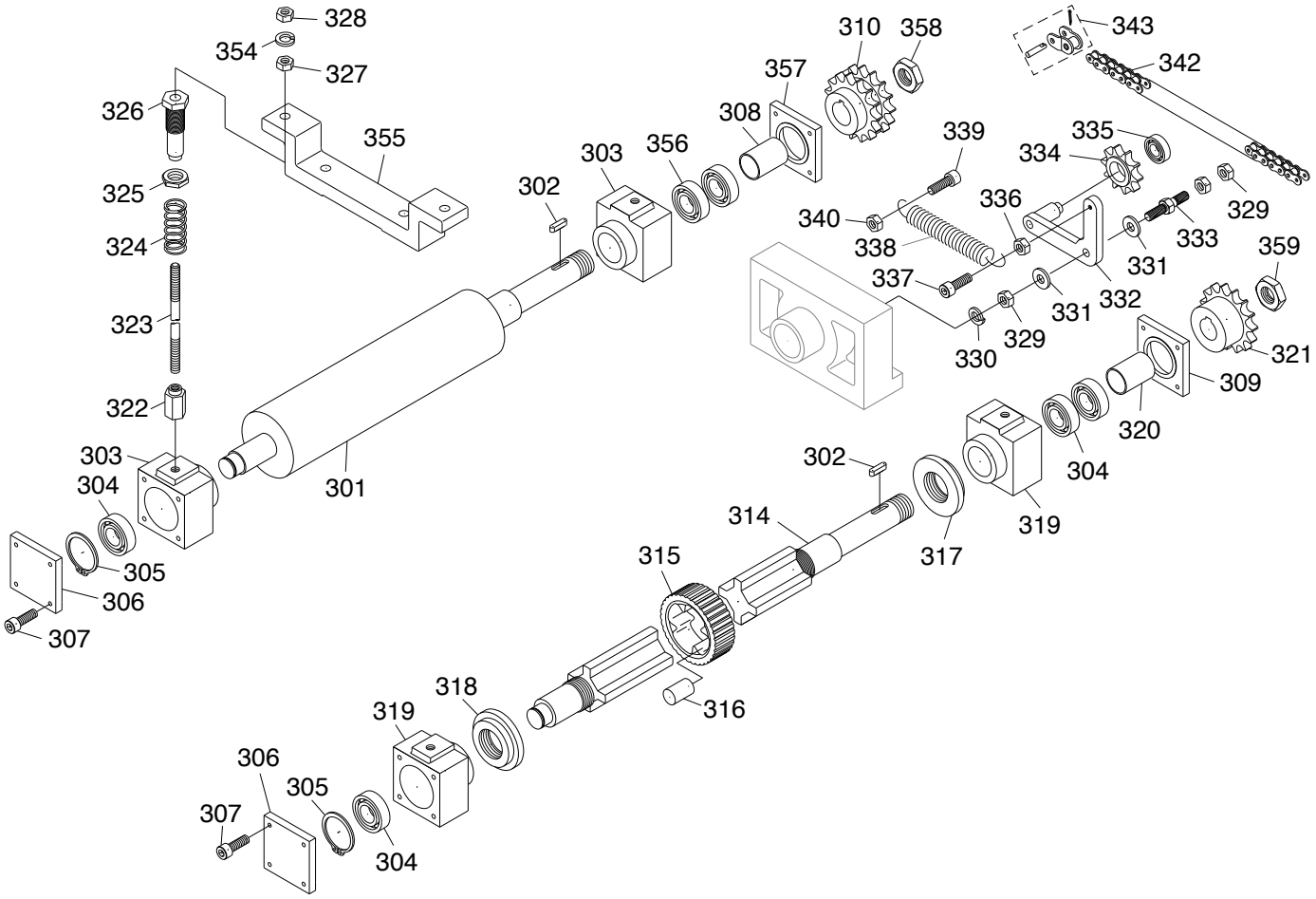


Upper Cutterhead Parts List

REF	PART #	DESCRIPTION
204	P09680204	SPIRAL CUTTERHEAD 16"
205	P09680205	INSERT CLAMP
206	P09680206	PRESSURE PLATE BRACKET
207	P09680207	OUTFEED PRESSURE PLATE
208	P09680208	OIL CUP M5-.8
209	P09680209	BEARING HOUSING
210	P09680210	BALL BEARING 6307Z
211	P09680211	BEARING CAP
212	P09680212	CAP SCREW M6-1 X 20
213	P09680213	GREASE FITTING M6-1 X 6, STRAIGHT
214	P09680214	BEARING COVER
215	P09680215	KEY 8 X 8 X 40
216	P09680216	FLANGED BUSHING
217	P09680217	CUTTERHEAD PULLEY
218	P09680218	V-BELT A71
219	P09680219	SPACER
220	P09680220	LOCK WASHER 10MM
221	P09680221	CAP SCREW M10-1.5 X 35
222	P09680222	LOCK WASHER 12MM
223	P09680223	SHLDER SCR M12-1.75 X 230, 11 X 190
224	P09680224	CHIP BREAKER BRACKET
225	P09680225	CHIP BREAKER SHAFT
226	P09680226	CHIP BREAKER
227	P09680227	COMPRESSION SPRING 2 X 22 X 60
228	P09680228	OIL CUP M5-.8
229	P09680229	LOCK WASHER 10MM
230	P09680230	HEX NUT M10-1.5
231	P09680231	HEX BOLT M10-1.5 X 65

REF	PART #	DESCRIPTION
232	P09680232	LOCK WASHER 10MM
233	P09680233	HEX NUT M10-1.5
234	P09680234	HEX BOLT M10-1.5 X 120
235	P09680235	CHIP BREAKER COVER
236	P09680236	LOCK WASHER 6MM
237	P09680237	PHLP HD SCR M6-1 X 12
238	P09680238	CAP SCREW M10-1.5 X 45
239	P09680239	PRESSURE BAR
240	P09680240	LOCK WASHER 8MM
241	P09680241	CAP SCREW M8-1.25 X 35
242	P09680242	LOCK WASHER 10MM
243	P09680243	HEX NUT M10-1.5
244	P09680244	BUSHING
245	P09680245	COMPRESSION SPRING 2 X 22 X 60
246	P09680246	HEX BOLT M10-1.5 X 120
247	P09680247	LOCK WASHER 12MM
248	P09680248	HEX NUT M12-1.75
249	P09680249	HEX BOLT M12-1.75 X 70
250	P09680250	TORSION SPRING (RIGHT)
251	P09680251	TORSION SPRING (LEFT)
252	P09680252	SEAL 35 X 65.5 X 1
253	P09680253	PRESSURE PLATE
254	P09680254	FLAT HD CAP SCR M6-1 X 20
255	P09680255	INSERT INDEXABLE CARBIDE 12 X 30 X 1.5
256	P09680256	CLAMP SCREW M10-1.5 X 10, 24 (LH/RH)
258	P09680258	HEX NUT M10-1.5
259	P09680259	HEX BOLT M10-1.5 X 50

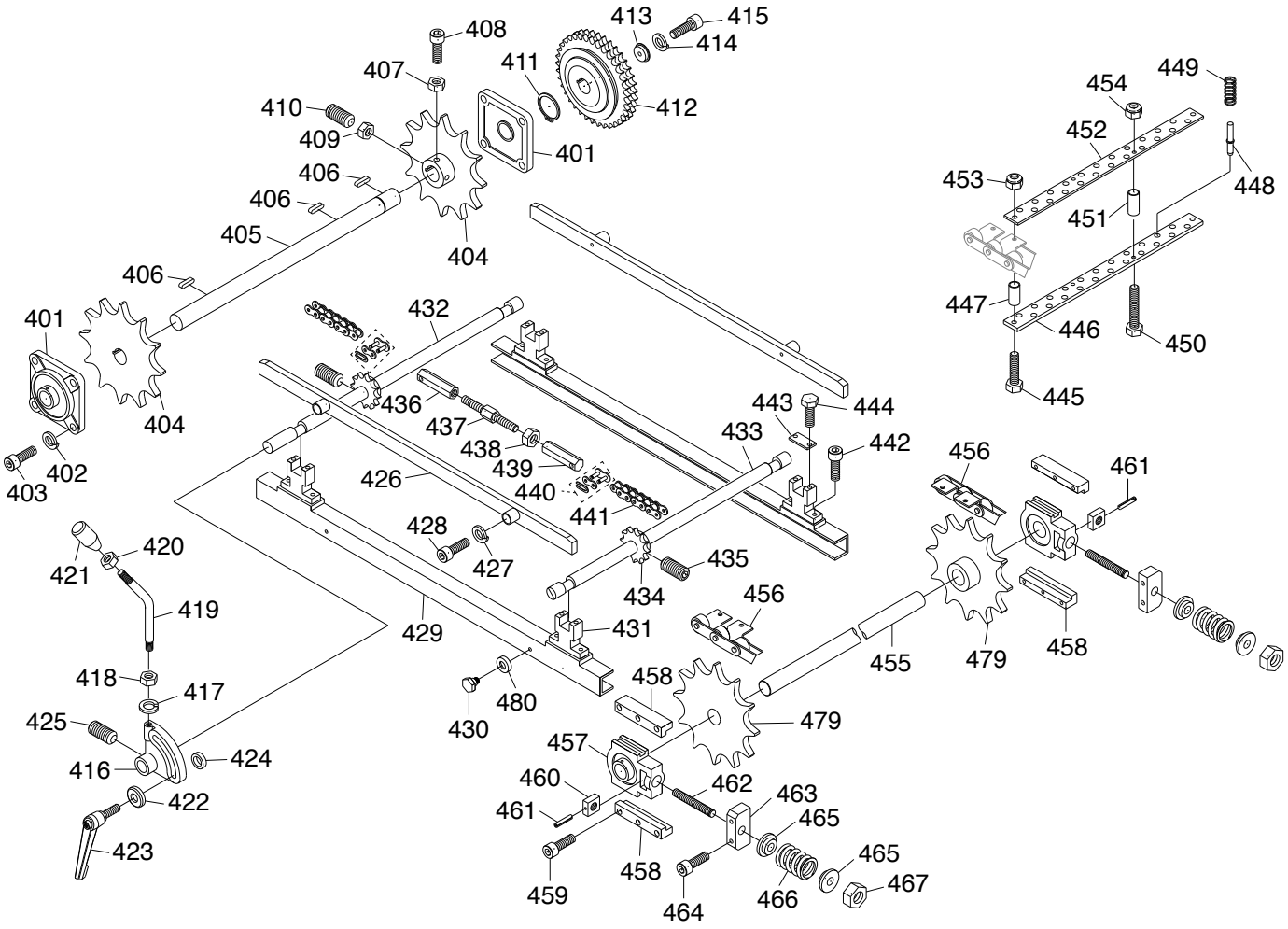
Pressure Roller



REF	PART #	DESCRIPTION
301	P09680301	OUTFEED ROLLER
302	P09680302	KEY 8 X 8 X 35
303	P09680303	BEARING HOUSING
304	P09680304	BALL BEARING 6206-2RS
305	P09680305	EXT RETAINING RING 30MM
306	P09680306	BEARING COVER
307	P09680307	CAP SCREW M6-1 X 16
308	P09680308	BUSHING 35ID X 49OD X 47L
309	P09680309	BEARING COVER
310	P09680310	SPROCKET 20T/20T
314	P09680314	SPLINED SHAFT
315	P09680315	GEAR 81/40T
316	P09680316	RUBBER ROD
317	P09680317	RETAINING NUT (RIGHT)
318	P09680318	RETAINING NUT (LEFT)
319	P09680319	BEARING HOUSING
320	P09680320	BUSHING 30IDX 40OD X 50L
321	P09680321	SPROCKET 20T
322	P09680322	ADJUSTMENT NUT M12-1.75
323	P09680323	STUD-DE M12-1.75 X 100, 330
324	P09680324	COMPRESSION SPRING 5 X 28 X 128
325	P09680325	HEX NUT 1-14
326	P09680326	PRESSURE ADJUSTMENT BOLT

REF	PART #	DESCRIPTION
327	P09680327	HEX NUT M12-1.75
328	P09680328	HEX NUT M12-1.75
329	P09680329	HEX NUT M12-1.75
330	P09680330	LOCK WASHER 12MM
331	P09680331	FLAT WASHER 12MM
332	P09680332	IDLER BRACKET
333	P09680333	STUD-DE W/EXT HEX NUT M12-1.75 X 81
334	P09680334	SPROCKET 12T
335	P09680335	BALL BEARING 6002-2RS
336	P09680336	HEX NUT M6-1
337	P09680337	CAP SCREW M6-1 X 25
338	P09680338	EXTENSION SPRING 2 X 18 X 115
339	P09680339	CAP SCREW M6-1 X 30
340	P09680340	HEX NUT M6-1
342	P09680342	ROLLER CHAIN R50 X 53L
343	P09680343	ROLLER CHAIN LINK
354	P09680354	LOCK WASHER 12MM
355	P09680355	BRACKET
356	P09680356	BALL BEARING 6007-2RS
357	P09680357	BEARING COVER
358	P09680358	LOCK NUT M35-1.5
359	P09680359	LOCK NUT M30-1.5

Conveyor

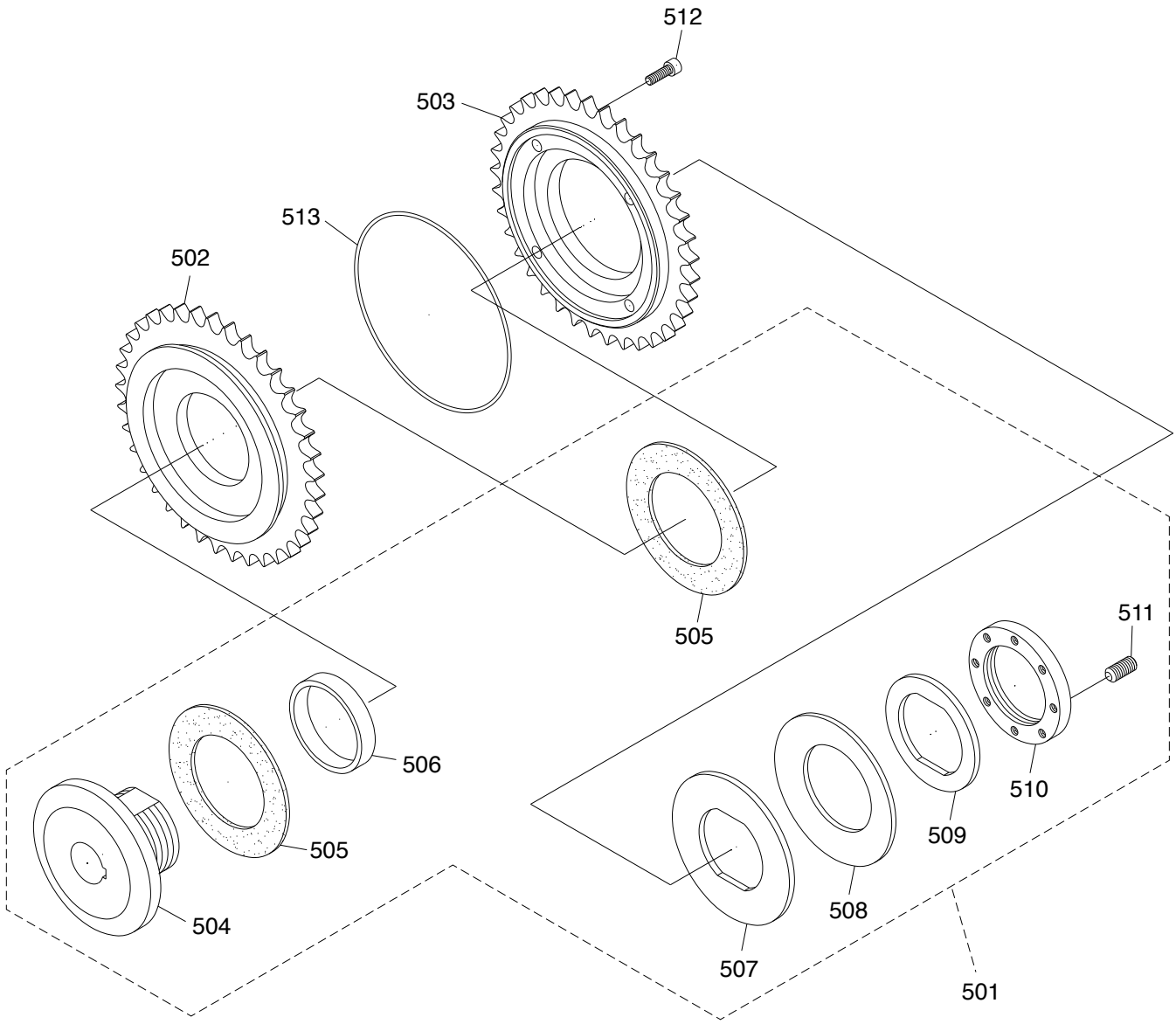


Conveyor Parts List

REF	PART #	DESCRIPTION
401	P09680401	FLANGE BEARING UCF207
402	P09680402	LOCK WASHER 12MM
403	P09680403	CAP SCREW M12-1.75 X 30
404	P09680404	SPROCKET 12T
405	P09680405	SPROCKET SHAFT
406	P09680406	KEY 10 X 10 X 40
407	P09680407	HEX NUT M10-1.5
408	P09680408	CAP SCREW M10-1.5 X 30
409	P09680409	HEX NUT M10-1.5
410	P09680410	SET SCREW M10-1.5 X 25
411	P09680411	EXT. RETAINING RING 35MM
412	P09680412	TORQUE LIMITER
413	P09680413	BUSHING 10ID X 50OD X 8L
414	P09680414	LOCK WASHER 10MM
415	P09680415	CAP SCREW M10-1.5 X 35
416	P09680416	ADJUSTMENT BRACKET
417	P09680417	LOCK WASHER 12MM
418	P09680418	HEX NUT M12-1.75
419	P09680419	ADJUSTMENT LEVER M12-1.75
420	P09680420	HEX NUT M12-1.75
421	P09680421	KNOB M12-1.75, D34, TAPER
422	P09680422	SPACER 12ID X 38OD X 8L
423	P09680423	ADJUSTABLE HANDLE M12-1.75 X 70
424	P09680424	SPACER 38 X 12 X 10
425	P09680425	SET SCREW M8-1.25 X 16
426	P09680426	FEED TRACK UPPER BRACKET
427	P09680427	LOCK WASHER 10MM
428	P09680428	CAP SCREW M10-1.5 X 55
429	P09680429	FEED TRACK GUIDE CHUTE
430	P09680430	SHOULDER SCREW M12-1.5 X 6, 23 X 8
431	P09680431	BRACKET
432	P09680432	CAMSHAFT
433	P09680433	CAMSHAFT
434	P09680434	SPROCKET 15T
435	P09680435	SET SCREW M8-1.25 X 16

REF	PART #	DESCRIPTION
436	P09680436	TENSION ADJUSTMENT NUT M8-1.25
437	P09680437	TENSION ADJ SCREW M8-1.25 X 30, 75L
438	P09680438	HEX NUT M8-1.25
439	P09680439	TENSION ADJUSTMENT NUT M8-1.25
440	P09680440	CHAIN LINK
441	P09680441	CHAIN R50 X 76L
442	P09680442	CAP SCREW M8-1.25 X 30
443	P09680443	FEED TRACK BRACKET PLATE
444	P09680444	HEX BOLT M8-1.25 X 20
445	P09680445	HEX BOLT M10-1.5 X 65
446	P09680446	FEED ROLLER FINGER HOLDER
447	P09680447	SPACER
448	P09680448	FEED ROLLER FINGER
449	P09680449	COMPRESSION SPRING 1.4 X 16 X 48
450	P09680450	HEX BOLT M8-1.25 X 65
451	P09680451	SPACER
452	P09680452	FEED ROLLER FINGER HOLDER
453	P09680453	LOCK NUT M10-1.5
454	P09680454	LOCK NUT M8-1.25
455	P09680455	SPROCKET SHAFT
456	P09680456	FEED ROLLER CHAIN
457	P09680457	MOUNTED BALL BEARING
458	P09680458	MOUNTED BALL BEARING GUIDE
459	P09680459	CAP SCREW M8-1.25 X 35
460	P09680460	SQUARE NUT M20-2.5 W/4MM HOLE
461	P09680461	ROLL PIN 4 X 30
462	P09680462	STUD-FT M20-2.5 X 185
463	P09680463	BRACKET
464	P09680464	CAP SCREW M10-1.5 X 50
465	P09680465	RUBBER BUSHING
466	P09680466	COMPRESSION SPRING 7 X 47 X 80
467	P09680467	HEX NUT M20-2.5
479	P09680479	SPROCKET 12T
480	P09680480	SPACER

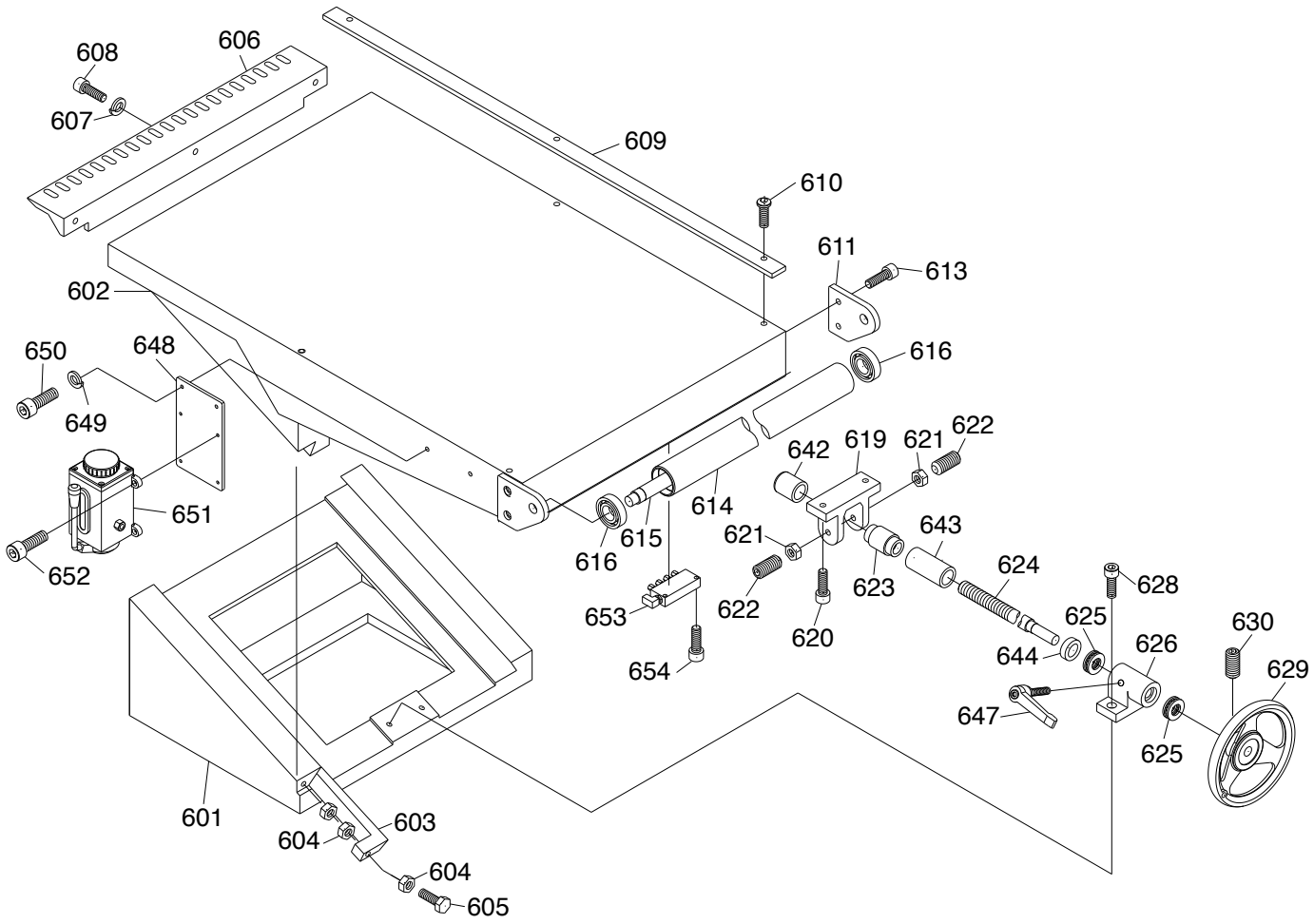
Torque Limiter



REF	PART #	DESCRIPTION
501	P09680501	TORQUE LIMITER
502	P09680502	SPROCKET 37T
503	P09680503	SPROCKET 37T
504	P09680504	FLANGE BUSHING
505	P09680505	LINING
506	P09680506	BUSHING
507	P09680507	FRICTION PLATE

REF	PART #	DESCRIPTION
508	P09680508	DISK SPRING
509	P09680509	PRESSURE ADJUSTMENT PLATE
510	P09680510	ADJUSTMENT NUT
511	P09680511	SET SCREW M8-1.25 X 16
512	P09680512	CAP SCREW M10-1.5 X 25
513	P09680513	O-RING 171 X 3.5

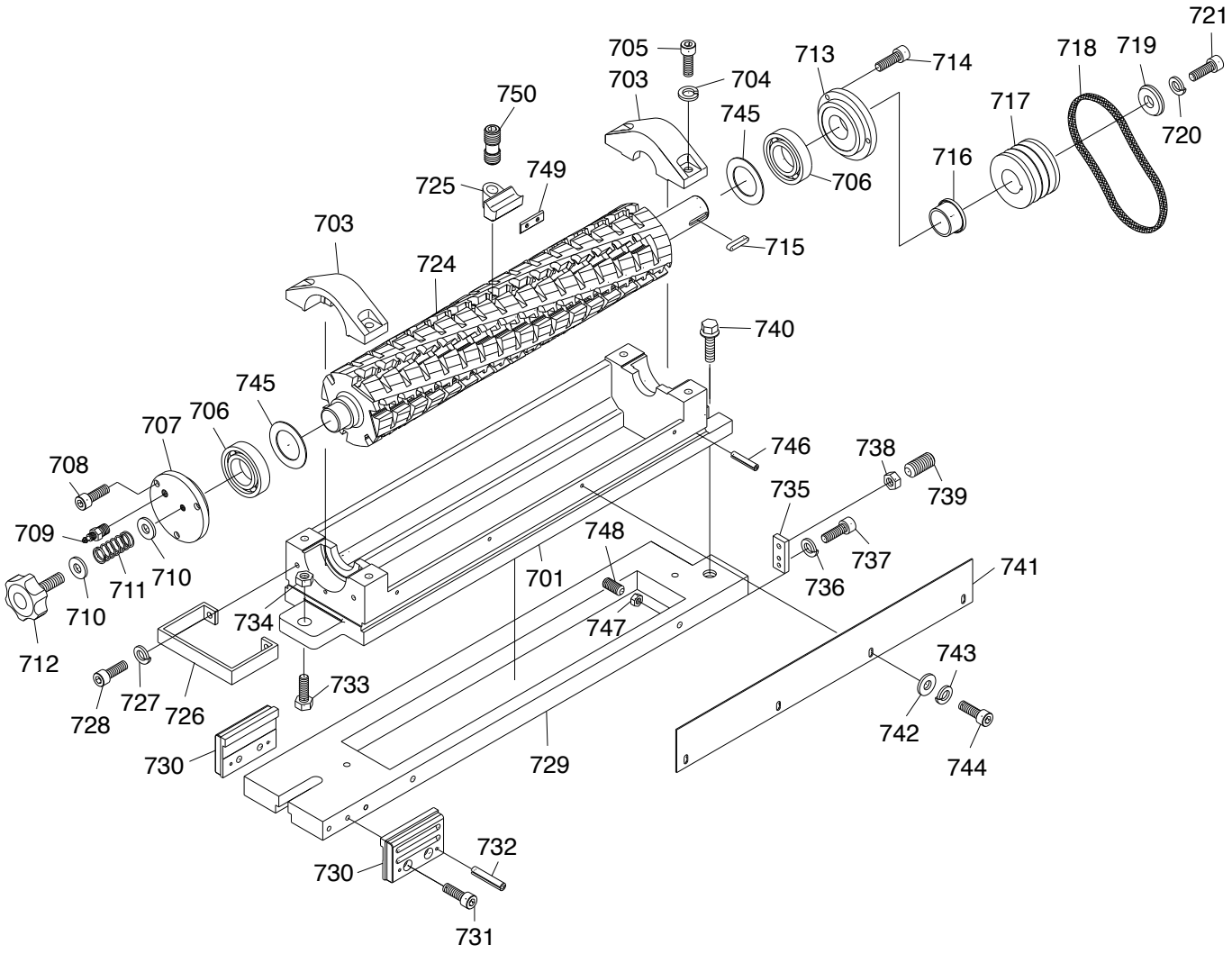
Infeed Table



REF	PART #	DESCRIPTION
601	P09680601	TABLE ELEVATION BASE
602	P09680602	INFEED TABLE
603	P09680603	TAPERED GIB
604	P09680604	HEX NUT M10-1.5
605	P09680605	HEX BOLT M10-1.5 X 90
606	P09680606	OUTLET PLATE
607	P09680607	LOCK WASHER 10MM
608	P09680608	CAP SCREW M10-1.5 X 30
609	P09680609	FENCE
610	P09680610	BUTTON HD CAP SCR M8-1.25 X 20
611	P09680611	ROLLER BRACKET
613	P09680613	CAP SCREW M12-1.75 X 35
614	P09680614	INFEED TABLE ROLLER
615	P09680615	INFEED TABLE ROLLER SHAFT
616	P09680616	BALL BEARING 6203-2RS
619	P09680619	ADJUSTMENT NUT BRACKET
620	P09680620	CAP SCREW M10-1.5 X 35
621	P09680621	HEX NUT M10-1.5
622	P09680622	SET SCREW M10-1.5 X 40

REF	PART #	DESCRIPTION
623	P09680623	ELEVATION ADJ NUT M25-4
624	P09680624	ELEVATION ADJ SCREW
625	P09680625	THRUST BEARING 2904
626	P09680626	BEARING HOUSING
628	P09680628	CAP SCREW M10-1.5 X 35
629	P09680629	HANDWHEEL TYPE-3 229D X 18B
630	P09680630	SET SCREW M10-1.5 X 25
642	P09680642	BUSHING 34ID X 42OD X 41L
643	P09680643	BUSHING 34ID X 42OD X 90L
644	P09680644	SPACER 20ID X 35OD X 10L
647	P09680647	ADJUSTABLE HANDLE M8-1.25 X 50
648	P09680648	OIL INJECTOR MOUNTING PLATE
649	P09680649	LOCK WASHER 6MM
650	P09680650	CAP SCREW M6-1 X 16
651	P09680651	MANUAL OIL INJECTOR
652	P09680652	CAP SCREW M6-1 X 16
653	P09680653	OIL DISTRIBUTOR
654	P09680654	CAP SCREW M5-.8 X 16

Lower Cutterhead

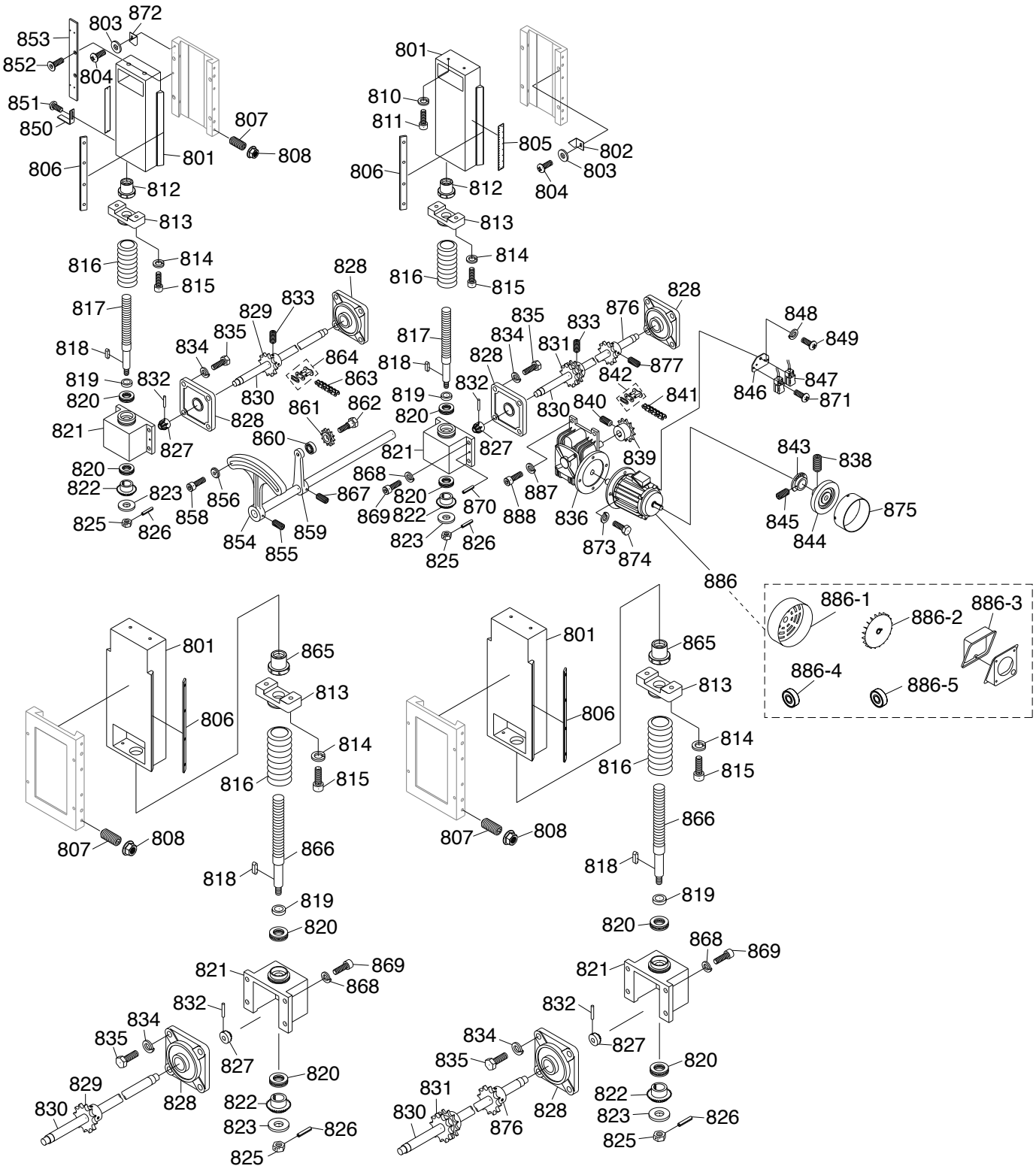


Lower Cutterhead Parts List

REF	PART #	DESCRIPTION
701	P09680701	CUTTERHEAD SADDLE
703	P09680703	BEARING UPPER HOUSING
704	P09680704	LOCK WASHER 12MM
705	P09680705	CAP SCREW M12-1.75 X 40
706	P09680706	BALL BEARING 6307Z
707	P09680707	BEARING CAP
708	P09680708	CAP SCREW M6-1 X 20
709	P09680709	GREASE FITTING M6-1 STRAIGHT
710	P09680710	FLAT WASHER 10MM
711	P09680711	COMPRESSION SPRING 0.8 X 15.6 X 48
712	P09680712	KNOB BOLT M10-1.5 X 65, 6-LOBE, D43
713	P09680713	BEARING CAP
714	P09680714	CAP SCREW M6-1 X 20
715	P09680715	KEY 8 X 8 X 40
716	P09680716	BUSHING 35ID X 40OD X 35L
717	P09680717	CUTTERHEAD PULLEY
718	P09680718	V-BELT A71
719	P09680719	BUSHING 10ID X 50OD X 8L
720	P09680720	LOCK WASHER 10MM
721	P09680721	CAP SCREW M10-1.5 X 35
724	P09680724	SPIRAL CUTTERHEAD 16"
725	P09680725	INSERT CLAMP
726	P09680726	HANDLE
727	P09680727	LOCK WASHER 8MM

REF	PART #	DESCRIPTION
728	P09680728	CAP SCREW M8-1.25 X 16
729	P09680729	SADDLE TRAY
730	P09680730	GUIDE
731	P09680731	CAP SCREW M10-1.5 X 30
732	P09680732	ROLL PIN 5 X 40
733	P09680733	HEX BOLT M20-2.5 X 60
734	P09680734	HEX NUT M20-2.5
735	P09680735	STOP PLATE
736	P09680736	LOCK WASHER 6MM
737	P09680737	CAP SCREW M6-1 X 20
738	P09680738	HEX NUT M10-1.5
739	P09680739	SET SCREW M10-1.5 X 25
740	P09680740	FLANGE BOLT M20-2.5 X 60
741	P09680741	PLATE
742	P09680742	FLAT WASHER 6MM
743	P09680743	LOCK WASHER 6MM
744	P09680744	CAP SCREW M6-1 X 16
745	P09680745	SHIM 35 X 65.5 X 1
746	P09680746	ROLL PIN 8 X 30
747	P09680747	HEX NUT M10-1.5
748	P09680748	SET SCREW M10-1.5 X 40
749	P09680749	INSERT INDEXABLE CARBIDE 12 X 30 X 1.5
750	P09680750	CLAMP SCREW M10-1.5, 24 (LH,RH)

Elevation System

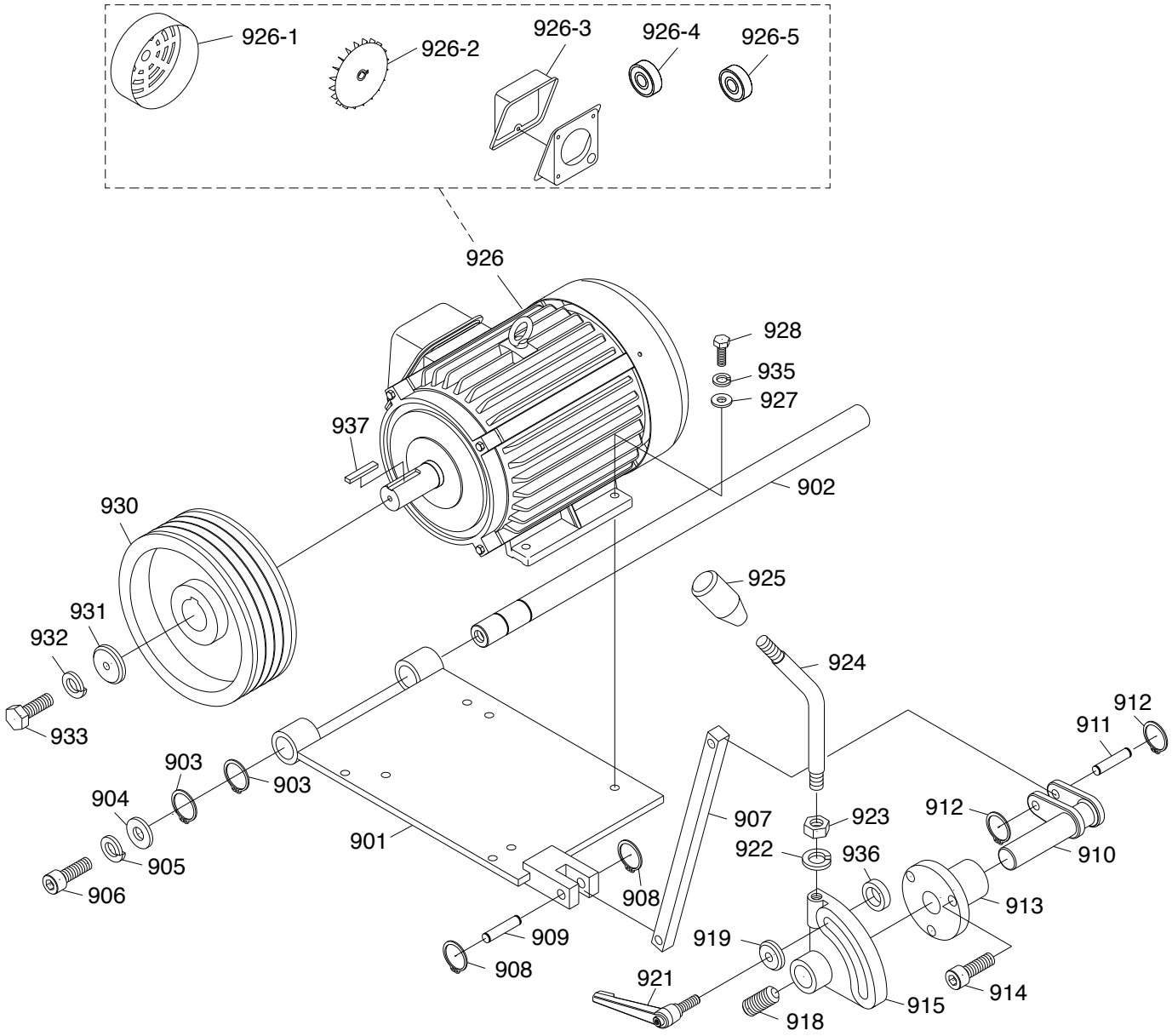


Elevation System Parts List

REF	PART #	DESCRIPTION
801	P09680801	ELEVATION BLOCK
802	P09680802	POINTER (R)
803	P09680803	FLAT WASHER 5MM
804	P09680804	PHLP HD SCR M5-.8 X 10
805	P09680805	GRADUATED SCALE
806	P09680806	GIB
807	P09680807	SET SCREW M8-1.25 X 55
808	P09680808	FLANGE NUT M8-1.25
810	P09680810	LOCK WASHER 12MM
811	P09680811	CAP SCREW M12-1.75 X 40
812	P09680812	ELEVATION NUT
813	P09680813	FIXING BLOCK
814	P09680814	LOCK WASHER 10MM
815	P09680815	CAP SCREW M10-1.5 X 50
816	P09680816	DUST GUARD BELLOW
817	P09680817	ELEVATION SCREW
818	P09680818	KEY 7 X 7 X 25
819	P09680819	SPACER 25ID X 38OD X 10L
820	P09680820	THRUST BEARING 2905
821	P09680821	ELEVATION BRACKET
822	P09680822	BEVEL GEAR 24T
823	P09680823	FLAT WASHER 20MM
825	P09680825	HEX NUT M20-2.5 W/4MM HOLE
826	P09680826	ROLL PIN 4 X 30
827	P09680827	BEVEL GEAR 14T
828	P09680828	FLANGE BEARING UCF206
829	P09680829	SPROCKET 12T
830	P09680830	CHAIN WHEEL SHAFT
831	P09680831	SPROCKET 12/12T
832	P09680832	ROLL PIN 5 X 45
833	P09680833	SET SCREW M8-1.25 X 10
834	P09680834	LOCK WASHER 10MM
835	P09680835	HEX BOLT M10-1.5 X 30
836	P09680836	GEAR REDUCER LIMING UMW60
838	P09680838	SET SCREW M6-1 X 6
839	P09680839	SPROCKET 12T
840	P09680840	SET SCREW M8-1.25 X 10
841	P09680841	ROLLER CHAIN
842	P09680842	CHAIN LINK
843	P09680843	SENSOR RING
844	P09680844	HANDWHEEL 14B

REF	PART #	DESCRIPTION
845	P09680845	SET SCREW M5-.8 X 6
846	P09680846	SENSOR BRACKET
847	P09680847	PROXIMITY SENSOR PL05NBS
848	P09680848	LOCK WASHER 5MM
849	P09680849	PHLP HD SCR M5-.8 X 170
850	P09680850	BRACKET
851	P09680851	BUTTON HD CAP SCR M6-1 X 12
852	P09680852	PLATE
853	P09680853	FLAT HD SCR M6-1 X 12
854	P09680854	TENSION ADJUSTMENT BRACKET
855	P09680855	SET SCREW M8-1.25 X 16
856	P09680856	SPACER 12 X 38 X 8
858	P09680858	CAP SCREW M12-1.75 X 50
859	P09680859	SUPPORT BRACKET
860	P09680860	BALL BEARING 6002-2RS
861	P09680861	SPROCKET 12T
862	P09680862	SHOULDER BOLT M12-1.75 X 27, 15 X 14
863	P09680863	ROLLER CHAIN
864	P09680864	CHAIN LINK
865	P09680865	ELEVATION NUT
866	P09680866	ELEVATION SCREW
867	P09680867	SET SCREW M8-1.25 X 10
868	P09680868	LOCK WASHER 12MM
869	P09680869	CAP SCREW M12-1.75 X 40
870	P09680870	ROLL PIN 8 X 40
871	P09680871	PHLP HD SCR M3-.5 X 20
872	P09680872	POINTER (L)
873	P09680873	LOCK WASHER 8MM
874	P09680874	HEX BOLT M8-1.25 X 25
875	P09680875	COVER
876	P09680876	SPROCKET 12T
877	P09680877	SET SCREW M8-1.25 X 10
886	P09680886	ELEVATION MOTOR 1/2HP 220V 3PH
886-1	P09680886-1	MOTOR FAN COVER
886-2	P09680886-2	MOTOR FAN
886-3	P09680886-3	MOTOR JUNCTION BOX
886-4	P09680886-4	BALL BEARING 6202ZZ (REAR)
886-5	P09680886-5	BALL BEARING 6203ZZ (FRONT)
887	P09680887	LOCK WASHER 8MM
888	P09680888	CAP SCREW M8-1.25 X 30

Lower Cutterhead Drive Unit

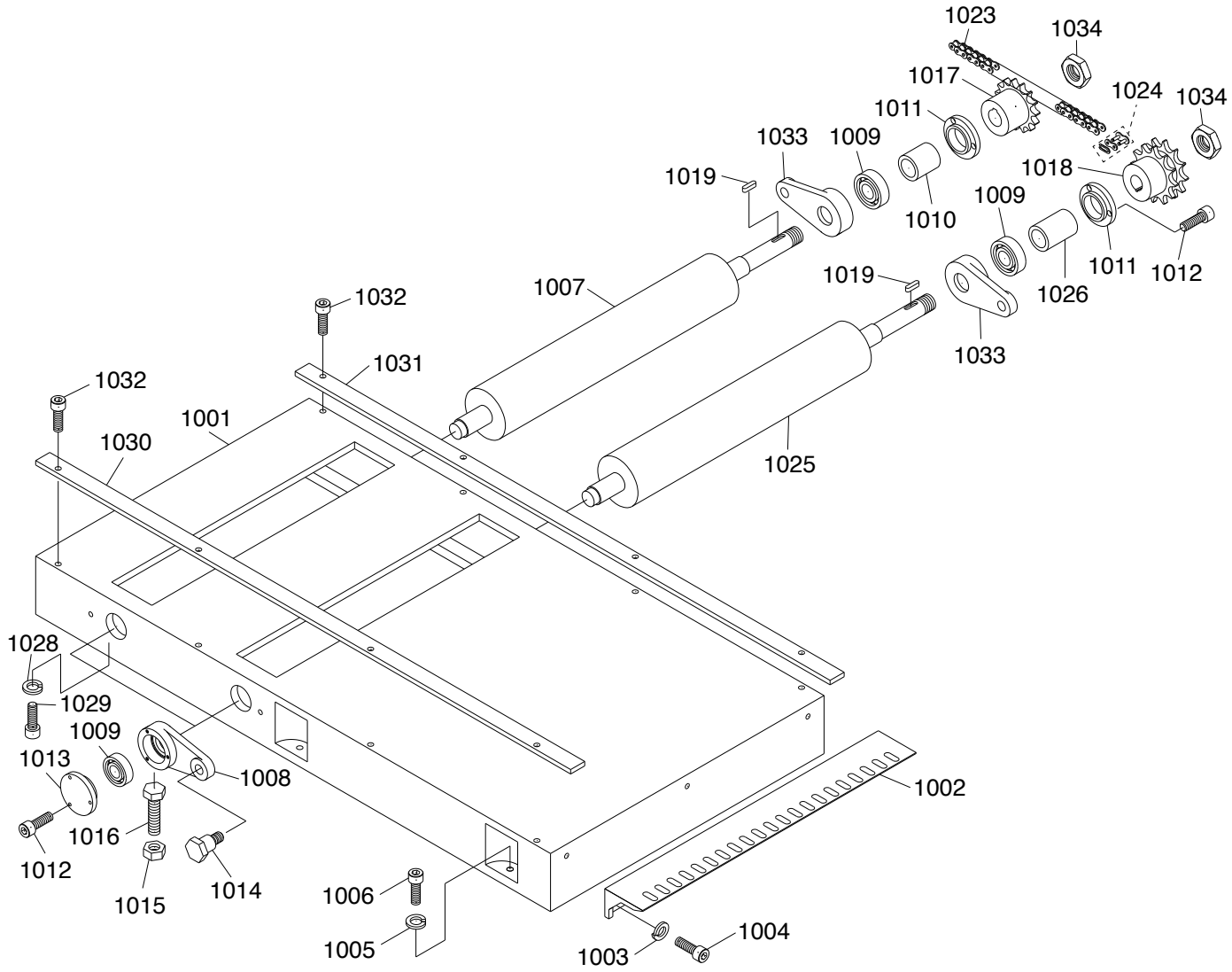


Lower Cutterhead Drive Unit Parts List

REF	PART #	DESCRIPTION
901	P09680901	MOTOR MOUNTING PLATE
902	P09680902	HINGE SHAFT M10-1.5
903	P09680903	EXT RETAINING RING 30MM
904	P09680904	FLAT WASHER 10MM
905	P09680905	LOCK WASHER 10MM
906	P09680906	CAP SCREW M10-1.5 X 30
907	P09680907	CONNECTING ROD
908	P09680908	EXT RETAINING RING 12MM
909	P09680909	DOWEL PIN 12 X 51
910	P09680910	FORK
911	P09680911	DOWEL 12 X 51
912	P09680912	EXT RETAINING RING 12MM
913	P09680913	ADAPTOR HOUSING
914	P09680914	CAP SCREW M8-1.25 X 16
915	P09680915	ADJUSTMENT BRACKET
918	P09680918	SET SCREW M8-1.25 X 10
919	P09680919	SPACER 12ID X 38OD X 8L
921	P09680921	ADJUSTABLE HANDLE M12-1.75 X 70, 129L
922	P09680922	LOCK WASHER 16MM

REF	PART #	DESCRIPTION
923	P09680923	HEX NUT M16-2
924	P09680924	ADJUSTMENT LEVER
925	P09680925	KNOB M16-2, D39, TAPER
926	P09680926	DRIVE MOTOR 10HP 220V 3PH
926-1	P09680926-1	MOTOR FAN COVER
926-2	P09680926-2	MOTOR FAN
926-3	P09680926-3	JUNCTION BOX
926-4	P09680926-4	BALL BEARING 6306ZZ (REAR)
926-5	P09680926-5	BALL BEARING 6308ZZ (FRONT)
927	P09680927	FLAT WASHER 10MM
928	P09680928	HEX BOLT M10-1.5 X 35
930	P09680930	MOTOR PULLEY
931	P09680931	SPACER 12ID X 50OD X 8L
932	P09680932	LOCK WASHER 16MM
933	P09680933	HEX BOLT M12-1.75 X 35
935	P09680935	LOCK WASHER 10MM
936	P09680936	SPACER 12ID X 38OD X 15L
937	P09680937	KEY 8 X 10 X 75

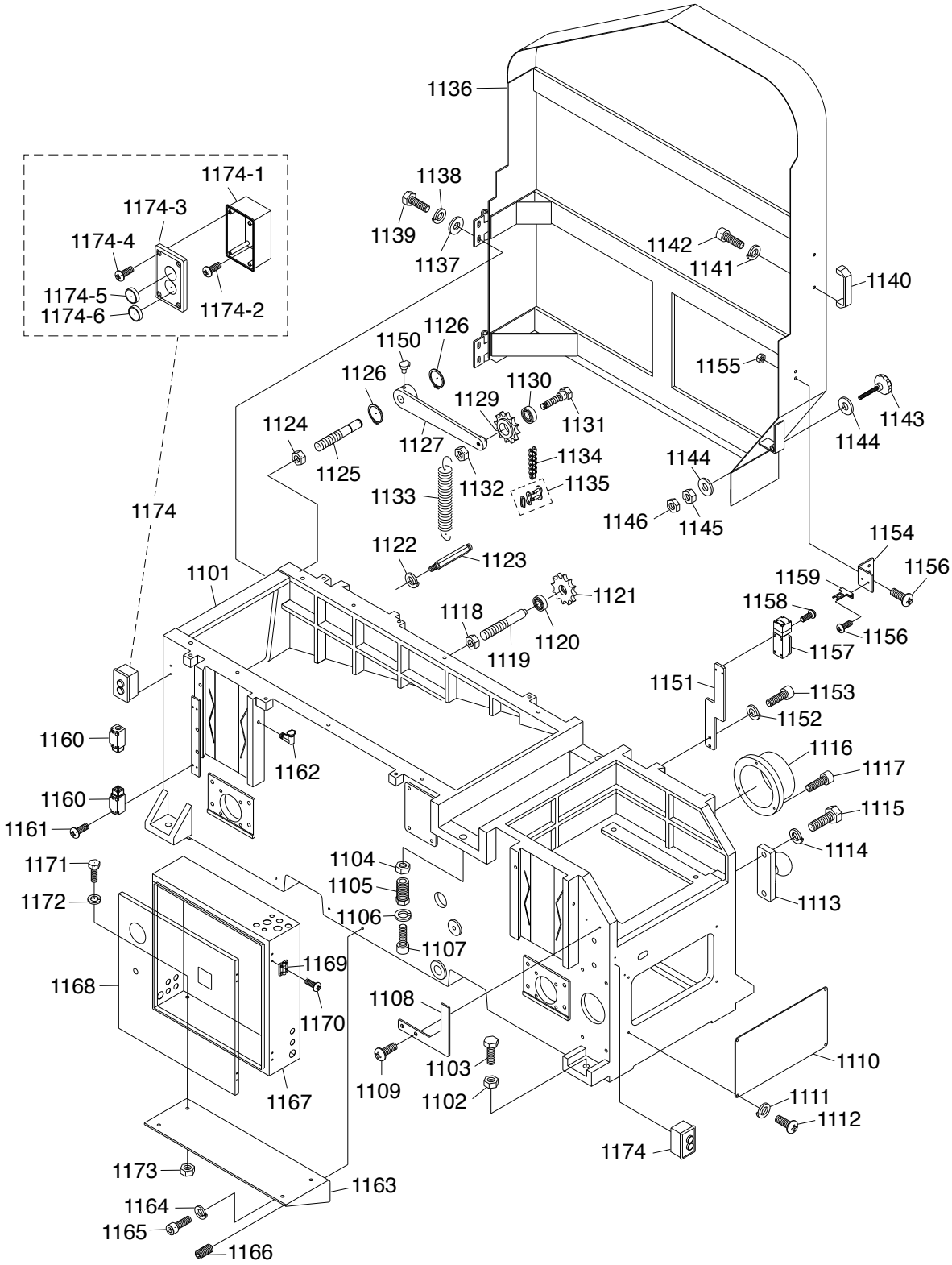
Outfeed Table



REF	PART #	DESCRIPTION
1001	P09681001	OUTFEED TABLE
1002	P09681002	OUTLET PLATE
1003	P09681003	LOCK WASHER 10MM
1004	P09681004	CAP SCREW M10-1.5 X 30
1005	P09681005	LOCK WASHER 10MM
1006	P09681006	CAP SCREW M10-1.5 X 35
1007	P09681007	OUTFEED ROLLER
1008	P09681008	BEARING HOUSING
1009	P09681009	BALL BEARING 6006-2RS
1010	P09681010	BUSHING 30ID X 44OD X 54L
1011	P09681011	BEARING CAP
1012	P09681012	CAP SCREW M6-1 X 16
1013	P09681013	BEARING CAP
1014	P09681014	HEX BOLT M12-1.75 X 18
1015	P09681015	HEX NUT M10-1.5

REF	PART #	DESCRIPTION
1016	P09681016	HEX BOLT M10-1.5 X 50
1017	P09681017	SPROCKET 18T
1018	P09681018	SPROCKET 18T
1019	P09681019	KEY 8 X 8 X 30
1023	P09681023	CHAIN R50 X 51L
1024	P09681024	CHAIN LINK
1025	P09681025	OUTFEED ROLLER
1026	P09681026	BUSHING 30ID X 44OD X 72L
1028	P09681028	LOCK WASHER 10MM
1029	P09681029	CAP SCREW M10-1.5 X 45
1030	P09681030	GUIDE RAIL
1031	P09681031	GUIDE RAIL
1032	P09681032	CAP SCREW M6-1 X 16
1033	P09681033	BEARING HOUSING
1034	P09681034	HEX NUT M30-1.5

Lower Frame

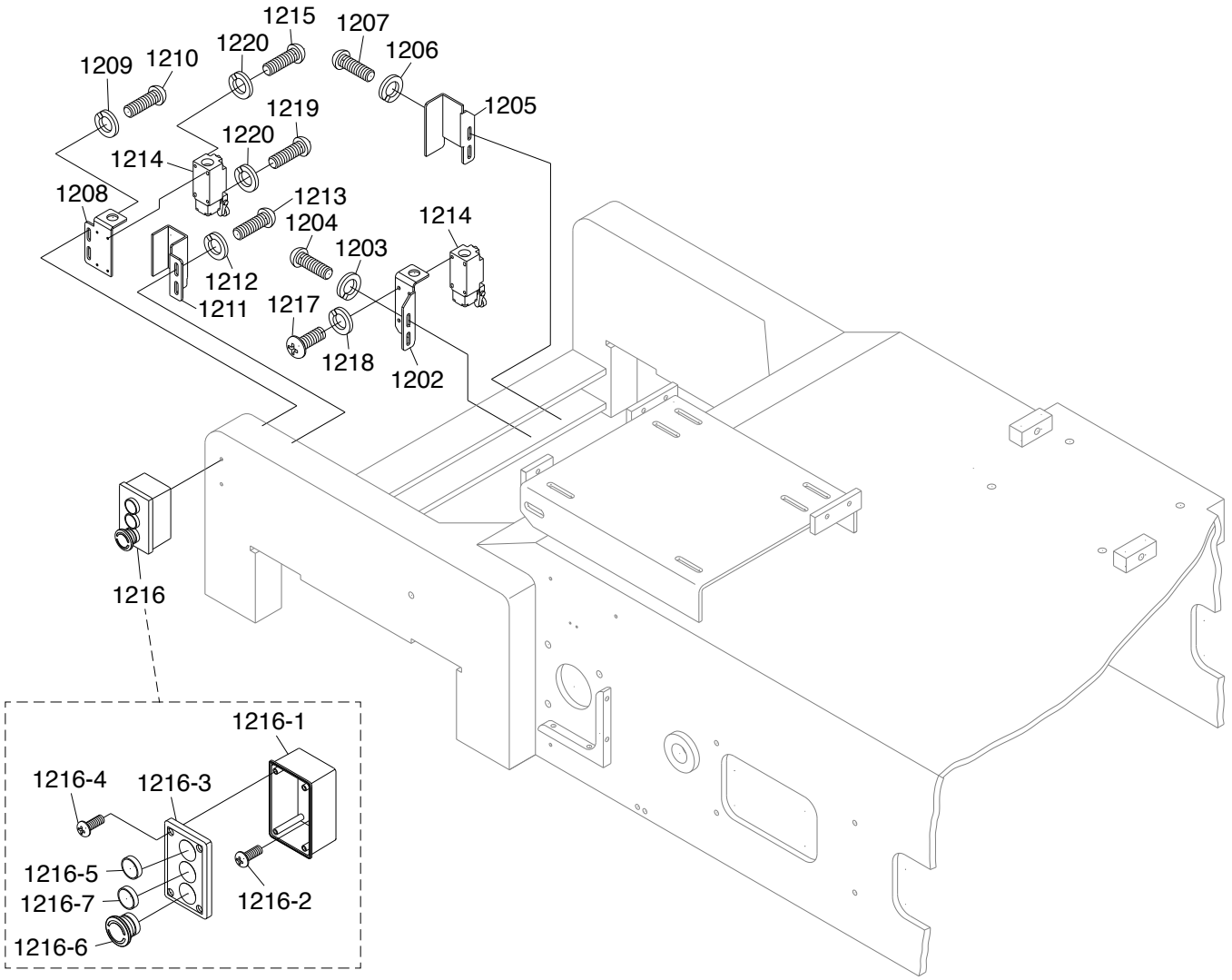


Lower Frame Parts List

REF	PART #	DESCRIPTION
1101	P09681101	MACHINE BED
1102	P09681102	HEX NUT M18-2.5
1103	P09681103	HEX BOLT M18-2.5 X 70
1104	P09681104	HEX NUT M22-2
1105	P09681105	HEX BOLT M22-2 X 55
1106	P09681106	LOCK WASHER 12MM
1107	P09681107	CAP SCREW M12-1.75 X 90
1108	P09681108	GRADUATED SCALE
1109	P09681109	PHLP HD SCR M5-.8 X 8
1110	P09681110	COVER
1111	P09681111	LOCK WASHER 6MM
1112	P09681112	PHLP HD SCR M6-1 X 12
1113	P09681113	LIFTING HANDLE
1114	P09681114	LOCK WASHER 12MM
1115	P09681115	HEX BOLT M12-1.75 X 40
1116	P09681116	DUST PORT 5"
1117	P09681117	CAP SCREW M6-1 X 20
1118	P09681118	HEX NUT M27-3
1119	P09681119	STUD-SE M27-3 X 90, 190
1120	P09681120	BALL BEARING 6002-2RS
1121	P09681121	SPROCKET 12T
1122	P09681122	LOCK WASHER 12MM
1123	P09681123	STANDOFF-HEX MF M12-1.75 X 20, 115
1124	P09681124	HEX NUT M27-3
1125	P09681125	STUD-SE M27-3 X 70, 170
1126	P09681126	EXT RETAINING RING 25MM
1127	P09681127	ARM
1129	P09681129	SPROCKET 12T
1130	P09681130	BALL BEARING 6203-2RS
1131	P09681131	SHOULDER BOLT M12-1.75 X 47, 17 X 12
1132	P09681132	HEX NUT M12-1.75
1133	P09681133	EXTENSION SPRING 3 X 26 X 245
1134	P09681134	CHAIN R50 X 140L
1135	P09681135	CHAIN LINK
1136	P09681136	CHAIN GUARD
1137	P09681137	FLAT WASHER 10MM
1138	P09681138	LOCK WASHER 10MM
1139	P09681139	HEX BOLT M10-1.5 X 20

REF	PART #	DESCRIPTION
1140	P09681140	HANDLE
1141	P09681141	LOCK WASHER 8MM
1142	P09681142	CAP SCREW M8-1.25 X 16
1143	P09681143	KNOB BOLT M10-1.5 X 80, 9-LOBE, D61
1144	P09681144	FLAT WASHER 10MM
1145	P09681145	HEX NUT M10-1.5
1146	P09681146	HEX NUT M10-1.5
1150	P09681150	OIL CUP M5-.8
1151	P09681151	BRACKET
1152	P09681152	LOCK WASHER 6MM
1153	P09681153	BUTTON HD CAP SCR M6-1 X 16
1154	P09681154	BRACKET
1155	P09681155	HEX NUT M4-.7
1156	P09681156	BUTTON HD CAP SCR M4-.7 X 12
1157	P09681157	LIMIT SWITCH D4NS-1AF
1158	P09681158	BUTTON HD CAP SCR M4-.7 X 30
1159	P09681159	LIMIT SWITCH KEY
1160	P09681160	LIMIT SWITCH TZ-9211
1161	P09681161	BUTTON HD CAP SCR M4-.7 X 30
1162	P09681162	OIL CUP 1/8"-28 PT
1163	P09681163	ELECTRICAL PANEL BRACKET
1164	P09681164	LOCK WASHER 8MM
1165	P09681165	CAP SCREW M8-1.25 X 20
1166	P09681166	SET SCREW M8-1.25 X 20
1167	P09681167	ELECTRICAL CABINET (EMPTY)
1168	P09681168	ELECTRICAL DOOR
1169	P09681169	HINGE
1170	P09681170	BUTTON HD CAP SCR M5-.8 X 10
1171	P09681171	HEX BOLT M8-1.25 X 20
1172	P09681172	LOCK WASHER 8MM
1173	P09681173	HEX NUT M8-1.25
1174	P09681174	UP/DOWN SWITCH BOX
1174-1	P09681174-1	SWITCH BOX
1174-2	P09681174-2	PHLP HD SCR M4-.7 X 16
1174-3	P09681174-3	SWITCH BOX COVER
1174-4	P09681174-4	PHLP HD SCR M4-.7 X 16
1174-5	P09681174-5	UP BUTTON TS2-BFG-A (RED)
1174-6	P09681174-6	DOWN BUTTON TS2-BFY-A (YELLOW)

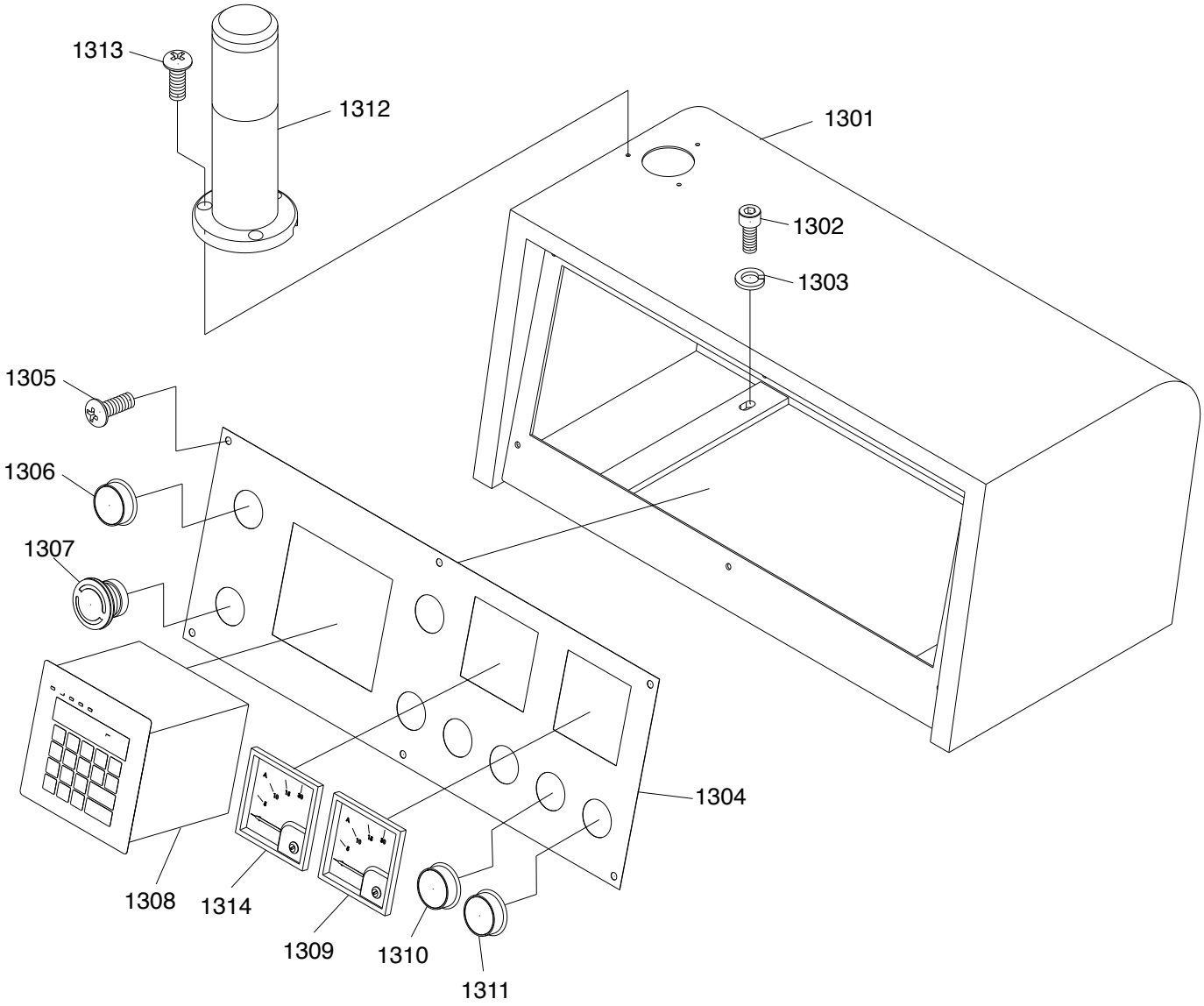
Elevation & Limit Switches



REF	PART #	DESCRIPTION
1202	P09681202	FRONT SWITCH BRACKET
1203	P09681203	LOCK WASHER 6MM
1204	P09681204	BUTTON HD CAP SCR M6-1 X 16
1205	P09681205	FRONT COVER
1206	P09681206	LOCK WASHER 6MM
1207	P09681207	BUTTON HD CAP SCR M6-1 X 16
1208	P09681208	REAR SWITCH BRACKET
1209	P09681209	LOCK WASHER 6MM
1210	P09681210	BUTTON HD CAP SCR M6-1 X 16
1211	P09681211	REAR COVER
1212	P09681212	LOCK WASHER 6MM
1213	P09681213	BUTTON HD CAP SCR M6-1 X 16
1214	P09681214	LIMIT SWITCH TZ-8104

REF	PART #	DESCRIPTION
1215	P09681215	PHLP HD SCR M4-.7 X 12
1216	P09681216	SWITCH BOX ASSEMBLY
1216-1	P09681216-1	SWITCH BOX HOUSING
1216-2	P09681216-2	PHLP HD SCR M4-.7 X 16
1216-3	P09681216-3	SWITCH BOX COVER
1216-4	P09681216-4	PHLP HD SCR M4-.7 X 16
1216-5	P09681216-5	CONVEYOR START BUTTON TS2-BFG- A GRN
1216-6	P09681216-6	E-STOP BUTTON TS2-BFR-B
1216-7	P09681216-7	CONVEYOR STOP BUTTON XB7-ES542 RED
1217	P09681217	PHLP HD SCR M5-.8 X 8
1218	P09681218	LOCK WASHER 5MM
1219	P09681219	PHLP HD SCR M4-.7 X 25
1220	P09681220	LOCK WASHER 5MM

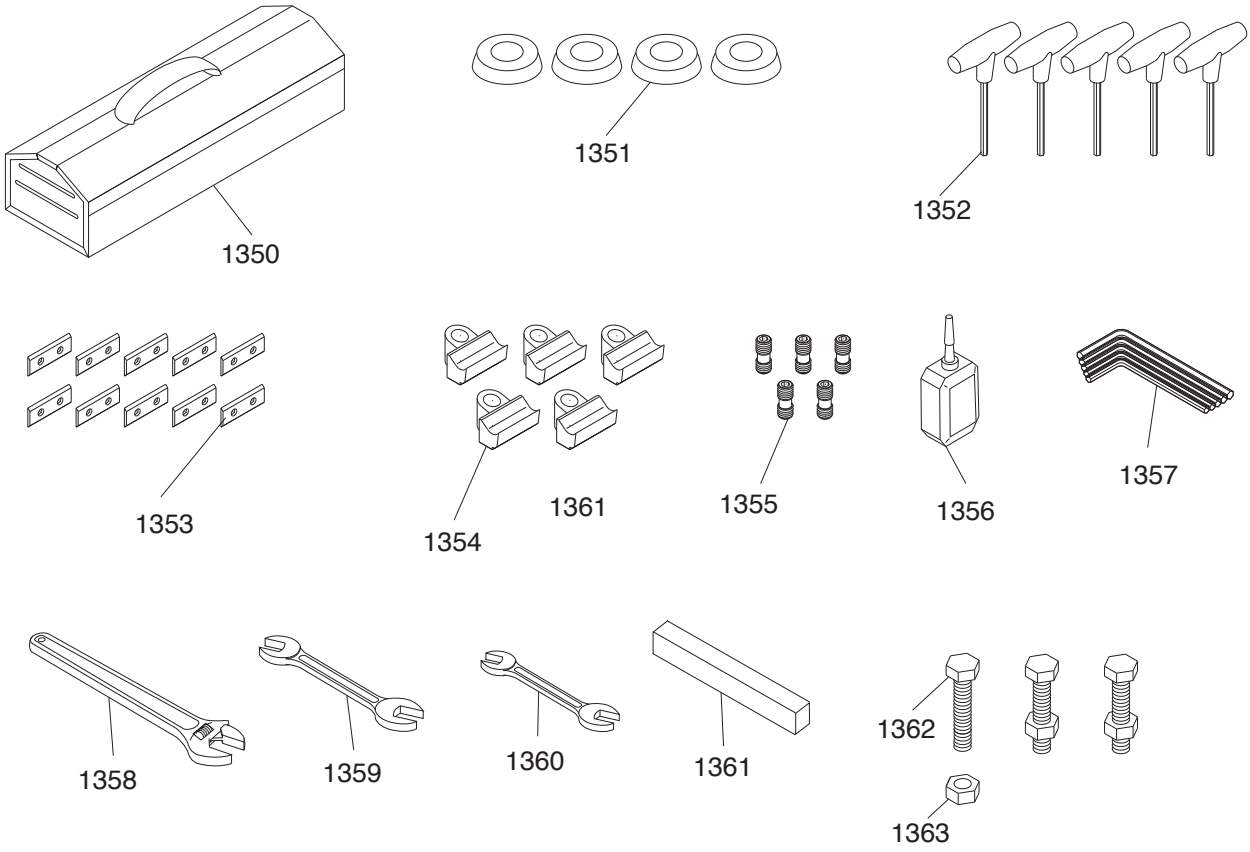
Control Panel



REF	PART #	DESCRIPTION
1301	P09681301	CONTROL BOX
1302	P09681302	CAP SCREW M6-1 X 20
1303	P09681303	LOCK WASHER 6MM
1304	P09681304	CONTROL BOX FACEPLATE
1305	P09681305	PHLP HD SCR M4-.7 X 8
1306	P09681306	POWER BUTTON YW1L-M2E10Q0Y YELLOW
1307	P09681307	E-STOP BUTTON YW4B-V4E01R

REF	PART #	DESCRIPTION
1308	P09681308	DIGITAL CONTROLLER ETEK CH-525
1309	P09681309	UPPER MOTOR AMP METER BE-72 50/5A
1310	P09681310	BUTTON YW1L-MF2E10Q0G (GREEN)
1311	P09681311	BUTTON YW1B-M1E01R (RED)
1312	P09681312	WARNING LIGHT TPWF5-21G
1313	P09681313	PHLP HD SCR M4-.7 X 4
1314	P09681314	LOWER MOTOR AMP METER TA HSING BE-72

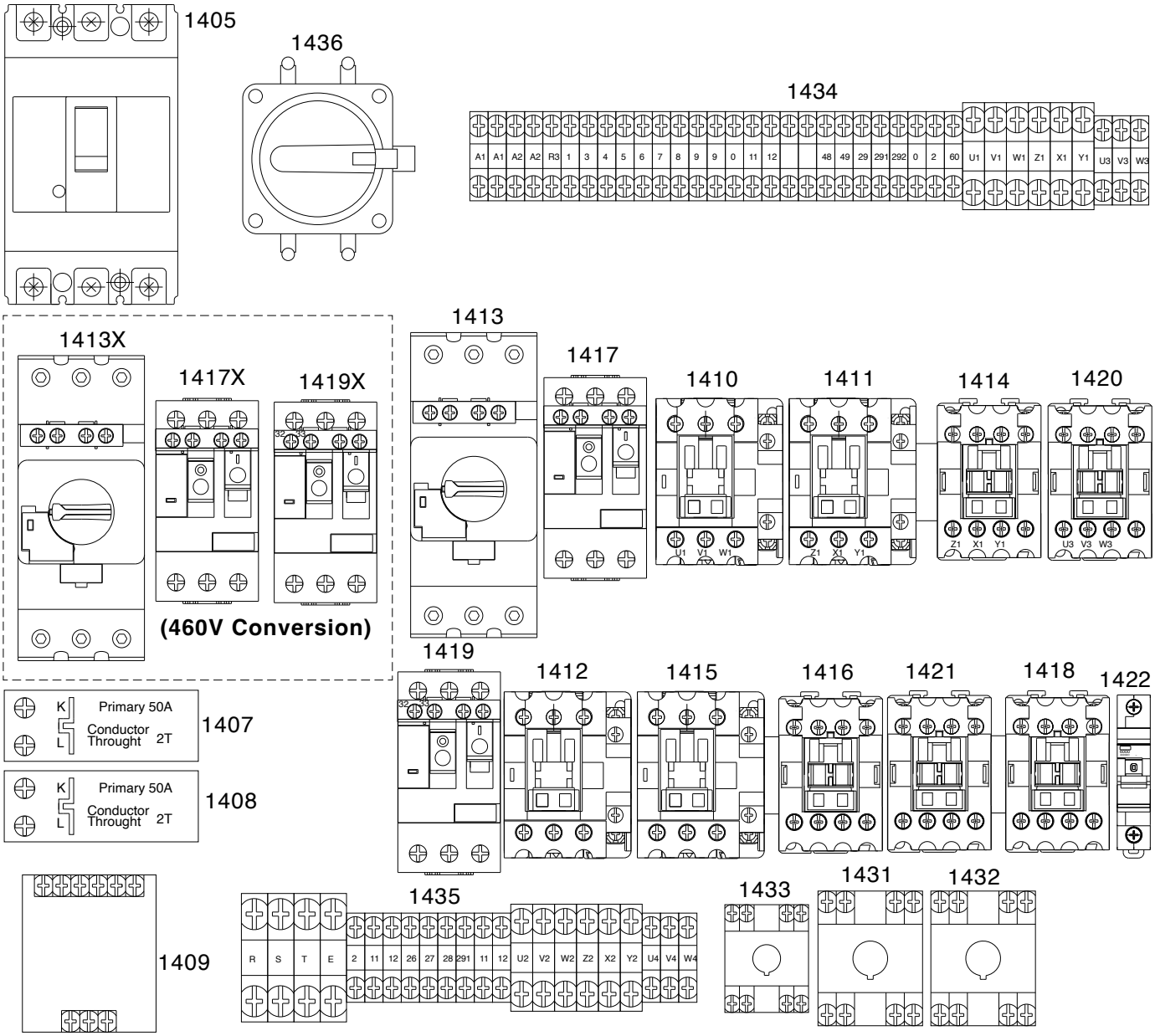
Accessories



REF	PART #	DESCRIPTION
1350	P09681350	TOOLBOX (EMPTY
1351	P09681351	LEVELING PAD
1352	P09681352	T-HANDLE WRENCH 5MM
1353	P09681353	INDEXABLE INSERT
1354	P09681354	INSERT CLAMP
1355	P09681355	CLAMP SCREWS
1356	P09681356	OIL BOTTLE
1357	P09681357	HEX WRENCH SET

REF	PART #	DESCRIPTION
1357	P09681357	HEX WRENCH SET
1358	P09681358	ADJUSTABLE WRENCH 12"
1359	P09681359	OPEN-END WRENCH 12/14MM
1360	P09681360	OPEN-END WRENCH 19/21MM
1361	P09681361	BLOCK GAUGE
1362	P09681362	HEX BOLT M18-2.5 X 70
1363	P09681363	HEX NUT M18-2.5

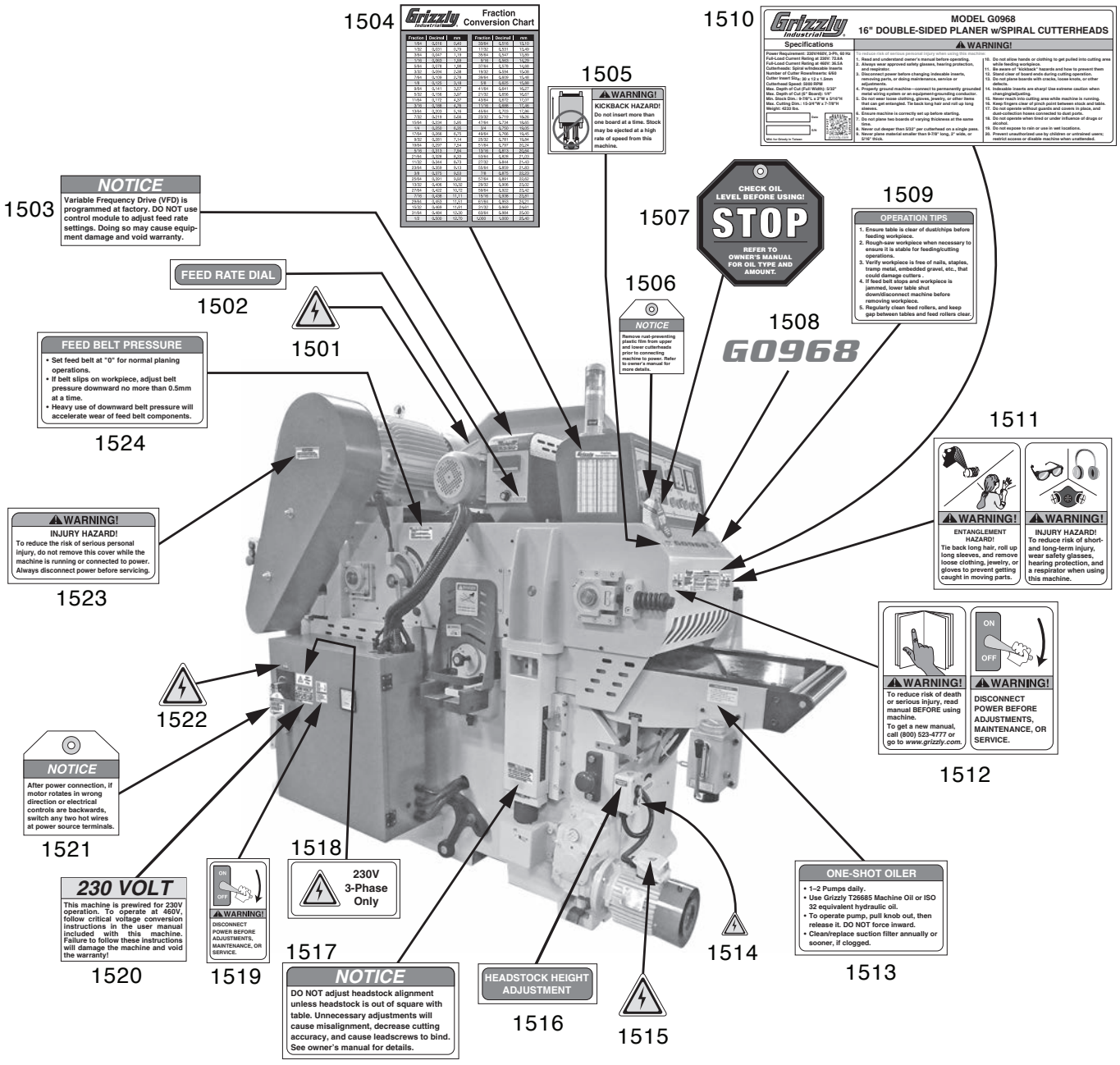
Electrical Panel



REF	PART #	DESCRIPTION
1405	P09681405	CIRCUIT BREAKER FUJI BW100EAG-3P100A
1407	P09681407	CURRENT TRANSFORMER TA HSING 50/5A
1408	P09681408	CURRENT TRANSFORMER TA HSING 50/5A
1409	P09681409	TRANSFORMER LCE JHC-068
1410	P09681410	MAGNETIC CONTACTOR TECO CU-22
1411	P09681411	MAGNETIC CONTACTOR TECO CU-22
1412	P09681412	MAGNETIC CONTACTOR TECO CU-18
1413	P09681413	CIRCUIT BREAKER SHIHLIN MR-65R-50
1413X	P09681413X	OL RELAY SHINLIN MR-65R-32 23-32A
1414	P09681414	MAGNETIC CONTACTOR TECO CU-18
1415	P09681415	MAGNETIC CONTACTOR TECO CU-18
1416	P09681416	MAGNETIC CONTACTOR TECO CU-16
1417	P09681417	CIRCUIT BREAKER SHIHLIN MR-32S-32

REF	PART #	DESCRIPTION
1417X	P09681417X	OL RELAY SHINLIN MR-32S-18 13-18A
1418	P09681418	MAGNETIC CONTACTOR TECO CU-11
1419	P09681419	CIRCUIT BREAKER SHIHLIN MR-32S-10
1419X	P09681419X	OL RELAY SHINLIN MR-32S-4 2.5-4A
1420	P09681420	MAGNETIC CONTACTOR TECO CU-11
1421	P09681421	MAGNETIC CONTACTOR TECO CU-11
1422	P09681422	CIRCUIT BREAKER SENO BHA-1P6A
1431	P09681431	TIMER (TOP) ANV TRD-N
1432	P09681432	TIMER (BOTTOM) ANV TRD-N
1433	P09681433	POWER RELAY IDEC RR2PU
1434	P09681434	TERMINAL BAR 36P
1435	P09681435	TERMINAL BAR 22P
1436	P09681436	MASTER POWER SWITCH FUJI BZ6N10D

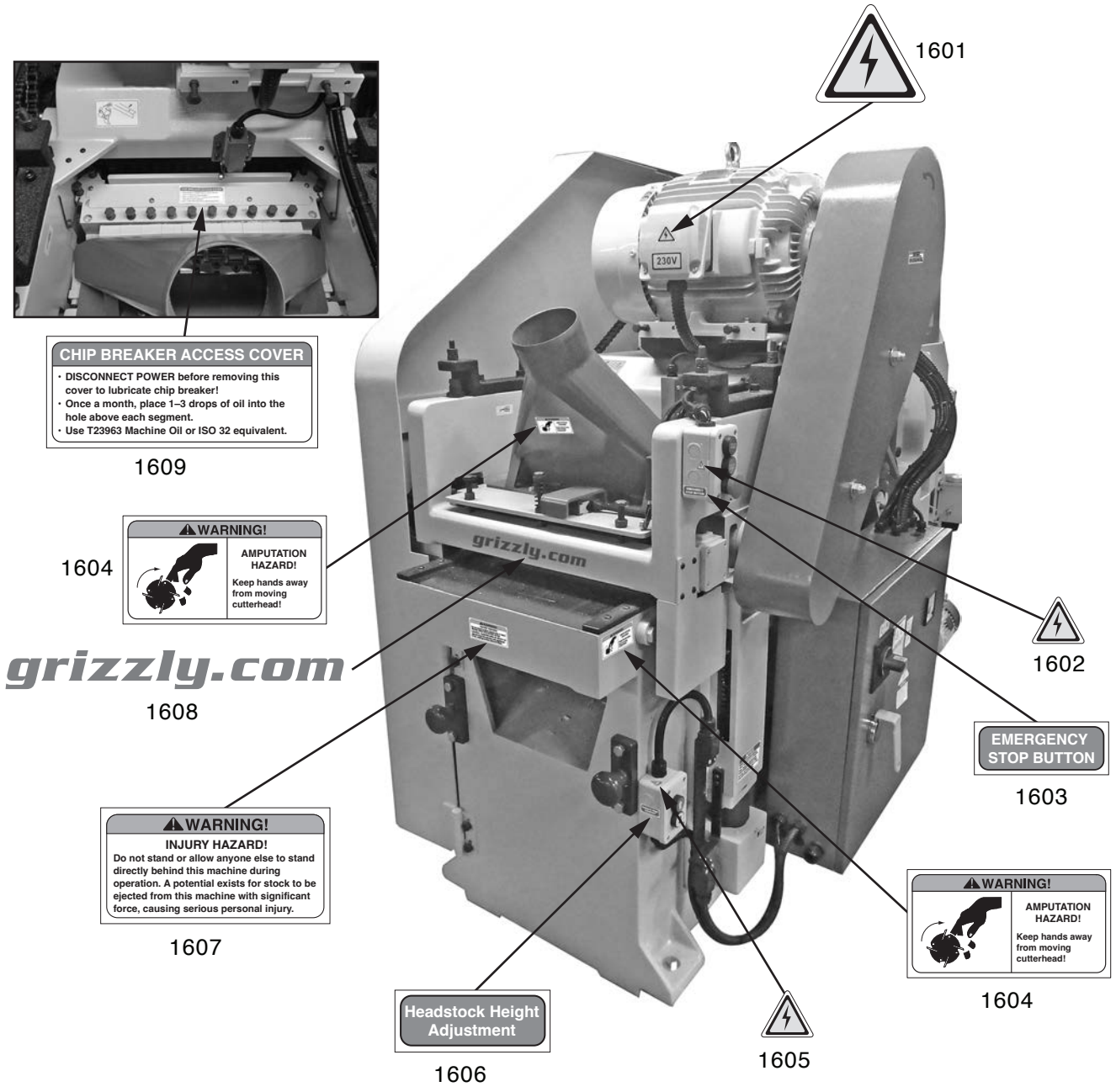
Labels & Cosmetics (Front)



REF	PART #	DESCRIPTION
1501	P09681501	ELECTRICITY LABEL
1502	P09681502	FEED RATE DIAL LABEL
1503	P09681503	NOTICE LABEL
1504	P09681504	CONVERSION CHART LABEL
1505	P09681505	FEED ONLY ONE LABEL
1506	P09681506	NOTICE HANG TAG
1507	P09681507	STOP OIL FILL TAG
1508	P09681508	MODEL NUMBER
1509	P09681509	OPERATION TIPS LABEL
1510	P09681510	MACHINE ID LABEL
1511	P09681511	COMBO WARNING LABEL
1512	P09681512	COMBO WARNING LABEL

REF	PART #	DESCRIPTION
1513	P09681513	ONE-SHOT OILER LABEL
1514	P09681514	ELECTRICITY LABEL
1515	P09681515	ELECTRICITY LABEL
1516	P09681516	HEADSTOCK HEIGHT ADJ LABEL
1517	P09681517	NOTICE LABEL
1518	P09681518	230V 3-PHASE ONLY LABEL
1519	P09681519	DISCONNECT HARDWIRED LABEL
1520	P09681520	230V PREWIRED LABEL
1521	P09681521	3-PHASE CONNECTION HANG TAG
1522	P09681522	ELECTRICITY LABEL
1523	P09681523	INJURY HAZARD LABEL
1524	P09681524	FEED BELT PRESSURE LABEL

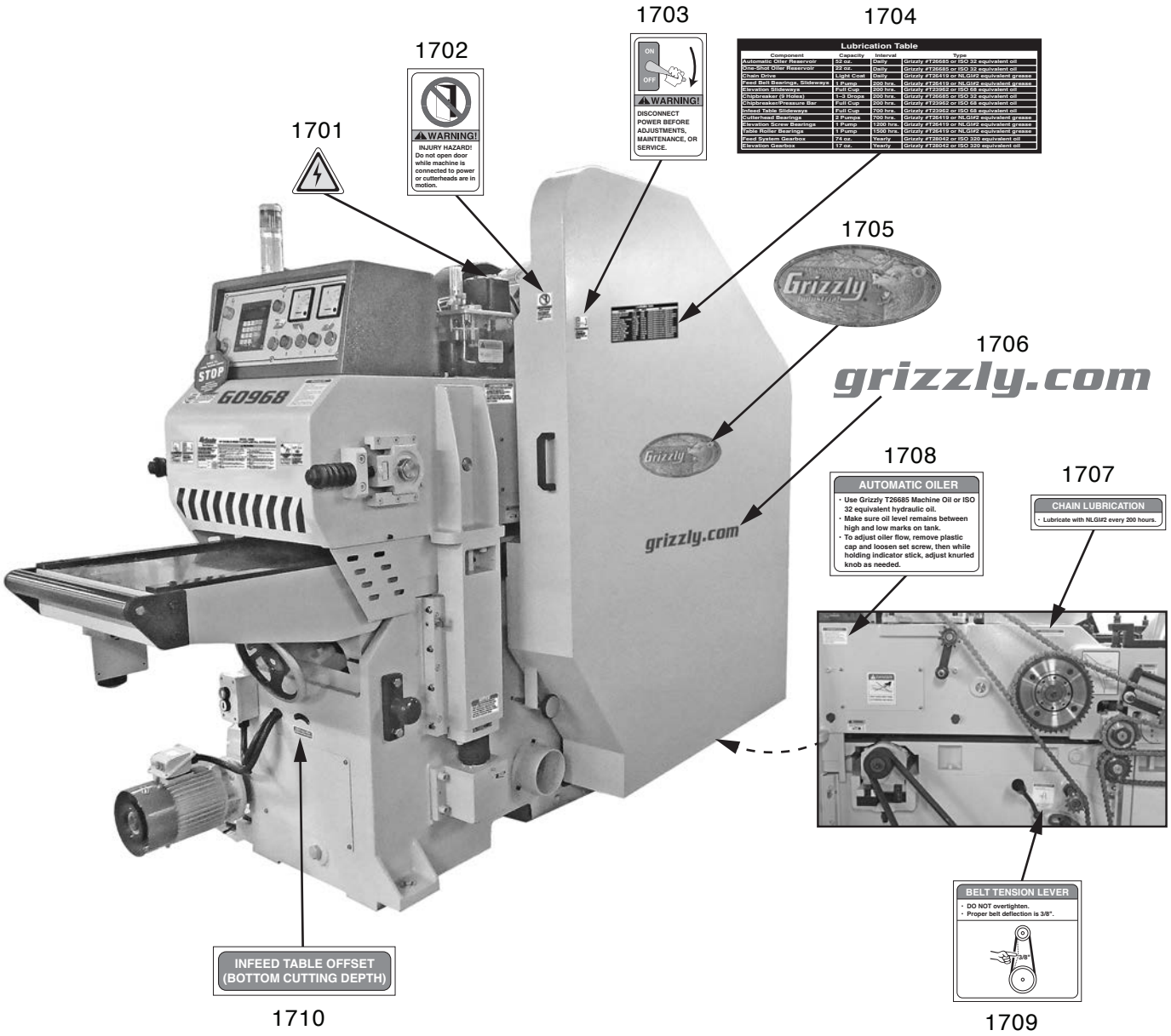
Labels & Cosmetics (Rear)



REF	PART #	DESCRIPTION
1601	P09681601	ELECTRICITY LABEL
1602	P09681602	ELECTRICITY LABEL
1603	P09681603	E-STOP BUTTON LABEL
1604	P09681604	AMPUTATION LABEL
1605	P09681605	ELECTRICITY LABEL

REF	PART #	DESCRIPTION
1606	P09681606	HEADSTOCK HEIGHT ADJ LABEL
1607	P09681607	INJURY HAZARD LABEL
1608	P09681608	GRIZZLY.COM LABEL
1609	P09681609	CHIP BREAKER ACCESS COVER LABEL

Labels & Cosmetics (Side)



REF	PART #	DESCRIPTION
1701	P09681701	ELECTRICITY LABEL
1702	P09681702	DO NOT OPEN DOOR
1703	P09681703	DISCONNECT HARDWIRED LABEL
1704	P09681704	LUBRICATION TABLE LABEL
1705	P09681705	GRIZZLY NAMEPLATE-LARGE

REF	PART #	DESCRIPTION
1706	P09681706	GRIZZLY.COM LABEL
1707	P09681707	CHAIN LUBRICATION LABEL
1708	P09681708	AUTOMATIC OILER LABEL
1709	P09681709	BELT TENSION LEVER LABEL
1710	P09681710	INFEED TABLE OFFSET LABEL

WARRANTY & RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We 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.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

In the event you need to use this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

For further information about the warranty, visit **https://www.grizzly.com/forms/warranty** or scan the QR code below to be automatically directed to our warranty page.