

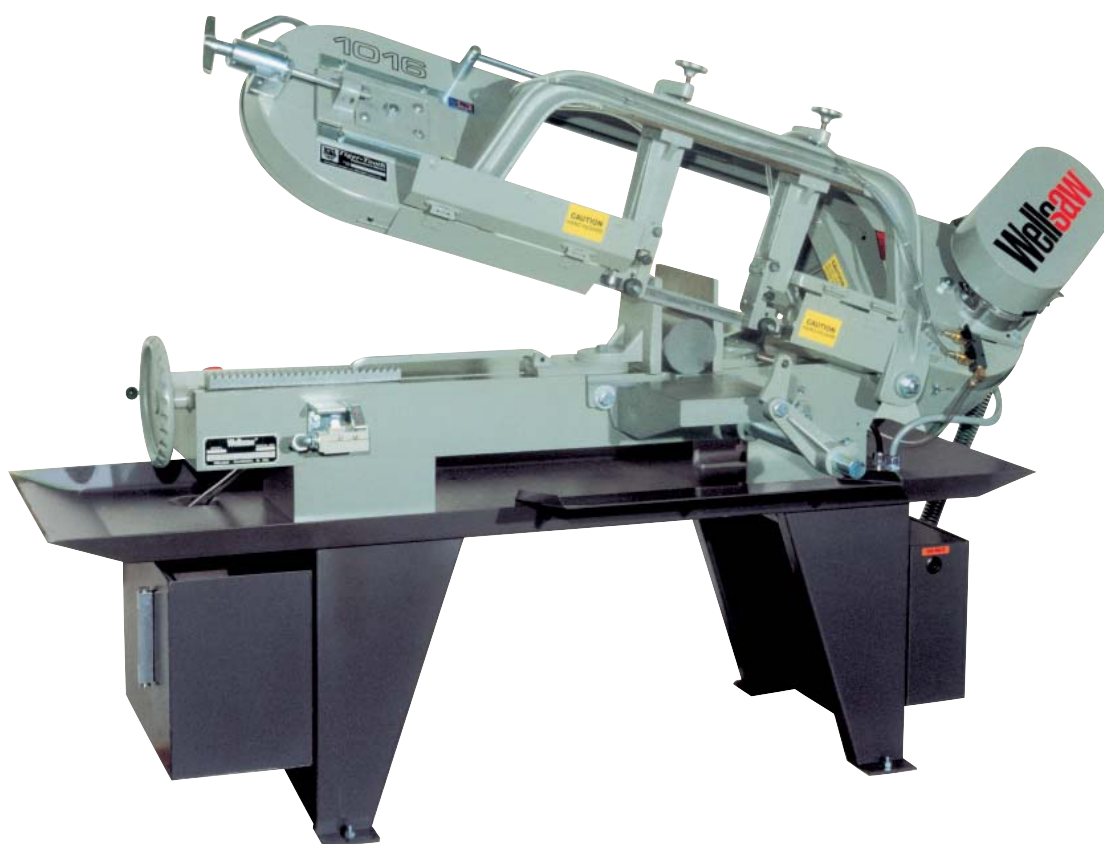
Parts List and

MODEL **1016**

Manual Bandsaw

Built better to work stronger and last longer

Operating & Maintenance Manual



REV 140320



Wellsaw[®]
Made In The USA

Quality Metal Cutting Bandsaws

2829 N. Burdick St. Kalamazoo, MI 49004

Phone: 269-345-1132 Fax: 269-345-0095

www.wellsaw.com

FORWARD

The Model 1016 Wellsaw has been designed and manufactured to conform to Wellsaw's recognized high standards of quality and performance. Each saw must pass a series of final inspection tests, including actual metal cutting operations, before it is shipped. For this saw to provide satisfactory service, it is necessary that it be properly installed, operated and maintained. This manual has been prepared to assist you in carrying out these functions. We urge you to study this manual and follow its suggestions.

RECEIVING AND INSTALLATION

Un-crating

Carefully remove the protective crating and skid so the saw and its parts are not marred or otherwise damaged. In the event of damage in transit, notify the carrier and file a Proof of Loss Claim immediately.

Shortages

Inspect the complete shipment carefully against the itemized packing list. Make sure that all items are present and in good condition. In the event of any shortage, notify the distributor from whom you purchased the saw and the carrier who made final delivery.

Utility Hook-Up

The use of a qualified electrician is always recommended when connecting the saw to the main power supply. Electrical codes differ from area to area and it is the customer's responsibility to ensure that their saw complies with applicable codes. Your Wellsaw is pre-wired at the factory for a specified voltage. Always check the motor and electrical panel to ensure that they are both wired to correspond to your electrical power supply.

Parts Ordering

For your convenience:

When contacting your Wellsaw Supplier or the Company for parts or service, it is essential that you have your Model, Serial Number and Purchase Date available. Jot them down here for handy reference.

Model: 1016

Serial Number: _____

Purchase Date: _____

WARNING

- Misuse of this machine can cause serious injury.
- For safety, machine must be set up, used and serviced properly.
- Read, understand and follow instructions in the operator's and parts manual.

When setting up machine:

- Always avoid using machine in damp or poorly lighted work areas.
- Always be sure machine is securely anchored to the floor.
- Always keep machine guards in place.
- Always put start switch in "OFF" position before plugging in machine.

When using machine:

- Never operate with machine guards missing.
- Always wear safety glasses with side shields (See ANSI Z87.1)
- Never wear loose clothing or jewelry.
- Never overreach - you may slip and fall into the machine.
- Never leave machine running while away from it.

- Always shut off the machine when not in use.

When servicing the machine:

- Always unplug machine from electrical power while servicing.
- Always follow instructions in operators and parts manual when changing accessory tools or parts.
- Never modify the machine.

Read and follow these simple rules for best results and full benefits from your machine. Used properly, Wellsaw's machinery is among the best in design and safety. However, any machine used improperly can be rendered inefficient and unsafe. It is absolutely mandatory that those who use our products be properly trained in how to use them correctly. They should read and understand the Operators and Parts manual as well as all labels affixed to the machine. Failure in following all of these warnings can cause serious injuries.

Machinery general safety warnings

1. Always wear protective eye wear when operating machinery. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specifications. Use of eye wear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection.
2. Wear proper apparel. No loose clothing or jewelry which can get caught in moving parts. Rubber soled footwear is recommended for best footing.
3. Do not overreach. Failure to maintain proper working position can cause you to fall into the machine or cause your clothing to get caught - pulling you into the machine.
4. Keep guards in place and in proper working order. Do not operate the machine with guards removed.
5. Avoid dangerous working environments. Do not use stationary machine tools in wet or damp locations. Keep work areas clean and well lit. Special electrics should be used when working on flammable materials.
6. Avoid accidental starts by being sure the start switch is "OFF" before plugging in the machine.
7. Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation.
8. Disconnect electrical power before servicing. Whenever changing accessories or general maintenance is done on the machine, electrical power to the machine must be disconnected before work is done.
9. Maintain all machine tools with care. Follow all maintenance instructions for lubricating and the changing of accessories. No attempt shall be made to modify or have makeshift repairs done to the machine. This not only voids the warranty but also renders the machine unsafe.
10. Secure work. Use clamps or a vise to hold work when practical. It is safer than using your hands and it frees both hands to operate the machine.
11. Never brush away chips while the machine is in operation.
12. Keep work area clean. Cluttered areas invite accidents.
13. Remove adjusting keys and wrenches before turning the machine back on.
14. Use the right tool. Don't force a tool or attachment to do a job it was not designed for.
15. Use only recommended accessories and follow manufacturers instructions pertaining to them.
16. Keep hands in sight and clear of all moving parts and cutting surfaces.
17. All visitors should be kept at a safe distance from the work area. Make workshop completely safe by using padlocks, master switches, or by removing starter keys.
18. Know the tool you are using - its application, limitations, and potential hazards.

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

-Lead from lead based paint

-Crystalline silica from bricks and cement and other masonry products, and

-Arsenic and chromium from chemically treated lumber

20. Your risk from those 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 specifically designed to filter out microscopic particles.

General Electrical Cautions

This saw should be grounded in accordance with the National Electrical Code and local codes and ordinances. This work should be done by a qualified electrician. The saw should be grounded to protect the user from electrical shock.

Wire sizes:

Caution: for circuits which are far away from the electrical service box, the wire size must be increased in order to deliver ample voltage to the motor. To minimize power losses and to prevent motor overheating and burnout, the use of wire sizes for branch circuits or electrical extension cords according to the following table is recommended:

Conductor Length	AWG (American wire gauge) number	
	240 volt lines	120 volt lines
0-50 feet	No. 14	No. 14
50-100 feet	No. 14	No. 12
Over 100 feet	No. 12	No. 8

Safety instructions on sawing systems

1. Always wear leather gloves when handling a saw blade. The operator shall not wear gloves when operating the machine.

2. All doors shall be closed, all panels replaced, and all other safety guards in place prior to the machine being started or operated.

3. Be sure that the blade is not in contact with the workpiece when the motor is started. The motor shall be started and you should allow the saw to come to full speed before bringing the workpiece into the saw blade.

4. Keep hands away from the blade area. **See figure A.**

5. Remove any cut off piece carefully while keeping your hands free from the blade area.

6. Saw must be stopped and electrical supply must be cut off before any blade replacement or adjustment of blade support mechanism is done, or before any attempt is made to change the drive belts or before any periodic service or maintenance is performed on the saw.

7. Remove all loose items and any unnecessary work pieces from the area before starting machine.

8. Bring adjustable saw guides and guards as close as possible to the work piece.

9. Always wear protective eye wear when operating, servicing or adjusting machinery. Eye wear shall be impact resistant, protective safety glasses with side shields complying with ANSI Z87.1 specifications. Use of eye wear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection. **See figure B.**

10. Non-slip footwear and safety shoes are recommended. **See figure C.**

11. Wear ear protectors (plugs or muffs) during extended periods of operation. **See figure D.**

12. The workpiece, or part being sawed, must be securely clamped before the saw blade enters it.

13. Remove cut off pieces carefully, keeping hands away from saw blade.

14. Saw must be stopped and electrical supply cut off or machine unplugged before reaching into cutting area.

15. Avoid contact with coolant, especially guarding your eyes.

Figure A



Figure B

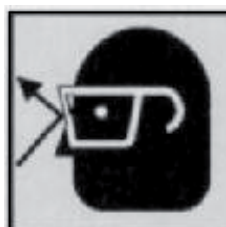


Figure C



Figure D



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Specifications

Capacity:	
Round	10½"
Flat	16½"
Rectangular	10" x 16"
45°	10" x 9"
Blade Speeds	50-100-175-275 SFPM
Motor	
2hp	208-230/460/60/3
	6.5 - 6.2 - 3.1 amps
2hp	115 - 230/60/1
	24 - 12 amps
Drive	V-Belt
Blade Size	1" x .035 x 11'6"
Height to top of Bed	29"
Coolant Tank Capacity	8 gallons, 170 GPH
	.6 Amp/115 Volt
Floor Space	30" wide x 84" long
Vise Control	Manual Screw
Swivel Vise	To 45°
Blade Tension	Manual Rite Tension®
Feed Rate Control	Variable, Hydraulic
Band Wheels	15" Diameter Cast Iron
Shipping Weight	900 Lbs.

Options Available:

Variable Speed Blade Drive (70-375 SFPM)
Casters (set of 4, 2 locking)
NFPA or JIC Electrics (w/disconnect)
Totally Enclosed Motor
Work Light
Stock Stand
5' or 10' Non-Powered Conveyor

Notes on Sawing

It is widely recognized that a proficient operator is a key to optimum bandsawing. He makes certain the machine is properly maintained and adjusted for dependable operation. He carefully sets up each cutting job to prevent damage to the machine and obtain the best performance from the equipment.

Experienced blade dealers can be very helpful in selecting the grade and proper tooth blade for each sawing job. All blades should be straight, have sharp teeth with uniform set, and be “broken in” at a reduced feed rate to obtain good cutting performance and blade life.

Every cutting situation has special characteristics requiring some experimentation to determine which blade, speed and feed rate will achieve the most satisfactory result. Cutting charts indicate a good starting point, but must be modified by direct experience if optimum performance is desired.

Here are some helpful pointers for adjusting speed and feed for good cutting performance.

1. Make sure the saw is cutting a good chip from the workpiece.
2. Watch for blue chips or excessive “smoke” indicating heat in the cut which could damage the blade or work harden the material being cut
3. Watch for excessive vibration or chatter marks on the cut-off piece indicating possible damage to the saw teeth by “hammering”.
4. Check the cut-off piece for flatness. A dull blade or excessive feed will produce a “belly” in the cut.
5. Inspect the blade for worn, rounded or shiny cutting edges. Avoid force cutting which will allow chips to “weld” to saw teeth and eventually cause the teeth to be stripped off the blade.
6. When experimenting, start with a slow speed and feed rate. Gradually increase blade speed and then feed pressure by small amounts until adverse effects are noted. You can then set the speed and feed at a reasonable level for continuous cutting. Remember that blade speed and feed pressure must be balanced to keep cutting a good chip.

Trouble Shooting

Premature Dulling of Blade Teeth

1. Feed rate too high or low. Check recommendation.
2. Blade speed too slow or too fast.
3. Faulty material; heavy scale, hard spots, etc.
4. Verify material analysis.
5. If coolant flow is not covering saw teeth, increase coolant flow rate.
6. If saw is vibrating in cut, reduce blade speed or increase feed rate.
7. Chipped or broken tooth may be lodged in cut.
8. “Chip welding” caused by improper feed and speed.
9. Incorrect coolant mixture.
10. Incorrect blade selection
11. Improper break-in of new blade. New blades should be run initially with reduced feed pressure for approximately 50 to 100 square inches.
12. Saw blade teeth may be hitting blade guides. Check for proper blade size.

Saw Blade Vibration

1. Incorrect blade speed for material.
2. Blade tension insufficient.
3. Back-up bearing may be worn.
4. Incorrect choice of saw tooth pitch.
5. Incorrect coolant mixture.
6. Incorrect feed setting. Increase feed.
7. Workpiece not firmly clamped in vice.
8. Worn or improperly adjusted saw guides. Check and make necessary adjustments.

Blade Teeth Chipping or Ripping Out

1. Blade pitch too coarse. Use a fine pitch saw blade on thin work sections.
2. Improper break-in of new blade. Do not start a new blade in an old cut.
3. Work piece not held firmly enough. Clamp work securely.
4. Introduce cooling if it is not being used.
5. Faulty material; scale or hard spots.
6. Blade gullets may be loaded. Use higher viscosity lubricant or coolant.
7. Blade speed and feed may need adjustment.

Premature Blade Breakage

1. Poor weld in the blade.
2. Feed rate set too high. Reduce it.
3. Excessive blade speed. Adjust it.
4. Blade guides set too tight or misaligned.
5. Blade tension set too high.
6. Blade running against flange on wheels. Adjust wheel pitch.

Blade Squeal

1. Feed rate too light for blade speed. Increase feed rate and/or reduce blade speed.

Blade Slips Off Band Wheels

1. Blade not tensioned correctly.
2. Wheel pitch not set properly.
3. Guides set too tight.

Gullets of Blade Teeth Loading

1. Blade pitch too fine. Review blade selection.
2. Incorrect blade speed. Consult cutting chart.
3. If not using coolant, apply it.

Chips Welding to Blade Teeth

1. Cutting rate too high.
2. Chip brush may be out of adjustment.
3. Check coolant and application.

Blade Becoming Scored

1. Saw guides may be worn. Check and replace if necessary.
2. Too much pressure on saw guides. Adjust.
3. Guides may be out of alignment.

Blade Making Belly-Shaped Cut

1. Blade tension too light. Increase it.
2. Saw guides too far from work piece.
3. Blade pitch too fine. Use larger pitch and positive rake tooth form.
4. Feed force too heavy. Decrease it.

Inaccurate Cut-Off

1. Is conveyor or stock stand level with saw bed?
2. Insufficient blade tension.
3. Blade guides too far apart. Always set blade guides as close to the piece as possible.
4. Blade may be dull. Check and replace if necessary.
5. Feed pressure too high. Reduce it.
6. Blade guides loose, worn or out of alignment.
7. Too many teeth-per-inch. Blade not cutting freely.
8. Chip brush not cleaning teeth properly.

9. Dirty coolant.
10. Check for loose fasteners.

Rough Cut / Poor Finish

1. Excessive feed rate. See recommendations.
2. Blade too coarse. Use finer blade pitch.
3. Inadequate cutting fluid. Replace.

Blade Stalls in Work

1. Insufficient blade tension.
2. Excessive feed pressure.
3. Blade tooth spacing too coarse.
4. Motor worn or defective.
5. Guides too tight against blade.

Blade Does Not Track Properly

1. Set wheel pitch so that blade runs to wheel flange but not against it.
2. Is blade tension correct?
3. Is back of blade riding against backup bearing? If not, adjust it.

Motor Overheating

1. Check for correct voltage supply. Check voltage at motor. Check magnetic starter heaters.
2. Check for loose electrical connections.
3. Does motor amp reading correspond to rating on motor specifications tag?
4. Is internal motor wiring correct?
5. Is drive belt over tightened?

Operating Instructions

Cutting Tips

1. For longer blade life, start each cut carefully.
2. For new blades, reduce feed pressure on first two cuts or about 100 square inches.
3. Keep blade guides as close to the vise jaws as possible.
4. Make sure all four legs of the saw are in solid contact with the floor.

Automatic Stop

When the blade has completed a cut through the material, the saw frame drops onto a limit switch actuator which shuts the motor off.

When changing a blade or doing any other maintenance or repair, *be sure the automatic stop is engaged and disconnect the main power supply.*

It is necessary to raise the saw frame to clear the limit switch actuator before the saw can be started.

Dash Pot

Machines are equipped with a dash pot (frame check) for the purpose of stabilizing downward travel of the saw frame, thereby protecting the saw blade from damage. The action of the dash pot is hydraulic and controlled by fluid being passed through an orifice in the piston on the downward stroke.

Fill withing 1" of the top of the bottom cylinder with Mobil Velocite Oil #6 or equivalent.

Frame Weight Adjustment

Before adjusting the frame spring at motor end, remove the hydraulic dash pot and move the sliding weight to the rear position (motor end). The frame spring should be adjusted for approximately 16 pounds of weight at the frame handle.

Too much frame weight will cause the blade to make crooked cuts!

Feeding Pressure

For saws before S/N 3319 feed pressure is varied by moving the weight on the top side of the frame. Blade pressure increases as the weight is moved toward the open end of the saw. For saws starting at S/N 3319 feed pressure is varied by turning the needle valve mounted on the side of the dashpot cylinder. Excessive pressure may cause a run-out of the blade (see Feed & Speed chart for recommendations).

Hydraulic Feed Control

The feed rate is hydraulically controlled with a needle valve located on the side of the cylinder. *Caution: Do not attempt to loosen or remove hoses until the saw frame is supported in its "Down" position.*

Speed Selection

Saws are equipped with step pulleys providing blade speeds of 50, 100, 175 and 275 feet-per-minute. High speeds are suggested for cutting thin wall tubing, channels, aluminum, brass or any metal that will not burn the blade teeth. Use medium speed for general cutting such as cold rolled, machine steels, heavy channels, etc. Run at low speed for cutting nickel steels or any metal requiring a slow speed on a lathe. When cutting brass, use a blade that has not been used on other metals and apply beeswax to the teeth.

Variable Speed Drive

Model 1016 may be equipped with variable speed pulleys providing infinite speed selection between 70 and 375 feet-per-minute. See Cutting Speed Chart for settings.

To vary blade speed, rotate handwheel clockwise to increase

speed or counter-clockwise to decrease speed. Do not adjust the speed unless the pulley system is in operation (spinning). The handwheel drag is set at the factory during assembly. This drag prevents handwheel "creep" during operation but still permits easy adjustment. Due to normal wear and environment, the drag setting may change. To readjust, tighten set screw in thrust nut.

Belt

Pivoted mounting provides for quick belt change. With the belt in pulley grooves for the desired speed, swing motor to put proper tension in the belt. Tighten thumb screw to hold motor in proper operating position.

Fixed Vise Jaw

The two pins in the fixed vise jaw should be kept in place in order to ensure square cuts. For cutting angles, the pins must be removed and the turned to the desired position and tightened with clamp bolts. These pins enable operators to quickly relocate the fixed vise jaw for approximate 90° cutting. For final, accurate cutting, the fixed vise jaw should be squared with the blade. (See Guide Alignment)

Sliding Vise Jaw

The sliding vise jaw is fitted with a lift plate and ratchet dog for quick action. A hand wheel tightens the vise on the workpiece. *Excessive pressure is not required to hold workpiece securely.*

Maximum Capacity

To obtain maximum vise capacity, remove vise jaw pins and move fixed vise toward motor end to the last two holes in the bed. Make sure the stock in the vise will not strike the ratchet arm.

Placing the Blade on Saw

1. Raise saw head part way.
2. Open idle and drive wheel guards.
3. Loosen Rite Tension® by turning "T" handle Counter-Clockwise (CCW) at least six (6) times. Gently pushing in on the handle while turning will ensure that the device will reset properly.
5. Open each carbide guide (if equipped). Reach behind each blade guide assembly and turn the black knurled knob Counter Clockwise (CCW) until it stops. This pulls the carbide block away from the blade.
6. Remove the blade. Always wear gloves when handling bandsaw blades.
7. Install the blade on the bandwheels making sure the teeth are pointing in the direction of travel (toward the motor). If not turn the blade inside out. Fit the blade into the guides and close the carbides by turning the black knob clockwise until

it stops. It does not need to be tight. Be sure that the band is not riding up on the bandwheel flange.

8. Begin tightening the Rite Tension® device by turning “T” handle Clockwise (CW). Pull out on handle while tightening. Spot check the blade to be sure that it does not ride up on the bandwheel flanges. Continue to tighten. The correct tension will be achieved when the “T” handle comes to a hard stop.

9. Close all guards. Test run the saw. A new blade may stretch a small amount after run-in. Repeat the loosen and tighten procedure to eliminate this.

Maintenance Instructions

Servicing the Blade Guides

Up to S/N 2499

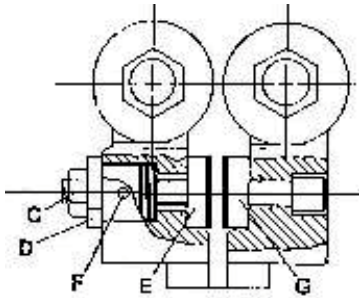


Figure 1

1. To adjust blade guide setting, loosen screw “F”.
2. Turn nut and stem assembly “C” clockwise to verify full engagement of threads into guide “E”. If threads are not fully engaged, item “C” will not turn. *Caution: Do not use excessive force when adjusting!*
3. While holding nut and stem assembly “C” with a ½” wrench, turn adjusting nut “D” with a ¾” wrench until spacing guides “E” and “G” are set to .038. Set screw “F” has a nylon tip to hold adjusting nut in place. Carbide guide “G” is stationary and requires no adjustment.

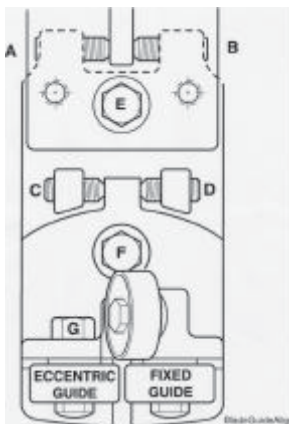


Figure 2

Blade Guide Alignment

Up to S/N 2499

To properly align the saw blade for a straight and accurate cut, do the following:

1. Check the stationary vise jaw. Make sure it is square. To do this, place a combination square against the vise jaw slot in the saw bed. Slide the square toward the stationary vise jaw. Make the necessary adjustment. If you then find the saw blade is not square with the stationary vise jaw, the blade must be adjusted.
2. This adjustment is made with the top two socket headed screws on the roller adjusting block of the guide arm. Looking at the drawing (figure 2) you will see these adjusting screws labeled “A” and “B”.
3. To make a vertical adjustment of the saw blade, so that the cut is square from top to bottom, the blade must be set so that it is perpendicular to the bed. In making this adjustment, clean the saw bed first.
4. Set the rule of the combination square on the saw bed with the end of the rule butted against the blade above the set of the saw teeth. Use a 1½ thousandths (.0015”) shim and slide it along the top and the bottom edge of the rule where it meets the saw blade. If the shim slides between the blade and the rule at, either the top or bottom, the roller supports must be adjusted by using the bottom socket head screws marked “C” and “D” to obtain the correct 90° angle.

Adjust the side roller guides with the Guide-A-Matic until both rollers contact blade. When this adjustment has been made properly, the **PATH OF THE BLADE IS STRAIGHT** and the blade is not forced to curve around the rollers. The top ball bearing should be in contact with the top of the blade at all times. When running the saw at idle, this contact pressure should be light.

Blade Guide Adjustment

Starting S/N 2500

To properly align the saw blade for a straight and accurate cut, do the following:

1. Square the stationary vise jaw. Make sure it is square to the front of the vise slot. Check by placing a combination square against the front of the vise slot in the saw bed. Slide the square toward the stationary vise. Make any necessary adjustment to the vise jaw to bring it into square. Set the combination square so that one leg is along the face of the stationary vise and check to see that the blade is square to the vise jaw. If it is not square, follow the instructions for horizontal adjustment.
2. Vertical Adjustment. The back of the saw blade should just touch the carbide back up guide (item 15 in the parts drawing) when the saw is running but not cutting. To adjust, loosen the two cap screws [A] and move the block up or down as required. (Before making this adjustment, be sure the back of the blade is properly contacting the flange on both the drive and idle wheels).

3. Horizontal Adjustment. Loosen the two cap screws [B] securing the horizontal adjusting block (items 11 & 12 of the parts drawing). Turn the top adjusting bolt (item 13 of the parts drawing) to move the blade either in, toward the saw bed, or out, away from the saw bed.

Normally, the blade comes off the Drive Wheel with a minimum amount of adjustment needed in the Horizontal Adjusting Block. The Idle End adjusting block is more likely to require adjustment.

4. Blade Tilt. To ensure the blade is perpendicular to the bed of the saw, loosen the two cap screw [C] holding the Guide Support (28 & 29 of the parts drawing) and turn the bottom adjusting bolt (13 of the parts drawing).

Set the combination square on the saw bed with the end of the rule butted against the blade *above the set of the teeth*. Use a 1-1/2 thousandths (.0015") shim and slide it along the top and bottom edge of the rule where it meets the saw blade. If the shim slides between the blade and the rule at either the top or bottom, the blade guides must be adjusted.

5. Safety. Ensure that all bolts are properly tightened and that all guards are in place before using the saw.

Wheel Pitch Adjustment

If the saw blade runs too low, runs off the wheels, or runs too high and rubs the wheel flange, a wheel adjustment must be made.

Loosen the blade before making the following adjustments.

Idler Wheel:

Blade running too low or off the wheel- adjust the idler wheel block. Loosen the two cap screws in the block, opposite the take up screw end, one-half (1/2) turn. Tighten the opposite two cap screws one-half (1/2) turn. Repeat if necessary.

Blade running too high and against the idler wheel flange-

The blade can become distorted, its top edge rolled over and wheel flange will wear excessively.

To correct this, loosen the two cap screws closest to the take up screw one-half (1/2) turn. Tighten the opposite cap screws one-half (1/2) turn. Repeat if necessary.

Drive Wheel:

Blade running too low or off the drive wheel- Loosen the two cap screws opposite the outside end of the wheel plate one-half (1/2) turn. Tighten the two set screws on the same end one-half (1/2) turn. Repeat if necessary.

Blade running too high, and against the drive wheel flange-

Loosen the cap screws closest to the outside end of the wheel plate and loosen the two set screws at the same time by the same amount. Repeat if necessary.

Make certain all screws are tight after adjustments have been made.

Guide-A-Matic©

The Guide-A-Matic is a patented self-adjusting mechanism that insures proper roller guide tension against the side of the

blade. To open the roller guide while inserting a new blade, *pull down on the knurled brass housing and rotate it*. After inserting the new blade, re engage the Guide-A-Matic by pulling the knurled brass housing down and rotating it again so that the mechanism closes and locks into position. (See drawing and instructions on pages 17).

Gear Box Repair

1. Remove gear box from saw.
2. Remove four machine screws holding gear box together.
3. Separate gear box by carefully prying castings apart at a location near pulley shaft. *Caution: Do not use excessive force.*
4. Once the gear box is open, the internal parts may be inspected for wear.
5. Liquid plastic gasket is used to seal the gear case, Loctite No. 51580 or equivalent.
6. Grease, Texaco Marfax '0' or equivalent is recommended. The grease must have excellent clinging characteristics. (See Lubrication).

Blade Brushes

Brushes should be cleaned frequently in kerosene and reversed to take advantage of both rows of bristles. For efficient cutting and blade life, keep blade brushes adjusted so they are contacting blade teeth and replace them when worn.

Motor Switch

The "Start-Stop" motor starter is provided with heater coils to de-energize the circuit if an overload occurs. Allow the coil to cool before trying to restart the motor.

Low/No Voltage Control also de-energizes the circuit and prevents automatic restarts after power is restored. Allow the coil to cool.

***To stop the saw at any time,
press the stop button or
press down on the limit switch actuator***

Stock Stop Feature

The saw is equipped with an adjustable stock stop for use when making repeated cuts of the same length. The stop length is adjusted with the same type of lock used on the saw head angle lock. The stop can be adjusted width-wise using the "T" handle on the lower portion of the support. The stop mechanism can also be swung completely out of the way. To do this, loosen the "T" handle two turns, lift up on the stop and let it down behind the saw.

Preventive Maintenance

Caution: Disconnect the electrical supply and press emergency STOP button before performing any maintenance. DO NOT service the Frame Hydraulic Cylinder or Down Feed Valve unless the frame is in the DOWN position or resting on a mechanical stop, such as a block of wood.

Daily

1. Keep the saw clean and free of chips.
2. Maintain the coolant level and keep the coolant tank and filter clean of chip accumulation or sludge.

Monthly

1. Check, adjust and replace blade brush as needed.
2. Lubricate drive gears
3. Inspect carbide guides and bearings.
4. Inspect drive belt.
5. Clean coolant tank and filter as needed.

Annually

1. Check hydraulic oil level.
2. Replace guide rollers and carbide inserts.
3. Inspect gear box. Lubricate as needed.

Lubrication

Correct and adequate lubrication is a very important factor in determining the life and service of your Wellsaw. It is essential that all dust, dirt, chips, [etc. be](#) thoroughly removed before lubricating the saw. The following lubrication recommendations cover usual saw applications. Heavy use and hostile environments may indicate more frequent lubrication for best saw performance.

Vise Screw, Ring Gear, Drive Pinion

1. Inspect Monthly.
2. Use anti-seize on Vise Screw
3. Use an Extreme Pressure open gear lube sparingly on Ring Gear and Drive Pinion

Gear Case

1. Inspect after 3 years (6,000 hours).
2. Use Mobilgrease XHP 220 or equivalent.

Hydraulic Cylinder

1. Inspect annually. Fill to top of plug. Drain and replace every 5 years (10,000 hours).
2. Fill with Mobil Velocite Oil #6 or equivalent.
3. Viscosity at 100EF: SUS 57-61.

4. Military Specification: None.

Motor

1. Inspect annually. Re-lubricate every 2 years (4,000 hours) 1 to 2 full strokes.
2. Use Shell Dolium R or equivalent.
3. Viscosity: Heavy Grease, drop point 219EC.
4. Military Specification: None.

Recommended Service Kits For Insurance Against Downtime

Up to S/N 2499 1 year

M-426	Blade Brush	2 req'd.
-------	-------------	----------

2 year

100406-002	Top Bearing	2 req'd.
100416-003	Side Bearing	4 req'd.
100053-025	Roll Pin, Guide A Matic	4 req'd.
100066-005	V-Belt	1 req'd.
M-426	Blade Brush	2 req'd.
M-166	Dash Pot Cup Leather	1 req'd.

After S/N 2499 1 year

M-426	Blade Brush	2 req'd.
-------	-------------	----------

2 year

100416-001	Side Bearing	4 req'd.
100066-005	V-Belt	1 req'd.
M-426	Blade Brush	2 req'd.
100133-004	Blade Brush (after s/n 3329)	1 req'd.

Note: Check Carbide Guides

Model 1016 History

The most widely used of the Wellsaws has been the Model 8. Originally introduced in 1933, it has continued, with constant improvements in design and materials, to be built today in the form of the Model 1016.

The original Model 8 used a 3/4" blade, a 3/4 HP motor and had a 9" x 16" cutting capacity. Successive improvements in this popular design were known by various model numbers. The Model 850 featured a 1" blade. Model 1000 offered a larger 10" x 16" cutting capacity with a 1 HP motor and Guide-A-Matic, a patented mechanism for controlling blade roller guides automatically.

Today's Model 1016 includes a coolant system, a precision ground bed, the Rite-Tensioning Device® to insure more positive blade tension control, and low voltage controls for operator safety.

One Year Limited Warranty

This Wellsaw is warranted against defects in material and workmanship installed or performed at our factory. Within one year from the date of purchase, we will, free of charge, at our option, either repair or replace any part of the Wellsaw which our examination discloses to be defective because of workmanship or a defect in material, and to make any necessary service adjustments as required. This warranty does not apply if the Wellsaw has been subject to accident, alteration, abuse, misuse or which fails due to lack of care or as the result of inadequate power supply and specifically does not apply to normal wear of moving parts such as bearings, gears, pinion or blade. *There is no warranties beyond the description on the face hereof.* Wellsaw shall not be liable for consequential or incidental damage suffered or incurred with respect to defective material or workmanship.

All transportation costs or parts submitted to Wellsaw under this warranty must be paid by the saw's owner. No products or parts are to be returned to our factory without first obtaining written permission.

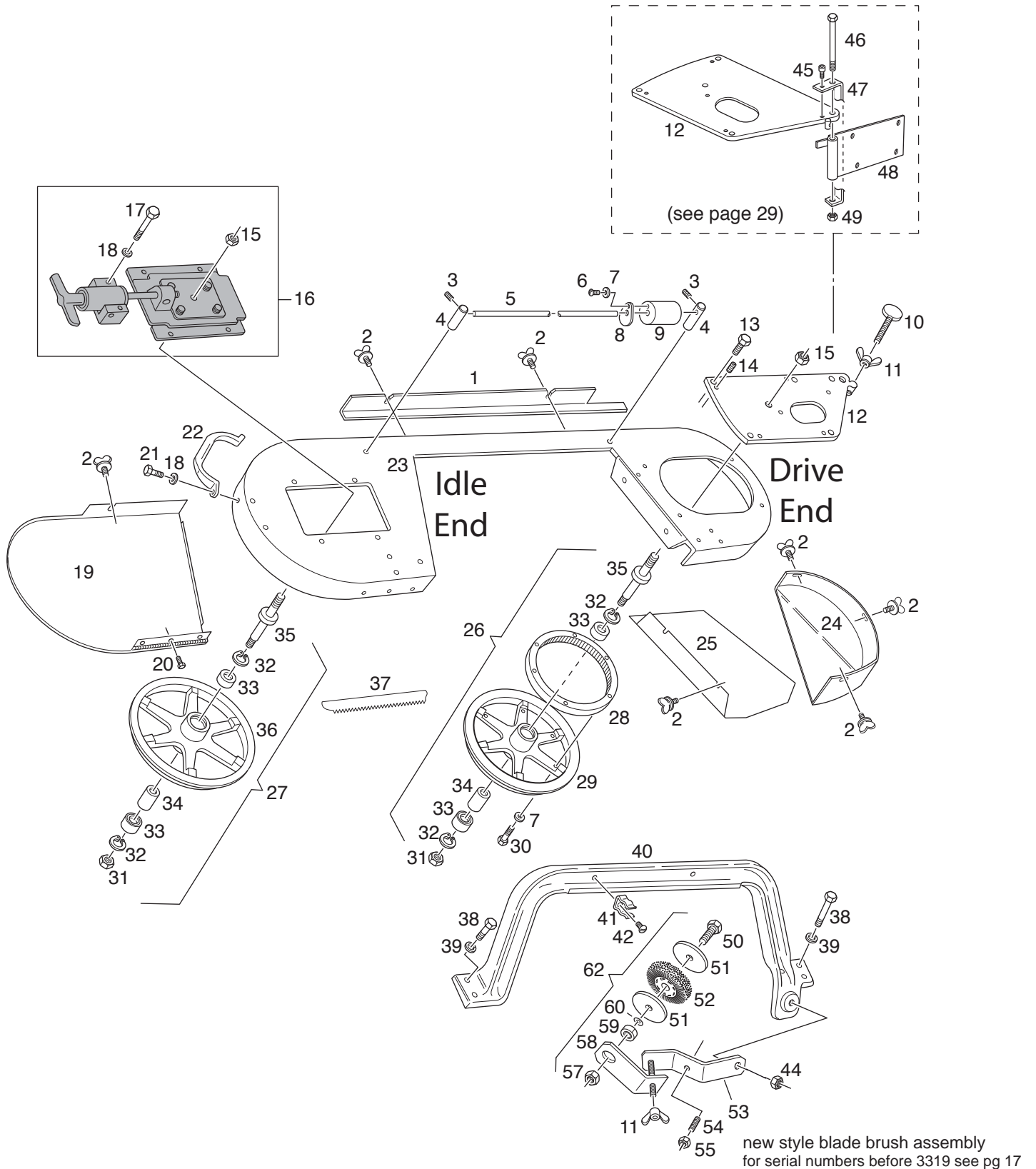
NOTE: Be sure to fill out and return the Warranty Card provided with this Wellsaw

MACHINE OPERATION

1. Raise the frame and lock it into place by turning the manual flow control valve clockwise (CW) until it stops.
2. Adjust material you plan to saw to the desired cut off length. Turn vise screw handle clock-wise (CW) to tighten. Always be sure the material is properly secure before cutting.
3. Push the blade START button to start the machine.
NOTE: If the coolant selector switch is in the ON position, the coolant pump will turn on with the motor. Check to ensure there is adequate coolant in the coolant tank.
4. Adjust frame weight for the material to be cut. Refer to the Wellsaw "Select-O-Chart" for the recommended settings. (L = light, M = medium, H = heavy)
5. Open the manual flow control valve. Turn it counterclockwise (CCW) to the desired feed rate.
NOTE: When breaking in a new blade, always reduce the frame feed rate to on half ($\frac{1}{2}$) the normal rate of descent.
6. The saw will automatically shut off at the end of the cut. Raise the frame and lock it in to place. Repeat the above operation for additional operations.

NOTE: The saw may be turned off at any time during the cutting operation by pressing the STOP button on the operator control panel or by pressing the KILL SWITCH (frame down limit switch) on the front of the machine.

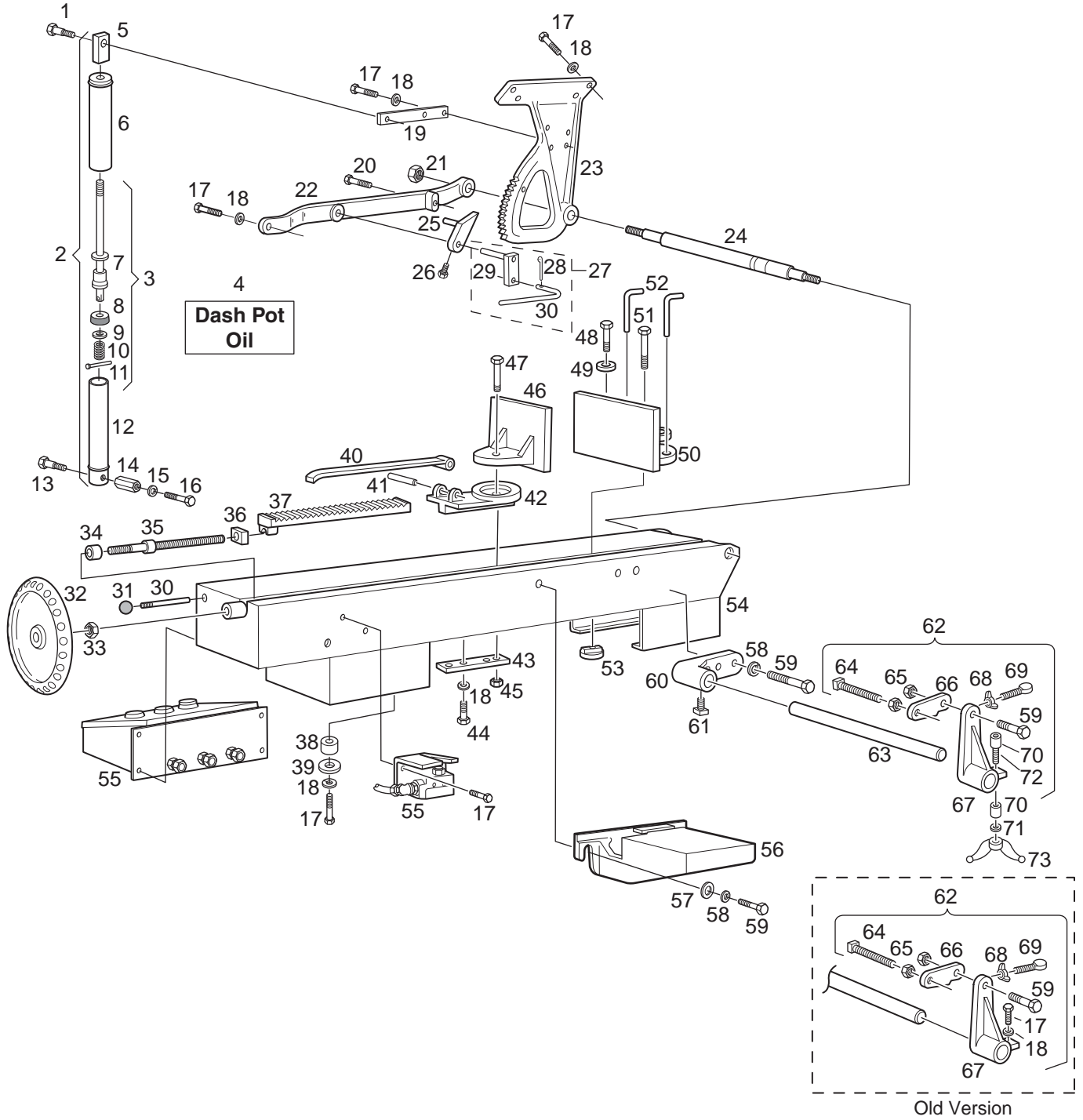
Frame Assembly



Frame Assembly

1	155108	Back Blade Guard
2	100063	Thumb Screw
3	100034-001	Set Screw, 1/4-20 x 3/16 (2 req'd)
4	M-102	Sliding Weight Post
5	B-101	Sliding Weight Bar
6	100000-024	Machine Screw, RH, 1/4-20 x 3/8
7	100025-001	Lock Washer, 1/4
8	M-857	Sliding Weight Spring
9	M-807	Sliding Weight
10	100042-005	Thumb Screw, 3/8-16 x 2-1/2
11	100024-003	Wing Nut, 3/8-16
12	105321	Wheel Plate
13	100004-019	Cap Screw, HH, 5/16-18 x 1-1/8
14	100034-005	Set Screw, 5/16-18 x 3/4 (4 req'd)
15	100065-007	Hex Nut, 5/8-18
16		Rite Tension Assembly (see page 25)
17	100004-099	Cap Screw, HH, 5/16-18 x 2-1/4
18	100025-002	Lock Washer, 5/16
19	105348	Idle Wheel Guard
20	100013-010	Machine Screw, BH, 1/4-20 x 1/4
21	100004-015	Cap Screw, HH, 5/16-18 x 3/4
22	B-025	Handle
23	101456	Frame
24	105350	Drive Wheel Splash Guard
25	155120	Drive Wheel Guard
26	105428	Drive Wheel Assembly (includes items 28-35 and 7)
27	105429	Idle Wheel Assembly (includes items 31-36)
28	B-086	Internal Ring Gear
29	101574	Band Drive Wheel, 1" Blade
30	100004-068	Cap Screw, HH, 1/4-20 x 1-1/4 (6 req'd)
31	100019-016	Hex Jam Nut, 5/8-18
32	100068-002	Snap Ring
33	100414-003	Bearing
34	105415	Wheel Spacer
35	105421	Wheel Axle
36	101575	Band Idler Wheel, 1" Blade (includes items 32-34)
37	098005-039W	Blade, Bi-Metal, 11'6" x 1" x .035, 5/8 TPI
38	100004-030	Cap Screw, HH, 3/8-16 x 1-1/2
39	100025-003	Lock Washer, 3/8
40	101548	Guide Bracket Beam
41	100169	Tube Clamp
42	100000-010	Machine Screw, RH, 8-32 x 5/16
44	100023-005	Hex Nut, nylon insert, 5/8-11
45	100008-018	Cap Screw, SH, 5/16-18 x 3/4
46	100004-084	Cap Screw, HH, 5/8-11 x 6
47	105756	Motor Mount Support
48	105753	Motor Mount
49	100023-005	Hex Nut, 5/8-11, Nylon Locking
50	100004-029	Cap Screw, HH, 3/8-16 x 1-1/4
51	100097-006	Washer, 13/32 ID x 2 OD
52	100133-004	Wire Brush Wheel
53	105757	Blade Brush Bracket
54	100039-003	Set Screw, SH, 1/4-20 x 5/8
55	100017-001	Hex Nut, Heavy, 1/4-20
56	155205-003	wing nut.
57	100017-003	Hex Nut, 3/8-16
58	155147	Arm
59	100406-001	Bearing
60	100030-005	Flat Washer, 3/8
62	155146	Blade Brush Assembly (includes items 50-52 and 57-60)

Bed Assembly

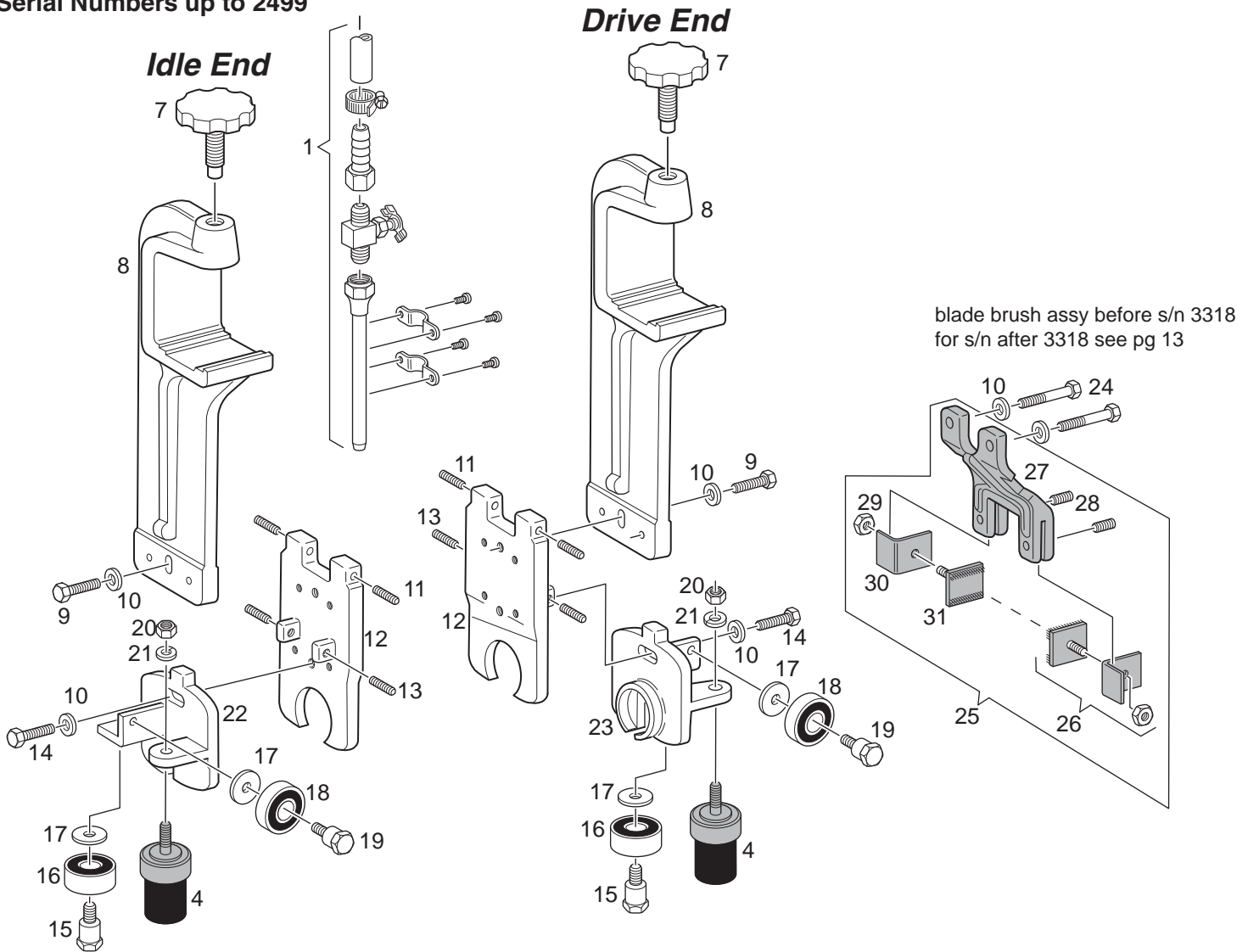


Bed Assembly

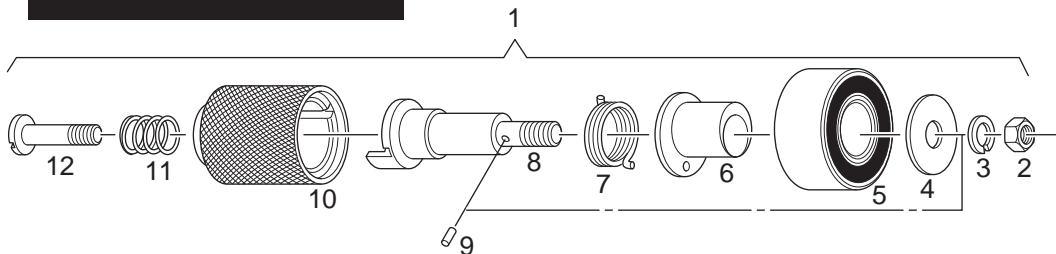
1	155022	Dash Pot, Upper Stud		
2	M-301	Dash Pot Assembly (see page 27)	54	155012 Saw Bed used before s/n 5382
3	101526	Piston Rod Assembly (includes items 7-11)		155012-001 Saw Bed used after s/n 5382
4	098049-001	Dash Pot Oil	55	Electrical Controls (see page 33)
5	M-144	Piston Rod End	56	B-011 Tip-Off Block
6	101524	Outside Tube	57	100029-008 Flat Washer, 5/8
7	101527	Piston Rod	58	100025-007 Lock Washer, 5/8
8	M-166	Cup Leather	59	100004-041 Cap Screw, HH, 5/8-11 x 1-1/2
9	100070	Cup Washer	60	B-082 Stop Bar Bracket
10	M-148	Spring	61	100033-015 Set Screw, Sq Hd, 5/8-11 x 1
11	100050-002	Cotter Pin, 3/32 x 3/4	62	B-344 Stock Stop Assembly (includes items 64-69, 17,18 and 59)
12	101523	Inside Tube	63	B-460 Stock Stop Bar
13	M-147	Dash Pot Lower Stud	64	100033-016 Set Screw, Sq Hd, 5/8-11 x 4
14	155020	Dash Pot Mount, Lower	65	100019-007 Hex Jam Nut, 5/8-11
15	100025-003	Lock Washer, 3/8	66	M-452 Stock Stop Arm, Hinged
16	100004-058	Cap Screw, HH, 3/8-16 x 1-1/2	67	M-451 Stock Stop Arm, Fixed
17	100004-018	Cap Screw, HH, 5/16-18 x 1	68	100024-002 Wing Nut, 1/4-20
18	100025-002	Lock Washer, 5/16	69	100042-003 Thumb Screw, 1/4-20 x 2
19		Dash Pot Mount, Upper (see page 27)	70	155190 Wedge
20	100004-099	Cap Screw, HH, 5/16-18 x 2-1/4	71	100030-005 Flat Washer, 3/8
21	100017-007	Hex Nut, 5/8-11	72	155204 Carriage Bolt, Ribbed Neck
22	101451	Frame Ratchet Bracket	73	155205-002 Wing Nut
23	155023	Frame Ratchet		155203 Wedge and Bolt Assembly (includes items 70 and 72)
24	101455	Pivot Bar	74	100004-015 Cap Screw, HH, 5/16-18 x 3/4
25	101498	Ratchet Dog	75	100004-027 Cap Screw, HH, 3/8-16 x 1
26	100033-010	Set Screw, Sq Hd, 5/16-18 x 1/2		
27	105703	Ratchet Lever Rod Assembly (includes items 28-31)		
28	100050-001	Cotter Pin, 1/16 x 1/2		
29	B-057	Arm		
30	106790	Rod, Ratchet Lever		
31	100139-006	Knob		
32	B-093	Hand Wheel		
33	100019-028	Hex Jam Nut, 3/4-10		
34	100402	Thrust Collar		
35	M-060	Vise Screw		
36	M-061B	Vise Screw Nut		
37	B-078	Vise Ratchet used before s/n 5382		
	B-078-001	Vise Ratchet used after s/n 5382		
38	B-040	Ratchet Guide Spool used before s/n 5382		
	B-040-001	Ratchet Guide Spool used after s/n 5382		
39	M-041	Spacer		
40	B-079	Vise Ratchet Dog		
41	100053-002	Roll Pin, 3/8 x 2-1/2		
42	B-077	Vise Slide Block used before s/n 5382		
	B-077-001	Vise Slide Block used after s/n 5382		
43	B-045	Vise Slide Block Guide		
44	100004-018	Cap Screw, HH, 5/16-18 x 1		
45	100017-005	Hex Nut, 1/2-13		
46	B-003	Movable Vise Jaw		
47	100004-044	Cap Screw, HH, 5/8-11 x 3		
48	100004-070	Cap Screw, HH, 1/2-13 x 1-3/4		
49	155107	Vise Washer		
50	B-215	Stationary Vise Jaw		
51	100004-043	Cap Screw, 5/8-11 x 2-1/2		
52	M-065	Locating Pin		
53	B-151	Clamp Nut		

Blade Guide Assembly

Serial Numbers up to 2499



Guide-A-Matic®



CAUTION:

Most questions to our service department about the Guide-A-Matic® involve roll-pin alignment. Roll-pin (9) must be in the proper place for the Guide-A-Matic to operate. It must fit into the keyways on the Roller Support Brackets (23 and 24, page 14). The Roll Pin (9) and the pin in (10) must be aligned on the same side as shown in the illustration when the Guide-A-Matic is in the closed position.

Blade Guide Assembly

Serial Numbers up to 2499

1	155119	Coolant Assembly (see page XX)
2	105412	Blade Guide Assembly, Idle End (includes items 7-23)
3	105409	Blade Guide Assembly, Drive End (includes items 7-22 and 24)
4	105367	Guide-A-Matic Assembly (see bottom of this page)
5	105414	Roller Support Assembly, Idle End (includes items 15-23)
6	105411	Roller Support Assembly, Drive End (includes items 15-22 and 24)
7	105335-001	Hand Wheel and Screw
8	101453	Guide Bracket
9	100004-018	Cap Screw, HH, 5/16-18 x 1
10	100029-003	Flat Washer, 5/16
11	100034-006	Set Screw, 5/16-18 x 7/8
12	M-092	Roller Adjuster (includes items 11 and 13)
13	100034-005	Set Screw, 5/16-18 x 3/4
14	100004-018	Cap Screw, HH, 5/16-18 x 1
15	101178	Roller Axle, Bottom
16	100416-003	Bearing, Side
17	101186	Flat Washer
18	100406-002	Bearing, Top
19	101179	Roller Axle, Top
20	101300	Eccentric Axle Nut
21	100025-002	Lock Washer, 5/16
22	105396	Roller Support, Idle End
23	101180	Roller Support, Drive End
24	100004-022	Cap Screw, HH, 5/16-18 x 1-1/2
25	M-309	Blade Brush Bracket Assembly (before S/N 3319, includes items 28-33) for serial numbers after 3319, see page 13
26	101615	Blade Brush Assembly (before S/N 3319) (includes items 30-33)
27	M-198	Blade Brush Bracket
28	100034-003	Set Screw, 5/16-18 x 1/2
29	100017-001	Hex Nut, Heavy, 1/4-20
30	M-425	Blade Brush Angle
31	M-426	Blade Brush (2 req'd)

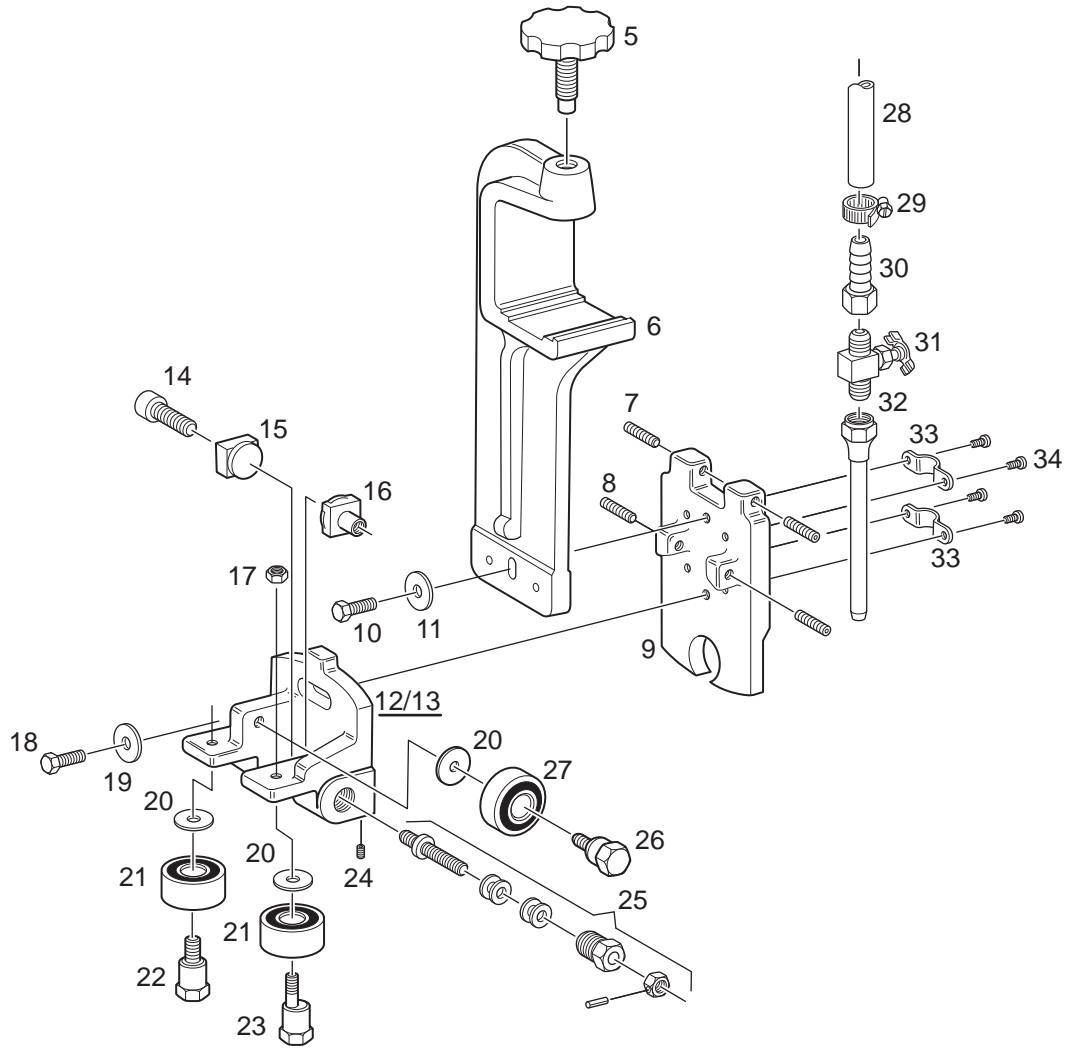
NOTE: For blade guards see page 21 and 22

Guide-A-Matic®

1	105367	Guide-A-Matic® (includes items 2-12)
2	101300	Eccentric Axle Nut
3	100025-002	Lock Washer, 5/16
4	101186	Flat Washer
5	100416-003	Bearing, Side
6	105357	Eccentric Bushing
7	105359	Torsion Spring
8	105358	Roller Axle
9	100053-025	Roll Pin, 1/16 x 5/16
10	105355	Brass Housing
11	105360	Spring
12	105356	Shoulder Screw

Carbide Guides

Up to Serial Number 2499
(option)



Carbide Guides

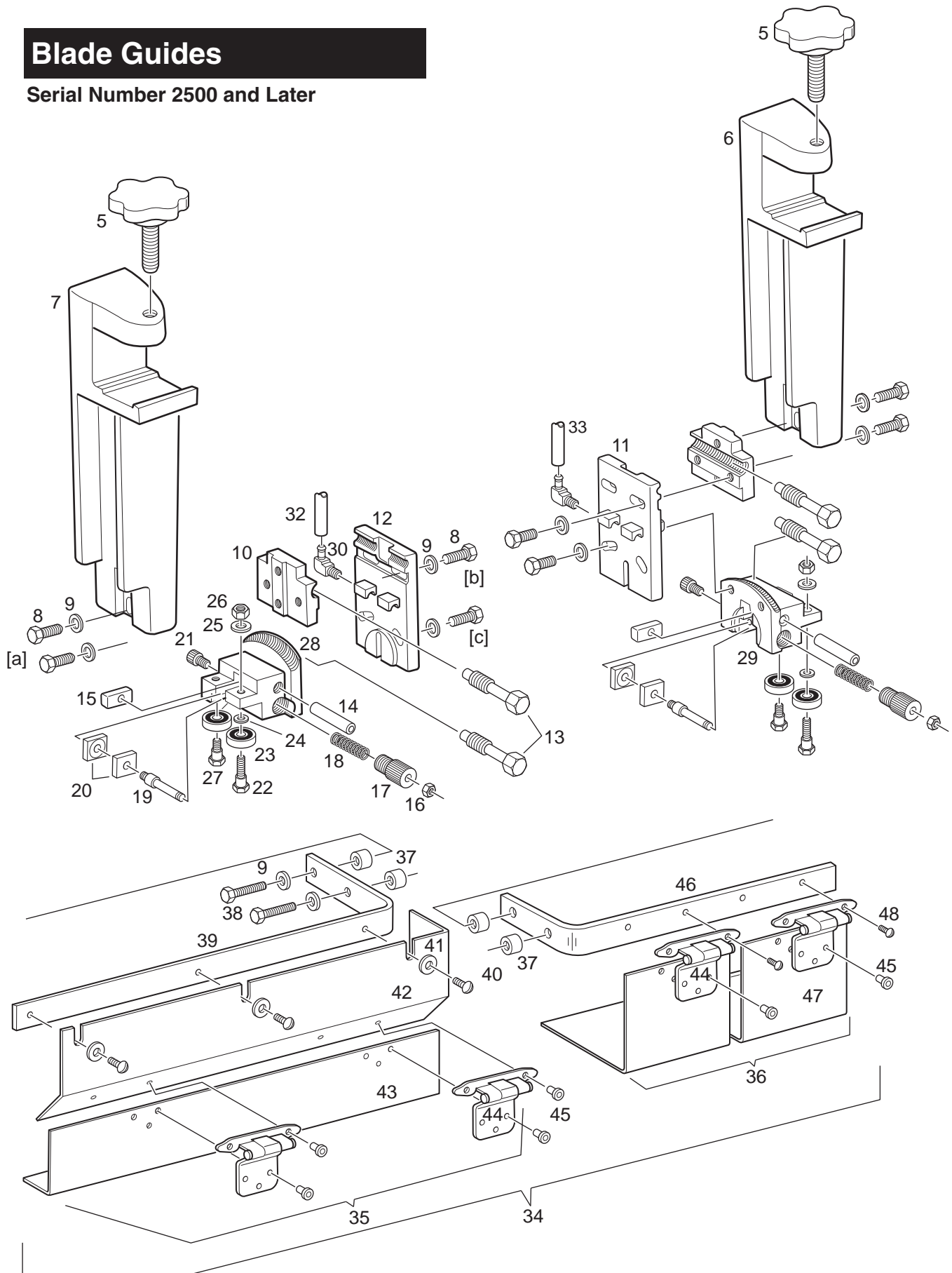
Up to Serial Number 2499
(option)

1	101522-002	Blade Guide Assembly, D.E. (includes items 5-27 minus 13)
2	105406-002	Blade Guide Assembly, I.E. (includes items 5-27 minus 12)
3	150061	Guide Support Assembly, D.E. (includes items 12-27 minus 13)
4	106659	Guide Support Assembly, I.E. (includes items 13-27)
5	105335-001	Hand Wheel & Screw
6	101453	Guide Bracket
7	100034-006	Set Screw, 5/16-18 x 7/8
8	100034-005	Set Screw, 5/16-18 x 3/4
9	M-092	Roller Adjuster
10	100004-018	Cap Screw, HH, 5/16-18 x 1
11	100029-002	Flat Washer, 1/4
12	106389	Roller Support, D.E.
13	106315	Roller Support, I.E.
14	100008-018	Cap Screw, SH, 5/16-18 x 3/4
15	106317	Fixed Carbide Guide
16	106319	Spring Backed Carbide Guide
17	101300	Eccentric Axle Nut
18	100004-016	Cap Screw, HH, 5/16-18 x 7/8
19	100029-003	Flat Washer, 5/16
20	101186	Roller Guide Washer (3 req'd)
21	100416-003	Bearing, Side (2 req'd)
22	101178	Roller Axle
23	101177	Eccentric Roller Axle
24	100127-003	Set Screw, Nylon Point, 1/4-20 x 5/16
25	106285	Guide Pre-load Assembly
26	101179	Roller Axle, Top
27	100406-002	Bearing, Top
28	100220-040	Coolant Hose
29	100219-001	Hose Clamp
30	102617	Hose Adapter
31	100226	Needle Valve
32	101670	Coolant Nozzle
33	100246-001	Pipe Strap
34	100000-018	Machine Screw, RH, 10-32 x 3/8

**Note: In The Blade Guide Assembly Illustration, Item 12, is the Drive End Assembly.
For the Idle End Assembly, order item 13. All Other Parts are Interchangeable.**

Blade Guides

Serial Number 2500 and Later

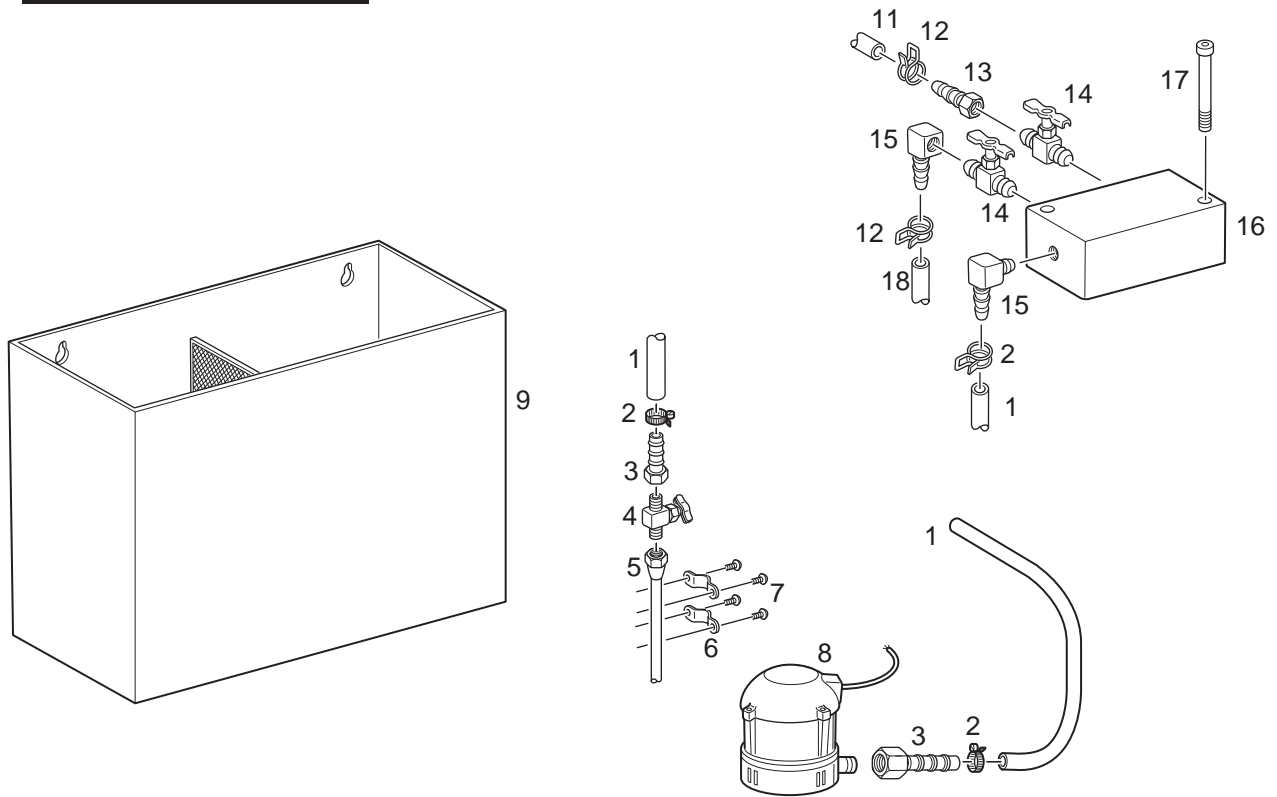


Blade Guide Assembly

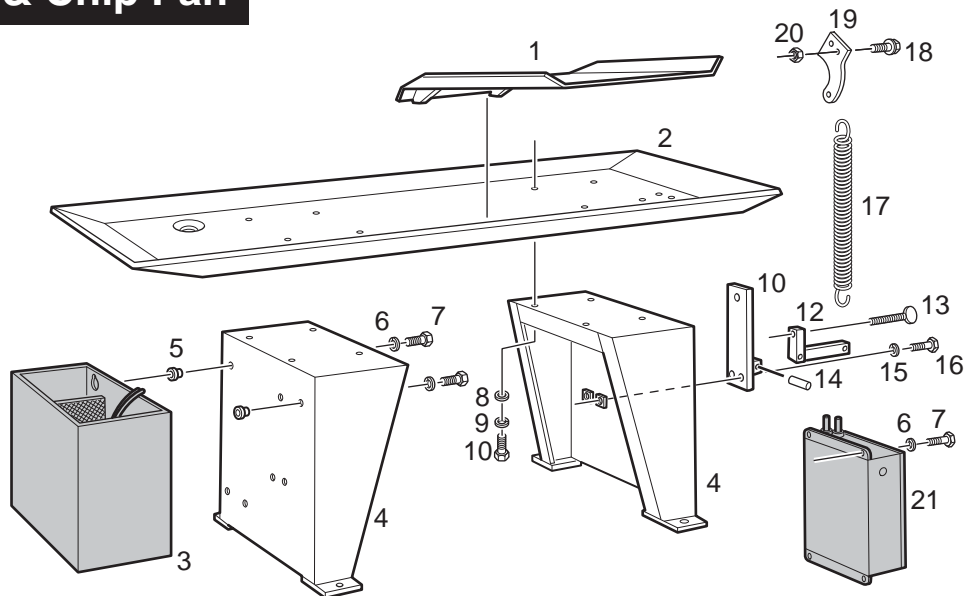
Serial Number 2500 and Later

- 1 **155124** **Blade Guide Assembly, Drive End**
(includes items 5-27, and 29, minus 7 and 12)
- 2 **155125** **Blade Guide Assembly, Idle End**
(includes items 5-28, minus 6 and 11)
- 3 **152160-001** **Guide Support Assembly, Drive End**
(includes items 13-27 and 29)
- 4 **152161-001** **Guide Support Assembly, Idle End**
(includes items 13-28)
- 5 105335-001 Hand Wheel and Screw
- 6 155123 Roller Guide Bracket, Drive End
- 7 155122 Roller Guide Bracket, Idle End
- 8 100004-018 Cap Screw, HH, 5/16-18 x 1
- 9 100029-002 Flat Washer
- 10 152155 Vertical Adjusting Block
- 11 152121-003 Horizontal Adjusting Block, Drive End
- 12 152121-002 Horizontal Adjusting Block, Idle End
- 13 152151 Adjusting Bolt
- 14 100053-036 Roll Pin, 1/4 x 2
- 15 152153 Carbide Back-up Guide
- 16 100023-006 Hex Nut, Nylon Lock, 1/4-20
- 17 152156 Adjusting Knob
- 18 100136-009 Spring
- 19 152157 Stud
- 20 106317 Fixed Carbide Guide (2 req'd per blade guide)
- 21 100008-004 Cap Screw, SH, 5/16-18 x 5/8
- 22 B-109 Eccentric Roller Axle
- 23 100416-001 Bearing, Side (2 req'd per blade guide)
- 24 100097-001 Roller Guide Washer
- 25 100027-005 Lock Washer, Shakeproof, 5/16
- 26 101300 Hex Nut, 5/16-18
- 27 B-043 Roller Axle
- 28 152120 Guide Support, Idle End
- 29 152119 Guide Support, Drive End
- 30 100324-009 Hose Barb, 1/4: hose, 90 deg.
- 31 100219-003 Hose Clamp, 1/4"
- 32 100350-068 Coolant Hose, Idle End
- 33 100350-036 Coolant Hose, Drive End
- 34 **105551** **Blade Guards, Complete, D.E. & I.E.**
(includes items 35- 48)
- 35 **105563** **Blade Guard Ass'y Complete I.E.**
(includes items 10, and 37-45)
- 36 **105564** **Blade Guard Ass'y Complete D.E.**
(includes items 44-48)
- 37 105537 Spacer (before S/N 2500)
- 38 100004-019 Cap Screw, HH, 5/16-18 x 3/4
- 39 105536 Mounting Bracket, I.E.
- 40 100000-024 Machine Screw, RH, 1/4-20 x 3/8
- 41 100097-002 Flat Washer, 1/4
- 42 105535 Blade Guard, Upper, I.E.
- 43 105539 Blade Guard, Lower, I.E.
- 44 105550 Hinge
- 45 100131-003 Pop Rivets
- 46 105552 Mounting Bracket, D.E.
- 47 105554 Blade Guard, D. E. (2 req'd)
- 48 100000-018 Machine Screw, RH, 10-32 x 3/8

Coolant System



Leg & Chip Pan



Coolant System

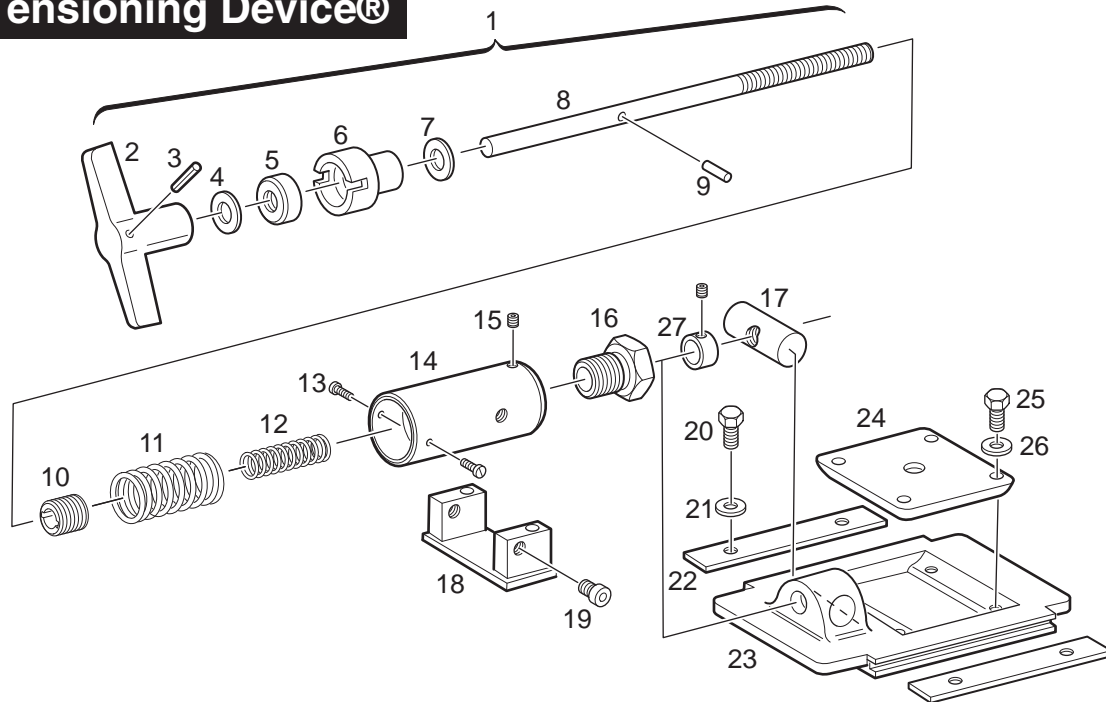
1	100220-040	Coolant Hose
2	100219-001	Hose Clamp
3	102617	Hose Adapter
4	100226	Needle Valve
5	101670	Coolant Nozzle
6	100246	Pipe Strap
7	100000-018	Machine Screw, RH, 10-32 x 3/8
8	100249-010	Coolant Pump
9	150066	Coolant Tank w/Filter
10	155119	Coolant System for Field Installation (includes items 1-9 plus coolant selector switch)
11	100350-068	Coolant Hose, I.E. 1/4 x 68"
12	100219-002	Clamp, 1/4
13	100324-011	Hose Barb
14	100226-004	Valve, Miniature Ball
15	100324-010	Hose Barb, 90°
16	152167	Coolant Manifold
17	100013-011	Cap Screw, BH, 10-32 x 1-1/4
18	100350-036	Coolant Hose, D.E. 1/4 x 36"

Leg & Chip Pan

1	M-250	Splash Guard
2	150077	Chip Pan
3		Coolant Assy. (see above)
4	155106	Leg (2 req'd)
5	150078	Coolant Tank Hanger (2 req'd)
6	100025-001	Lock Washer, 1/4
7	100004-004	Cap Screw, HH, 1/4-20 x 1/2
8	100029-004	Flat Washer, 3/8
9	100025-003	Lock Washer, 3/8
10	100004-027	Cap Screw, HH, 3/8-16 x 1
11	155016	Spring Anchor
12	155019	Spring Adjuster
13	100042-008	Thumb Screw, 1/2-13 x 4
14	100053-010	Roll Pin, 3/8 x 1-1/2
15	100025-002	Lock Washer, 5/16
16	100004-021	Cap Screw, HH, 5/16-18 x 1-1/4
17	B-292	Spring
18	100004-018	Cap Screw, HH, 5/16-18 x 1
19	101510	Frame Spring Arm
20	100017-002	Hex Nut, 5/16-18

Electrical Control Ass'y (see page 33)

Rite Tensioning Device®



Calibrating the WELLSAW RITE-TENSION® Blade Tensioning Device

The Rite-Tension® device is a simple turn counter that is activated by blade tension and can be easily adjusted in the field.

Please review the operation instructions before making any adjustment:

1. LOOSENING

When replacing a worn or broken blade always turn the "T" handle out at least six (6) turns (counter-clockwise).

This will reset the device. **Always push-in** on the handle when loosening, this will insure that the internal counter is engaged.

2. TIGHTENING

Always pull out on the "T" handle when tightening the device (clockwise). After a number of turns the "T" handle will come to a hard stop.

At this point the blade will be properly tensioned. Do not force the unit beyond this point.

Note: If the mechanism does not seem to come to a hard stop but continues to tighten, stop and repeat steps one and two. Check to make sure the blade is properly positioned on the band wheels and is not binding in the guides during the tightening process.

Calibration

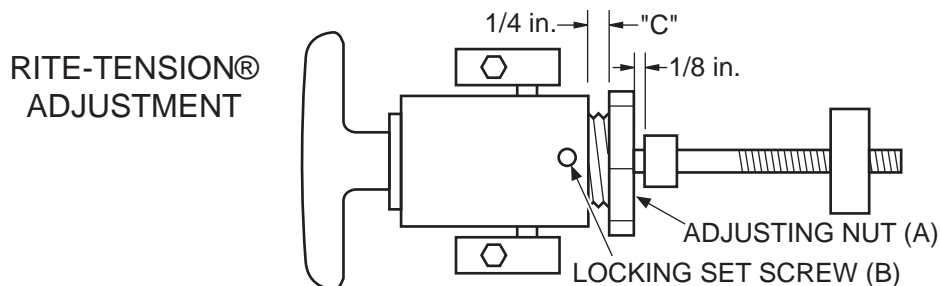
The final tension is determined by the Adjusting Nut, pn 150070 (see "A" in drawing). The "rough" position can be checked by measuring the clearance between the nut and the Tensioning Housing, pn 150067, (see "C").

A clearance of 1/4" will be within a safe range of the correct tension. When a tension gauge becomes available the device should be calibrated as follows: Loosen the set screw (B) one turn.

-If the band tension needs to be *increased* the adjusting nut should be turned out, one flat at a time, then the set screw tightened and the device rechecked.

-If the tension needs to be *decreased* the adjusting nut should be turned in, one flat at a time and rechecked.

The device must be in the "loosened" or "open" position to make this adjustment.



Rite Tensioning Device®

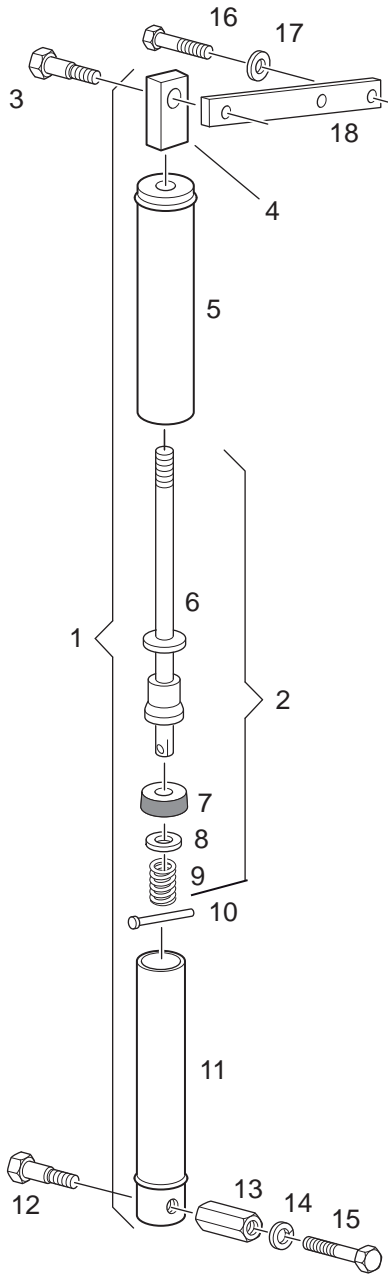
Caution:

The Rite Tension ® blade tensioning device has been factory calibrated for your saw.

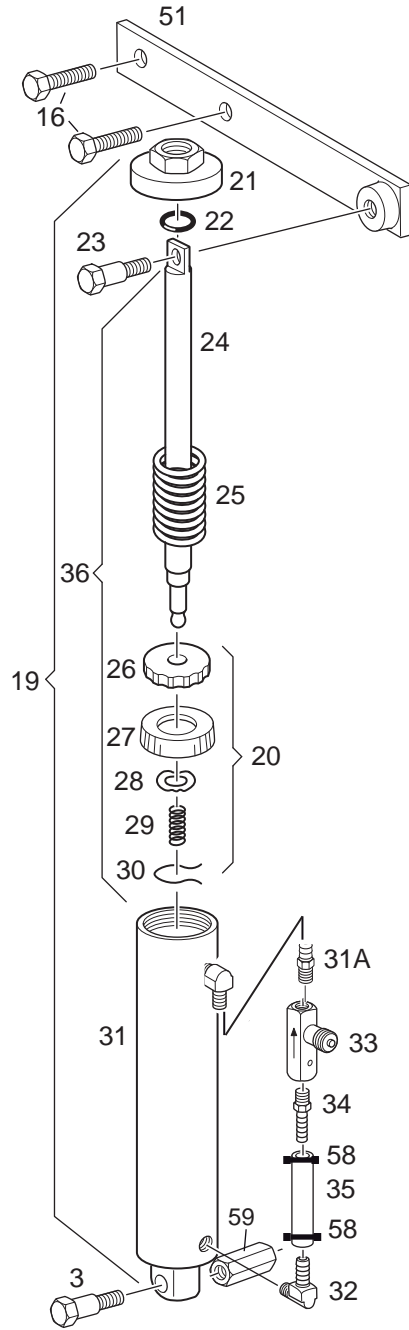
When re-tightening or replacing a blade, the 'T' handle must be turned counter-clockwise at least six turns to reset the Rite Tension ® mechanism.

1	150075	Blade Tensioning Ass'y (includes items 2 thru 18)
2	101184	Take Up Screw Handle
3	100053-005	Roll Pin, 3/16 x 1
4	100030-007	Flat Washer, 1/2
5	100410-001	Thrust Bearing
6	150068	Bearing Housing
7	100116-007	Belleville Washer (2 req'd)
8	150074	Take Up Screw (includes items 2 & 9)
9	100052-026	Dowel Pin, 3/16 x 11/16
10	150069	Turn Counter
11	100136-006	Spring, Large Diameter
12	100136-001	Spring, Small Diameter
13	100000-010	Machine Screw, 8-32 x 5/16 (2 req'd)
14	150067	Blade Tension Housing
15	100034-008	Set Screw, 1/4-20 x 1/4
16	150070	Tension Adjuster
17	155068	Swivel Nut
18	098030-004	Collar, w/set screw
19	100008-072	Cap Screw, HH 5/16-18 x 3/8 (2 req'd)
20	100004-013	Cap Screw, HH 5/16-18 x 5/8 (4 req'd)
21	100025-002	Lock Washer, 5/16 (4 req'd)
22	B-046	Slide Block Guide, (2 req'd)
23	101164	Slide Block
24	B-010	Wheel Adjusting Block
25	100004-019	Cap Screw, HH 5/16-18 x 1-1/8 (4 req'd)
26	102360	Spacer (4 req'd)
27	150190	Tensioner Support

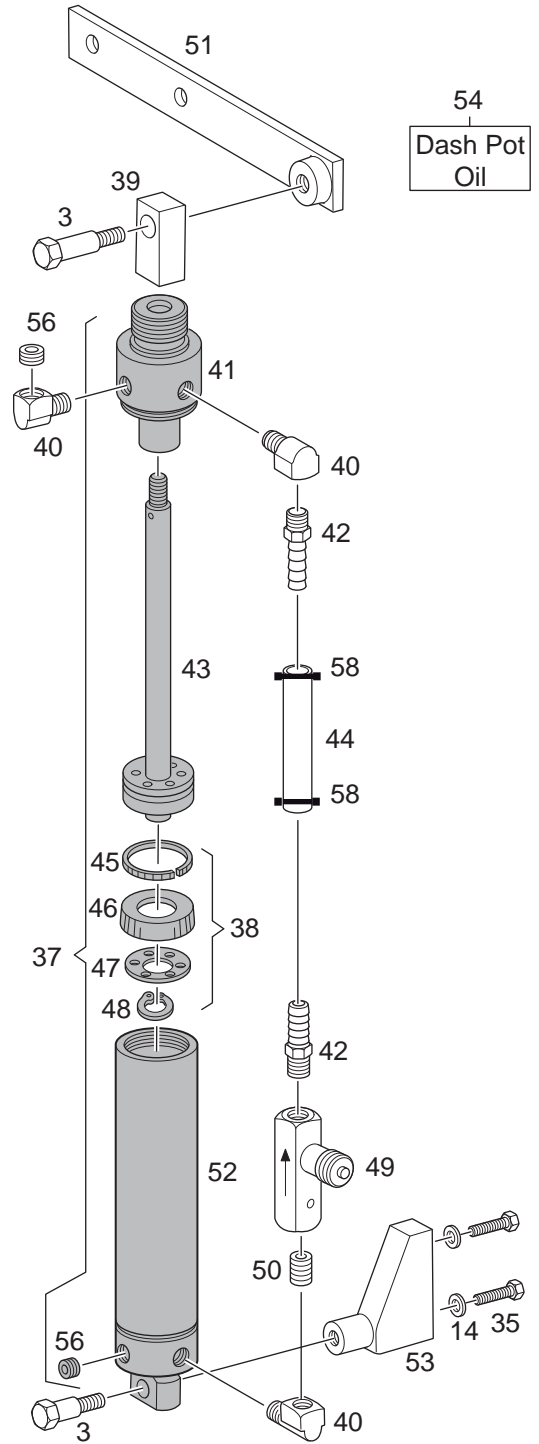
Hydraulic System



M-301



155329



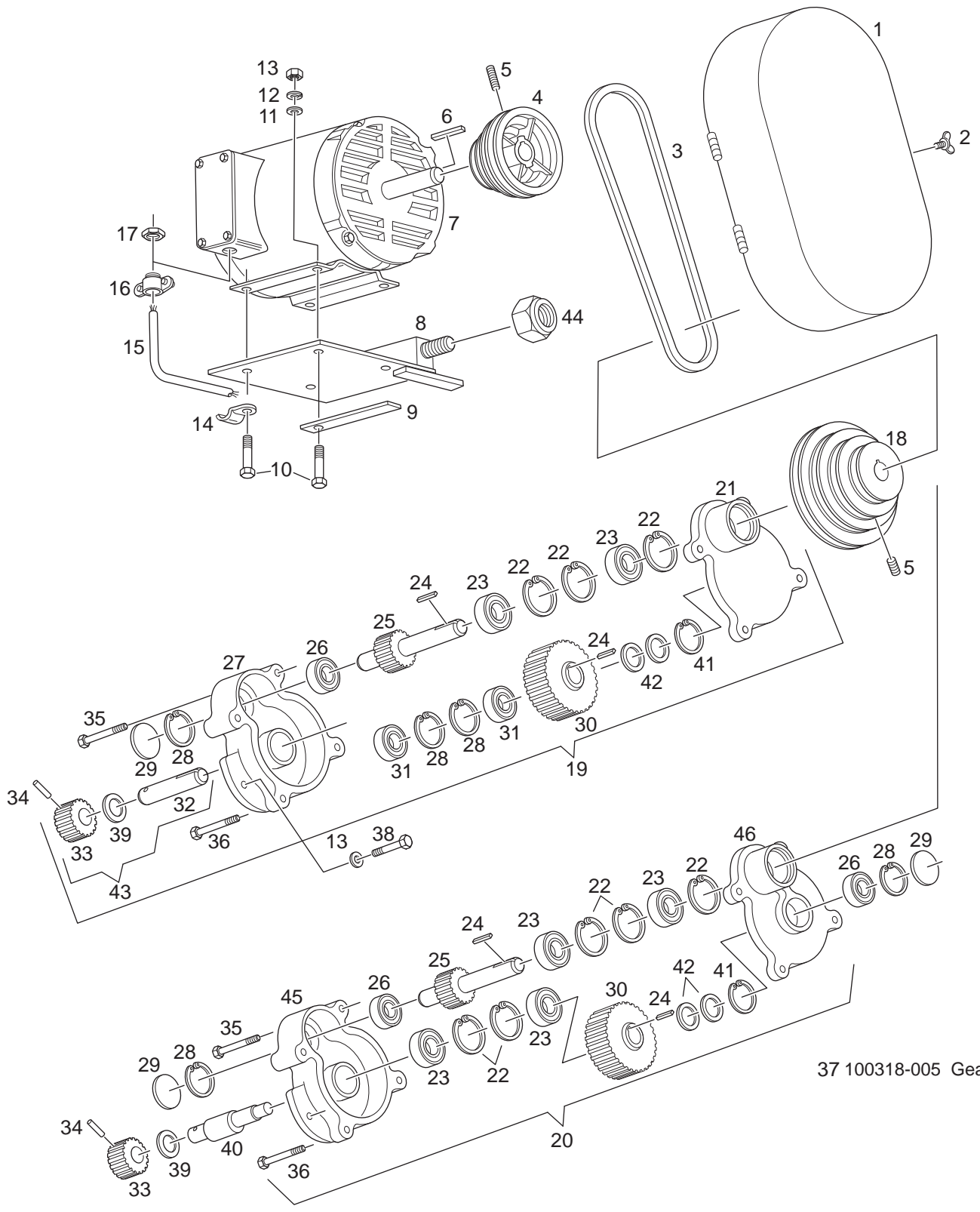
155114

Part no. 155144 is no longer available.
Use part no. 155329
(Parts for 155154 are still available.)

Hydraulic System

1	M-301	Dash Pot Assembly (before S/N 3319, includes items 4-11 and 54)
2	101526	Piston Rod Assembly (includes 6-9)
3	155022	Dash Pot Upper Stud
4	M-144	Piston Rod End
5	101524	Outside Tube
6	101527	Piston Rod
7	M-166	Cup Leather
8	100070	Cup Washer
9	M-148	Spring
10	100050-002	Cotter Pin, 3/32 x 3/4
11	101523	Inside Tube
12	M-147	Dash Pot Lower Stud
13	155020	Dash Pot Mount, Lower
14	100025-003	Lock Washer, 3/8
15	100004-026	Cap Screw, HH, 3/8-16 x 7/8
16	100004-018	Cap Screw, HH, 5/16-18 x 1
17	100025-002	Lock Washer, 5/16
18	155021	Dash Pot Mount, Upper
19	155329	Cylinder Assembly after s/n 3119
20	155256	Seal/Piston Cup Service Kit for 155329
21	155157	Cylinder Cap
22	155156	O-Ring
23	155153	Upper Stud
24	155155	Piston Rod
25	155159	Spring
26	155160	Washer
27	155161	Piston Cup
28	100028-006	Shake Proof Washer
29	155163	Spring
30	155164	External Hitch Pin
31	155328	Cylinder tube
31A	099701-001	Hex Nipple
32	100324-008	Hose Barb, 1/4 x 1/4
33	100286-011	Flow Valve
34	100324-014	Hose Barb Fitting
35	100295-002	Hose
36	155220	Piston Rod Assembly (includes items 24 and 26-30)
37	155114	Hydraulic Cylinder (Variable Feed Option before S/N 3319, no longer available) (to replace order part #'s 155329, 155153 and 155154)
38	150269	Field Service Kit (includes 45-48) for old cylinder 155114
39	155078	Cylinder Rod End
40	100334-002	Elbow, 1/4, 90°
41	155113	Cylinder Head
42	100324-008	Hose Barb
43	150264-002	Piston
44	100220-042	Plastic Hose, 3/8 x 4
45	150266	Glide Ring
46	150267	Piston Cup
47	150268	Cup Retainer
48	100069-012	Snap Ring
49	100286-009	Control Valve
50	100203-018	Nipple, 1/4 Close
51	155101	Dash Pot Mount, Upper
52	150449	Cylinder, Modified (no longer available, order part #'s 155329, 155153 and 155154)
53	155086	Dash Pot Mount, Lower
54	098049-001	Dash Pot Oil
55	100004-076	Cap Screw, HH, 3/8-16 x 3/4
56	100211-011	Pipe Plug, 1/4
57	155154	Dash Pot Mount, Lower
58	100219-003	Crimp Clamp
59	155154	Cylinder Mount, Lower

1016 Motor & Gear Box



37 100318-005 Gearbox grease

1016 Motor & Gear Box

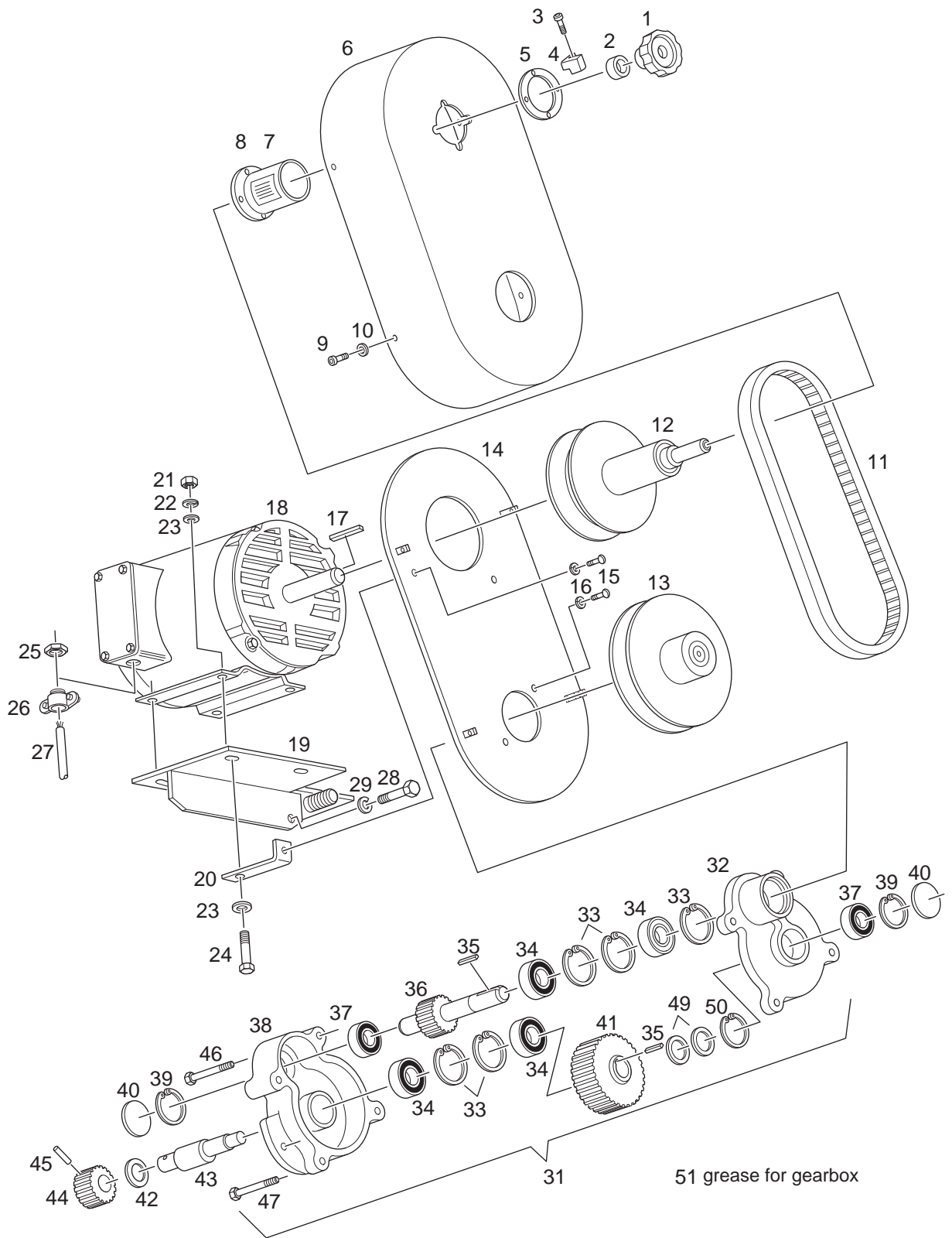
1	150428	Belt Guard (starting S/N 3100)
	105531	Belt Guard (before S/N 3100)
2	100063	Thumb Screw, w/Washer, 1/4-20 x 1/2
3	100066-005	V-Belt
4	101172-001	Motor Pulley, 4 Step, 5/8 Bore
5	100034-003	Set Screw, 5/16-18 x 3/8
6	100056-014	Key, 3/16 x 3/16 x 1-1/2
7	100836-031	Motor, 2 HP, 115-230/60/1
	100836-032	Motor, 2 HP, 208-230-460/60/3
	100836-007	Motor, 1 HP, 575/60/3
8	105330	Motor Mount (through S/N 3317)
	105753	Motor Mount (starting 3318)
9	105533	Belt Guard Support
10	100004-018	Cap Screw, HH, 5/16-18 x 1
11	100029-003	Flat Washer, 5/16
12	100025-002	Lock Washer, 5/16
13	100017-002	Hex Nut, 5/16-18
14	100218-010	Jiffy Clip #125
15	100555-043	Wire, Motor, 62" Long, 14/4
16	100597-001	Connector, Motor, TB-3302
17	100240-001	Conduit Locknut, 1/2
18	101156	Driven Pulley, 4 Step
19	155132	Gear Box Ass'y (Before S/N 3100)
20	150427	Gear Box Ass'y (Starting S/N 3100)
21	150233	Gear Case Cover
22	100068-002	Snap Ring
23	100414-003	Bearing
24	100056-001	Key, 3/16 x 3/16 x 3/4 for driven gear only
	100056-015	Key 3/16 x 3/16 x 1-7/8 use for pulley shaft
25	101187	Pulley Shaft & pinion use key part# 100056-015 with this
26	100404-002	Bearing
27	M-013	Gear Case
28	100068-001	Snap Ring
29	100072-001	Expansion Plug
30	101286S	Driven Gear use key part# 100056-001 with this
31	100404-001	Bearing
32	101644SERV	Drive Shaft
33	101645-FP	Drive Pinion w/Roll Pin
34	100053-005	Roll Pin, 3/16 x 1
35	100008-086	Cap Screw, HH, 1/4-20 x 2
36	100008-061	Cap Screw, HH, 1/4-20 x 1-1/2
37	100318-005	Lube Mobilgrease XHP220
38	100004-017	Cap Screw, HH, 5/16-18 x 7/8
39	150416	Spacer
40	150426	Drive Shaft
41	100069-003	Snap Ring
42	100097-003	Shim (as req'd)
43	101643	Drive Shaft & Pinion Assembly (includes items 32-34)
44	100023-005	Lock Nut, Nylon, 5/8-11
45	150424	Gear Case
46	150425	Gear Case Cover
47	100056-015	Key, 3/16 x 3/16 x 1-7/8

Starting S/N 2760 the 1016 gear box began using two bearings (item 23) in the cover (item 21) and a snap ring (item 22) at the end of the drive shaft (item 25).

NOTE:

It is very important to provide the saw serial number when ordering gearbox parts.

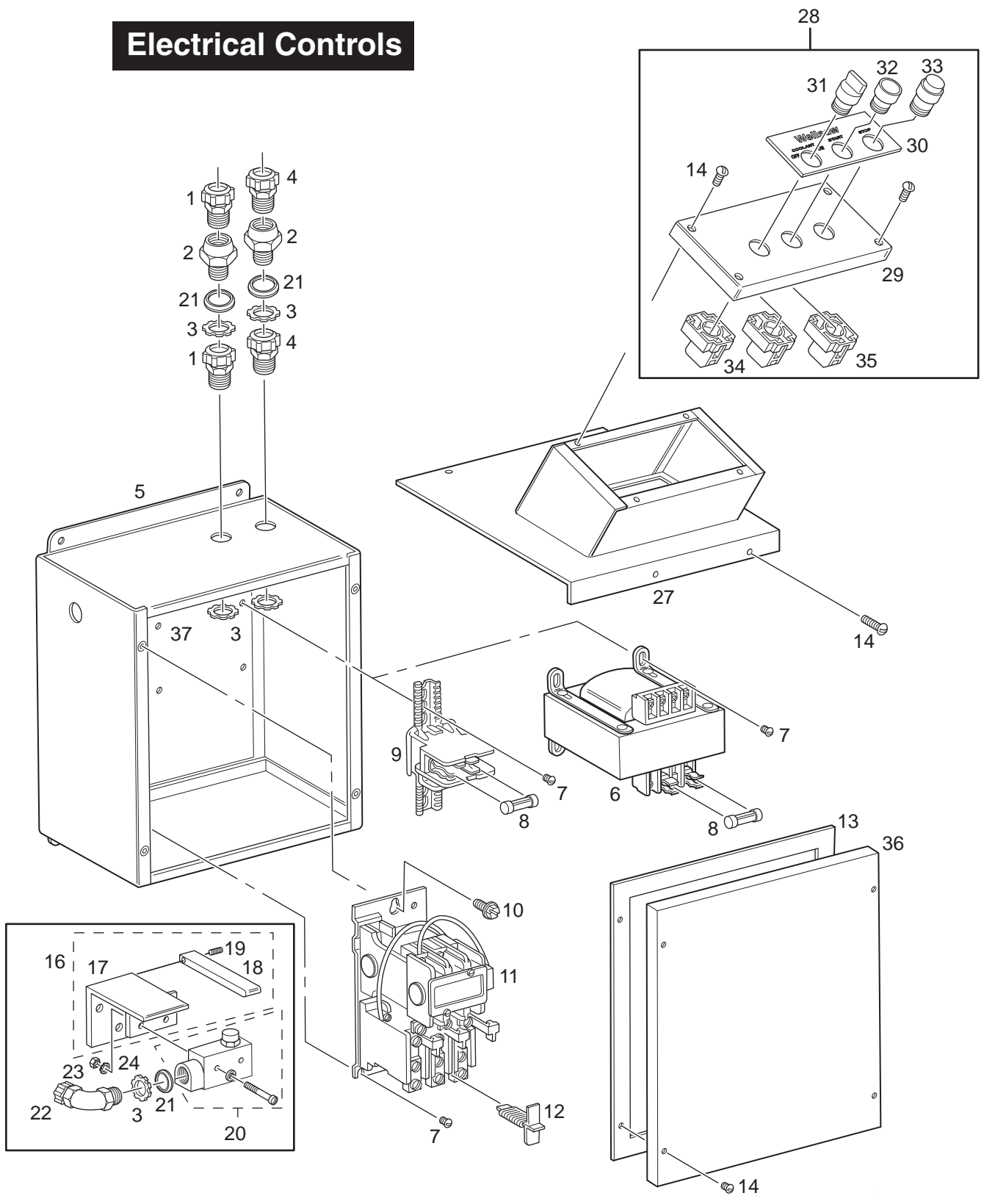
Variable Speed Drive



Variable Speed Drive

1	407-712	Hand Wheel
2	150217	Spacer
3	100008-087	Cap Screw, SH, 1/4-28 x 3/4
4	150256	Blade Speed Indicator w/Pointer
5	150255	Flange Clamp
6	155109	Belt Cover
7	150252	Sleeve
8	105688	Blade Speed Label
9	100013-006	Machine Screw, BH, 1/4-20 x 1/2 (4 req'd)
10	100025-001	Flat Washer, 1/4
11	105454-004	Belt, Variable Speed
12	105451-005	Motor Pulley, Variable Speed (1 phase motor, 5/8" shaft)
	105451-008	Motor Pulley, Variable Speed (3 phase motor, 7/8" shaft)
13	105451-015	Driven Pulley, Variable Speed (starting S/N 3060)
	105451-006	Driven Pulley, Variable Speed (up to S/N 3059)
14	105676	Belt Guard Bottom
15	100511-001	Machine Screw, Truss Hd, 1/4-20 x 1/2 (4 req'd)
16	100026-004	Lock Washer, Shakeproof, 1/4
17	150152	Key, Motor
18	100836-032	Motor, 2HP, 208-230-460/60/3
	100836-031	Motor, 2HP, 115-230/60/1
	100836-007	Motor, 1HP, 575/60/3
19	105764	Motor Mount
20	105677	Guard Support (2 req'd)
21	100017-002	Hex Nut, 5/16
22	100025-002	Lock Washer, 5/16
23	100029-003	Flat Washer, 5/16
24	100004-018	Cap Screw, HH, 5/16-18 x 1
25	100240-001	Conduit Locknut
26	100612-015	Connector, Motor, TB-2250
27	100555-043	Wire, Motor, 14/4
28	100004-029	Cap Screw, HH, 3/8-16 x 1-1/4
29	100025-003	Lock Washer, 3/8
30	105679	Stand Off (2 req'd)
31	150423P	Gear Box Assembly (includes items 32-47)
32	150425	Gear Case Cover
33	100068-002	Snap Ring
34	100414-003	Bearing
35	100056-001	Key, 3/16 x 3/16 x 1-1/2
36	150234	Pulley Shaft & Pinion
37	100404-002	Bearing
38	150424	Gear Case, (housing only)
39	100068-001	Snap Ring
40	100072-001	Expansion Plug
41	101286P	Driven Gear
42	150416	Spacer
43	150426	Driven Shaft
44	101645-FP	Drive Pinion (includes item 45)
45	100053-005	Roll Pin, 3/16 x 1
46	100008-086	Cap Screw, SH, 1/4-20 x 2
47	100008-061	Cap Screw, SH, 1/4-20 x 1-1/2
48	100004-017	Cap Screw, HH 5/16-18 x 7/8
49	100097-3,4,5	Shim (as needed)
50	100069-003	Snap Ring
51	100318-005	Gearbox grease Mobilgrease XHP220

Electrical Controls



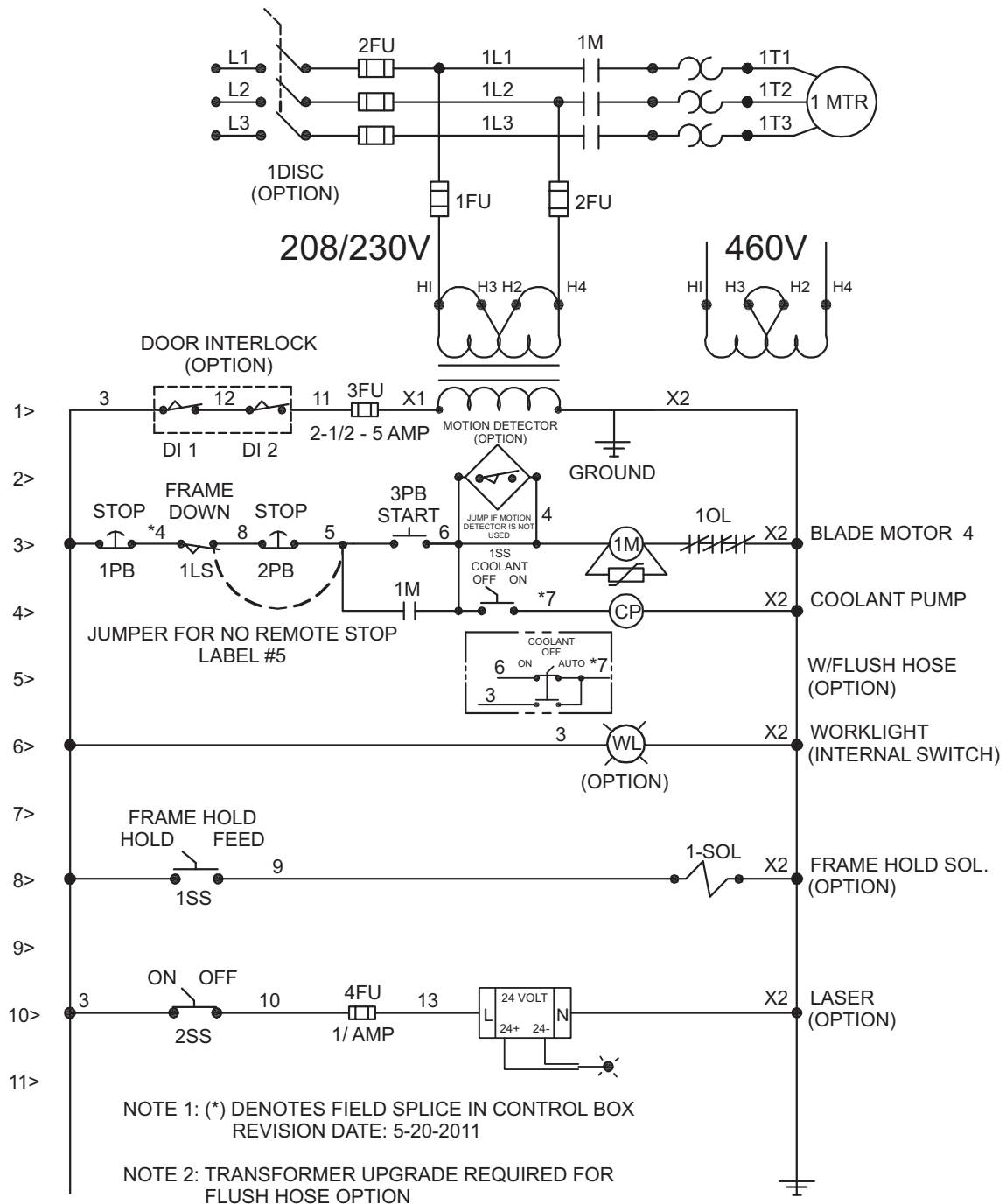
Electrical Controls

- 1 100612-004 Connector, TB-2534
- 2A 100796-019 Hub Connector, 1/2, TB-370
- 2B 100796-024 Hub Connector, 3/4, TB-371
- 3 100240-001 Conduit Lock Nut
- 4 100612-002 Connector, TB-2523
- 5 100870 Electrical Enclosure
- 6 100869-005 Transformer, 230/460 Volts
- 100869-007 Transformer, 208 Volts
- 100869-006 Transformer, 575 Volts
- 7 100000-017 Machine Screw, RH 10-32 x 1/4
- 8 100628-017 Fuse, FNA 2-1/2 Amp
- 9 155115 Fuse Block Ass'y
(used w/ 115/60/1 only)
- 10 100796-010 Ground Screw, 10-32 x 3/8
- 11 * **100867** **Magnetic Starter 3ph for EARLIER saws**
- 100867-018** **Magnetic Starter 1ph for EARLIER saws**
*** SEE NOTE**
- 12 100888-B32 Heater, B32 115/60/1 (1 req'd)
- 100888-B14 Heater, B14 230/60/1 (1 req'd)
- 100888-B102 Heater, B10.2, 208/60/3 (3 req'd)
- 100888-B102 Heater, B10.2, 230/60/3 (3 req'd)
- 100888-B415 Heater, B41.5 460/60/3 (3 req'd)
- 100888-B210 Heater, B21.0 575/60/3 (3 req'd)
- 13 098048-050 Gasket, SC 41, 1/8 x 3/4 x 50"
- 14 100000-041 Machine Screw, RH 10-32 x 1/2
- 15 **155118** **Frame Rest Ass'y, w/ cord**
(Includes items 17 thru 24)
- 16 **155118-001** **Frame Rest w/ Trip Bar**
(Includes items 17 thru 19)
- 17 105977 Frame Rest
- 18 150344 Switch Bar Weldment
- 19 100165-005 Shoulder Bolt, 5/16 x 3/4
- 20 100782-012 Limit Switch, 115v w/ screws
- 21 100606-001 Sealing Ring
- 22 100612-006 Elbow, 90 deg, TB-2268
- 23 100015-005 Hex Nut, 6-32 (2 req'd)
- 24 100026-001 Washer, Shake Proof, #6 (2 req'd)
- 27 155094 Switch Box
- 28 **155117** **Control Switch Ass'y**
(includes items 29 thru 35 and 14)
- 29 155095 Switch Box Cover
- 30 150230 Legend Plate
- 31 100871-003 Selector Switch, Coolant **-for s/n before 4041, order 100871-004 too.**
- 32 100871-001 Push Button Start **-for s/n before 4041, order 100871-004 too.**
- 33 100871-013 Push Button Stop **-for s/n before 4041, order 100871-005 too.**
- 34 100871-004 Switch Block, Coolant or Start **-for s/n before 4041, order switch too.**
- 35 100871-005 Switch Block, Stop **-for s/n before 4041, order 100871-013 too.**
- 37 100893 Back Panel
- 36 100892 Enclosure Cover

*NEW STARTERS		
for after s/n 5235		
11	100867-029	IEC Starter 3 ph
	100867-023	IEC Starter 1 ph
Adjustable Overload for IEC Starters (check motor amps)		
	100867-011	2.5-4 amps 440-460V
	100867-013	5.5-8 amps 208-230V 3ph
	100867-027	9-13 amps 208-230V 1ph
	100867-022	16-24 amps 110-120V
	100717-016T4	Mounting rail

*** NOTE: Various starters were used on this saw. to make certain you receive the correct replacement parts, contact the Wellsaw parts department with the information on *your saw's starter*.**

Electrical Schematic





Stock Dimensions Tooth Pitch	0 - 1" 10/14, 8/12		1" - 3" 8/12, 6/10, 5/8		3" - 6" 5/8, 4/6, 3/4, 3 Sabre		6"+ 3/4, 2/3, 2 Sabre, 1 Tooth, 3/4" T.S.	
Material (Annealed)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)
<u>Carbon Steels</u>								
1008-1013	250	8 - 10	275	9 - 12	280	12 - 15	250	9 - 12
1015-1018	250	8 - 10	275	9 - 12	250	12 - 15	230	9 - 12
1048-1065	200	5 - 7	200	5 - 7	175	8 - 10	150	6 - 8
1065-1095	200	4 - 6	200	5 - 7	150	6 - 8	120	6 - 8
<u>Free Machining Steels</u>								
1108-1111	300	9 - 11	330	12 - 14	275	13 - 15	220	11 - 14
1112-1113	300	8 - 11	330	11 - 13	275	12 - 15	220	12 - 15
1115-1132	300	7 - 11	330	10 - 13	275	13 - 16	220	11 - 14
1137-1151	275	6 - 8	250	8 - 10	250	8 - 11	200	7 - 10
1212-1213	300	8 - 10	320	11 - 13	300	13 - 15	255	11 - 14
<u>Manganese Steels</u>								
1320-1330	250	5 - 7	250	5 - 8	200	8 - 11	175	7 - 10
1335-1345	250	5 - 7	225	5 - 7	200	7 - 9	175	5 - 8
<u>Nickel Chrome Steels</u>								
3115-3130	260	4 - 6	260	5 - 7	230	5 - 7	225	5 - 7
3135-3150	220	4 - 6	200	4 - 7	180	6 - 8	150	5 - 8
3310-3315	200	3 - 4	180	4 - 5	180	5 - 7	160	4 - 6
<u>Molybdenum Steels</u>								
4017-4024	300	3 - 5	270	4 - 7	250	6 - 8	220	5 - 8
4032-4042	300	3 - 5	270	4 - 7	250	6 - 8	230	5 - 8
4047-4068	250	3 - 5	220	4 - 6	200	5 - 7	180	3 - 5
<u>Chrome Moly Steels</u>								
4130-4140	280	4 - 6	250	5 - 8	250	8 - 10	220	6 - 8
4142-4150	230	3 - 5	200	4 - 6	200	5 - 7	170	4 - 6
<u>Nickel Chrome Moly Steels</u>								
4317-4320	250	3 - 5	225	4 - 6	200	5 - 7	170	4 - 6
4337-4340	230	3 - 4	200	4 - 5	200	4 - 6	170	4 - 5
8615-8627	250	4 - 5	230	6 - 7	230	6 - 8	200	6 - 7
8630-8645	250	3 - 5	230	4 - 6	230	5 - 7	180	4 - 6
8647-8660	220	2 - 4	200	3 - 5	200	4 - 6	150	3 - 5
8715-8750	250	3 - 5	220	4 - 6	220	5 - 7	180	4 - 6
9310-9317	200	1 - 3	160	2 - 3	160	2 - 4	150	2 - 3
9437-9445	250	4 - 5	230	4 - 5	230	5 - 6	180	4 - 5
9747-9763	250	2 - 4	230	3 - 5	200	4 - 6	180	3 - 5
9840-9850	240	4 - 5	220	4 - 6	200	5 - 7	180	4 - 6
<u>Nickel Moly Steels</u>								
4608-4621	250	3 - 5	220	5 - 6	220	6 - 7	200	5 - 6
4640	220	3 - 5	200	4 - 6	200	5 - 7	170	4 - 6
4812-4820	200	3 - 5	180	3 - 5	180	4 - 6	160	4 - 5
<u>Chrome Steels</u>								
5045-5046	280	4 - 6	250	5 - 7	250	8 - 10	200	7 - 8
5120-5135	280	4 - 6	250	6 - 7	240	7 - 8	180	5 - 8
5140-5160	250	3 - 5	230	4 - 6	230	5 - 7	200	4 - 6
50100-52100	180	2 - 4	160	3 - 5	150	4 - 6	100	3 - 5
<u>Chrome Vanadium Steels</u>								
6117-6210	225	4 - 5	225	5 - 7	200	6 - 8	170	5 - 7
6145-6152	225	3 - 4	200	4 - 5	200	5 - 6	150	4 - 5
<u>Die Steels</u>								
A-2	210	2 - 3	200	3 - 4	190	3 - 4	180	2 - 3
D-2, D-3	110	1 - 2	100	1 - 2	90	1 - 2	80	1 - 2
D-7	90	1	80	1	70	1	70	1
O-1, O-2	240	3 - 4	210	4 - 5	190	5 - 6	170	4 - 5
O-6	230	3 - 4	200	4 - 6	180	5 - 7	150	4 - 6

Stock Dimensions Tooth Pitch	0 - 1" 10/14, 8/12		1" - 3" 8/12, 6/10, 5/8		3" - 6" 5/8, 4/6, 3/4, 3 Sabre		6"+ 3/4, 2/3, 2 Sabre, 1 Tooth, 3/4" T.S.	
Material (Annealed)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)
<u>Silicon Steels</u>								
9255-9260	200	2 - 4	180	3 - 5	180	3 - 5	150	3 - 5
9261-9262	200	1 - 3	160	2 - 3	160	2 - 4	150	2 - 3
<u>High Speed Tool Steels</u>								
T-1, T-2	130	1 - 2	110	2 - 3	100	2 - 4	90	2 - 3
T-4, T-5	110	1 - 2	100	1 - 2	90	2 - 3	80	1 - 2
T-6, T-8	110	1 - 2	100	1 - 2	80	1 - 2	70	1 - 2
T-15	80	1	80	1	70	1	50	1
M-1	150	1 - 3	140	2 - 4	130	3 - 5	110	2 - 4
M-2, M3	120	1 - 2	110	2 - 3	100	3 - 4	80	2 - 3
M-4, M-10	100	1 - 2	90	1 - 2	80	1 - 3	60	1 - 2
<u>Hot Work Steels</u>								
H-12, H-13, H-21	150	2 - 4	125	3 - 5	125	2 - 4	125	2 - 4
H-22, H-24, H-25	150	1 - 3	125	1 - 3	125	1 - 3	125	1 - 3
<u>Shock Resisting Tool Steels</u>								
S-1	220	2 - 4	180	3 - 5	165	3 - 5	150	2 - 4
S-2, S-5	170	1 - 3	150	3 - 5	120	2 - 4	100	1 - 3
<u>Special Purpose Tool Steels</u>								
L-6	200	2 - 4	180	3 - 5	170	3 - 5	150	2 - 4
L-7	200	2 - 4	180	3 - 5	150	3 - 5	100	2 - 4
<u>Stainless Steels</u>								
201, 202, 302, 304	120	2 - 4	100	2 - 4	100	2 - 4	100	1 - 3
303, 303F	140	2 - 4	120	2 - 4	100	3 - 5	100	2 - 4
308, 309, 310, 330	90	1	70	1	60	2	60	1
314, 316, 317	90	1	80	1	70	2	60	1
321, 347	130	1 - 3	110	1 - 3	100	2 - 4	80	1 - 3
410, 420, 420F	150	1 - 3	130	1 - 3	120	2 - 4	100	1 - 3
416, 430F	200	3 - 5	180	4 - 6	170	5 - 7	150	4 - 6
430, 446	100	1 - 3	90	2 - 4	80	2 - 4	80	1 - 3
440 A,B,C	120	1 - 3	10	1 - 3	90	2 - 4	70	1 - 3
440F, 443	150	1 - 3	130	1 - 3	120	2 - 4	100	1 - 3
17-4PH, 17-7PH	100	2 - 3	90	2 - 4	80	3 - 4	80	2 - 3
A-7	100	1 - 2	100	1 - 2	100	2 - 3	100	2 - 3
<u>Beryllium Copper #25</u>								
BHN 100-120	350	4 - 6	300	5 - 7	275	6 - 8	225	5 - 7
BHN 220-250	250	2 - 4	225	3 - 5	200	3 - 4	175	3 - 5
BHN 310-340	200	1 - 2	160	1 - 2	140	2 - 3	100	1 - 2
<u>Nickel Base Alloys</u>								
Monel	100	1 - 2	100	1 - 2	80	1 - 2	60	1
R Monel	140	2 - 3	140	2 - 4	125	2 - 4	75	2 - 3
K Monel	100	1	80	1	60	1	60	1
KR Monel	100	1 - 3	90	1 - 3	80	1 - 3	60	1 - 2
Inconel	110	1 - 2	100	1 - 3	80	1 - 3	80	1 - 2
Inconel X	90	1	80	1	70	1	60	1
Hastelloy A	120	1 - 2	100	1 - 2	85	2 - 3	75	1 - 2
Hastelloy B	110	0 - 1	100	1 - 2	90	1 - 2	75	0 - 1
Hastelloy C	100	0 - 1	90	0 - 1	70	0 - 1	60	0 - 1
Rene 41	90	1	90	1	90	1 - 2	90	1 - 2
Udimit	100	1	90	1 - 2	90	1 - 2	90	1 - 2
Waspalloy	90	1	90	1 - 2	90	1 - 2	90	1 - 2
Titanium	100	1 - 2	100	2 - 3	100	2 - 3	100	2 - 3
<u>Titanium Alloys</u>								
TI-4AL-4MO	100	0 - 1	90	0 - 1	80	0 - 1	70	0 - 1
TI-140A2CR-2MO	100	0 - 1	90	0 - 1	80	0 - 1	60	0 - 1

The Original.....Since 1926



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