

Parts List and

Operating & Maintenance Manual

MODEL

1316S-SA

Semi Automatic Bandsaw
with Swivel Head Feature

Built better to work stronger and last longer



REV 220430



WellSaw®
Made In The USA

Quality Metal Cutting Bandsaws

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Specifications

Capacity	Round Rectangular
@ 0° (90°)	13" 13"H x 16"W
@ 45°	12" 13"H x 12"W
@ 60°	7-1/2" 8-1/2"H x 7-1/2"W
Blade Size	1" x .035" x 12'6" (150")
Blade Speeds	Infinitely Variable 60-420 SFPM
Blade Guides	Carbide Guides with Rollers
Blade Tension	Manual Rite-Tension
Electrical Options	115-208/230/60/1 208-230-460/60/3
Coolant System	Tank Capacity 8 Gallons Submersible Pump 115V/.6 Amp/3 GPM
Vise Control	Quick Positioning/Air Powered
Feed Rate Control	Variable Positive Hydraulic with Counterbalance Spring
Stock Stop Projection	25"
Bed Height	35"
Floor Area	90"W x 76"L
Shipping Weight	1800 Lbs.

1316S-SA Components

- Plc Controlled, Full Cycle Semi-Automatic
- Saw Head Swivels on Precision Ball Bearings
- Miter to 60 degrees
- Large Protractor for Accurate Angle Selection
- 5' x 18" Infeed Roller Conveyor
- Work Light with Transformer
- Variable Hydraulic Feed Rate Control
- Baldor® Motor
- 3hp Motor 3 Phase TEFC
- 2hp Motor 1 Phase ODP
- Magnetic Starter with Overload and Undervoltage Protection
- Spring-Loaded Carbide Guides with Rollers
- Combination Reduction Gearbox and Perimeter Ring Gear Blade Drive
- Infinitely Variable Blade Speeds
- Rite-Tension Blade Tensioning Device
- 8 Gallon Flood Coolants System with Sample/Start-Up Coolant
- Full Surround Chip Pan
- Powered Blade Brush
- 110 Volts at Controls
- Overload and Undervoltage Protection
- Precision Ground Bed and Vise Jaws
- Auto Shut-Off at End of Cut
- OSHA Blade Guarding
- Tiger Tooth Bi-Metal Blade

Available Factory Options

Flush Hose with 8.5 GPM Pump | Blade Break/Stall Switch
| Casters | NFPA Electrics (with Disconnect) | Laser Line
Pointer | 5' and 10' Non-Powered Conveyors | Contact
Factory for Additional Options

FULL YEAR LIMITED WARRANTY

This WELLSAW is warranted against defects in material or workmanship installed or performed at the factory. Within one year from date of purchase, we will free of charge and at our option, either repair or replace any part of this WELLSAW which our examination discloses to be defective because of workmanship or a defect in the material. This warranty does not apply if this WELLSAW has been used in a manner not consistent with its' design or which has been subject to accident, alteration, abuse or misuse or which fails due to lack of care or is the result of inadequate power supply and specifically does not apply to normal wear parts. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

WELLSAW shall not be liable for consequential or incidental damages suffered or incurred with respect to defective materials or workmanship.

We do not authorize any person or representative to make any other warranty or to assume for us any liability in connection with the sale of our products other than those contained herein. Any agreements outside of or contradictory to the foregoing shall be void and of no effect.

All transportation costs on products or parts submitted to WELLSAW under this warranty must be paid by the user. No products or parts are to be returned without first obtaining permission.

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 the 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

When contacting your WELLSAW Supplier of the Company for parts or service, it is essential that you have your MODEL NUMBER, SERIAL NUMBER and PURCHASE DATE available. Jot them down here for handy reference.

MODEL: _____

SERIAL NUMBER: _____

PURCHASE DATE: _____

Safety Instructions

⚠ WARNING



⚠ DANGER



⚠ CAUTION



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. Keep hands in sight and clear of all moving parts and cutting surfaces.
3. Wear proper apparel. No loose clothing or jewelry which can be caught in moving parts. Rubber soled footwear is recommended for best footing.
4. 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.
5. Keep guards in place and in proper working order. Do not operate the machine with guards removed.
6. 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.
7. Avoid accidental starts by being sure the start switch is "OFF" before plugging in the machine.
8. Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation.
9. 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.
10. 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.
11. 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.
12. Never brush away chips while the machine is in operation.
13. Keep work area clean. Cluttered areas invite accidents.
14. Remove adjusting keys and wrenches before turning the machine back on.
15. Use the right tool. Don't force a tool or attachment to do a job it was not designed for.
16. Use only recommended accessories and follow manufacturer's instructions pertaining to them.
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 paints
 - Crystalline silica from bricks and cement and other masonry products, and
 - Arsenic and chromium from chemically treated lumber.
20. 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 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

⚠ WARNING



⚠ DANGER



⚠ CAUTION



Misuse of this machine can cause serious injury.

For safety, this machine must be set up, used and properly serviced.

Read, understand and follow instructions in the Parts and Maintenance manual.

DISCONNECT POWER before adjusting or servicing the saw or changing a blade.

STAY CLEAR of all moving parts. Keep hands and fingers away from the saw blade.

WHEN MOVING SAW, with hinged frame (saw head), secure the head in its down position.

WHEN CUTTING MAGNESIUM, take special precautions. Use a sharp saw blade, make only dry cuts, prevent chip accumulation, and keep fire-fighting equipment nearby.

THIS SAW SHOULD BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRICAL SHOCK.

CORD CONNECTED TOOLS. If the saw is equipped with an approved 3-conductor cord and a 3-prong grounding type plug, it should only be connected to a properly equipped and grounded receptacle. The green conductor in the cord is the grounding wire. Never connect the green wire to a live terminal.

Use only a 3-wire extension cord having a 3-pronged receptacle, a 3-pronged plug and ample amperage rating. Replace or repair a damaged or worn cord immediately.

PERMANENTLY CONNECTED TOOLS. The saw should be connected to a grounded, metal-enclosed wiring system or an equipment-grounding conductor should be run with the circuit conductors and connected to the saw's grounding terminal or lead.

To reset the manual starter after a power interruption, return the switch to OFF and press the RESET button before restarting.

KEEP GUARD IN PLACE and in working order.

REMOVE ADJUSTING KEYS AND WRENCHES. Form a habit. Check to see that all keys and wrenches are removed from the tool before turning the tool on.

KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.

AVOID DANGEROUS ENVIRONMENT. Do not use power tools in damp or wet locations. Keep your work area well lighted.

KEEP CHILDREN AWAY. All visitors should be kept a safe distance from work area.

MAKE WORKSHOP KID-PROOF with padlocks, master switches, or by removing starter keys from tools.

DON'T FORCE TOOL. It will do the job better and safer at the rate for which it is designed

USE RIGHT TOOL. Don't use a tool or attachment to do a job for which it was not designed.

WEAR PROPER APPAREL. No loose clothing or jewelry to get caught in moving parts. Rubber-soled footwear is recommended for best footing.

USE SAFETY GLASSES. Also use face or dust mask if operation is dusty.

SECURE WORK. Use clamps or a vise to hold work. Provide adequate support to prevent injury from falling work pieces.

MACHINE SET UP

- 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.

MACHINE USE

- 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 into the machine.
- Never leave machine running while away from it.
- Always shut off the machine when not in use.

MACHINE SERVICING

- Always unplug machine from electrical power while servicing.
- Always follow instructions in Parts and Maintenance 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 Parts and Maintenance manual as well as all labels affixed to the machine. Failure in following all of these warnings can cause serious injury.

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 help-ful 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 pages 40 and 41.
2. Blade speed too slow or too fast.
3. Faulty material; heavy scale, hard spots, etc.
4. Verify type of material.
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. Excessive feed. Decrease it.
5. Dull blade.

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?

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.

PLACING THE BLADE ON SAW

1. Raise saw frame part way.
2. Open idle and drive wheel guards.
3. Remove blade brush drive belt by loosening thumb screw.
4. Loosen Rite Tension® take up screw and remove old blade. In the event of a broken blade, be sure Rite tension® is open by turning take up screw counter-clockwise at least six (6) times.
5. Open each carbide guide. Reach behind each blade guide assembly and turn the black knurled knob counter clockwise until it stops. This pulls the carbide block away from the blade.
6. Uncoil new blade, WARNING: wear gloves to protect your hands and eye protection. Make certain blade teeth point in the direction of blade travel which is toward the motor.
7. Place new blade on the band wheels and fit it into the guides. Close the carbides by turning the black knob clockwise until it stops. It does not need to be tight. Make sure that the blade is not riding up on the band wheel flanges.
8. Grasp blade on frame side and push it toward guide bracket beam to hold it in position while turning Rite Tension® take up screw.
9. Tighten blade to proper tension. Blade is properly tensioned when the take up screw is tightened until mechanism bottoms.
10. Re-attach the blade brush belt and close all guards.

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 turn. Tighten the opposite two cap screws one-half 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 turn. Tighten the opposite cap screws one-half 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 turn. Tighten the two set screws on the same end one-half 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.

Variable Speed Drive

Model 1316S is 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.

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, Mobilgrease XHP 220 or equivalent is recommended. The grease must have excellent clinging characteristics. (See Lubrication).

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.*

Hydraulic Feed Control

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

Feed Pressure Adjustment

Maximum feed pressure is obtained with the frame spring adjusted as close to the end of the saw frame as possible. To *decrease* pressure, turn handle on opposite end of frame counterclockwise. To *increase* pressure turn handle in a clockwise direction. Use lighter feed pressure when cutting thin-wall material or irregular shapes.

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 wore.

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*

Blade Guide Adjustment

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 23 in the parts drawings) when the saw is running but not cutting. To adjust, loosen the two cap screws 19 [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 19 [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 19 [C] holding the Guide Support (9 & 13 of the parts drawing) and turn the bottom adjusting bolt (22 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.

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 and Nut
3. Use Extreme Pressure open gear lube on Ring Gear and Drive Pinion

Gear Case

1. Inspect after 3 years (6,000 hours).
2. Use Mobilgrease XHP 220 or equivalent.
3. Viscosity: Heavy Grease, drop point 550°F
4. Military Specification: None

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 100°F: 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 219°F.
4. Military Specification: None.

Operation of the Swivel Feature for Miter Cutting

The angle of the cut is adjustable from 0° (90°) to 60°. The angle is indicated by a pointer at the back of the chip pan and a large scale on the edge of the cutoff turntable. The saw head is locked into position by means of a control rod and locking block. There is a 0° stop on the back of the saw bed. **DO NOT ADJUST THIS STOP.**

To adjust the angle of the cut, loosen the angle lock handle, pull the saw head, while lining up the pointer to the desired angle shown on the scale. Then gently tighten the handle. The lock requires very little pressure to hold the head in place. **DO NOT OVER TIGHTEN.**

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.

Recommended Service Kits for Insurance Against Downtime

1 year

100133-004	Rotary Blade Brush	1 reqd.
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For serial numbers before 6090 and after 6272 2 year

100416-001	Bearing	4 reqd.
152153	Top Carbide Guide	2 reqd.
105454-005	VS Belt	1 reqd.
100133-004	Rotary Blade Brush	1 reqd.
100166-450	Blade Brush V Belt	1 reqd.
106317	Fixed Carbide Guide	4 reqd.
101645-FP	Drive Pinion	1 reqd.

For serial numbers between 6090 and 6272 2 year

100406-001	Bearing	2 reqd.
100417-001	Bearing	2 reqd.
100416-001	Bearing	2 reqd.
152153	Top Carbide Guide	2 reqd.
105454-005	VS Belt	1 reqd.
100133-004	Rotary Blade Brush	1 reqd.
100166-450	Blade brush V Belt	1 reqd.
106317	Fixed Carbide Guide	4 reqd.
101645-FP	Drive Pinion	1 reqd.

1316S-SA Semi-Automatic Bandsaw

Set-up and Operation

Items needed:

1. Electrical power
2. 7 gallons of water
3. Compressed air, 5 CFM @ 100 PSI
4. Air tool oil for air lubricator.

Prior to start-up

Warning! Do not lift saw frame with your hand! Saw frame is raised with a powered system.

1. The saw should be placed on a level surface. This insures correct coolant flow. Leveling pads should be used if needed.
2. Have qualified electrician make the electrical connections.
3. Remove the shipping plug from the inlet port of the primary regulator (on left end) and attach shop air to the inlet. The primary regulator should be adjusted to 90-100psi. The air pressure is used to raise the saw head and power the vise.
4. The downfeed air regulator (on the top of the lifting cylinder) should be adjusted to 20 psi. See notes on Power Downfeed.
5. The air system lubricator (next to the primary air regulator) is shipped in the off position. Add a light oil to the reservoir and adjust to a minimum setting.
6. The sample coolant is shipped in the reservoir. The coolant pump needs to be removed from its packing box.
Mix ½ gallon of coolant with 7 gallons of water and pour into coolant pan.

Sequence of Operation

Note: The Blade already has some cutting time. Blade break-in is not needed on first cut.

1. Pull the Emergency Stop button up to power the saw. Be sure the air system is charged and is set to proper pressure.
2. Press the Frame Raise button so that the blade clears the stock by 2". Adjust the collar on the control rod of the lifting cylinder so that it is just below the roller on the limit switch. Press the Frame Raise button until limit switch stops frame. (Repeat this adjustment at a later time until frame is in the desired position above stock.)
3. Turn the Vise Control knob to "Open". Pick up the lift handle on adjustable vise and pull the vise open enough to move stock into place. Adjust to allow part to move through without resistance.
4. Adjust the stock stop (back gauge) to desired cutoff length.
5. Push the vise close to the stock. The Lift Handle will fall into position. Turn vise hand wheel until vise is approximately 1/8" from stock.
6. Turn the Vise Control knob to "Close".

7. Press the Blade Start button and adjust the desired band speed (250 SFPM for mild steels.) **Make this adjustment only with motor running.**
8. Open the Coolant valves and note coolant flow to the blade. Slowly adjust coolant flow to the Idle End blade guide so that coolant just hangs off of the blade. Adjust coolant flow to the Drive End almost full open. This will flush chips off of blade.
9. Make first cut in manual mode to establish cutting rate. Set Feed Control knob to Zero position. With blade motor running press Frame Lower button. Open feed control knob to number 1. Note saw head descend and begin cutting. Keep cutting rate low during set-up. **Cut only at a rate enough to produce good chips.**

Note: Saw can be operated in the Manual mode or the Automatic Mode.

Conditions for Automatic Cutting Cycle:

1. Press the Frame Raise button to bring frame up to limit switch.
2. Adjust Vise Jaw, while in the open position, to allow the part to slide through without resistance.
3. Blade motor running. Press the Blade Start button.
4. Press the green Auto button. Vise will close and frame will descend.

Automatic Sequence:

1. Saw frame will descend through the cut.
2. Blade motor will stop at end of the cut.
3. Saw frame will raise to the preset position.
4. Vise will open. This is the end of the automatic cycle. At this point the saw is ready for either automatic or manual control.

Cutting Pressure Control

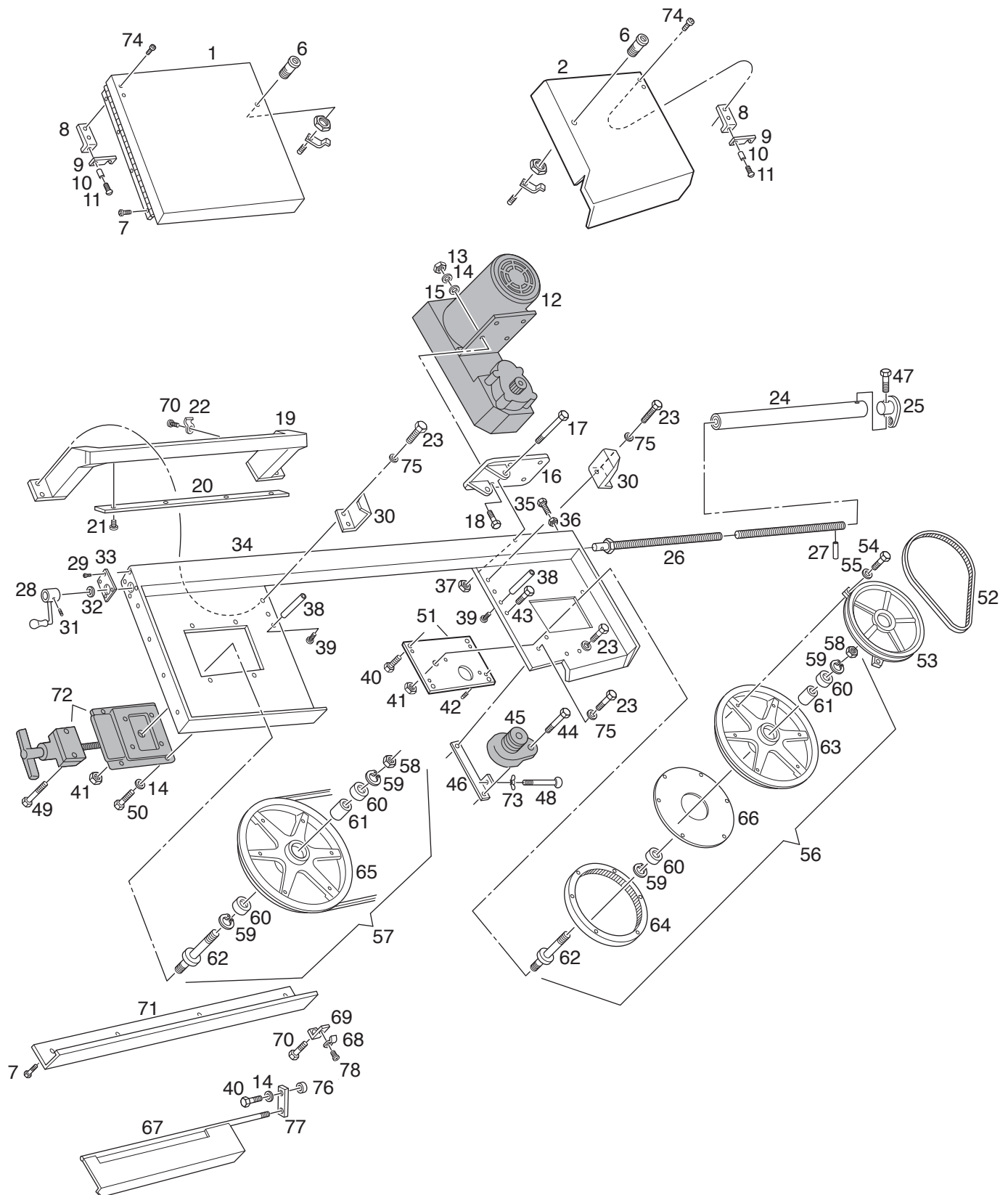
The cutting pressure is controlled by three features:

1. The **Frame Weight** crank handle. The primary cutting force comes from gravity. The counterbalance spring (at the back of the saw) compensates for the change in the weight of the saw frame as it moves from top to bottom. For start-up, turn to Minimum (decrease). The crank handle turns about 90 turns from maximum to minimum.
2. The **Power Downfeed** air pressure regulator. This provides positive downforce to the saw frame in addition to the force of gravity. Set at 10 PSI for set-up. This is useful to begin a cut of a large diameter.
3. The **Feed Control** knob. This adjusts the rate that the head will fall. Make set-up test cut at position 1.

These forces combine to put controlled cutting force on the blade. It is important to keep these forces in balance. Excessive Downfeed pressure will shorten the life of the blade or increase the risk of blade damage. Increasing any of these pressures will increase blade cutting force and should only be done in small increments. Always inspect the chips from the cut. Measure the cutting times and compare against known cutting rates.

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Frame Assembly



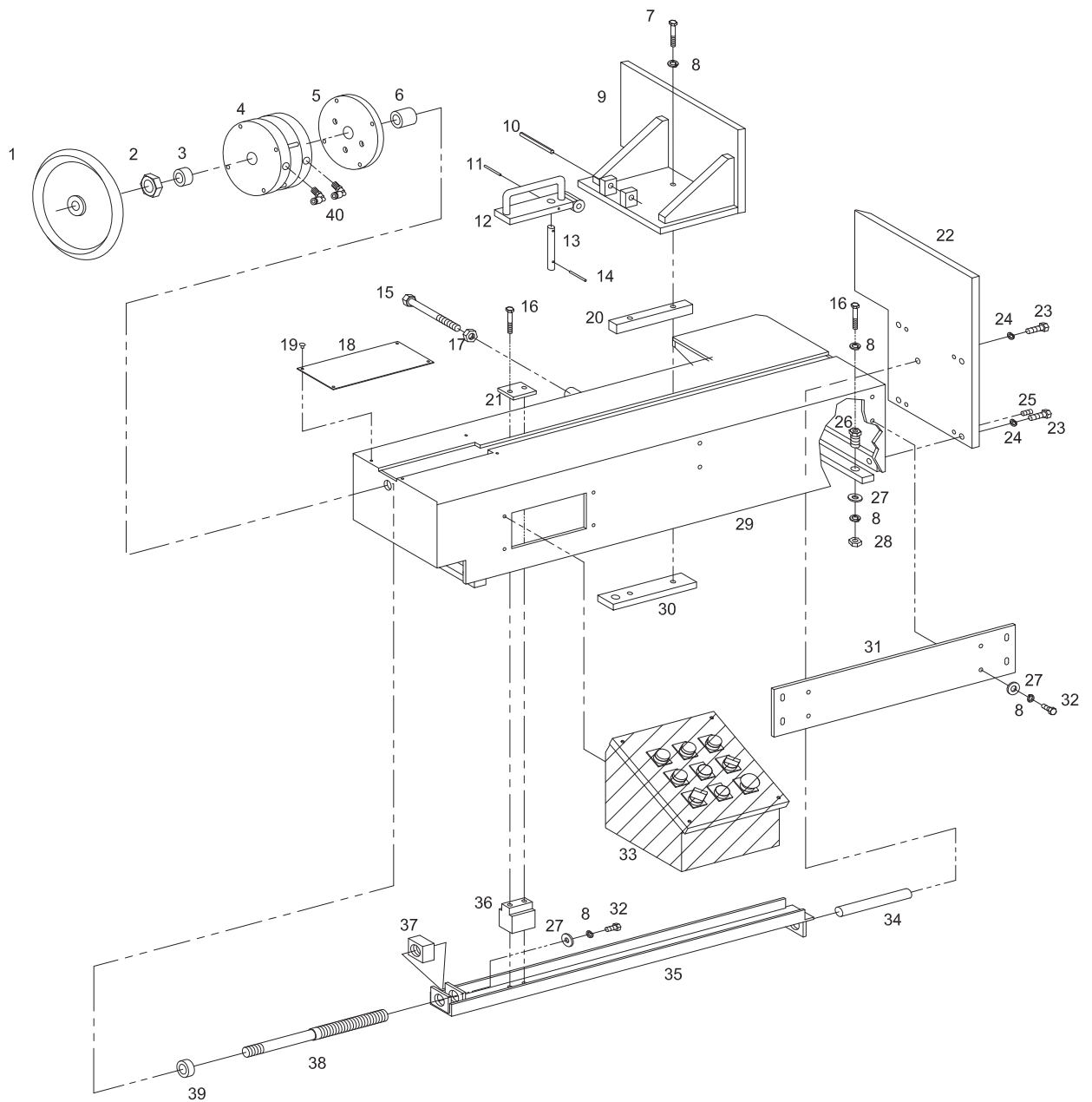
1	150146SERV	Idle Wheel Guard
2	150147SERV	Drive Wheel Guard
3	100013-005	Machine Screw, BH 10-32 x 3/8
4	100024-002	Wing Nut, 1/4-20
5	100025-003	Lockwasher, 3/8
6	100135-002	1/4 Turn Fastener w/cam
7	100013-010	Machine Screw, BH 1/4-20 x 1/4
8	150095	Door Catch Mtg Block
9	150096	Door Catch
10	150182	Door Catch Sleeve
11	100013-009	Machine Screw, BH 10-32 x 1/2
12		Motor & Gear Box Ass'y. (page 32)
13	100017-002	Hex Nut, 5/16-18
14	100025-002	Lock Washer, 5/16
15	100029-003	Flat Washer, 5/16
16	150248	Motor Mount Bracket
17	100004-116	Capscrew, HH 1/2-13 x 4-1/2
18	100004-016	Capscrew, HH 5/16-18 x 7/8
19	150280	Guide Beam Ass'y (standard 1316S)
	150318	Guide Beam Assy (1316S-EXT)
20	150124	Guide Arm Track (standard 1316S)
	150320	Guide Arm Track (1316S-EXT)
21	100009-013	Capscrew, FH 5/16-18 x 1/2
22	100218-010	Clamp
23	100004-076	Capscrew, HH 3/8-16 x 3/4
24	150104♦	Counter Balance Arm & Sleeve
25	150411	Counter Bal Spring Attach.(1316S)
	150336	Counter Bal Spring Attach. (EXT)
26	150114♦	Counter Balance Screw (1316S)
	150315♦	Counter Balance Screw (EXT)
27	100053-021♦	Roll Pin, 3/16 x 7/8
28	150476♦	Crank
29	100049-001♦	Drive Screw #4
30	155152	Door Catch Support
31	100053-015♦	Roll Pin, 1/8 x 1"
32	100030-007♦	Flat Washer, 1/2 SAE
33	150231♦	Cutting Pressure Label
34	153085	Saw Frame (standard 1316S)
	150316	Saw Frame (1316S-EXT)
35	100004-030	Capscrew, HH 3/8-16 x 1-1/2
36	100019-004	Hex Nut, 3/8-16
37	100023-004	Nylon Lock Nut, 1/2-13
38	150160	Door Latch Stud
39	100004-015	Capscrew, HH 5/16-18 x 3/4
40	100004-020	Capscrew, HH 5/16-18 x 1-1/4
41	100065-007	Hex Nut, 5/8-18

Frame Assembly

♦ **Parts marked with diamond (♦) are not used after sn 7300**

42	100034-005	Set Screw, 5/16-18 x 3/4
43	100004-015	Capscrew, HH 5/16-18 x 3/4
44	100165-011	Shoulder Bolt, 3/8-16 x 1-1/2
45		Blade Brush Ass'y. (page 34)
46	150369	Blade Brush Arm
47	100008-018	Capscrew, Soc Hd 5/16-18 x 3/4
48	100042-003	Thumb Screw, 1/4-20 x 2
49	100004-055	Capscrew, HH 3/8-16 x 2-1/4
50	100004-013	Capscrew, HH 5/16-18 x 5/8
51	150022	Wheel Plate, Drive End
52	100166-450	V- Belt
53	150144	Pulley, Large
54	100004-068	Capscrew, HH 1/4-20 x 1-1/4
55	100025-001	Lockwasher, 1/4
56	150087	Drive Wheel Ass'y for 1" Blades (includes 41,54,55,58-64, & 66)
57	150088	Idle Wheel Ass'y for 1" Blades (includes 41,58-62 & 65)
58	100019-016	Hex Jam Nut, 5/8-18
59	100068-002	Snap Ring (2 req'd/ wheel)
60	100414-003	Ball Bearing (2 req'd/ wheel)
61	105415	Spacer (1 req'd/ axle)
62	105420	Wheel Axle
63	150059-001	Drive Wheel for 1" Blade (includes items 59 thru 61)
64	B-086	Internal Ring Gear
65	150060-001	Idle Wheel for 1" Blade (includes items 59 - 61)
66	150405	Shield
67	150157	Blade Guard Lower (standard 1316S)
	150321	Blade Guard Lower (1316S-EXT)
68	150414	Clamp
69	150154	Blade Guard Support
70	105537	Spacer
71	150273	Blade Guard, upper (standard 1316S)
	150314	Blade Guard, upper (1316S-EXT)
72		Rite Tension® Blade Tension & Slide Block Ass'y (see page 30)
74	100871-014	Emergency stop switch located on top of frame (not pictured)
77	150158	Blade Guard Mounting Block
78	100013-006	Cap Screw, BH 1/4-20 x 1/2

BED ASSEMBLY



BED ASSEMBLY

1	B-093	HAND WHEEL
2	100019-028	HEX JAM NUT, $\frac{3}{4}$ - 10
3	102886	SET COLLAR
4	107317	WISE CYLINDER
5	152105	CYLINDER MOUNTING PLATE
6	152104	SPACER
7	100004-023	CAP SCREW, $\frac{5}{16}$ - 18 X 2
8	100025-002	LOCK WASHER, $\frac{5}{16}$
9	153005	MOVEABLE WISE JAW
10	100053-002	ROLL PIN, $\frac{1}{8}$ X 2 $\frac{1}{2}$
11	100053-008	ROLL PIN, $\frac{1}{8}$ X 1 $\frac{3}{8}$
12	150091	LIFT PLATE
13	150094	WISE DRIVE PIN
14	100053-009	ROLL PIN, $\frac{1}{8}$ X $\frac{5}{8}$
15	100008-081	CAP SCREW, SH, $\frac{1}{2}$ - 13 X 4 $\frac{1}{2}$
16	100004-099	CAP SCREW, $\frac{5}{16}$ - 18 X 2 $\frac{1}{4}$
17	100019-005	HEAVY HEX JAM NUT, $\frac{1}{2}$ - 13
18	153056	BED COVER PLATE
19	100000-018	MACHINE SCREW, RH, 10-32 X $\frac{3}{8}$
20	153078	WISE JAW KEY
21	150097	CLAMP PLATE
22	153010	STATIONARY WISE JAW
23	100004-029	CAP SCREW, $\frac{3}{8}$ - 16 X 1 $\frac{1}{4}$
24	100025-003	LOCK WASHER, $\frac{3}{8}$
25	100034-005	SET SCREW, SH, $\frac{5}{16}$ - 18 X $\frac{3}{4}$
26	210273	ADJUSTMENT SCREW
27	100030-007	FLAT WASHER, $\frac{1}{2}$
28	101300	HEAVY HEX NUT, $\frac{5}{16}$
29	153011	SAW BED
30	153082	SLIDE BLOCK PLATE
31	153073	CONVEYOR MOUNTING PLATE
32	100004-015	CAP SCREW, $\frac{5}{16}$ - 18 X $\frac{3}{4}$
33		CONTROL SWITCH ASSEMBLY (SEE PAGE 32)
34	153054	PUSH CHANNEL SUPPORT ROD
35	153026	WISE PUSH CHANNEL
36	150098	SLIDE BLOCK
37	M-061B	WISE NUT
38	150286	WISE SCREW
39	100402	THRUST COLLAR
40	100357-004	PUSH IN FITTINGS, 90°, WITH FLOW CONTROL

Table Assembly and Cylinder

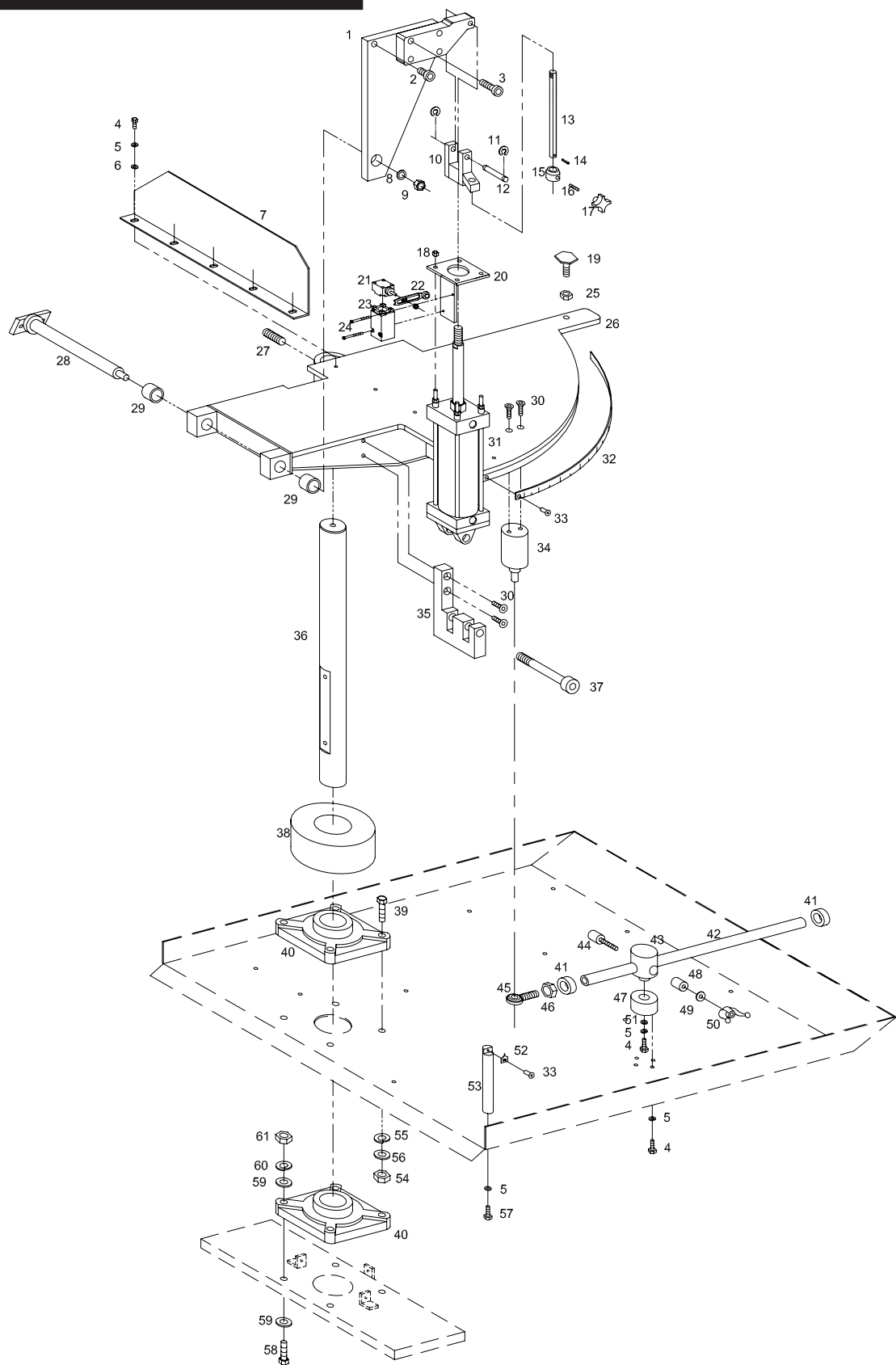
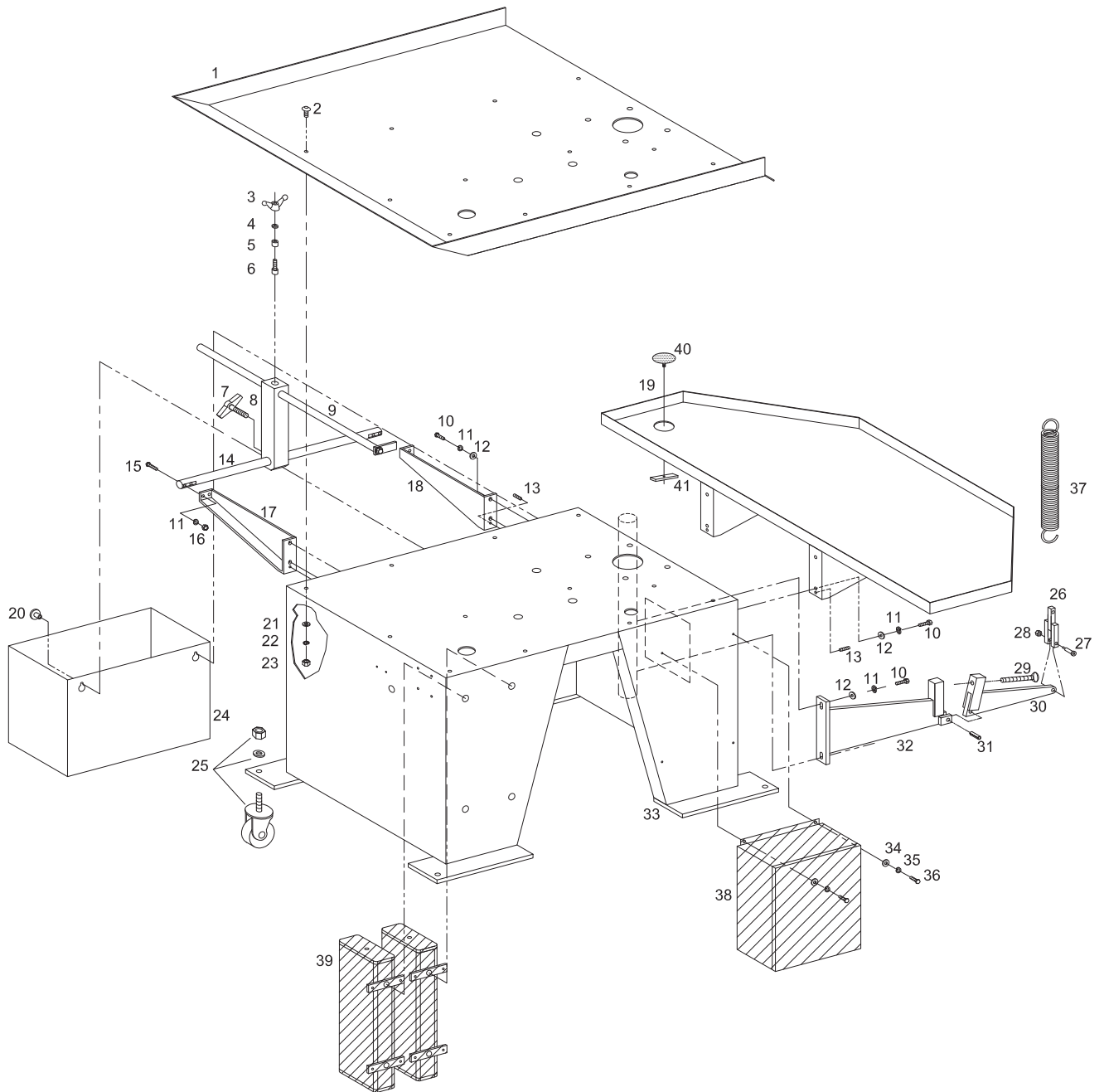


Table Assembly and Cylinder

1 150517	PIVOT ARM WELDMENT		
2 100008-006	CAP SCREW, SH 3/8-16 X 1		
3 100008-016	CAP SCREW, SH 3/8-16 X 1-3/4		
4 100004-015	CAP SCR, HH 5/16-18 X 3/4		
5 100025-002	LOCK WASHER 5/16		
6 100029-003	FLAT WASHER 5/16	48 155190-001	WEDGE
7 153057	STOCK GUIDE	49 100030-005	FLAT WASHER 3/8 SAE
8 100029-008	FLAT WASHER 5/16	50 155205-002	WING NUT
9 100017-007	LOCK NUT, 5/8-11	51 M-041	WISE RATCHET GUIDE WASHER
10 153070	CLEVIS WELDMENT	52 210335	POINTER
11 100069-019	SNAP RING (2 REQUIRED)	53 153080	POINTER ROD
12 152164	CLEVIS PIN	54 100019-027	HEX JAM NUT 5/8-11
13 152097	SWITCH TRIP ROD	55 100025-007	LOCK WASHER 5/8 SAE
14 100053-021	ROLL PIN 3/16 X 7/8	56 100030-009	FLAT WASHER 3/8 SAE
15 152098	SWITCH TRIP COLLAR	57 100004-076	CAP SCREW HH 3/8-16
16 100034-040	SET SCREW SH 1/4-20 X 1	58 100004-039	CAP SCREW HH 1/2-13 X 2
17 100139-003	KNOB, 4 PRONG, BLACK	59 100030-007	FLAT WASHER 1/2
18 100019-029	HEX JAM NUT 3/8-24	60 100025-005	LOCK WASHER 1/2
19 104604	LEVELER	61 100019-027	HEX JAM NUT 1/2-13
20 152093-001	SWITCH BRACKET PLATE	62 100243-003	GREASE FITTING FOR 153037
21 100782-017T	LIMIT SWITCH HEAD		TABLE LOCK SWIVEL
22 100782-015T	LIMIT SWITCH LEVER		(NOT SHOWN)
23 100782-016T	LIMIT SWITCH BODY		
24 100008-068	CAP SCREW SH 10-32 X 1-1/4		
25 101300	HEX NUT 5/16-18		
26 153040	FRAME SUPPORT & ROTARY TIP OFF		
27 100039-004	SET SCREW HALF DOG 3/8-16 X 1		
28 150276	PIVOT BAR WELDMENT		
29 100419-041	SLEEVE BEARING		
30 100009-006	CAP SCREW FH 3/8-16 X 1		
31 099000-020	CYLINDER 3.25 BORE USED AFTER SN 9827		
099000-008	CYLINDER 2.5 BORE USED BEFORE SN 9826		
32 153025	PROTRACTOR		
33 100013-005	CAP SCREW BH 10-32 X 3/8		
34 153035	TABLE LOCK BAR		
35 150486	CYLINDER MOUNT		
36 153055	POST, FRAME SUPPORT		
37 100008-097	CAP SCREW HH 5/8-11 X 2-1/2		
38 153024	FLANGE BEARING COVER		
39 100004-043	CAP SCREW HH 5/8-11 X 2-1/2		
40 100452-002	FLANGE BEARING		
41 098030-011	COLLAR W/ SET SCREW		
42 153039	SHAFT FOR TABLE LOCK		
43 153037	TABLE LOCK SWIVEL		
44 155203	WEDGE AND BOLT ASSEMBLY		
45 098081	BALL JOINT		
46 100065-007	HEX NUT 5/8-18		

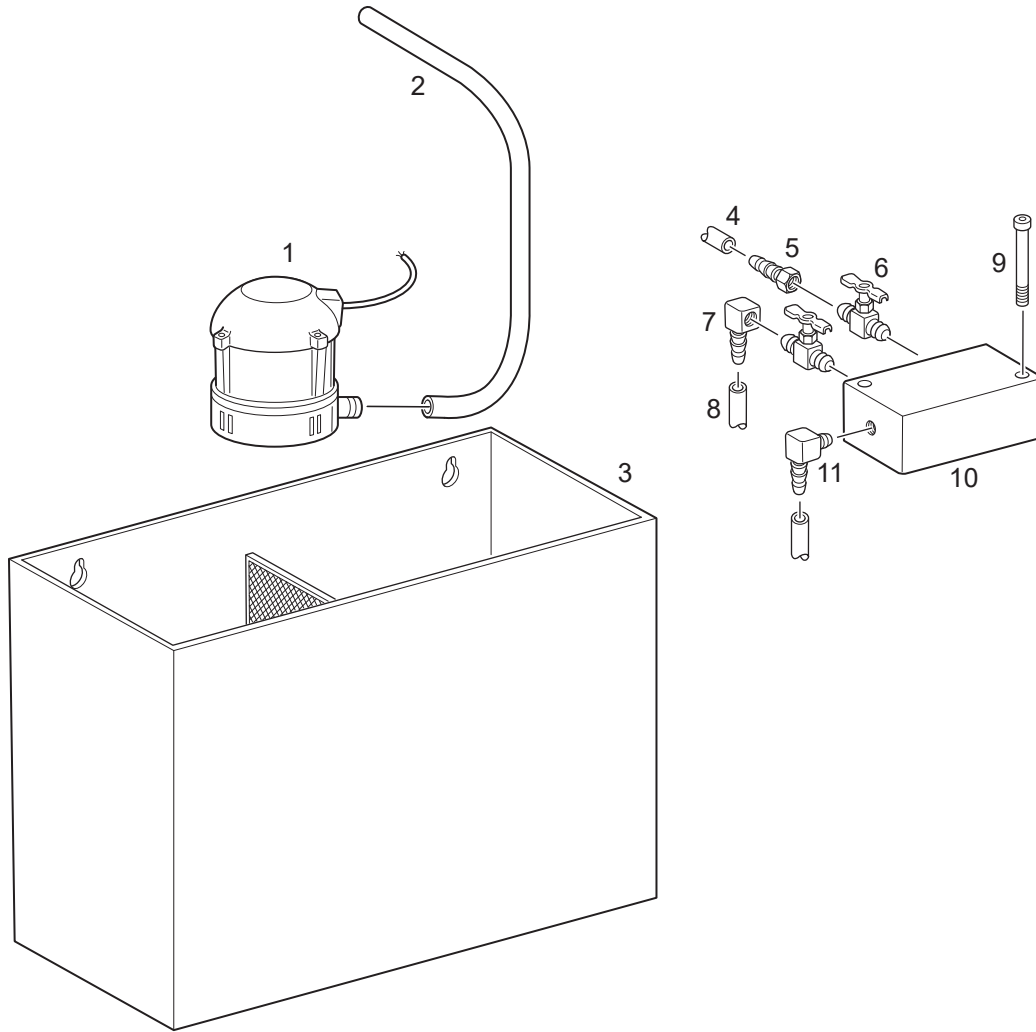
Base Assembly



BASE ASSEMBLY

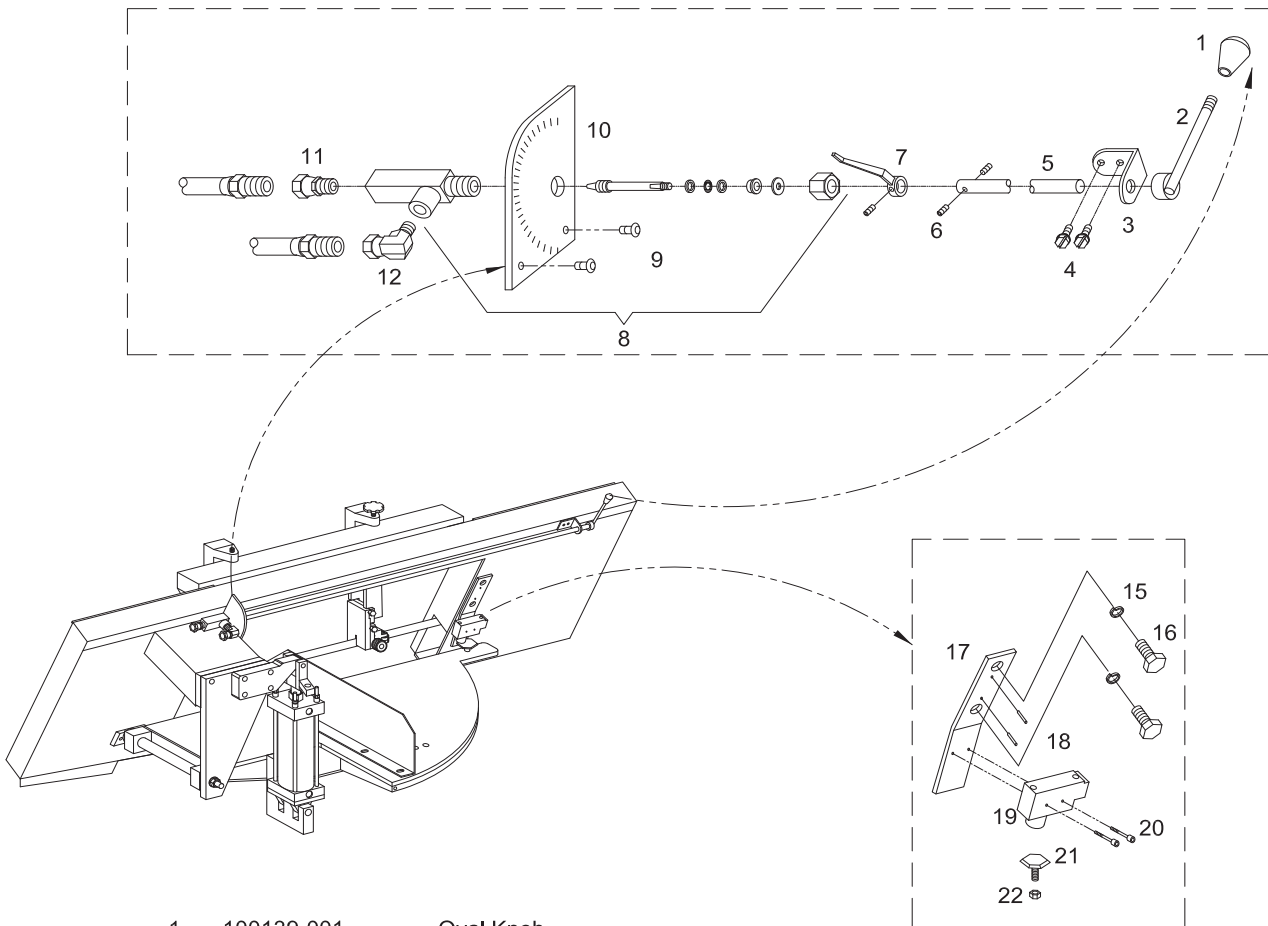
1	153023	CHIP PAN
2	100013-015	CAP SCREW, BH, 3/8-16 X 1
3	155205-002	WING NUT
4	100030-005	FLAT WASHER, $\frac{3}{8}$ SAE
5	155190	WEDGE
6	155203	WEDGE & BOLT ASSEMBLY
7	155201	HANDLE & SCREW ASSEMBLY
8	153060	BAR & STOCK STOP
9	153076	STOCK STOP ROD
10	100004-018	CAP SCREW, HH, 5/16-18 X 1
11	100025-002	LOCK WASHER, $\frac{5}{16}$
12	100030-004	FLAT WASHER, $\frac{5}{16}$
13	100034-005	SET SCREW, 5/16-18 X $\frac{3}{4}$
14	153067	STOCK STOP ROD
15	100004-020	CAP SCREW, HH, 5/16-18 X 1-1/4
16	100017-002	HEX NUT, 5/16-18
17	153065	STOCK STOP SUPPORT, RH
18	153066	STOCK STOP SUPPORT, LH
19	153031	LOWER CHIP PAN
20	150078	COOLANT TANK HANGER
21	100030-005	FLAT WASHER, $\frac{3}{8}$ SAE
22	100025-003	LOCK WASHER, $\frac{3}{8}$
23	100015-017	HEX NUT, 3/8-16
24	150066	COOLANT TANK (SEE PAGE 30)
25	100113-003	CASTER SET (2 LOCKING, 2 NON- LOCKING)
26	150500	SPRING ANCHOR LINK
27	100165-011	SHOULDER BOLT, $\frac{3}{8}$ X $1\frac{1}{2}$
28	100023-007	NYLON LOCK NUT
29	100042-008	THUMB SCREW, 1/2-13 X 4
30	153105	SPRING ANCHOR ARM, OUTBOARD
31	100053-041	ROLL PIN, $\frac{3}{8}$ X $1\frac{1}{4}$
32	153108	SPRING ANCHOR ARM, INBOARD
33	153022	LEG WELDMENT
34	100029-002	FLAT WASHER, $\frac{1}{4}$ USS
35	100025-001	LOCK WASHER, $\frac{1}{4}$
36	100004-004	CAP SCREW, HH, 1/4-20 X $\frac{1}{2}$
37	150466	SPRING
38		ELECTRICAL BOX (SEE PAGE 33)
39		HYDRAULIC RESERVOIR
40	152245	DRAIN SCREEN
41	152246	DRAIN SCREEN BRACKET

Coolant System



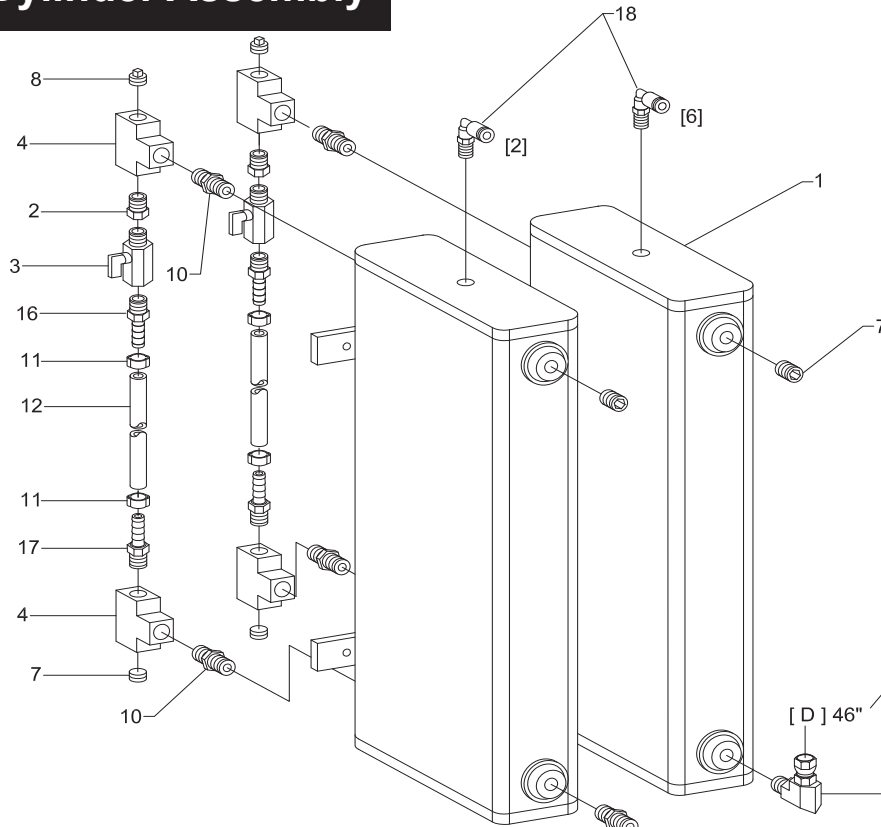
- | | | |
|----|------------|--|
| 1 | 100249-010 | Coolant Pump |
| 2 | 100220-070 | Coolant Hose from Pan 166" |
| 3 | 150066 | Coolant Tank w/ filter |
| 4 | 100350-040 | Coolant Hose, I.E. 1/4" x 40" for 1316S-SA |
| | 100350-068 | Coolant Hose, I.E. 1/4" x 68" for 1316S-SA-EXT |
| 5 | 100324-003 | Hose Barb, 1/4" |
| 6 | 100226-004 | Needle Valve |
| 7 | 100324-009 | Hose Barb, 1/4" 90 degree |
| 8 | 100350-018 | Coolant Hose, D.E. 1/4" x 18" |
| 9 | 100008-068 | Cap Screw, Button Head, 10-32 x 1-1/4" |
| 10 | 152167 | Coolant Manifold |
| 11 | 100324-010 | Hose Barb, 3/8 90 degree |
| 12 | 152177-002 | Coolant Manifold Assembly (includes items 5-7 & 10) |

Down Feed Assembly

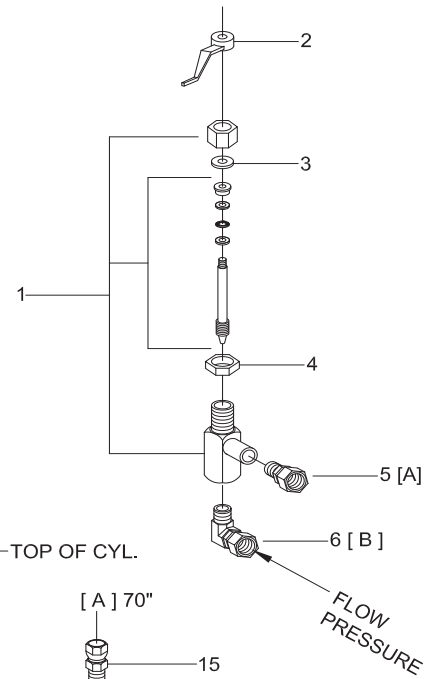


1	100139-001	Oval Knob
2	153047	Handle
3	153077	Rod Support
4	100013-005	Cap Screw, BH, 10-32 x $\frac{3}{8}$ "
5	153069	Feed Rod
6	100034-039	Cap Screw, SH, 10-32 x $\frac{3}{8}$ "
7	150278	Pointer
8	100238-005	Feed Control Valve (does not in
9	100013-006	Cap Screw, BH, $\frac{1}{4}$ -20 x $\frac{1}{2}$ "
10	153064	Feed Control Dial
11	100329-003	Hose Connector
12	100313-003	90° Hose Connector
13	100025-002	Lock Washer, $\frac{5}{16}$
14	100004-018	Cap Screw, HH, $\frac{5}{16}$ -18 x 1"
15	153058	Frame Stop
16	100053-015	Roll Pin, $\frac{1}{8}$ x $\frac{3}{4}$
17	100782-012	Limit Switch
18	100008-088	Cap Screw, SH, 6-32 x 1- $\frac{3}{4}$ "
19	104604	Adjustment Screw
20	101300	Hex Nut, $\frac{5}{16}$ -18

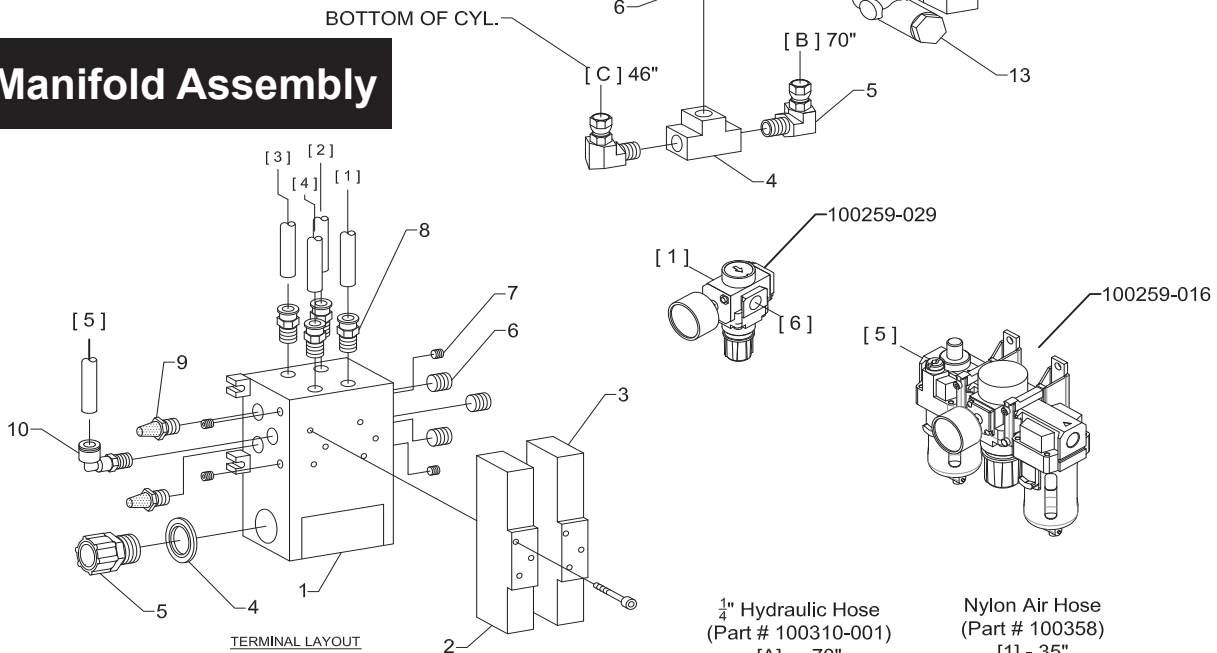
Cylinder Assembly



Flow Control



Manifold Assembly



TERMINAL LAYOUT

LINE	TERMINAL	COLOR
X03	RED FRAME LOWER (1)	RED
X02	WHITE	WHITE
X01	GREEN FRAME RAISE (2)	GREEN
X01	ORANGE (VISE CLOSE)	ORANGE
X01	WHITE	WHITE
X0	BLACK (VISE OPEN)	BLACK

$\frac{1}{4}$ " Hydraulic Hose
(Part # 100310-001)

[A] - 70"
[B] - 70"
[C] - 46"
[D] - 46"

Nylon Air Hose
(Part # 100358)

[1] - 35"
[2] - 13"
[3] - 69"
[4] - 69"
[5] - 33"
[6] - 37"

Cylinder Assembly

- 1 099040-002 RESERVOIR (2 REQUIRED)
- 2 100208-001 REDUCING BUSHING, 1/4 X 1/8NPT (2 REQ'D)
- 3 100226-004 MINIATURE BALL VALVE 1/4 M X 1/8 F (2 REQ'D)
- 4 100333-001 BRASS TEE, 1/4 X 1/4 NPT (6 REQUIRED)
- 5 100313-003 ELBOW, 90°, 1/4 NPT - 3/8JIC (3 REQUIRED)
- 6 100325 CHECK VALVE, 1/4 X 1/4NPT (2 REQUIRED)
- 7 100211-001 PLUG, 1/4 NPT (4 REQUIRED)
- 8 100211-002 PLUG, 1/4 NPT SQ HEAD (2 REQUIRED)
- 9 100349-002 ELBOW, 90°, 1/4 NPT
- 10 100332-001 NEX NIPPLE, 1/4 NPT (5 REQUIRED)
- 11 100219-004 HOSE CLAMP (4 REQUIRED)
- 12 100346-001 HOSE, BRAIDED (2 REQUIRED)
- 13 100673-042 SOLENOID VALVE
- 14 100237-002 STRAINER
- 15 100329-001 SWIVEL FITTING, 1/4 STRAIGHT
- 16 100324-004 BARB FITTING, 1/8 NPT - 3/8 BARB (2 REQUIRED)
- 17 100324-003 BARB FITTING, 1/4 NPT - 3/8 BARB (2 REQUIRED)
- 18 100357-003 PUSH IN FITTING, 90° ELBOW
- 19 100673-039 DIN CONNECTOR W/CORD

Flow Control

- 1 100238-005 CONTROL VALVE ASSY
- 2 150278 POINTER
- 3 100238-003 NYLON WASHER
- 4 100238-004 HEX PANEL NUT
- 5 100329-001 SWIVEL FITTING, 1/4 X 1/4 NPT
- 6 100256-001 SWIVEL FITTING, 90° 1/4 X 1/4 NPT

Manifold Assembly

- 1 099260 2 STATION MANIFOLD ASSY (INCLUDES 2 & 3)
- 2 099004-002 SOLENOID VALVE - VISE
- 3 099004-005 SOLENOID VALVE - FRAME RAISE
- 4 100606-002 SEALING RING
- 5 100612-019 CONNECTOR, 3/4
- 6 100211-011 PIPE PLUG, 1/4 NPT, SOC HEAD (3 REQUIRED)
- 7 100211-022 PIPE PLUG, 1/8 NPT, SCO HEAD (4 REQUIRED)
- 8 100357-001 PUSH IN FITTING, STRAIGHT (4 REQUIRED)
- 9 100317-021 EXHAUST MUFFLER, 1/4 (2 REQUIRED)
- 10 100357-003 PUSH IN FITTING, 90° ELBOW

For Serial Numbers between 6090 and 6272

Blade Guides for 1" Blades

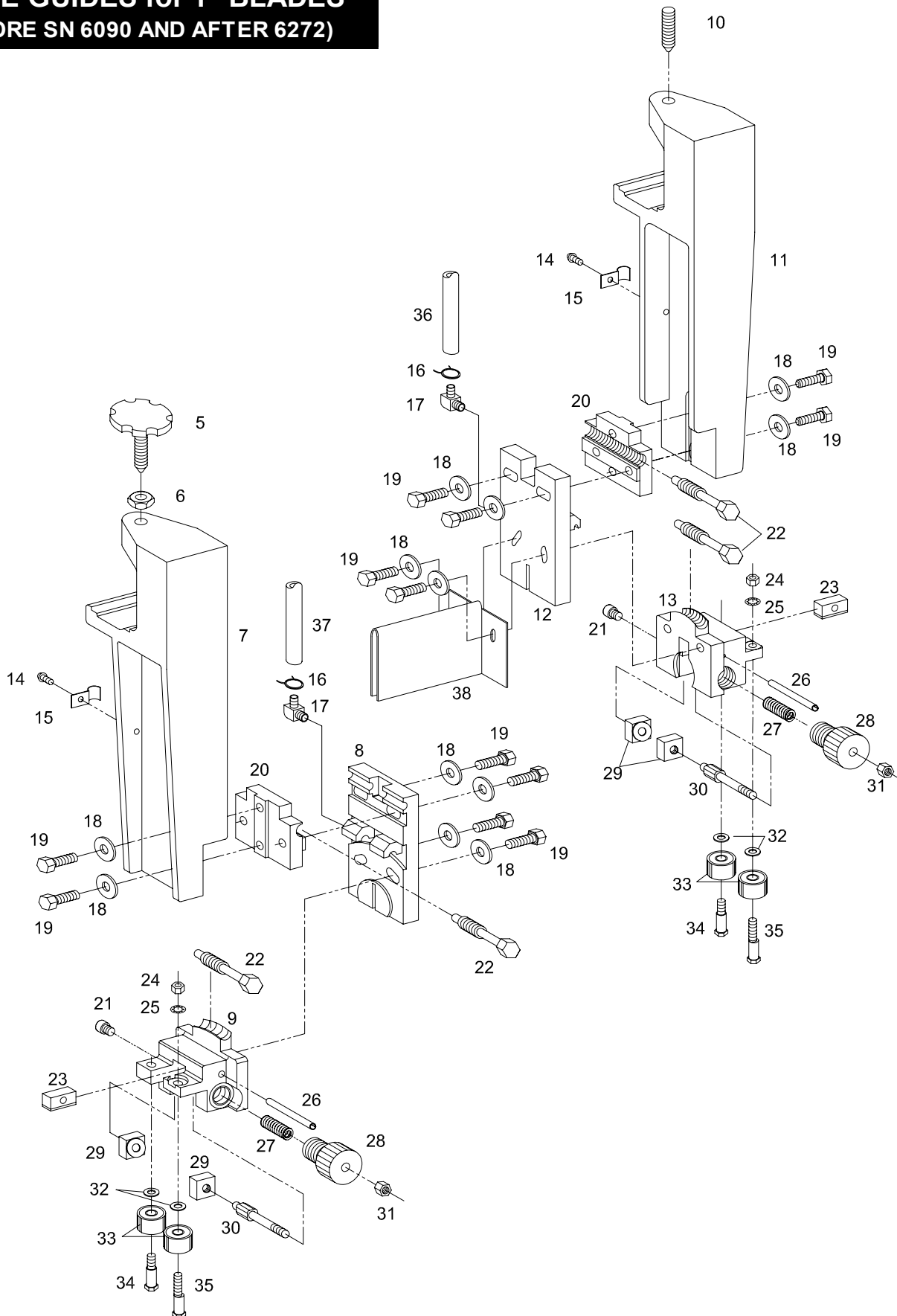


Blade Guides for 1" Blade

For serial #'s between 6090 and 6272. Serial numbers before and after, use single bearings 100416-001 (SEE NEXT PAGE)

- 1 **152158-003** **Blade Guide Ass'y, D.E. between 6090 and 6272**
(includes items 5 - 31& 35 - 37, minus 7,12,& 28)
- 2 **152158-005** **Blade Guide Assy, D.E. before 6090 and after 6272**
- 2 **152159-003** **Blade Guide Ass'y, I. E. between 6090 and 6272**
(includes items 5 thru 31& 35 - 37 minus 6,11& 29)
- 3 **152159-001** **Blade Guide Assy, I.E. before 6090 and after 6272**
- 3 **152160-003** **Guide Support Ass'y, D.E. between 6090 and 6272**
(includes items 13 thru 27 plus 29, 36 & 37)
- 4 **152160-001** **Guide Support Assy, D.E. before 6090 and after 6272**
- 4 **152161-003** **Guide Support Ass'y, I.E. between 6090 and 6272**
(includes items 13 thru 28 plus 36 & 37)
- 152161-001** **Guide Support Assy, I.E. before 6090 and after 6272**
- 5 105335-001 Hand Wheel & Screw
- 6 152118 Roller Guide Bracket, D.E.
- 7 152117 Roller Guide Bracket, I.E.
- 8 100004-018 Cap Screw, HH 5/16-18 x 1
- 9 100029-002 Flat Washer, 1/4
- 10 152155 Vertical Adjusting Block
- 11 152121-002 Horizontal Adjusting Block, D.E.
- 12 152121-003 Horizontal Adjusting Block, I.E.
- 13 152151 Adjusting Bolt
- 14 100053-036 Roll Pin, 1/4 x 2 (later S/N's)
- 15 152153 Carbide Back up Guide Block
- 16 100023-006 Nylon Lock Nut, 1/4-20
- 17 152156 Adjusting Knob
- 18 100136-009 Spring
- 19 152157 Stud
- 20 106317 Fixed Carbide Guide
- 21 100008-004 Cap Screw, HH 5/16-18 x 5/8
- 22 150465 Eccentric Roller Axle between 6090 and 6272
- B-109 Eccentric Roller Axle before 6090 and after 6272
- 23 100416-001 Bearing s/n before 6090 and after 6272 uses 4 of these and no others
- 24 100097-001 Roller Guide Washer
- 25 100027-005 Lock Washer, Shakeproof
- 26 101300 Hex Nut, 5/16-18
- 27 B-043 Roller Axle
- 28 152119 Guide Support, I.E.
- 29 152120 Guide Support, D.E.
- 30 100324-009 Hose Barb, 1/4" hose, 90 deg
- 31 100218-018 Tubing Clamp, 3/8
- 32 100350-018 Coolant Hose, D.E. 1/4" x 18"
- 33 100350-040 Coolant Hose, I.E. 1/4" x 40"
- 100350-068 Coolant Hose, I.E. for 1316S-EXTEND 1/4" x 68"
- 34 100013-005 Machine Screw, BH 10-32 x 3/8
- 35 100417-001 Bearing only used between 6090 and 6272
- 36 100406-001 Bearing only used between 6090 and 6272
- 37 100035-013 Set screw
- 38 150484 Blade Guard

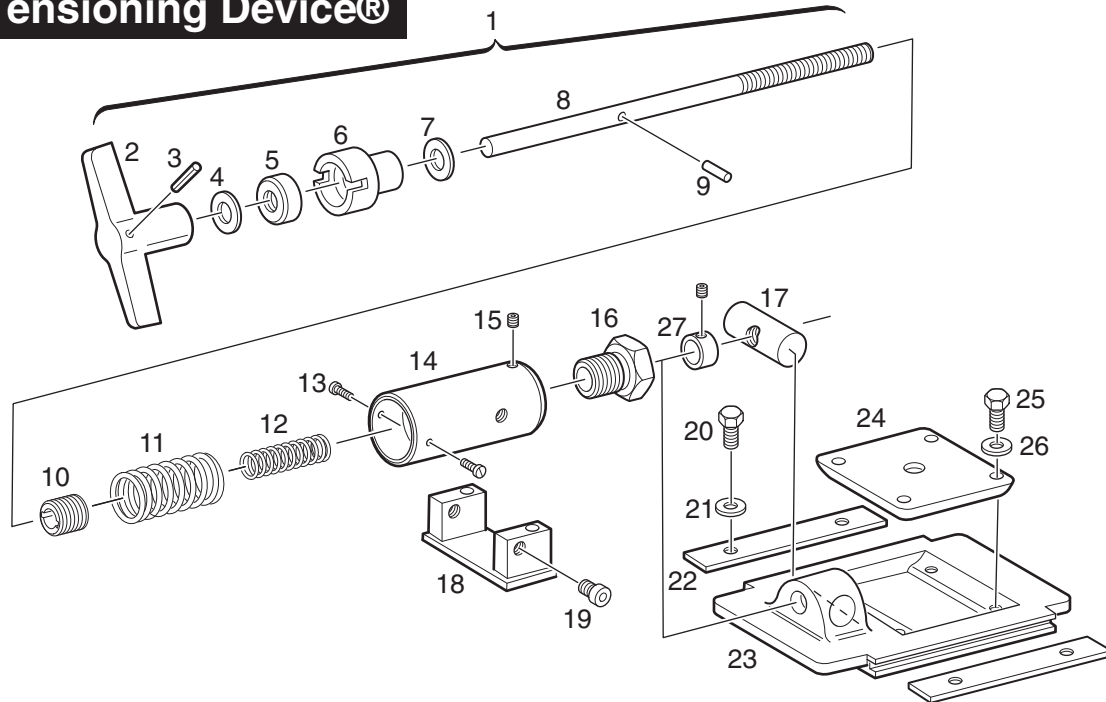
BLADE GUIDES for 1" BLADES **(BEFORE SN 6090 AND AFTER 6272)**



BLADE GUIDES for 1" BLADES
(BEFORE SN 6090 AND AFTER 6272)

1	152158-005	BLADE GUIDE ASS'Y , DRIVE END (BEFORE 6090 AND AFTER 6272) INCLUDES 10 - 35 (LESS 16)
2	152159-001	BLADE GUIDE ASS'Y , IDLE END (BEFORE 6090 AND AFTER 6272) INCLUDES 5 - 9 & 14 - 35 (LESS 16)
3	152160-001	GUIDE SUPPORT ASS'Y, DRIVE END (BEFORE 6090 AND AFTER 6272) INCLUDES 13 & 21 - 35
4	152161-001	GUIDE SUPPORT ASS'Y, IDLE END (BEFORE 6090 AND AFTER 6272) INCLUDES 9 & 21 - 35
5	105335-001	HAND WHEEL & SCREW ASSEMBLY
6	100019-005	HEX JAM NUT, 1/2-13
7	152118	ROLLER GUIDE BRACKET, IDLE END
8	152121-002	HORIZONTAL ADJUSTING BLOCK, D.E.
9	152120	GUIDE SUPPORT, I.E.
10	100035-013	SET SCREW, SH, 1/2-13 X 1-1/4
11	152117	ROLLER GUIDE BRACKET, DRIVE END
12	152121-003	HORIZONTAL ADJUSTING BLOCK, I.E.
13	152119	GUIDE SUPPORT, D.E.
14	100013-005	CAP SCREW, SH, 10-32 X $\frac{3}{8}$
15	100218-018	CLAMP
16	100219-002	HOSE CLAMP
17	100324-009	HOSE BARB, $\frac{1}{4}$ " HOSE, 90°
18	100029-002	FLAT WASHER
19	100004-018	CAP SCREW, HH, 5/16-18 X 1
20	152155	VERTICAL ADJUSTING BLOCK
21	100008-004	CAP SCREW, SH, 5/16-18 X $\frac{5}{8}$
22	152151	ADJUSTING BOLT
23	152153	CARBIDE BACK UP GUIDE
24	101300	HEX NUT, 5/6-18
25	100027-005	LOCK WASHER, SHAKEPROOF
26	100053-036	ROLL PIN, $\frac{1}{4}$ X 2
27	100136-009	SPRING
28	152156	ADJUSTING KNOB
29	106317	FIXED CARBIDE GUIDE
30	152157	STUD
31	100023-006	NYLON LOCK NUT, 1/4-20
32	100097-001	FLAT WASHER
33	100416-001	GUIDE BEARING (BEFORE 6090 AND AFTER 6272)
34	B-043	ROLLER AXLE
35	B-109	ECCENTRIC ROLLER AXLE (BEFORE 6090 AND AFTER 6272)
36	100350-018	COOLANT HOSE, DRIVE END
37	100350-040	COOLANT HOSE, IDLE END
	100350-068	COOLANT HOSE, IDLE END FOR 1316S EXTENDED
38	150484	BLADE GUARD

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

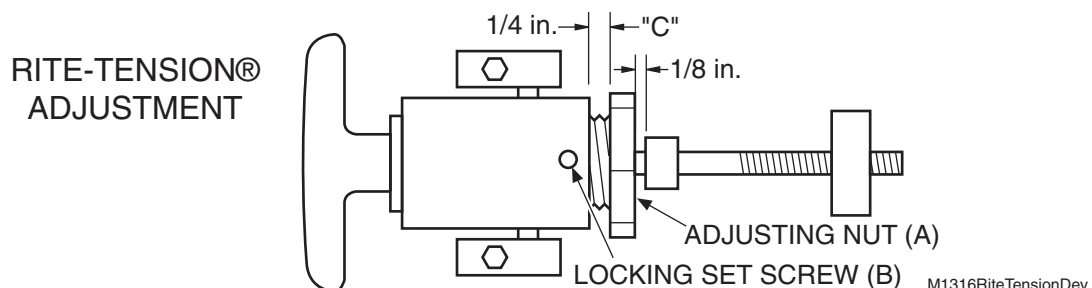
The final tension is determined by the Adjusting Nut, pn 150070 (see "A" in drawing). The "rough" position can be checked by measuring the clearance between the nut and the Tensioning Housing, pn 150067, (see "C").

A clearance of 1/4" will be within a safe range of the correct tension. When a tension guage 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®

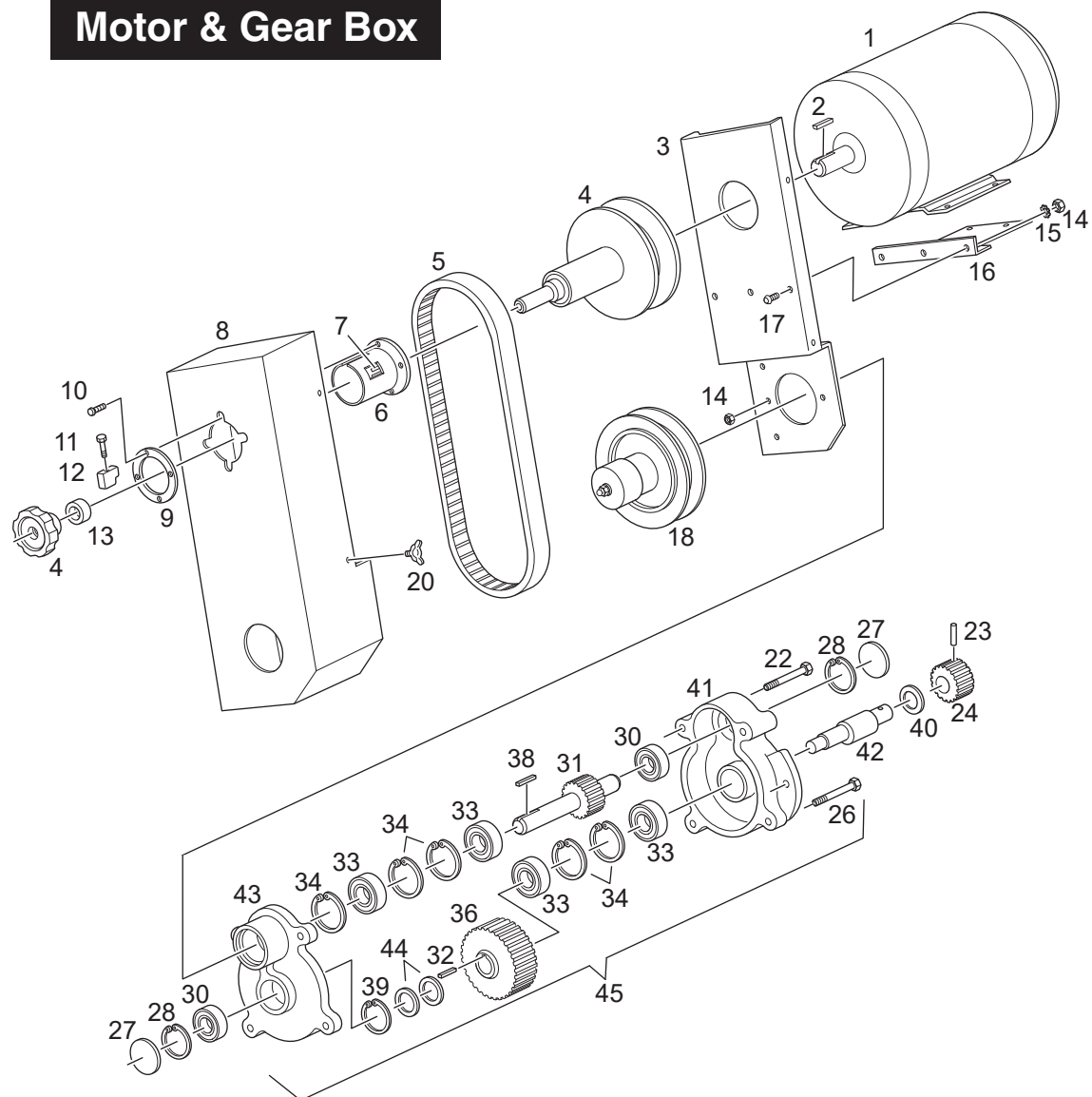
Caution:

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 17 and 27)
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	150190	Tensioner support
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	098030-004	Collar, w/ set screw

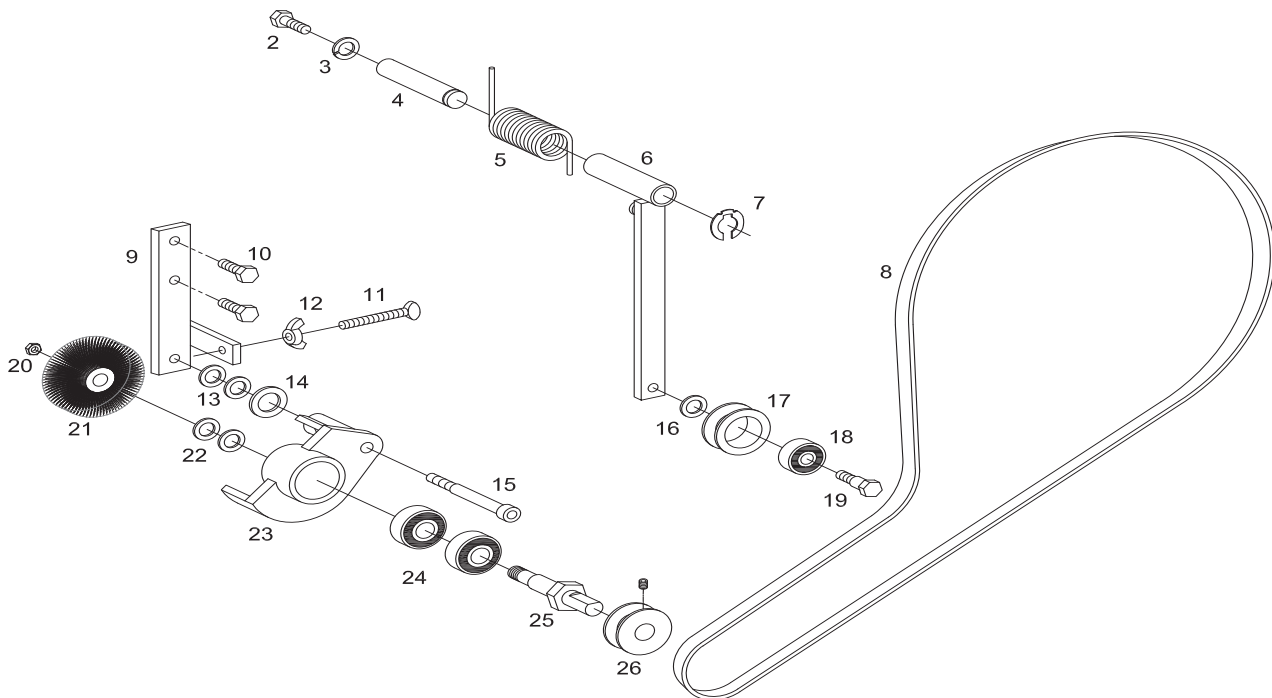
Motor & Gear Box



Motor & Gear Box

1	100835-037	Motor, 3 HP TEFC, 3/4" shaft 3 phase - for s/n before 6559, need new pulley -021 too.
	100836-030	Motor, 2 HP, 115-220/60/1
2	100056-037	Key
3	150250	Belt Guard, Bottom Plate
4	105451-008	VS Motor Pulley, 7/8" bore, 3 Ph old style (before s/n 6559)
	105451-021	VS Motor Pulley, 3/4" bore used after s/n 6559 or if replacement motor is needed.
	105451-005	VS Motor Pulley, 5/8" bore, 1 Ph (all include hand wheel 407-712)
	407-712	Handle/ knob only (without pulley)
5	105454-005	Variable Speed Belt
6	150252	Sleeve
7	105688	Blade Speed Label
8	150251	Belt Guard
9	150255	Flange Clamp
10	100013-008	Cap Screw, BH 1/4-20 x 3/8
11	100008-087	Cap Screw, SH 1/4-28 x 3/4
12	150256	Blade Speed Indicator
13	150217	Spacer
14	100017-001	Hex Nut, 1/4-20
15	100026-004	Shake Proof Washer, 1/4
16	150249	Belt Guard Support
17	100155-001	Machine Screw, 1/4-20 x 1/2
18	105451-015	VS Driven Pulley w/step key, 3/4" bore
20	100063	Thumb Screw (4 req'd)
22	100008-086	Cap Screw, SH 1/4-20 x 2
23	100180-001	Coiled Spring Pin
24	101645-FP	Drive Pinion
26	100008-061	Cap Screw, SH 1/4-20 x 1-1/2
27	100072-001	Expansion Plug
28	100068-001	Snap Ring
30	100404-002	Ball Bearing
31	150234	Pulley Shaft & Pinion
32	100056-001	Key
33	100414-003	Bearing
34	100068-002	Snap Ring
36	101286S	Driven Gear - Steel
38	105451-017	Step Key
39	100069-003	External Snap Ring
40	150416	Spacer
41	150424	Case
42	150426	Drive Shaft
43	150425	Gear Case Cover
44	100097-003	Washer (shim as needed)
45	150423	Gear Box Ass'y

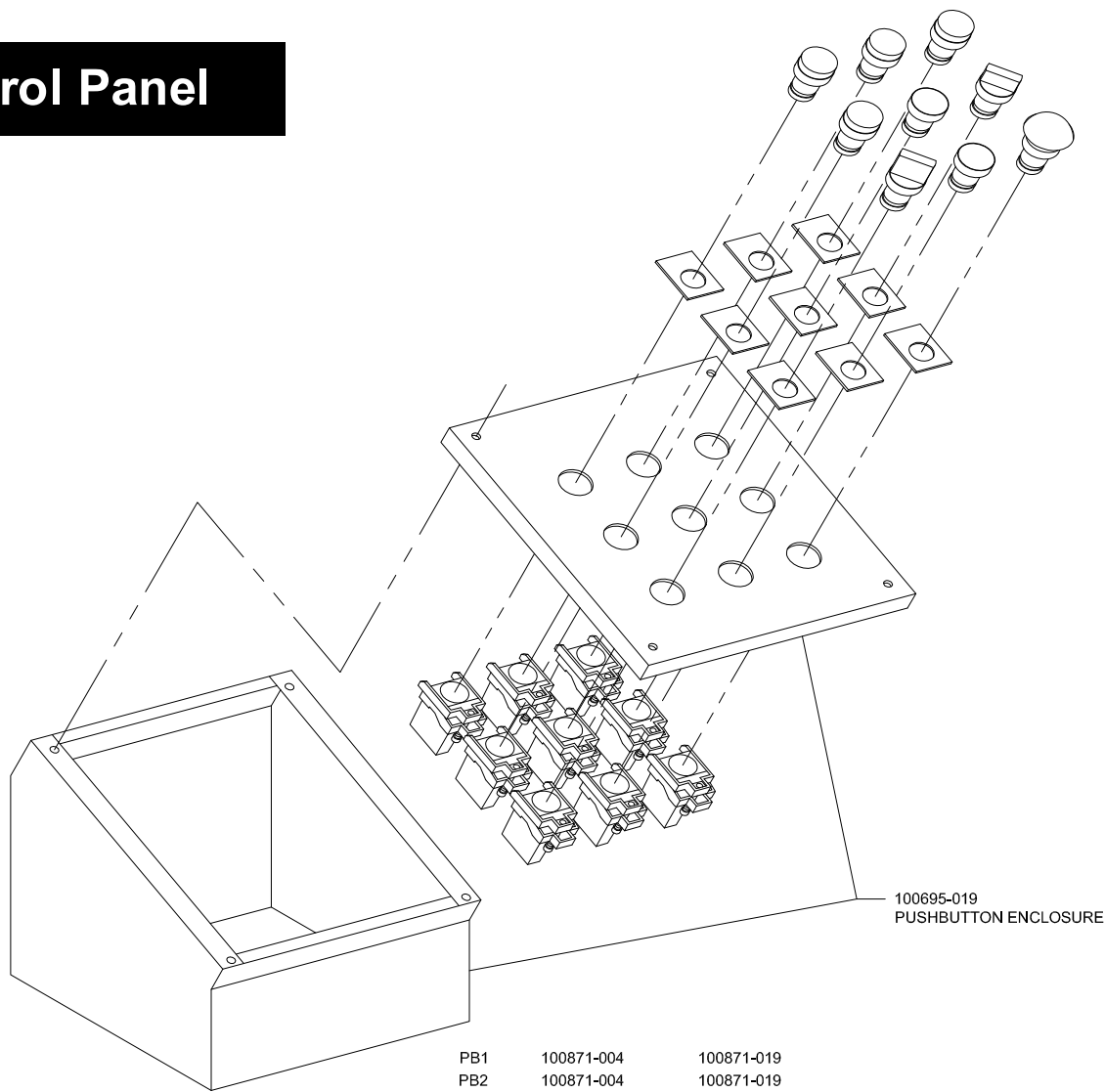
Blade Brush Assembly



Note: Adjust thumb screw (11) so that the brush makes light contact with the blade. This avoids dulling the blade and prevents premature brush wear.

1	100165-007	Shoulder bolt, 3/8 x 3/8	18	100416-001	Bearing
2	100004-018	Cap Screw, HH 5/16-18 x 1	19	B-043	Axle
3	100025-002	Lockwasher, 5/16	20	100019-005	Hex Jam Nut 1/2-20
4	150160-002	Door Latch Stud	21	100133-004	Blade Brush
5	150360	Spring	22	100030-007	Flat Washer 1/2 USS (2 required)
6	150364	Belt Tension Arm	23	150257	Brush Housing
7	100069-003	Snap Ring	24	100404-001	Bearing (2 required)
8	100166-450	V' Belt	25	150126	Brush Arbor
9	150369	Blade Brush Arm	26	100167-003	Small Pulley w/ set screw
10	100004-015	Cap Screw, HH 5/16-18 x 3/4	27	150272	BLADE BRUSH ASSEMBLY
11	100042-003	Thumb Screw, 1/4-20 x 2			(includes items 20-26)
12	100024-002	Wing Nut, 1/4-20			
13	100029-002	Flat Washer 1/2 USS (2 required)			
14	100030-005	Flat Washer 3/8 SAE			
15	100165-015	Shoulder Bolt 3/8 x 1-3/4			
16	100097-001	Washer			
17	150361	Pulley, belt idler			

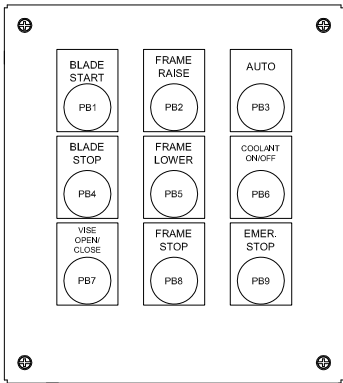
Control Panel



100695-019
PUSHBUTTON ENCLOSURE

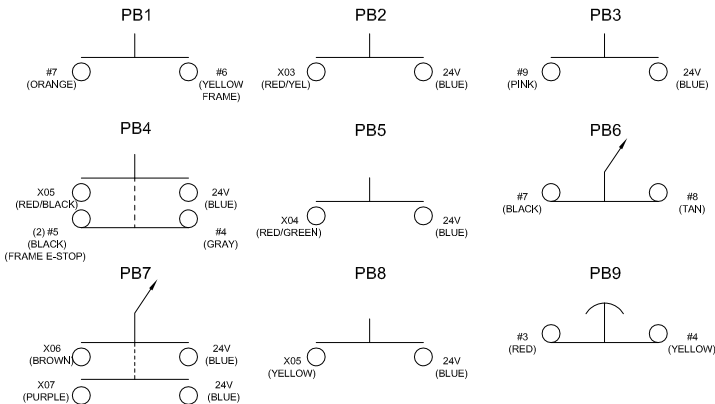
PB1	100699-114
PB2	100699-115
PB3	100699-120
PB4	100699-122
PB5	100699-116
PB6	100699-117
PB7	100699-118
PB8	100699-119
PB9	100699-121

LEGEND PLATE

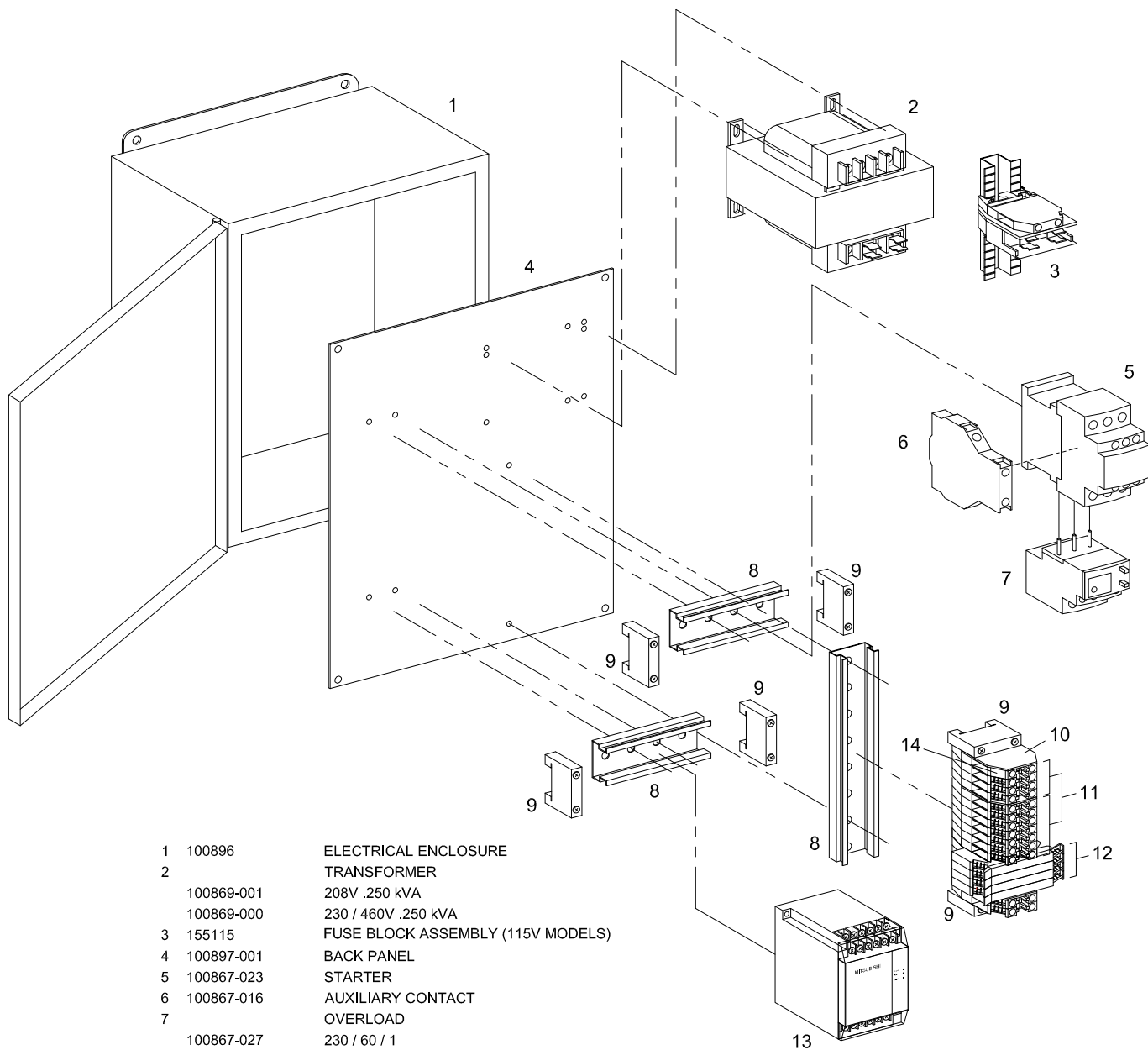


PB1	100871-004	100871-019
PB2	100871-004	100871-019
PB3	100871-004	100871-001
PB4	100871-022	100871-018
PB5	100871-004	100871-019
PB6	100871-005	100871-003
PB7	100871-023	100871-020
PB8	100871-004	100871-018
PB9	100871-005	100871-021

CONTACT SWITCH
SWITCH COMPONENTS

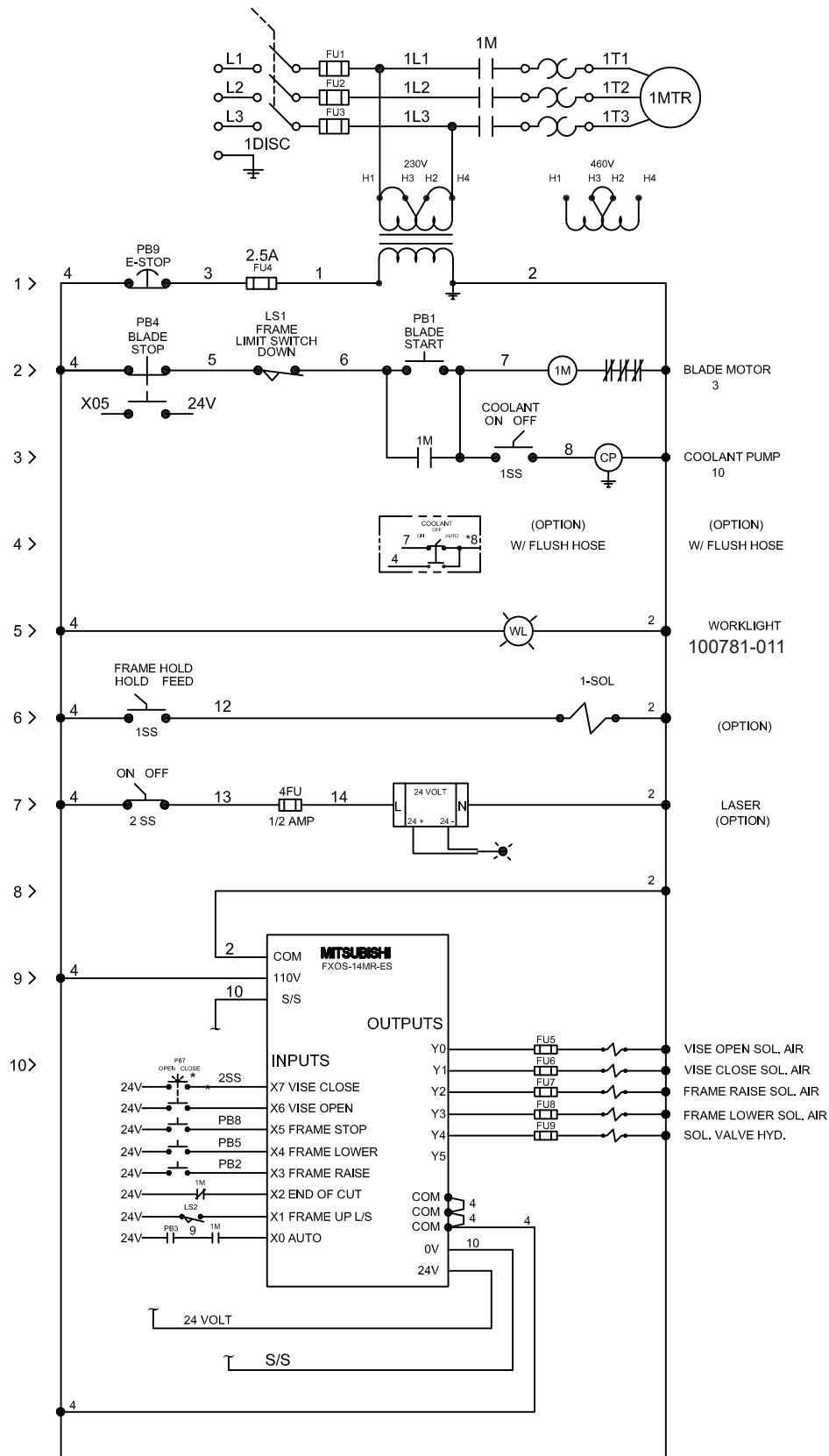


ELECTRIC PANEL COMPONENTS (SN 8030 & LATER)



- | | | |
|----|-------------|------------------------------------|
| 1 | 100896 | ELECTRICAL ENCLOSURE |
| 2 | 100869-001 | TRANSFORMER |
| | 100869-000 | 208V .250 kVA |
| | 100869-000 | 230 / 460V .250 kVA |
| 3 | 155115 | FUSE BLOCK ASSEMBLY (115V MODELS) |
| 4 | 100897-001 | BACK PANEL |
| 5 | 100867-023 | STARTER |
| 6 | 100867-016 | AUXILIARY CONTACT |
| 7 | | OVERLOAD |
| | 100867-027 | 230 / 60 / 1 |
| | 100867-014 | 230 / 60 / 3 |
| | 100867-012 | 460 / 60 / 3 |
| | 100867-022 | 115 / 60 / 1 |
| | 100867-014 | 208 / 60 / 3 |
| 8 | 100717-016T | MOUNTING RAIL |
| 9 | 100717-017T | END CLAMP |
| 10 | 100717-013D | END BARRIER (3 REQUIRED) |
| 11 | 100717-012D | TERMINAL BLOCK (13 REQUIRED) |
| 12 | 100717-026 | TERMINAL BLOCK, FUSED (5 REQUIRED) |
| 13 | 100901-001 | PROGRAMMABLE CONTROLLER |
| 14 | 100717-019T | MARKING PIECE (31 REQUIRED) |

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

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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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