Parts List and Operating & Maintenance Manual

MODEL 613

Manual Bandsaw

Built better to work stronger and last longer

REV 171005

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

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Model 613 Specifications

Capacity	
Rectangular	6' high x 13' wide
Round	7” diameter
Flat	13' wide
4 5° Angle	6' high x 6.5' wide
Blade Speed	50-90-160-250 FPM
Motor	3/4 HP, 115-230/60/1 or 206-230-460/60/3
Drive	V-Belt
Blade Size	3/4” x .035"x8'2-1/2"
Swivel Vise	To 45°
Vise control	Manual Screw
Band Wheels	11' dia.
Height to top of bed	29'
Coolant System	8 gallon w/115VAC submersible pump
Recommended Workload Weight	600 lbs.
Floor Space	25" x 60'
Shipping weight (approximate)	680 lbs.

Parts Ordering

For your convenience:
When contacting your Wellsaw supplier or the Company for parts or service, it is essential that you have both your saw Serial Number and Purchase Date available. Jot them down here for handy reference.

Serial Number

Purchase Date

Fill out and return your Warranty Card so that you can be kept informed of developments concerning your Wellsaw.

Forward

The Model 613 Wellsaw has been designed and manufactured to conform to WeIlsaw'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

Uncrating

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 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 customers responsibility to ensure that his saw complies with applicable codes. Your Wellsaw is prewired 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.

Safety Rules

1. Know Your Saw
Read this manual carefully. Learn your saws' application and limitations as well as the specific potential hazards peculiar to this machine.

2. Keep Guards in Place
Keep guards in place and in good working order.

3. Remove Adjusting Keys and Wrenches See that keys and wrenches are removed from the saw before operating it.

4. Keep Working Areas Clean Clutter invites accidents

5. Avoid Dangerous Environment
Do not use power tools in damp or wet locations. Keep work areas well illuminated.

6. Keep Children Away
Keep all visitors a safe distance from work areas.

7. Use The Right Tools
Do not force a tool or attachment to do a job or operate at a speed it was not designed for.

8. Wear Proper Apparel
Avoid all loose clothing or jewelry which may get caught in moving parts.

9. Use Safety Glasses
Also use a face or dust mask if the cutting operation being performed requires it.

10. Secure Work
Use proper clamps or the vise to hold work before cutting.

11. Do Not *Over* Reach
Keep your footing and balance at all times. Clean up all liquids spilled in work area.

12. Maintain Tools in Top Condition
Keep tools sharp and clean for best and safest performance. Follow instructions for lubrication, maintenance and changing accessories

13. Disconnect Power
Before servicing and when changing accessories such as blades, disconnect the power supply.

14. Use Recommended Accessories
Consult this Manual. The use of improper accessories may be dangerous and can damage the saw.

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.

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. (See page 24)

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 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 teeth 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 ne w blade. New blades should be run initially with reduced feed pressure for approximately 50 to 100 square inches of cutting.
12. Saw blade teeth may be hitting blade guides. Check for proper blade size and guide adjustment.

Saw Blade Vibration

1. Incorrect blade speed for material being cut.
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 pressure.
7. Workpiece not firmly clamped in vice.
8. Worn or improperly adjusted saw guides. Check and make necessary adjustments or repairs.

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 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 Blade 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 work 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 nuts, bolts, etc.

Rough Cut I Poor Finish

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

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 proper?
3. Is back of blade riding against back-up bearing? If not, adjust guides.

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 specification 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 blade, 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 activates a limit switch which shuts the motor off.

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

It is necessary to raise the saw frame clear of this 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 within 1" of the top of the bottom cylinder with Mobil Velocite Oil #6 or equivalent.

Frame Weight Adjustment

The position of the collar in relation to the spring on the dash pot acts as the frame weight adjustment.

The proper frame weight is approximately 10 lbs. and is obtained by positioning the top of the collar 4" down from the top edge of the upper cylinder. For less frame weight, loosen the collar and move it down toward the tension spring. Reverse this action for more frame weight.

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

Speed Selection

Saws are equipped with step pulleys providing blade speeds of 50, 90, 160 and 250 feet-per-minute. High speeds are suggested for cutting thin-wall tubing, channels, aluminum, brass or any metal that will not burn 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. *See page 22 for suggested Blade Speed combinations.*

Belt

Pivoted mounting provides for quick belt change. With the belt in pulley grooves for the desire 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 the ensure square cuts. For cutting angles, the pins must be removed to the desired position and tightened with clamp bolts. The vise pins allow you to quickly relocate the fixed vise jaw for approximate 90^0 cutting. For final, accurate cutting, the fixed vise jaw should be squared with the blade. [See Blade 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 needed to hold the 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.

Feeding Pressure

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. Excessive pressure may cause a run-out of the blade. [See page 22 for recommendations.]**

Placing Blade on Saw

1. Raise saw frame.

2. Open Idle and Drive Wheel guards.

3. **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] turns.***

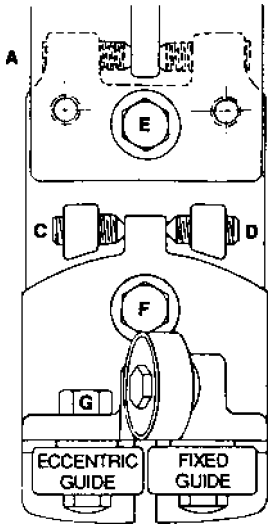
4. Uncoil new blade. Make certain the blade teeth point in the direction of blade travel which is toward the motor. If not, turn blade inside out to have the proper tooth direction.

5. Place new blade on the guides and the band wheels.

6. Grasp blade on frame side and push it toward guide bracket beam to hold it in position while turning the Rite Tension take-up screw.

7. Tighten blade to proper tension. Blade is properly tensioned when the take-up screw is tightened until the mechanism bottoms out.

Maintenance Instructions



Blade Guide Alignment

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 Allen screws on the roller adjusting block of the guide arm. Looking at the drawing, 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 1-1/2 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 Allen screws marked "C" and "D" to obtain the correct 90° angle.

Adjust the side roller guides with the eccentric axle until both rollers contact blade. When this adjustment has been made, the roller should be adjusted so that the PATH OF THE BLADE IS STRAIGHT and the blade is not forced to curve around the rollers. The top roller guide should be in contact with the top of the blade at all times. When running idle, this contact pressure should be very light

Wheel Pitch Adjustment

If the saw blade runs too low or off the wheels, or runs too high and rubs the wheel flange, a wheel pitch 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 one-half [112] turn the two cap screws in the block closest to the take-up screw end. Tighten by one-half turn [112] the two cap screws in the opposite end of the block. Repeat if more adjustment is necessary.

Blade running too high and running against the Idler Wheel Flange. The blade can become distorted, its top edge rolled over and the wheel flange will wear excessively. To correct this, loosen by one-half [112] turn the two cap screws opposite the take-up screw on the wheel block. Tighten the two cap screws closest to the

take-Up screw end. Repeat if necessary.

Drive Wheel:

Blade running too low or off the drive wheel. Loosen the two cap screws closest to the motor end of the wheel plate by one-half [1/2] turn. Tighten the two hollow-head screws at the same end by one-half [1/2] turn. Repeat if more adjustment is necessary.

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

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. Use Loctite No. 51580 or equivalent.

Blade Brushes

Brushes should be cleaned frequently in kerosene and reversed to take advantage of both rows of bristles. For efficient cutting, replace worn blade brushes. In replacing brushes, be sure bristles are bent in the direction the blade travels.

Switch

A "Stop-Start" switch across the line controls the motor. A heater coil breaks the circuit if an overload occurs. Allow time for the coil to cool before restarting the saw. An automatic shut-off operates when the saw frame contacts a limit switch. Low voltage protection is provided by the magnetic starter. A separate switch controls the automatic coolant system.

Preventive Maintenance

Caution: Disconnect the electrical supply and press emergency STOP button before performing any maintenance. DO NOT service the Dash Pot 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 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.
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 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.
3. Viscosity: Heavy grease, drop point 550 EF.
4. Military Specification: None.

Hydraulic Cylinder [Dash Pot]

1. Inspect annually. Fill to within 1" of the top of the bottom cylinder. 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. Relubricate 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° C.
4. Military Specification: None.

Model 613 History

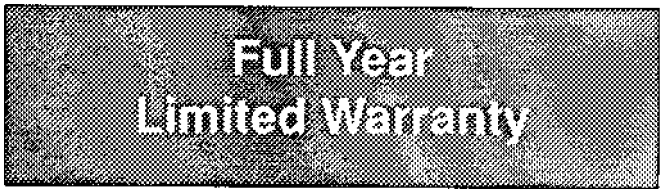
Model #5 - the forerunner of the current Model 613 Wellsaw - was introduced in 1936. You can identify many of the same parts of the original Model #5 which are still used on Model 613. Just look for Part Numbers with the suffix "A" such as the ring gear and the stationary vise.

The changes that have been made are, essentially, a matter of improvements. Model #5, for instance, had a 5" x 10" cutting capacity, a 112" bandsaw blade and a]J3HP motor. About 6700 Model #5's were built through 1956.

Then the Model 600 was introduced with a 6" x 13" cutting capacity, a 5/8" blade and a 3/4 HP motor and 5300 of this version were produced.

Model 613 - a more accurate description of the developing saw - began to come off the line in 1985, stepping up to a 3/4" blade, a built-in coolant system and the Rite Tension device to give more positive blade tension control. More recent improvements include a precision ground bed to greatly improve cutting accuracy and low voltage operator controls.

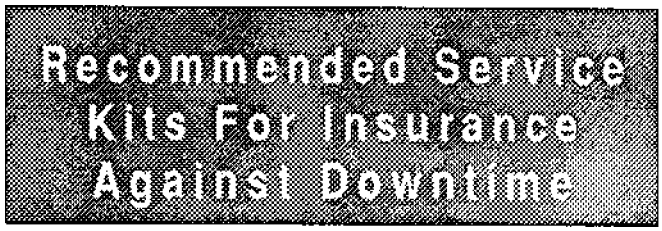
We hope you'll agree that constant improvement through more than thirty years of field experience and over 13,000 bandsaws has produced one of the most productive, durable and accurate bandsaws available, anywhere.



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 are 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 saws' owner. No products or parts are to be returned to our factory without first obtaining written permission.



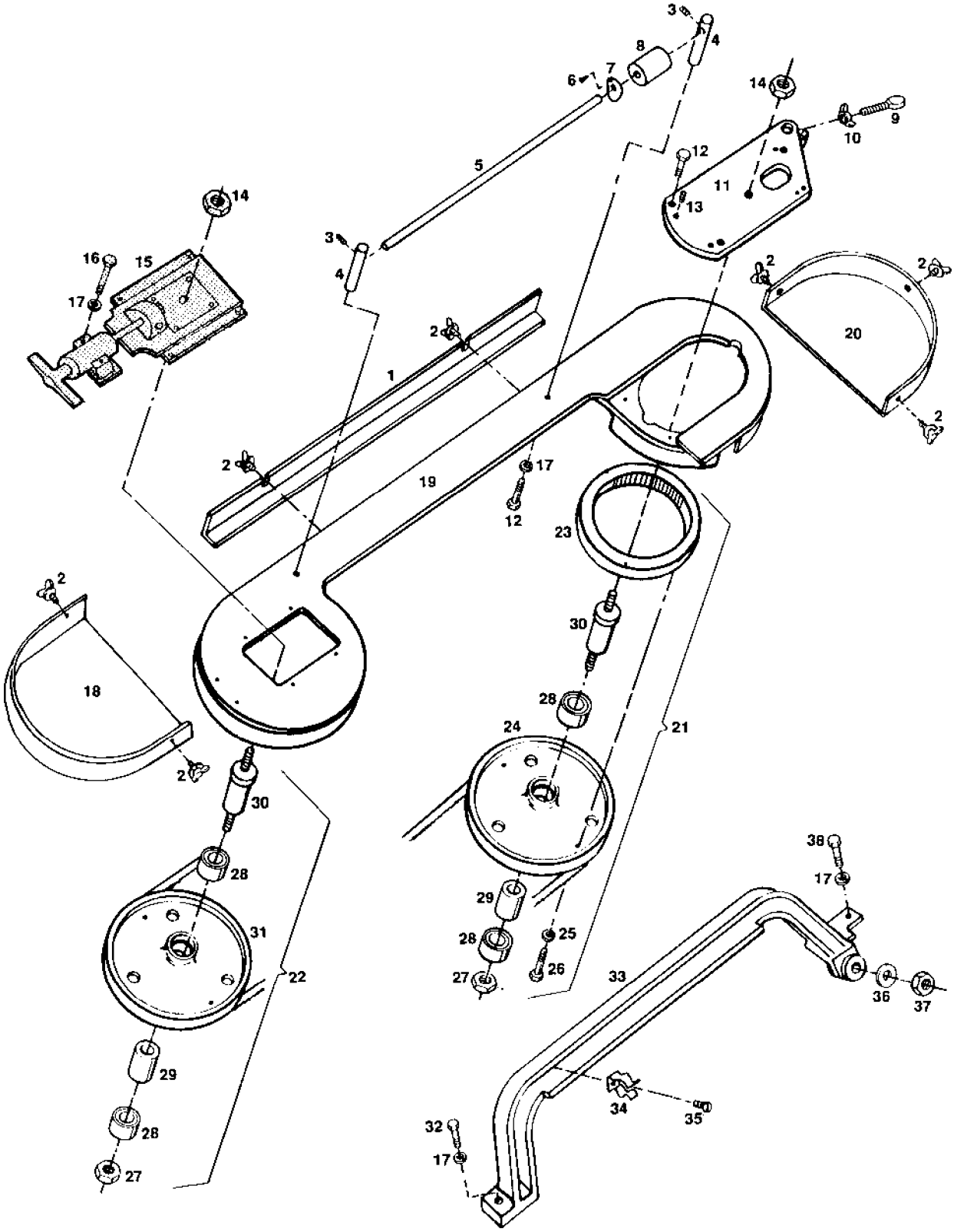
1 Year

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

2 Years

100406-001	Bearing	2 req'd.
100416-001	Bearing	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.

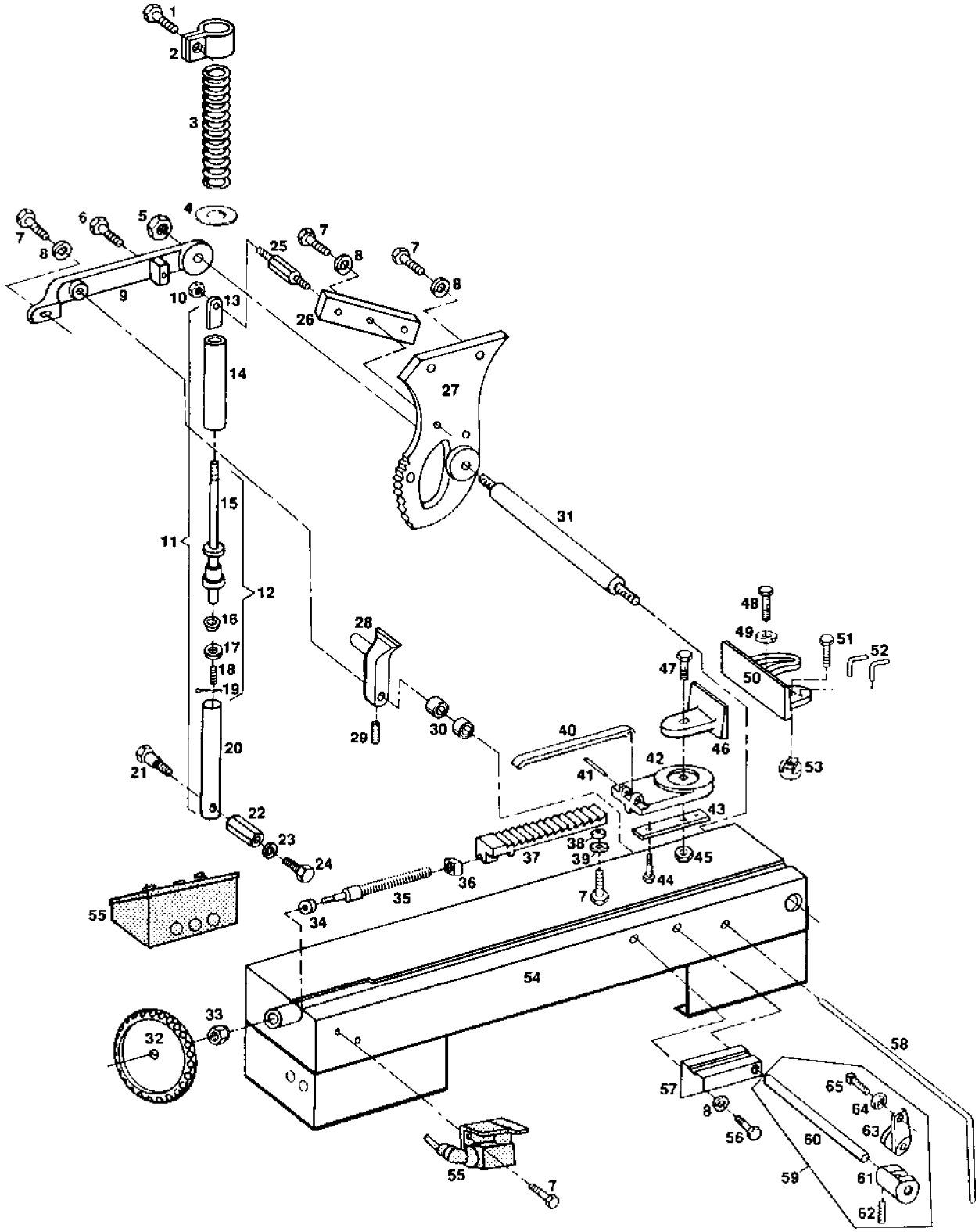
Frame Assembly



Frame Assembly

1	A-049	BACK BLADE GUARD
2	100063	THUMB SCREW, W/ WASHER, 1/4-20 X 112
3	100034-001	SET SCREW, 1/4-20 X 3/16 (2 REO)
4	M-102	SLIDING WEIGHT POST (2 REO)
5	A-101	SLIDING WEIGHT BAR
6	100000-024	MACHINE SCREW, RD HD, 1/4-20 X 3/8
7	M-857	SLIDING WEIGHT SPRING
8	M-807	SLIDING WEIGHT
9	100042-005	THUMB SCREW, 3/8-16 X 2 1/2
10	100024-003	WING NUT, 3/8-16
11	103222	WHEEL PLATE
12	100004-018	CAP SCREW, HEX HD 5/16 - 18 X 1, (4 REO)
13	100034-005	SET SCREW, 5/16-18 X 3/4 (4 REID)
14	100065-007	HEX NUT, 5/8-18 (1 PER WHEEL ASSY)
15		**RITE TENSION & SLIDE BLOCK ASSY (SEE PAGE 14)**
16	100004-099	CAP SCREW, HEX HD, 5/16-18 X 2 1/4 (2 REO)
17	100025-002	LOCK WASHER, 5/16
18	**103228**	IDLE WHEEL GUARD
19	103219	FRAME
20	105616	DRIVE WHEEL GUARD
21	105424-001	**WHEEL ASSY COMPLETE, DRIVE END (INCL ITEMS 23 THRU 30)**
22	**105425-001**	**WHEEL ASSY COMPLETE, IDLE END (INCL ITEMS 27 THRU 31)**
23	A-086	INTERNAL RING GEAR
24	101785-001	BAND DRIVE WHEEL, 3/4 BLADE
25	100025-001	LOCK WASHER, 1/4 (2 REO)
26	100004-053	CAP SCREW, HEX HD, 1/4-20 X 1 (2 REO)
27	100019-016	HEX JAM NUT, 5/8-18 (1 PER WHEEL ASSY)
28	100414-003	BALL BEARING (2 PER WHEEL ASSY)
29	105415	WHEEL SPACER (1 PER WHEEL ASSY)
30	105420	WHEEL AXLE (1 PER WHEEL ASSY)
31	101786-001	BAND IDLER WHEEL, 3/4 BLADE
32	100004-019	CAP SCREW, HEX HD, 5/16-18 X 1 1/8, (2 REQ)
33	101782	GUIDE BRACKET BEAM
34	100169	TUBE CLAMP (2 REO)
35	100000-010	MACHINE SCREW, RD HD, 8-32 X 5/16, (2 RECD
36	100029-008	FLAT WASHER, 5/8
37	100020-005	HEX NUT, SELF LOCKING, 5/8-11
38	100004-018	CAP SCREW, HEX HD 5/16-18 X 1

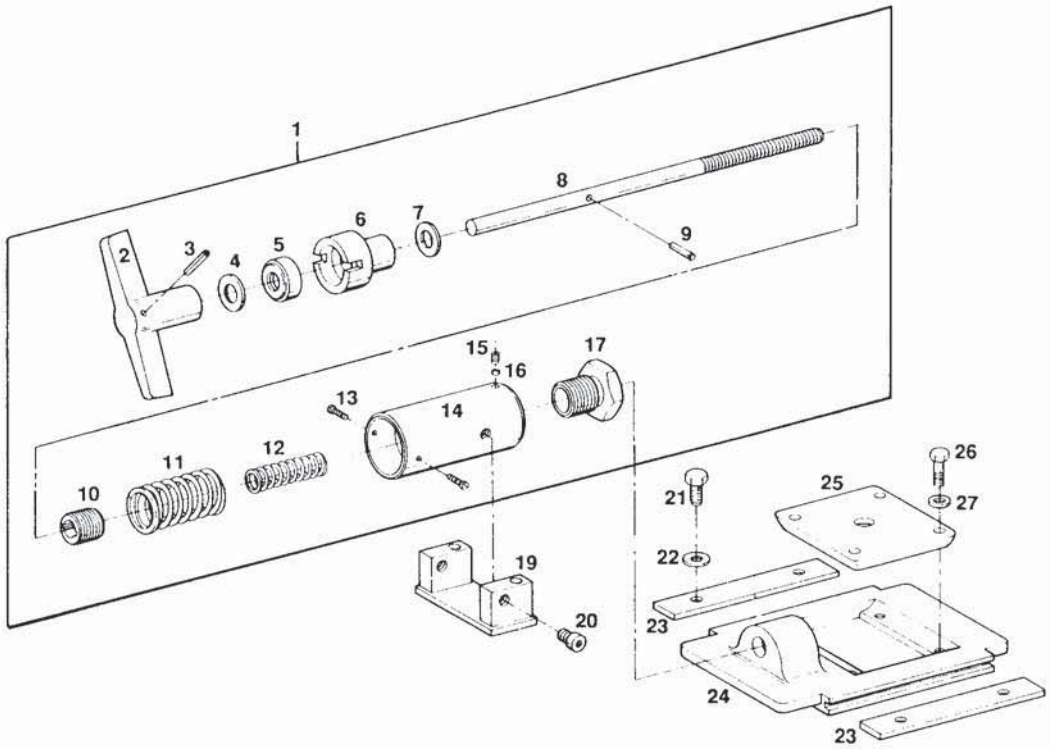
Bed Assembly



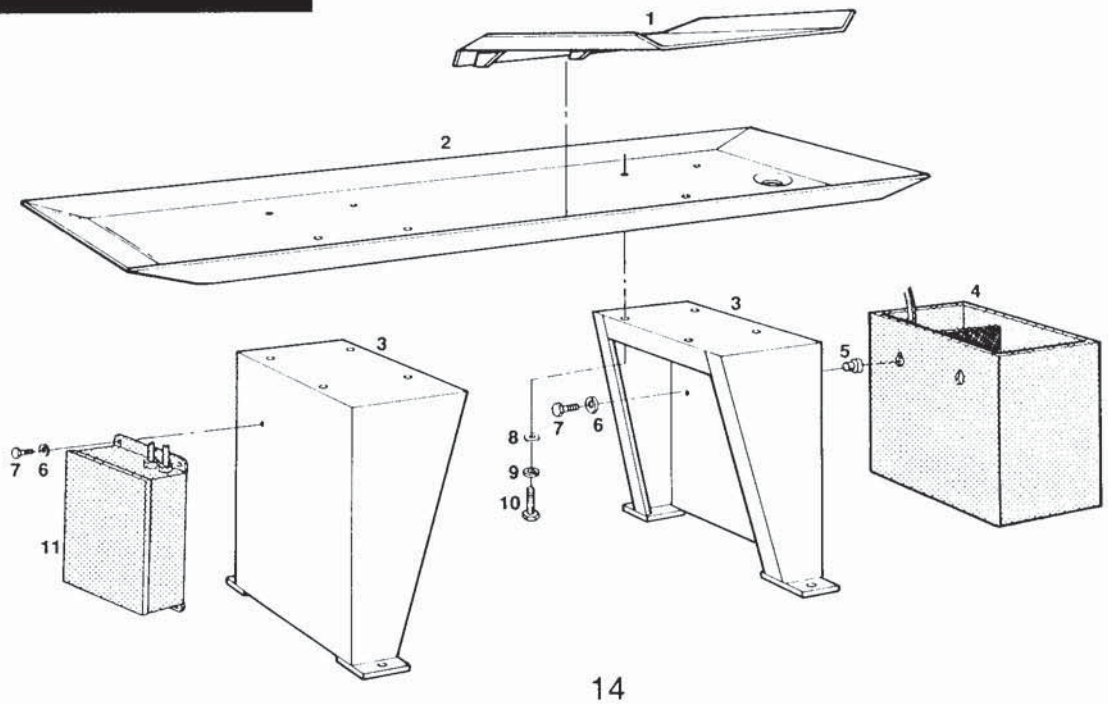
Bed Assembly

1	100004-015	CAP SCREW, HEX HD, 5/16-18 X 3/4
2	101776	CLAMP
3	101775	SPRING
4	101777	WASHER
5	100020-005	HEX NUT, 5/8-11, SELF LOCKING
6	100004-023	CAP SCREW, HEX HD, 5/16-18 X 2
7	100004-018	CAP SCREW, HEX HD, 5/16-18 X 1
8	100025-002	LOCK WASHER, 5/16
9	A-023	FRAME RATCHET BRACKET
10	100017-003	HEX NUT, 3/8-16
11	**M-301**	**DASH POT ASSY COMPLETE (INCL ITEMS 13 THRU 20)**
12	**101526**	**PISTON ROD ASSY COMPLETE (INCL ITEMS 15 THRU 19)**
13	M-144	PISTON ROD END
14	101524	OUTSIDE TUBE
15	101527	PISTON ROD
16	M-166	CUP LEATHER
17	100070	CUP WASHER
18	M-148	SPRING
19	100050-002	COTTER PIN, 3/32 X 3/4
20	101523	INSIDE TUBE
21	M-147	DASH POT LOWER STUD
22	155020	DASH POT MOUNT - LOWER
23	100025-003	LOCK WASHER, 3/8
24	100004-026	CAP SCREW, HEX HD, 3/8-16 X 7/8
25	155065	DASH POT UPPER STUD
26	155021	DASH POT MOUNT - UPPER
27	101783	FRAME RATCHET
28	A-081	RATCHET DOG
29	100033-010	SET SCREW, 5/16-18 X 1/2
30	M-107	COLLAR, W/ SET SCREW (2 REQ)
31	101784	PIVOT BAR
32	A-016	HAND WHEEL
33	100019-008	HEX JAM NUT, 3/4-10
34	100402	THRUST COLLAR
35	M-060	VISE SCREW
36	M-061	VISE SCREW NUT
37	101773	VISE RATCHET
38	A-040	RATCHET GUIDE SPOOL
39	M-041	SPACER
40	A-004	VISE RATCHET DOG
41	100053-002	ROLL PIN, 3/8 X 2 1/2
42	105839	VISE SLIDE BLOCK
43	105840	VISE SLIDE BLOCK GUIDE
44	100004-013	CAP SCREW, HEX HD, 5/16-18 X 5/8
45	100017-005	HEX NUT, 1/2-13
46	105847	MOVABLE VISE JAW
47	100004-039	CAP SCREW, HEX HD, 1/2-13 X 2 1/2
48	100004-070	CAP SCREW, HEX HD, 1/2-13 X 1 3/4
49	155107	FLAT WASHER, 1/2
50	A-031	STATIONARY VISE JAW
51	100004-038	CAP SCREW, HEX HD, 1/2-13 X 2
52	M-065	LOCATING PIN (2 REQ)
53	A-151	CLAMP NUT
54	155001	BED
55		**ELECTRICAL CONTROL ASSY (SEE PAGE 20)**
56	100004-015	CAP SCREW, HEX HD 5/16-18 X 3/4 (2 REQ)
57	101750	TIP-OFF BLOCK
58	M-105	RATCHET ROD LEVER
59	**101709**	**STOCK STOP ASSY, (INCL ITEMS 60 THRU 65)**
60	A-062	STOP BAR
61	A-036	STOP ARM HOUSING
62	100034-006	SET SCHEW, 5/16-18 X 7/8
63	A-013	STOP ARM
64	100017-003	HEX NUT, 3/8-16
65	100033-017	SET SCREW, 3/8 - 16 X 1 1/2

Rite Tension™ Device



Leg & Chip Pan



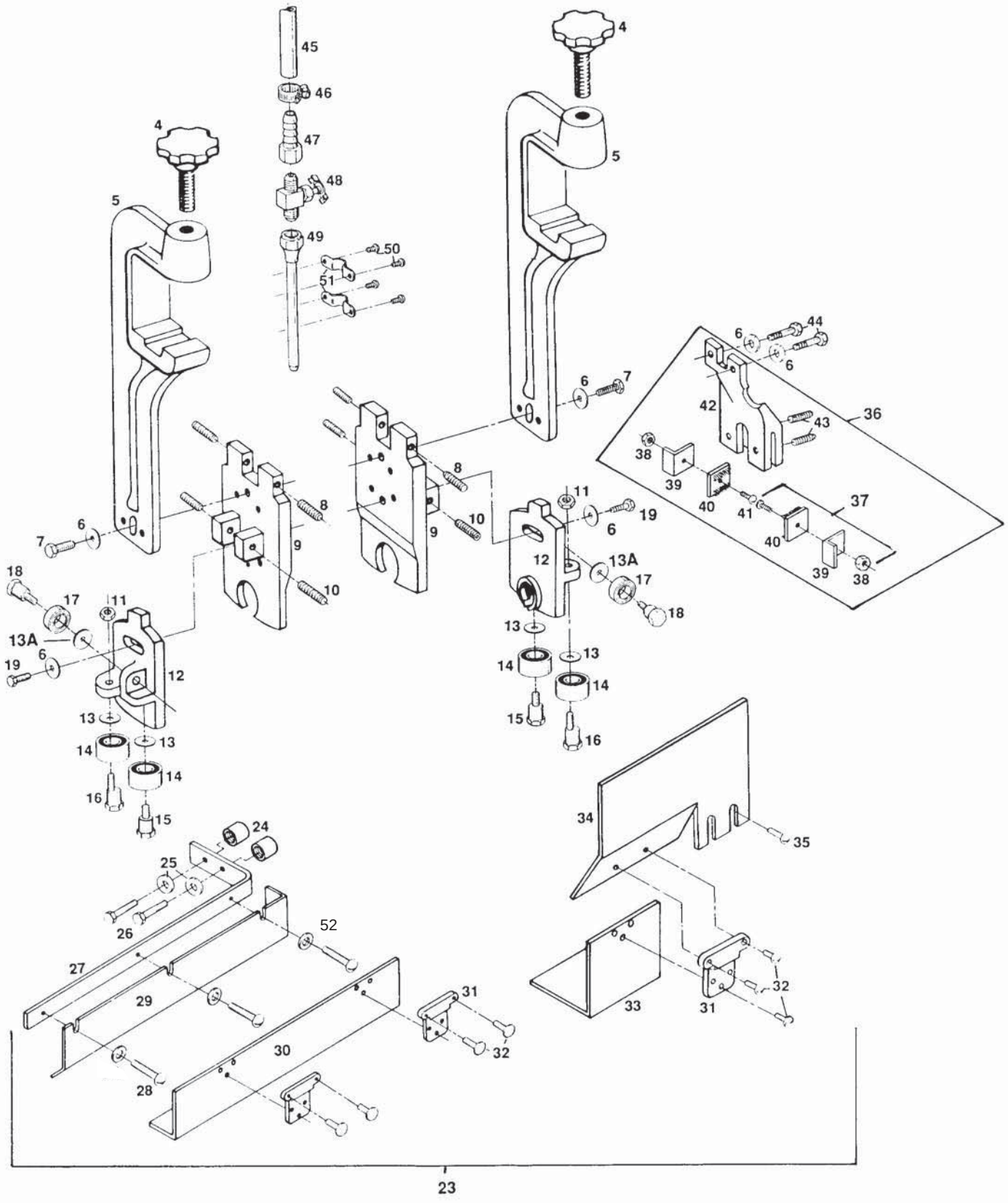
Rite Tensioning Device

1	155072	RITE TENSION ASSEMBLY (INCL 2 THRU 17)
2	101184	HANDLE
3	100053-005	ROLL PIN, 3/16 X 1
4	100030-007	FLAT WASHER, SAE 1/2
5	100410-001	THRUST BEARING
6	150068	BEARING HOUSING
7	100116-007	BELLEVILLE WASHER
8	155070	TAKE-UP SCREW
9	100052-024	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, RD HD 8-32 X 5/16 (2 READ)
14	150067	BLADE TENSION HOUSING
15	100034-008	SET SCREW, 1/4-20 X 1/4
16	150082	NYLON BUTTON
17	150070	TENSION ADJUSTER
19	150190	TENSIONER SUPPORT
20	100008-072	CAP SCREW, SOCKET HD 5/16-18 X 3/8 (2 REC.)
21	100004-013	CAP SCREW, HEX HD 5/16-18 X 518 (4 REQ)
22	100025-002	LOCK WASHER, 5/16 (4 AM)
23	A-046	SLIDE BLOCK GUIDE (2 REQ)
24	101171	SLIDE BLOCK
25	A-010	WHEEL ADJUSTING BLOCK
26	100004-019	CAP SCREW, HEX HD 5/16-18 X 1-1/8 (4 REQ'D)
27	102360	SPACER (4 REQ)

Leg & Chip Pan

1	M-250	SPLASH GUARD
2	155006	CHIP PAN
3	155106	LEG (2 REQ)
4		COOLANT ASSY. (SEE PAGE 18)
5	150078	COOLANT TANK HANGER (2 REQ)
6	100025-001	LOCK WASHER, 1/4 (4 REQ'D)
7	100004-004	CAP SCREW, HEX HD 1/4-20 X 1/2, (2 REQ)
8	100029-004	FLAT WASHER, 3/8 (4 REQ)
9	100025-003	LOCK WASHER, 3/8 (4 REOD)
10	100004-027	CAP SCREW, HEX HD 3/8-16 X 1 (4 REQ)
11		ELECTRICAL CONTROL ASSY (SEE PAGE 20)

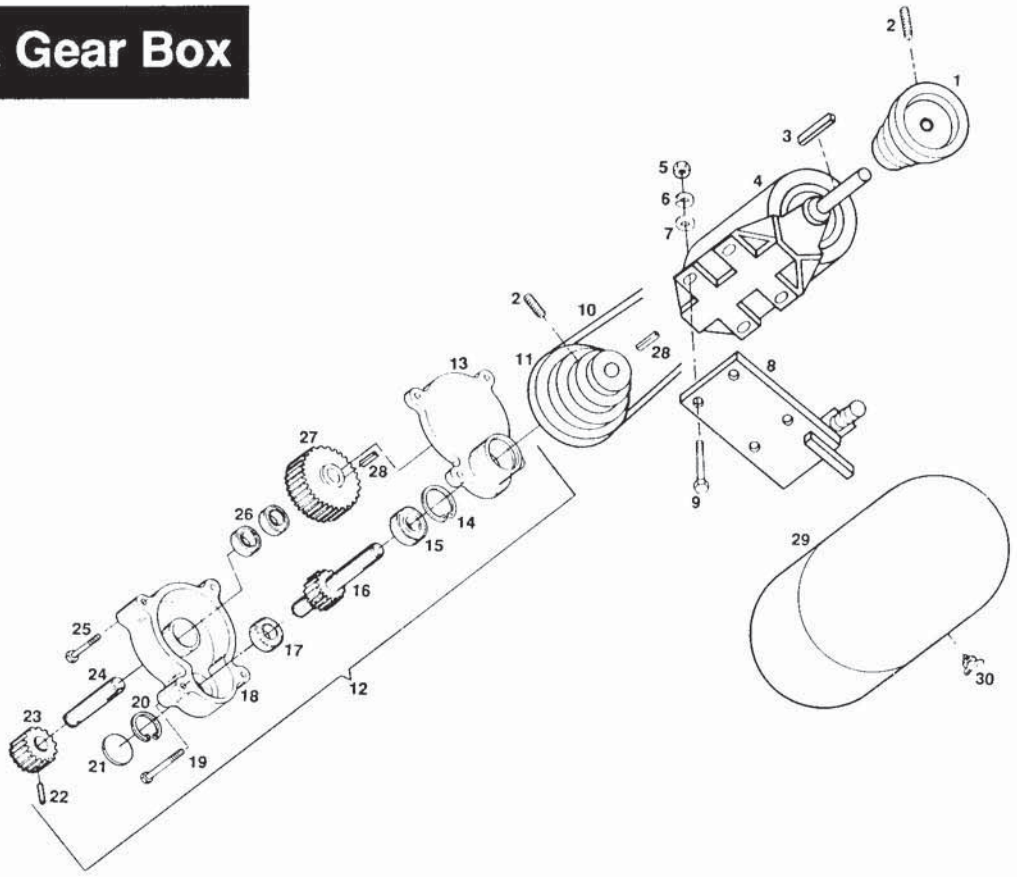
Blade Guide Assembly



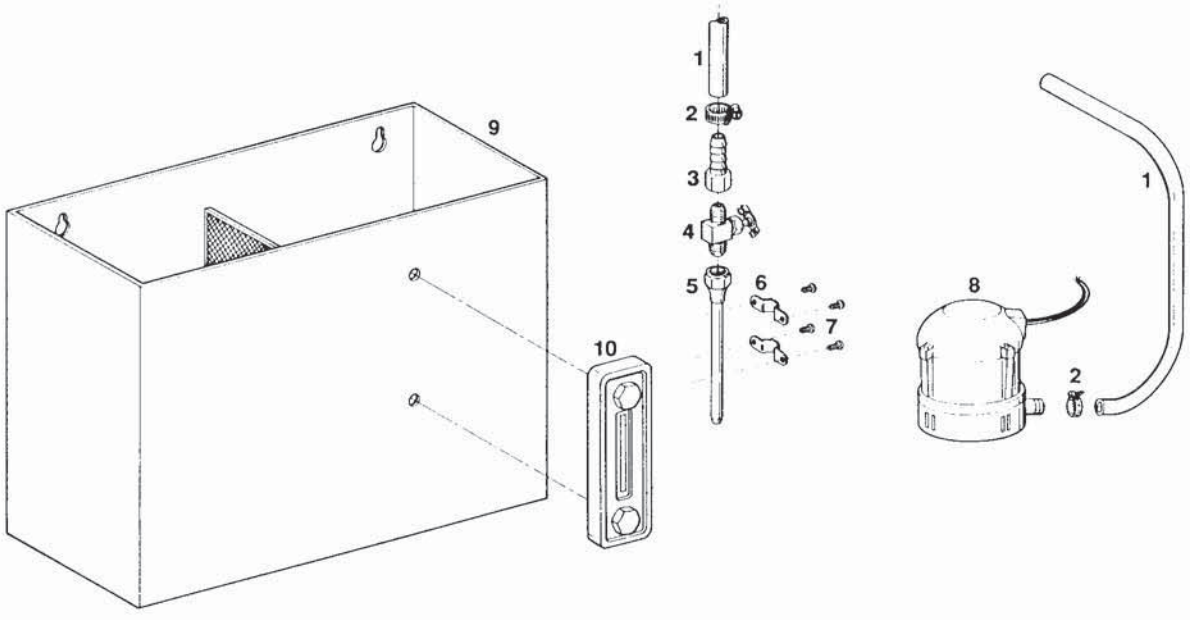
Blade Guide Assembly

1	**155073**	BLADE GUIDE ASSY COMPLETE, DRIVE END, (INCL ITEMS 4-19)
1	**155074**	BLADE GUIDE ASSY COMPLETE, IDLE END, (INCL ITEMS 4-19)
3	**155076**	ROLLER SUPPORT ASSY (INCL ITEMS 11 THRU 18)
4	105335-001	HAND WHEEL & SCREW
5	101781	ROLLER GUIDE BRACKET
6	100029-003	FLAT WASHER, 5/16
7	100004-018	CAP SCREW, HEX HD, 5/16-18 X 1
8	100034-006	SET SCREW,5/16-18 X 7/8 (2 REQ PER ROLLER ADJ)
9	M-092	ROLLER ADJUSTER (includes set screws)
10	100034-005	SET SCREW, 5/16-18 X 3/4 (2 REQ'D PER ROLLER ADJ)
11	101300	ECCENTRIC AXLE NUT
12	M-091	ROLLER SUPPORT
13	100097-001	FLAT WASHER, 5/16, SIDE (2 REQ PER ROLLER SUPPORT)
13A	100030-004	FLAT WASHER, 5/16, TOP
14	100416-001	BALL BEARING, SIDE (2 REQ PER ROLLER SUPPORT)
15	B-043	ROLLER AXLE
16	B-109	ECCENTRIC ROLLER AXLE
17	100406-001	BALL BEARING (TOP)
18	101298	ROLLER AXLE (TOP)
19	100004-016	CAP SCREW, HEX HD, 5/16-18 X 7/8
20	**105565**	**BLADE GUARD ASSY COMPLETE, IDLE END (INCL24-32)**
21	**105547**	**BLADE GUARD ASSY, IDLE END (INCL 29 THRU** 32)
22	**105548**	BLADE **GUARD ASSY, DRIVE END (INCL 31 THRU** 34)
23	**105549**	**BLADE GUARD COMPLETE DRIVE & IDLE ENDS (INCL 24 THRU** 35)
24	105537	SPACER (2 REQ)
25	100029-003	FLAT WASHER, 5/16
26	100004-018	CAP SCREW, HEX HD 5/16-18 X 1 (2 REQ'D)
27	105542	MOUNTING BRACKET, IDLE END
28	100000-024	MACHINE SCREW, RD HD 1/4-20 X 3/8 (3 REQ)
29	105543	BLADE GUARD UPPER, IDLE END
30	105544	BLADE GUARD LOWER, IDLE END
31	105550	HINGE
32	100131-003	POP RIVETS
33	105546	BLADE GUARD LOWER, DRIVE END
34	105545	BLADE GUARD UPPER, DRIVE END
35	100000-025	MACHINE SCREW, RD HD 1/4-20 X 1/2 (2 REO)
36	**M-309**	BLADE BRUSH ASSY COMPLETE (INCL ITEMS 38 THRU 43)
37	101615	BLADE BRUSH ANGLE ASSY INCL 38-41 (2 REQ)
38	100017-001	HEX NUT, 1/4-20 (2 REQ'D)
39	M-425	BLADE BRUSH ANGLE (2 REO)
40	M-426	BLADE BRUSH (2 REQ) (includes 41)
42	M-198	BLADE BRUSH BRACKET
43	100034-003	SET SCREW, 5/16-18 X 3/8 (2 REO'D)
44	100004-063	CAP SCREW, HEX HD 5/16-18 X 3/4 (2 REQ)
45	100220-023	COOLANT HOSE 94"
46	100219-001	HOSE CLAMP
47	102617	HOSE ADAPTER
48	100226	NEEDLE VALVE
49	101670	COOLANT NOZZLE
50	100000-018	MACHINE SCREW, RD HID 10-32 X 3/8, (4 REQ'D)
51	100246	PIPE STRAP (2 REQ'D)
52	100030-003	FLAT WASHER 1/4"

Motor & Gear Box



Coolant System



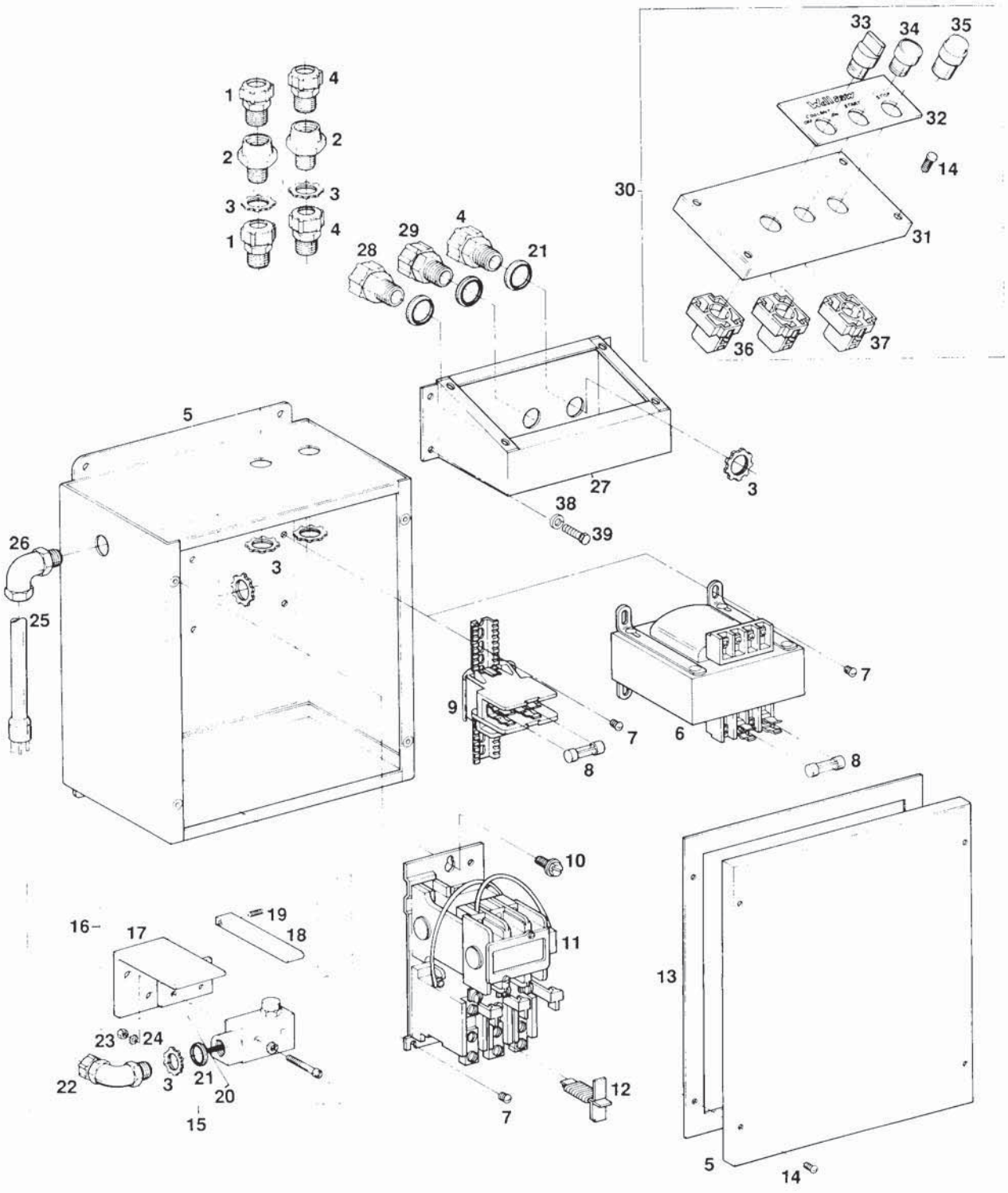
Motor & Gear Box

1	101172-001	MOTOR PULLEY, 4 STEP
2	100034-003	SET SCREW, 5/16-18 X 3/8
3	100056-013	KEY, 3/16 X 3/16 X 1 1/2
4	100840-001	MOTOR 1 HP, 115-230/60/1
	100840-004	MOTOR 1 HP, 208-230-460/60/3
5	100017-002	HEX NUT, 5/16-18 (4 REQ)
6	100025-002	LOCK WASHER, 5/16 (4 REQ'D)
7	100029-003	FLAT WASHER, 5/16 (4 REQ'D)
8	105330	MOTOR MOUNT
9	100004-016	CAP SCREW, HEX HD 5/16-18 X 718 (4 REQ)
10	100066-005	V-BELT
11	101156	DRIVEN PULLEY, 4 STEP
12	155132	GEAR BOX ASSY ITEMS 13 - 28
13	101291	GEAR CASE COVER before sn 1390
	150233	GEAR CASE COVER after sn 1390
14	100068-002	SNAP RING
15	100414-003	BALL BEARING
16	101187	PULLEY SHAFT
17	100404-002	BALL BEARING
18	M-013	GEAR CASE
19	100008-086	CAP SCREW, %-20 X 2 (2 REQD)
20	100068-001	SNAP RING
21	100072-001	EXPANSION PLUG
22	100180-001	COILED SPRING PIN
23	101645-FP	DRIVE PINION GEAR
24	101644SERV	DRIVE SHAFT
25	100068-061	CAP SCREW %-20 X 1-1/2 (2)
26	100404-001	BEARING (2 REQD)
27	101286S	DRIVEN GEAR (STEEL)
28	100056-001	SQUARE KEY 3/16 X 1-1/2
29	105531	BELT GUARD
30	100063	THUMB SCREW
31	100318-005	GEAR BOX LUBE

Coolant System

1	100220-023	COOLANT HOSE 94"
2	100219-001	HOSE CLAMP (2 REQ)
3	102617	HOSE ADAPTER
4	100226	NEEDLE VALVE
5	101670	COOLANT NOZZLE
6	100246	PIPE STRAP (2 REQ)
7	100000-018	MACHINE SCREW, RD HD 10-32 X 3/8 (4 REQ)
8	100249-010	COOLANT PUMP
9	150066	COOLANT TANK WITH FILTER
10		SIGHT GAUGE no longer available
11	155119	COOLANT SYSTEM COMPLETE, FOR FIELD INSTALLATION. INCLUDES ITEMS 1 THRU 10 PLUS COOLANT SELECTOR SWITCH

Electrical Controls

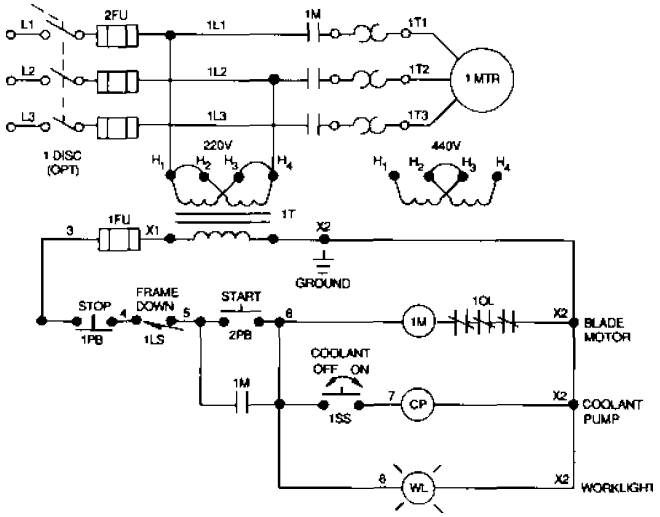


Electrical Controls

1	100612-013	CONNECTOR, TB-2524 HUB
2	100796-019	CONNECTOR, 112,TB-370
3	100240-001	CONDUIT LOCKNUT, 1/2
4	100612-002	CONNECTOR, TB-2523
5	100870	ELECTRICAL ENCLOSURE W/BACK PLATE & COVER
6	100869	TRANSFORMER, 230-460/60/1 TO 115/60/1
6	100869-001	TRANSFORMER, 208/60/1 TO 115/60/1
6	100869-002	TRANSFORMER, 575/60/1 TO 115/60/1
7	100000-017	MACHINE SCREW, RD HD 10-32 X 1/4
8	100628-017	FUSE, FNA 2-1/2 AMP
9	155115	FUSE BLOCK ASSY,
10	100796-010	GROUND SCREW, 10-32 X 3/8
11	100867	MAGNETIC STARTER BEFORE S/N 1916
	100867-029 *	MAGNETIC STARTER S/N 1916 &LATER
12	100888-B175	HEATER, 115/60/1 BEFORE S/N 1916
	100888-B820	HEATER, 230/60/1 BEFORE S/N 1916
	100888-B485	HEATER 208/60/3 (3 REQD) < SN 1916
	100888-B415	HEATER, 230/60/3 (3 REQD) <SN 1916
	100888-B210	HEATER, 460/60/3 (3 REQD) < SN 1916
	100867-015	IEC OVERLOAD RELAY 115/1
	100867-011	IEC OVERLOAD RELAY 208/230/3
	100867-013	IEC OVERLOAD RELAY 230/1
	100867-010	IEC OVERLOAD RELAY 460/3
13	098048-050	GASKET, SC 41, 1/8 X 3/4 X 50"
14	100000-019	MACHINE SCREW, RD HD 10-32 X 1/2
15	155118	FRAME REST ASSY W/CORD (INCL ITEM. 16 THRU 24)
16	155118-001	FRAME REST W/TRIP BAR, (INCL 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	KILL SWITCH (LIMIT-SWITCH 115V W/SCREWS)
21	100606-001	SEALING RING
22	100612-014	ELBOW 90, TB-2269
23	100015-005	HEX NUT, 6-32 (2 REQ)
24	100026-001	WASHER, SHAKE PROOF #6 (2 REQD)
25	100716-003	ELECTRICAL CORD W/PLUG (115V ONLY)
26	100612-015	ELBOW 90, TB-2250
27	155094	SWITCH BOX, WI RIV NUTS
28	100612-016	CONNECTOR, TB-2522
29	100612-001	CONNECTOR, TB-2521
30	155117	CONTROL SWITCH ASSY (INCL 31 THRU 37 PLUS 14)
31	155095	SWITCH BOX COVER, W/ RUBBER SEAL
32	150230	LEGEND PLATE
33	100871-003	SELECTOR SWITCH, COOLANT **
34	100871-001	PUSH BUTTON, START **
35	100871-013	PUSH BUTTON, STOP **
36	100871-004	SWITCH BLOCK, COOLANT & START **
37	100871-005	SWITCH BLOCK, STOP **
38	100025-001	LOCK WASHER, 1/4
39	100004-005	CAP SCREW, HEX HD, 1/4-20 X 5/8

**SERIAL NUMBERS BEFORE 1666, ORDER SWITCH AND MATING CONTACT BLOCK TOGETHER
*IEC TYPE STARTERS AND OVERLOAD RELAYS USED STARTING S/N 1916

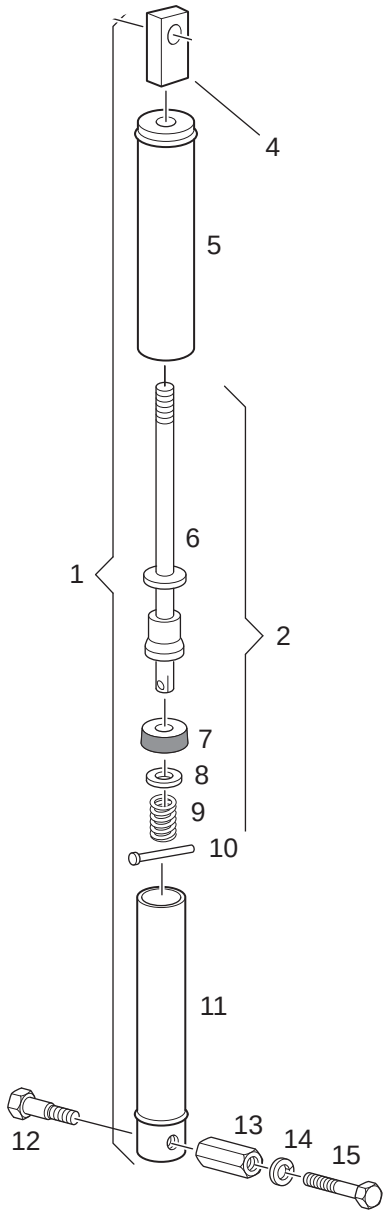
Electrical Schematic



Note: Transformer not used on 115/6011 Voltage

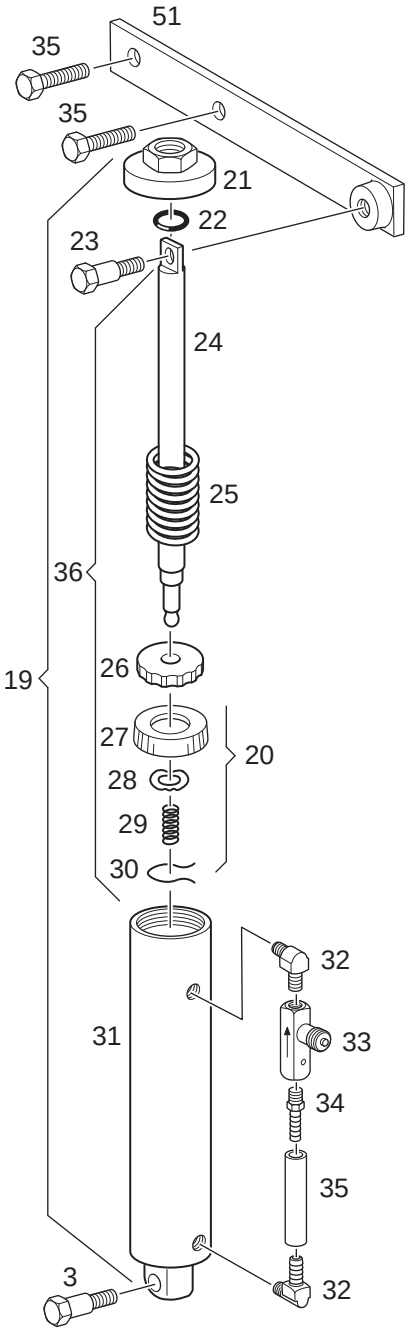
Item	Req'd	Description	Part No.	Item	Req'd	Description	Part No.
1 MTR	1	Blade Motor	100840-001	10L	3	Heater	100868
1T	1	Transformer	100869	CP	1	Coolant Pump	100249-010
1FU	1	Fuse, FNA 2.5 Amps	100628-017	WL	1	Work Light, Optional	100781-007
1PB	1	Push Button, Stop	100871-002	1 DISC	1	Disconnect, Optional	
2PB	1	Push Button, Start	100871-001			208-230/60/3	10 062 8-020
1LS	1	Limit Switch	100782-012			460/60/3	1 0 062 8-020
1SS	1	Selector Switch, Coolant	100871-003	2FU	3	208-230/60/3, 10 Amp	1 0 0628-019
1M	1	Magnetic Starter	100867		3	460/60/3, 15 Amp	100628-020

Variable Feed Rate OPTION ONLY



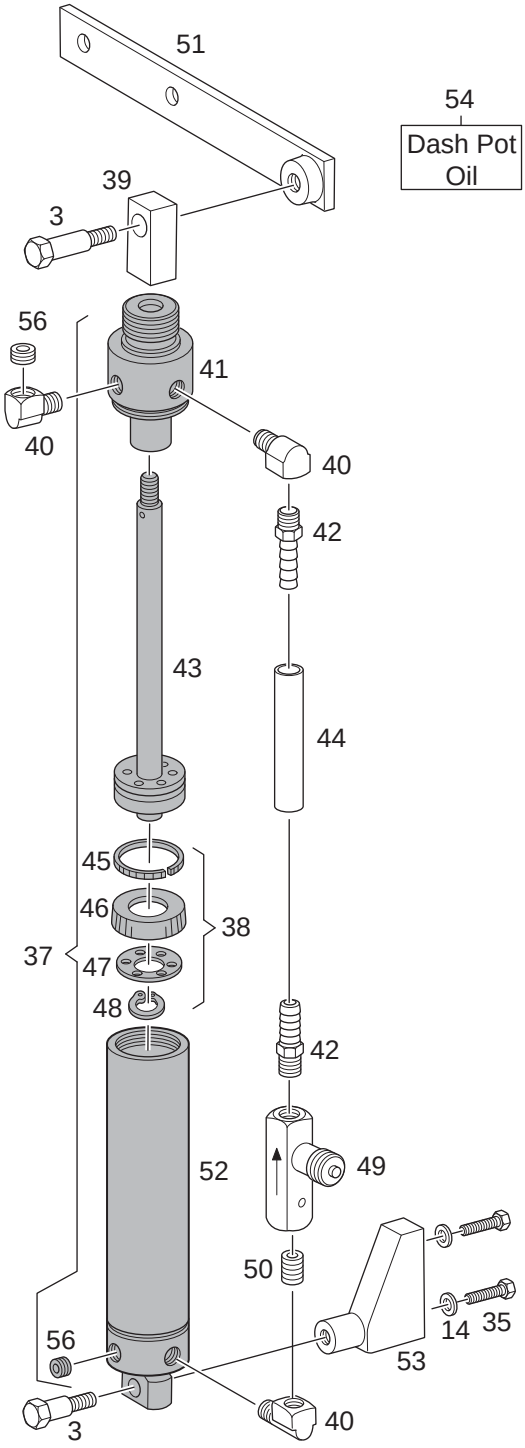
M-301

this is the standard cylinder found on page 12



155329

This is the option only. Direct replacemenet of 155114 option



155114

Part no. 155144 is no longer available.

use part # 155329

(Parts for 155154 are still available.)

Variable Feed option

1	**M-301**	**Dash Pot Assembly standard, includes items 4-11 and 54)**
2	**101526**	**Piston Rod Assembly (includes 6-9)**
3	155022	Dash Pot 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 2000**
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 1505, 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, 90^0
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

Wellsaw® Select-O-Chart

To assist in selecting the right blade and the right speed for your job!

Speed = Suggested blade speed in feet-per-minute

Feeding pressure: L = light, **M** = medium, **H** = heavy • **T** = teeth-per-inch

Type of Material	Thickness of Material														
	Under 1/2"			1/4' - 3/4"			3/4" - 2"			2" - 4"			4" & Over		
	T	Speed	F	T	Speed	F	T	Speed	F	T	Speed	F	T	Speed	F
Aluminum															
Castings	18	800	L	10	800	L	8	600	L	6	300	M	6	300	M
Solid Shapes	18	1000	L	10	1000	L	8	800	M	6	300	M	4	600	H
Tubing	18	1000	L	10	1000	L	8	800	M	6	800	M	6	600	H
Brass															
Castings	18	500	L	14	300	L	12	275	M	10	200	M	8	175	H
Tubing (Thinwall)	24	300	L	14	275	L	14	250	L	14	200	M	14	175	M
Bronze															
Castings	18	275	L	14	200	L	10	175	M	8	100	M	6	50	H
Aluminum	18	300	L	14	275	L	10	175	M	8	100	M	6	100	H
Manganese	18	300	L	14	275	L	10	250	M	8	200	M	6	175	H
Copper															
Beryllium	18	300	L	14	275	L	10	275	L	8	200	M	6	175	H
Drawn	8	500	L	10	300	L	8	300	M	8	275	M	6	200	H
Iron															
Gray, Cast	18	200	M	14	175	M	10	150	H	8	100	H	6	100	H
Kirksite (Zinc Base)	18	300	L	10	275	L	8	200	M	6	200	H	6	175	H
Lead	14	1000	L	10	1000	L	8	1000	L	6	100	L	4	600	M
Magnesium	14	1000	L	10	1000	L	6	800	L	6	800	M	4	600	M
Nickel	14	175	M	10	175	M	10	150	H	8	100	H	8	50	H
Silver	14	275	L	10	200	L	10	175	M	8	125	M	8	100	H
Steels - S.A.E.															
Carbon 1006-1095	18	200	M	14	200	M	10	175	M	8	100	H	6	100	H
Carbon 1112-1120	18	275	M	14	200	M	10	175	M	8	100	H	6	100	H
Chrome 5120-52100	18	175	M	14	100	M	10	100	H	8	50	H	6	50	H
Chrome 51200-51710	18	100	M	14	100	M	10	50	M	8	50	M	6	50	H
Ch. Vanadium 6130-6150	18	100	M	14	100	M	10	50	H	8	50	H	6	50	H
Magnesium 1330-1350	18	275	M	14	200	M	10	175	H	8	100	H	6	100	H
Magnesium X1330-X1340	18	275	M	14	200	M	10	175	H	8	100	H	6	100	H
Molybdenum 4023-4130	14	175	M	12	100	M	10	100	H	8	50	H	6	50	H
Molybdenum 4140-4820	14	175	M	12	100	M	10	100	H	8	50	H	6	50	H
Nickel 2315-2515	18	175	M	14	100	M	10	100	H	8	50	H	6	50	H
Ni. Chrome 3115-3250	18	175	M	14	100	M	10	100	H	8	50	H	6	50	H
Stainless 302-416	18	100	H	14	50	H	10	50	H	8	50	H	6	50	H
Steels-Miscellaneous															
Armor Plate	14	175	M	14	100	M	10	100	H	8	50	H	6	50	H
High Speed	18	175	M	14	100	M	10	100	H	8	50	H	6	50	H
Machinery	14	275	M	14	200	M	10	175	H	8	100	H	6	100	H
Cold Rolled	14	275	M	14	200	M	10	175	H	8	100	H	6	100	H
Die Blocks										6	100	H	4	60	H
Pipe	14	275	L	14	275	L	12	175	M	10	175	M	10	175	M
Structural	18	275	L	14	275	L	12	175	M	10	175	M	10	175	M
Tubing (Thinwall)	24	300	L	18	275	L	18	250	L	14	200	L	12	175	L
Misc. Non-Metals															
Carbon	14	600	L	10	600	L	8	300	L	6	300	M	6	275	M
Fiber	14	1000	L	10	1000	L	8	600	M	6	600	M	6	300	M
Plastics	14	1000	L	12	1000	L	10	600	M	8	600	M	6	300	H
Rubber, Hard	14	2000	L	10	2000	L	8	1000	L	6	1000	M	6	600	H
Transite	14	275	L	10	175	L	8	50	M	6	50	M	6	50	M

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2829 N. Burdick St.
Kalamazoo, MI 49004
Phone: 269-345-1132
Fax: 269-345-0095
website: www.wellsaw.com
email: parts@wellsaw.com