IM-868

Greenlee 4-way Band Saws

Instruction Manual and Parts List

Model 346#

L70A 22C
OR
07D4 22C

GREENLEE TOOL CO
2136 12th St., Rockford, Ill. 61101 U.S.A.
A Unit of Ex-Cell-O Corporation XLO

Your new Greenlee 4-way band saw is designed to give years of dependable service. This manual explains how to use it most efficiently. Your Greenlee distributor will be happy to assist you if you have any operating or service questions not covered herein.

If you find it necessary to order replacement parts from your distributor, please refer to the part control numbers listed in this manual, as well as to the model and serial numbers on your saw.

Your Greenlee 4-way band saw is guaranteed to be free from defects in material and workmanship. To put your warranty into effect immediately, please complete and return the enclosed Warranty Certificate card.

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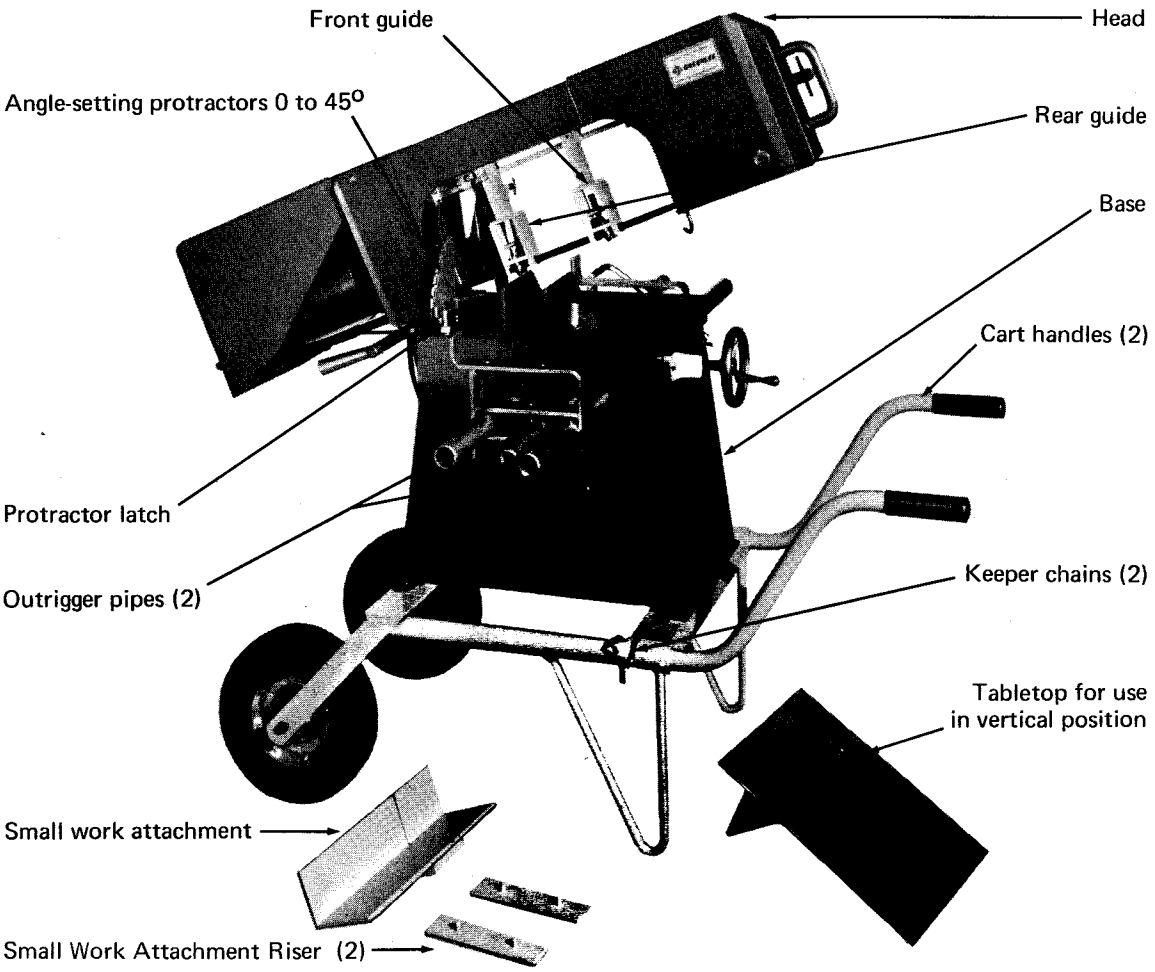
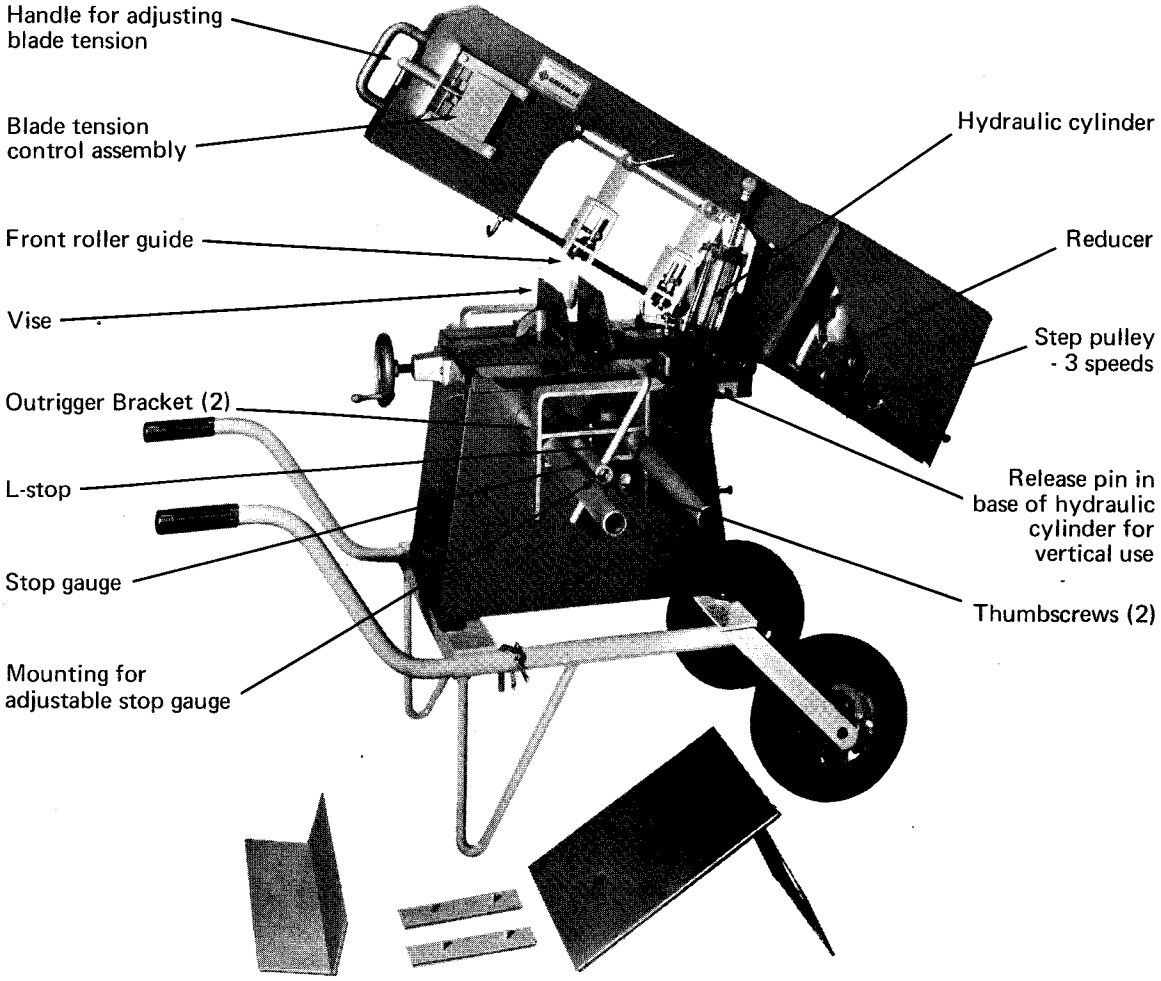


Power Supply U/L Listed using type SO cord.

Model 346 – 1/2 hp – 115 v – single-phase, 60-cycle motor. 1725 rpm.

Model 348 – 3/4 hp – 115/230 v – single-phase, 60-cycle motor. 1725 rpm.



Manual reset -- Motor will shut off automatically if overheated or overloaded. To reset:

1. Examine saw to determine reason for shutoff. Most often, blade is bound in cut.
2. If blade is bound, leave saw shut off. Release vise pressure.
3. Rotate drive wheel forward or reverse by hand to free blade from bind.
4. Retighten vise. Make sure saw blade is running freely.
5. Press manual reset button located at the end of motor.

CAUTION: USE SAW DRY. DO NOT LUBRICATE BLADE.

How to select band saw speed

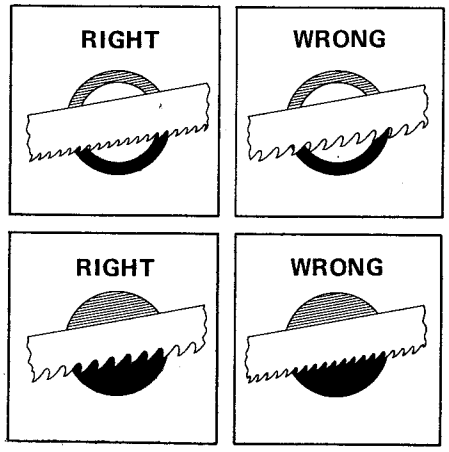
GREENLEE BAND SAW BLADES. For general-purpose cutting, these high-quality blades are all of the hard-edge flexible back type and, in their recommended widths and tooth geometries, can be used on all cutoff and contour sawing applications.

All teeth are accurately milled, set, and hardened. The backs are scientifically heat-treated for sustained toughness under constant flexing.

Follow the chart on page 7 for proper blade speed selection. Broadly speaking, use a finer tooth blade for thin cross sections, such as sheet metal and light tubing, and for extra-hard materials generally; coarser tooth blades for thick cross sections, soft and stringy materials or on thin stock at extremely high speeds.

Use a coarse-toothed blade on thick sections to assure ample chip clearance and smooth, easy operation. Teeth that are too fine clog up and cut less efficiently.

Observe, too, the general tooth-selection rule governing cross-section thicknesses as illustrated. That is, on thin cross sections use a blade that enables keeping at least two teeth in contact with the cutting area. Coarse teeth that "straddle" the cross section not only produce a ragged cut, but have a tendency to strip out.



Excessive speeds reduce cutting rate and blade life and cause premature dulling. One precaution is to note when chips on the metal start turning blue. This can tend to weld the chips to the saw teeth, clog the gullet, strip the teeth — and perhaps damage the workpieces as well.

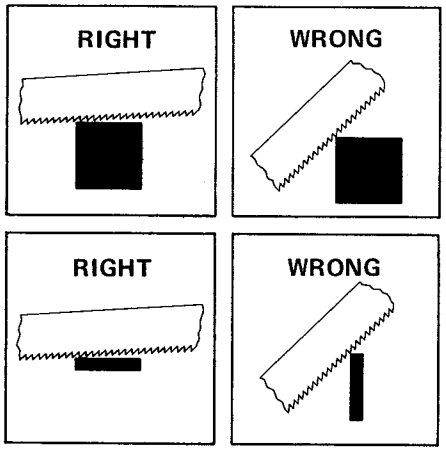
Hints on use and care

. Keep band saw blades from riding guide roller to prevent narrowing tooth set, wear, stress, and breakage.

. Keep all guide rollers rotating snugly yet freely. Too tight or too loose adjustment of side rollers kinks the blade, hampers straight cut.

. Keep rubber wheel treads free of chips; replace when worn or out of round.

START THE CUT CORRECTLY. A cut should be started *off* the edge, never *against* it as shown in the graphic illustration.



BAND SPEED RANGES

MATERIAL	Teeth Per Inch	Blade Speed Ft Per Min
Aluminum		
Pure & Low Alloys	6-10	1500-3000
Over 3% Silicon	6-10	500-1500
Brass		
Soft	8-12	500-1000
Hard	8-12	250-500
Tubing	14-18	250-500
Bronze		
Aluminum	8-10	75-150
Manganese	8-12	150-250
Phosphor	8-14	150-300
Copper	6-10	250-500
Copper Tubing	14-18	250-500
Iron		
Alloy—Cast	6-10	75-125
Gray Cast	6-10	75-150
Malleable Cast	6-10	100-200
Pure	8-14	100-125
Kirksite	6-10	150-200
Lead Babbitt	6-10	1500-3000
Magnesium		
Castings	6-10	1500-3000
Rolled—Forged	6-10	1000-2500
Monel	8-14	50-100
Nickel	10-14	75-125
Silver	10-14	150-200
Steels—S.A.E.		
Carbon #1010—#1095	8-18	75-150
Carbon #1112—#1120	8-14	100-175
Chromium #5120—#52100	10-14	75-125
Chromium #51210—#51710	10-14	50-100
Chrome-Vanadium #6115—#6195	10-14	50-125
Manganese #T 1330—#T 1350	8-14	100-175
Manganese #X 1314—#X-1340	8-14	125-200
Molybdenum #4130—#4345	10-14	75-125
Molybdenum #4615—#4820	10-14	75-100
Nickel #2015—#2515	8-14	75-125
Nickel Chrome #3115—#3450	10-14	50-100
Silicon-Manganese #9255—#9260	10-18	50-125
Tungsten #7260	10-14	75-125
Tungsten #71360—#71660	10-14	50-100
Steels—Misc.		
Armor Plate	6-14	50-125
High Speed	10-14	50-100
Stainless	8-10	50-75
Structural	10-14	100-150
Pipe	10-14	100-150
Tubing (Thin Wall)	18-32	125-200
Miscellaneous		
Asbestos—Sheet	8-14	400-750
Carbon	6-10	200-750
Fiber	6-8	500-1000
Plastics	6-12	1500-3000
Rubber—Hard	6-10	1500-2000

Operating Instructions

Conventional Sawing (horizontal cutoff):

1. Once the saw is in position, at the work-site, remove wingnut from hold-down rod while holding rod.

2. Let rod drop short distance through head.

3. Replace wingnut on threaded end and drop into base — allowing wingnut to rest on drip pan.

4. Reverse crank handle to release pressure on vise-dog riding in rack. Vise will now move freely to desired location.

5. Place work to be cut in vise. Move jaws against work (handtight). Tighten vise by hand. *Do not use wrench or pry-tool to tighten vise.*

BE SURE WORK IS FIRMLY CLAMPED IN VISE BEFORE STARTING TO SAW.

6. Adjust feed pressure to fit type and size of material to be cut. (Use control valve on hydraulic cylinder.) Raise head by hand. Release — allowing cylinder to lower the head. Do not allow head to drop too fast. The thinner the material being sawed, the slower the head should be lowered.

CAUTION: *Do not force feed saw head when cutting.* Also do not raise head abruptly to maximum length of stroke of piston rod.

7. Make trial cut to check length and straightness of cut and proper saw operation. If saw is not cutting satisfactorily, recheck guide adjustment.

8. Be sure front guide (with L-handle) is positioned at all times as close to cutting area as possible without hitting or resting on work.

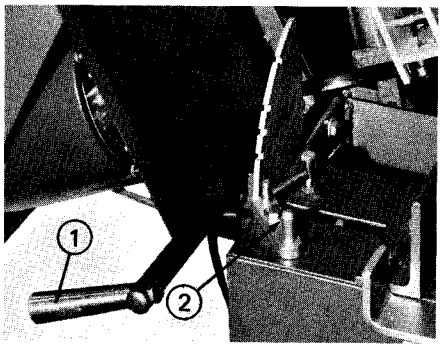
Angle Sawing

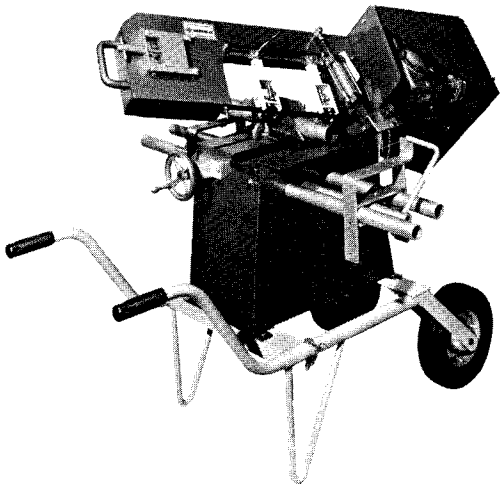
1. Grasp tilting handle (1) with left hand. Use right hand to unlock spring-loaded protractor latch (2).

2. Tilt entire head assembly to desired cutting angle. **It is not necessary to detach hydraulic cylinder to cut angles.**

3. The four most commonly used angles (45°, 30°,22-1/2°,and 15°) are indicated. Simply set protractor latch for desired angle.

4. Protractor also may be set at any desired angle by installing a ¼" N.F. bolt in protractor guide on back of the base. Tightening this bolt against the protractor plate holds saw at desired angle.





Vertical Sawing

1. Release hydraulic cylinder (1) by removing lockpin running through bottom of cylinder at clevis.

2. Firmly grasp handle on front of head and raise assembly to vertical position.

3. If head assembly is tilted forward or backward, adjust head-aligning bolt in rear of base (bolt is mounted in reinforcing angle crossmember). Loosen locknut and adjust bolt, then lock into position with locknut.

4. Insert saw blade in slotted area. Center blade in hole of table.

5. Allow table to rest on rear (bottom) guide (2). Clamp tabletop tight in vise (3).

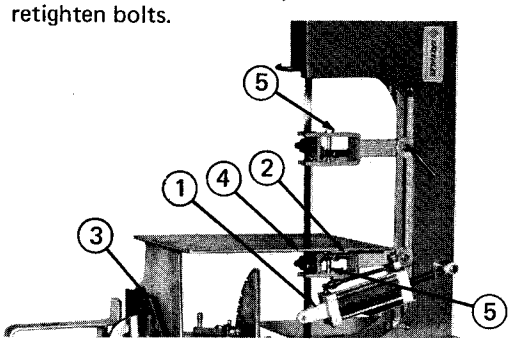
6. Model 346 is equipped with 1/2" blade; Model 348 with 5/8" blade.

   Note: For contour cutting where shorter radius is desired, a 1/8" narrower blade may be used. Follow instruction (7) below.

   Note: A 1/2" blade will cut a 2-1/2" radius. A 3/8" blade will cut a 1-1/2" radius.

7. Loosen Allen bolt on the roller guides nearest vise (4), then remove roller guide and reverse it so shortest shank is against guide frame. Roller guides nearest drive wheel are eccentric, permitting adjustment of roller guide to hold blade firmly.

8. To give you greater latitude in contouring ripping bearing blocks may be turned up to 90° from straight position. Loosen bolts running through guide yokes (5), then turn bearing blocks to desired position and retighten bolts.



Accessories

(all included as standard equipment)

Small Work Attachment and Risers

This clamp attachment (1) is provided by Greenlee as standard equipment on all 4-way band saws. It mounts in the vise and enables you to accurately cut items too small for conventional clamping. Using this attachment, even a small hex nut can be cut into quarters without additional clamping.

Use attachment for making repeated cuts, without aid of vise, in flat, square, or rectangular stock.

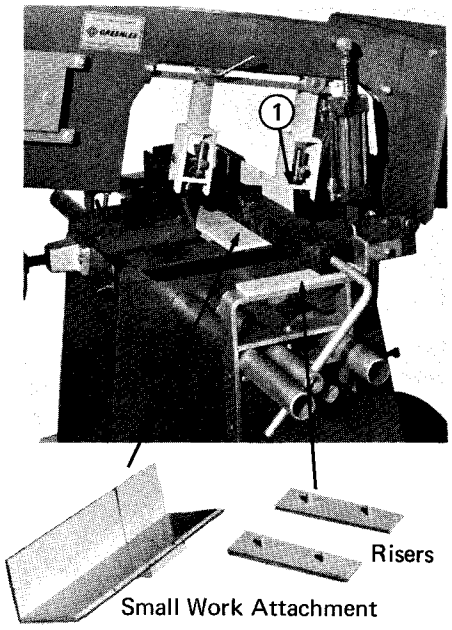
Risers raise height of outrigger brackets to match height of small work attachment.

Stop Gauge and L-Stop

How to mount stop gauge and L-stop on saw (to make repeated cuts of same length):

1. Insert stop gauge (3/4" pipe) in center set of holes in saw base (be sure gauge passes through and rests on both right and left side of base).

2. Insert thumbscrew for locking the stop gauge. Fits in threaded nut on center pipe in the base of the saw.



Small Work Attachment

3. Insert L-stop through stop gauge and lock in place with thumbscrew inserted in threaded nut on end of stop gauge pipe.

4. Set L-stop against *front* of saw cut to avoid pinching, binding, or blade breakage.

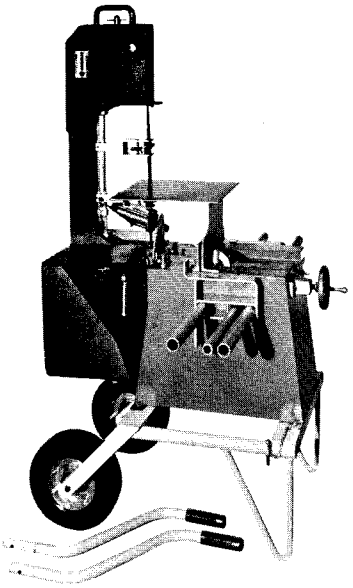
Outrigger Pipes and Brackets

1. Pass outrigger pipes through left and right sides of saw base. If pipes of longer length are desired, use conventional galvanized 1" pipe or conduit. Pipe overhang should be approximately equal on either side of saw base to maintain saw balance.

2. Outrigger brackets slide over outrigger pipes and clamp in place with hex head bolt. Position of brackets on outrigger pipe is adjustable.

Cart Handles and Keeper Chains

To move cart, insert cart handles into cart frame and secure with locking pins.
On the job, cart handles can be easily removed, providing an unobstructed working area in front of saw.
Keeper chains for cart handles are secured with lockpins and cotter keys and should remain attached to cart to prevent loss.



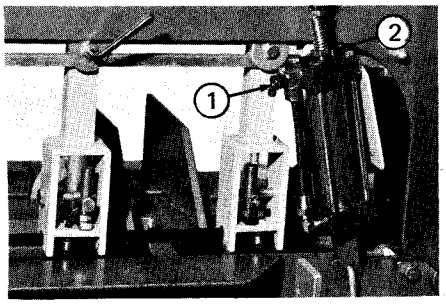
Adjustment and Maintenance

Regulating Cutting-Feed Rate

The hydraulic cylinder that regulates rate of cutting feed should permit the saw head to fall gently through to the cutoff position. To regulate speed of head travel, adjust needle valve (1) on cylinder by opening or closing.

To check cylinder oil level or add oil, use Allen wrench to remove filler plug (2) on top of cylinder block.

Refill *only* with premium grade SAE 20 motor oil.



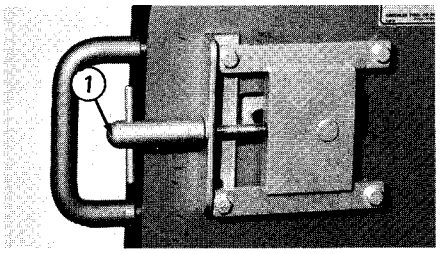
Changing Blades

Blades can be changed when saw is set up in any position. Be sure to use proper blade length. Short blades will not fit, and longer blades prevent proper tension.

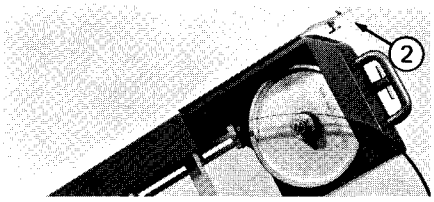
1. Disconnect saw from power supply.

2. Lift saw head away from work.

3. Loosen tension handle (1) on right side of head until there is approximately 3/4" travel on tension bolt. (This lowers front wheel.)



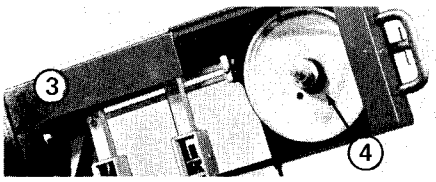
4. Open front-wheel guard cover (2) remove blade from guides, then remove blade from wheels.



5. Check new blade to be sure blade will be running in right direction.

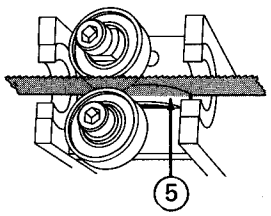
   THE BLADE TEETH MUST ALWAYS BE POINTING TOWARD BACK OF SAW – (RUNNING AWAY FROM OPERATOR).

6. Place new blade over drive wheel (3) first, then over idler wheel (4).

Back  Front

7. Turn down tension assembly enough to take up loose slack in blade.

8. Firmly grasp blade with thumb and forefinger and turn blade to fit into guide rollers. Be sure blade is properly seated on upper guide roller bearings (5).



BOTTOM VIEW OF GUIDE FRAME

9. Turn down tension handle so barrel of handle seats itself against mounting bracket.

   IMPORTANT: Proper blade tension must be maintained to insure straight cutting and to help prevent blade breakage.

10. Connect saw to power source and turn on. Let blade run freely for a few seconds before cutting, to allow blade to locate on crown of wheels.

Guide Alignment

The guides on your Greenlee saw have been factory preset. Adjustments in guides will be necessary for continued straight cutting. During sawing, cutting should be checked with a square regularly to assure straightness.

Note: Before making any guide adjustments, install new blade and recheck. Check blade tension.

Fig. 1

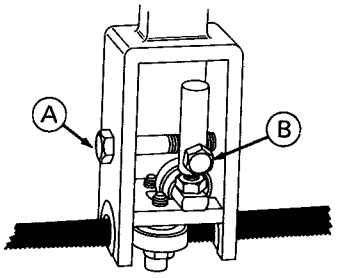


Fig. 2

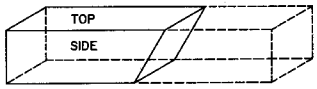


Fig. 3

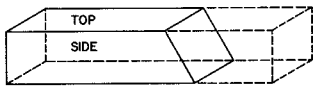
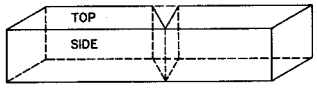


Fig. 4



To adjust:

1. *First make trial cut* to determine how machine is sawing. Compare cut with Figs. 2,3, and 4.

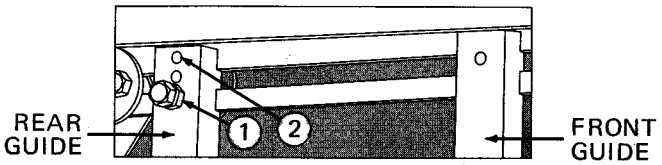
2. *If cutting as in Fig. 2:*
   a. Loosen Bolt A (Fig. 1) running through guide yokes.

   b. Loosen Bolt B (Fig. 1) slightly, which rotates bearing block. Press Bolt B back against Bolt A and tighten Bolt A. Repeat procedure if additional adjustment is needed.

3. *If cutting as in Fig. 3:*
   a. Loosen Bolt A.
   b. Tighten Bolt B one complete turn.
   c. Tighten Bolt A and test cut.
   d. If cut is not straight, repeat adjustment until correct.

4. *If cutting as in Fig. 4:*
   a. To move blade to the left, place adjustment bolt in bottom hole (1).

   b. To move blade to the right, place adjustment bolt in top hole (2).

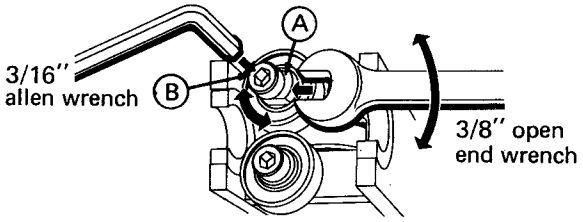


To adjust blade clearance:

Note: Too much blade clearance causes blade weaving. Too little blade clearance will cause blade to jump out of guide roller.

1. Examine guide closely from bottom. Roller guide bearing on right contains eccentric sleeve mounted in roller.

2. To adjust clearance, place open end wrench over milled flat on sleeve (A). Using Allen wrench of the correct size, loosen locking screw (B).



RECOMMENDED BLADE CLEARANCE IS .002" TO .005" BETWEEN BLADE AND GUIDE ROLLERS

3. To increase or reduce clearance, turn sleeve (A). Use short piece of saw blade as a gauge.

Note: Roller guide bearings showing excessive wear should be replaced.

Wheel Alignment

For accurate cuts, and to prevent unnecessary blade breakage or excessive guide roller wear, and for maximum life of rubber tires on feed and idler wheels, wheels should be in proper alignment. To align:

1. Remove both front and rear guides.

2. Test run blade to determine correct position of idler wheel as blade seeks and rides crown of wheel.

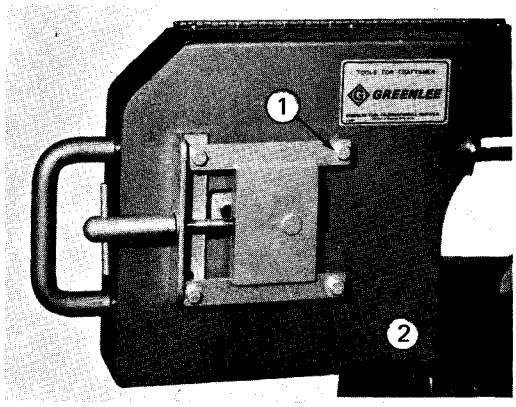
3. To adjust idler (front) wheel: adjust bolts (1) and (2).

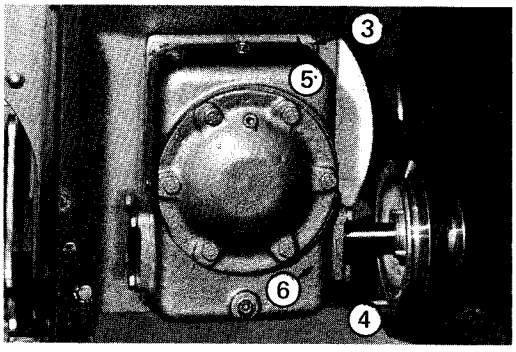
4. To adjust drive wheel:
   a. Loosen nuts (3) and (4) on gear reducer.

   b. Adjust bolts (5) and (6) behind plate.

   c. Tighten nuts (3) and (4).

When aligned, blade should be centered on crown of wheels. Replace guides and test cut. Guides may require minor adjustments.





Blade Wheel Tire Replacement

Replacement of tires on drive and idler wheels will be necessary periodically. Replacement tires are available from your Greenlee distributor. (Please refer to part control numbers as well as to model and serial numbers of your saw.)

Note: It is *not* necessary to remove wheels when replacing tires.

To replace idler wheel tire:

1. Disconnect saw from power supply.

2. Loosen blade tension.

3. Open front guard and remove blade.

4. Remove old tire by inserting screwdriver between tire and wheel rim. Rotate wheel (with screwdriver inserted) until screwdriver locks against backside of head. Continue rotating the wheel until tire falls free of rim. Remove tire.

5. Stretch new tire by placing under your foot and pulling 3 to 4". (Presoaking the tire in hot water for five minutes makes it easier to install.)

6. Place tire over crown of wheel within rims. Lock in screwdriver (as you did to remove the old tire) and rotate wheel until tire is on.

To replace drive wheel tire:

Remove guards from rear of head and follow same steps as in replacing idler wheel tire.

Motor Lubrication

The front and rear bearings of the motor should be periodically lubricated with one to three drops of SAE 20 motor oil.

Transmission – Worm Gear Reducer

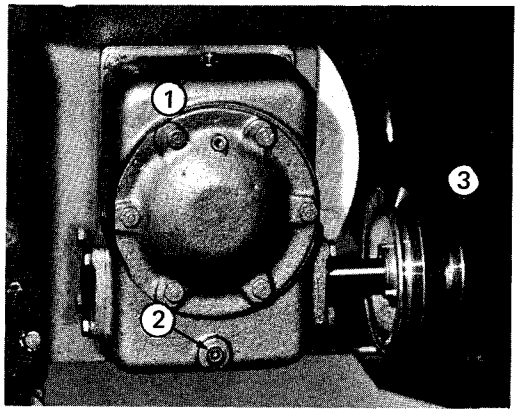
Change oil in reducer after first 50 hours of operation, then at 1,000-hour intervals. Check oil level periodically.

Recommended oil (fill only to oil level line):

Unit shipped with extreme pressure 20W machine oil. For filling, any good grade of 10W-40W motor oil is acceptable.

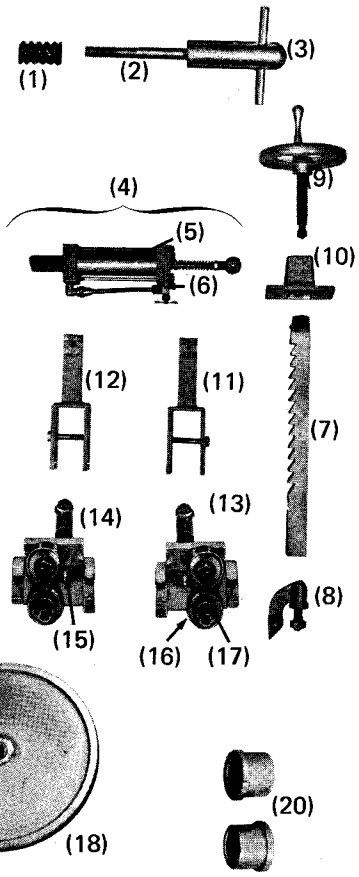
Draining and flushing:

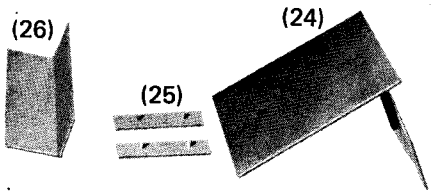
1. Remove filler plug (1) on top of reducer.
2. Remove drain plug (2) on bottom of worm gear reducer. Oil capacity is 1-1/2 pints.
3. Flush transmission with kerosene.
4. Replace drain plug. Refill. Turn drive pulley (3) by hand while refilling to force out trapped air.
5. Replace filler plug.

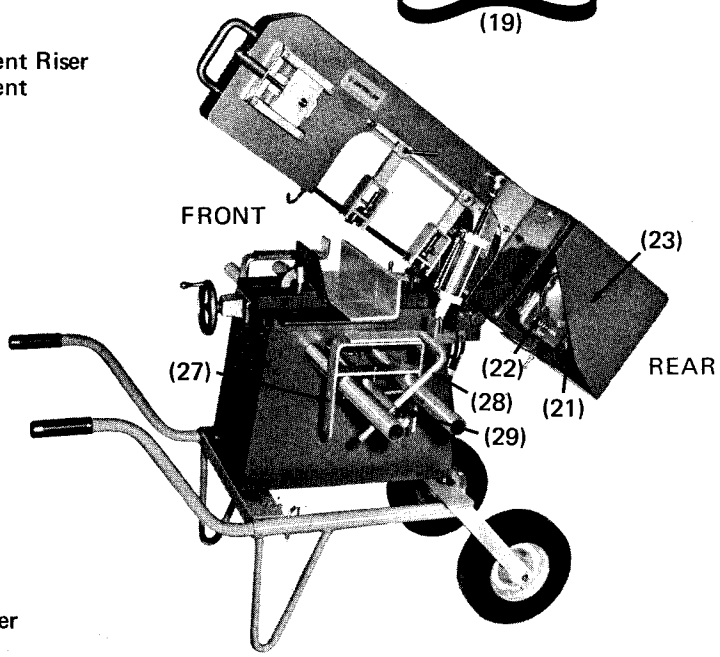


Parts list for Model 346 Saw

(1)	502-0091.7	Tension Spring
(2)	502-0092.5	Tension Bolt
(3)	502-0093.3	Tension Handle
(4)	502-0105.0	Hydraulic Cylinder Complete
(5)	502-0106.9	Piston Rod Complete
(6)	502-0113.1	Control Valve
(7)	502-0116.6	Vise Rack
(8)	502-0115.8	Vise Pivot and Dog
(9)	502-0117.4	Vise Wheel and Screw
(10)	502-0118.2	Vise Screw Bracket
(11)	502-0121.2	Rear Guide Frame
(12)	502-0122.0	Front Guide Frame
(13)	502-0124.7	Bearing Block Rear with Bearing
(14)	502-0125.5	Bearing Block Front with Bearing
(15)	502-0126.3	Upper Guide Bearing and Axle
(16)	502-0127.1	Guide Bearing and Sleeve (noneccentric)
(17)	502-0129.8	Guide Bearing and Sleeve (eccentric)
(18)	502-0102.6	Idler Wheel (give saw model and number)
	502-0103.4	Drive Wheel (not illustrated)
(19)	502-0104.2	Tire
(20)	502-0101.8	Oilite Bushings (Set of 2)
(21)	502-0134.5	3 Step V-Pulley Motor or Reducer
(22)	502-0140.9	Reducer
(23)	502-0141.7	V-Belt (27-inch)
(24)	502-0157.3	Table Top
(25)	502-0156.5	Small Work Attachment Riser
(26)	502-0158.1	Small Work Attachment
(27)	502-0155.7	Outrigger Bracket
(28)	502-0152.2	L-Stop
(29)	502-0153.0	Stop Gauge Pipe





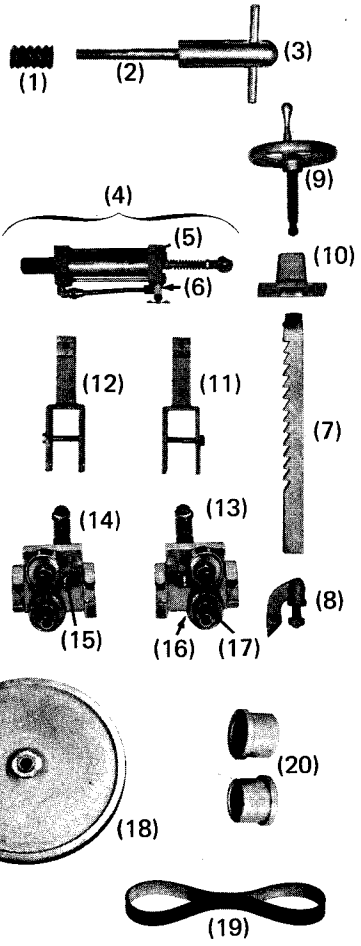


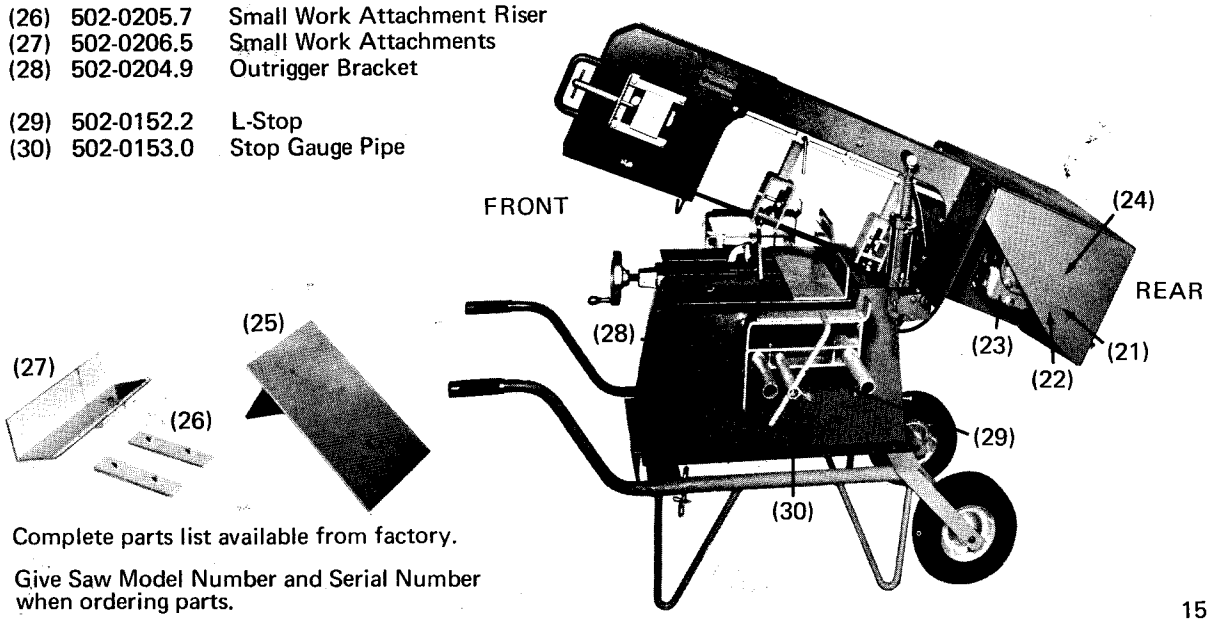
Complete parts list available from factory.

Give Saw Model Number and Serial Number when ordering parts.

Parts list for Model 348 Saw

(1)	502-0091.7	Tension Spring
(2)	502-0092.5	Tension Bolt
(3)	502-0160.3	Tension Handle
(4)	502-0166.2	Hydraulic Cylinder Complete
(5)	502-0167.0	Piston Rod Complete
(6)	502-0113.1	Control Valve
(7)	502-0174.3	Vise Rack
(8)	502-0115.8	Vise Pivot and Dog
(9)	502-0175.1	Vise Wheel and Screw
(10)	502-0177.8	Vise Screw Bracket
(11)	502-0180.8	Rear Guide Frame
(12)	502-0181.6	Front Guide Frame
(13)	502-0183.2	Bearing Block Rear with Bearing,
(14)	502-0184.0	Bearing Block Front with Bearing
(15)	502-0185.0	Upper Guide Bearing and Axle
(16)	502-0186.7	Guide Bearing and Sleeve (noneccentric)
(17)	502-0187.5	Guide Bearing and Sleeve (eccentric)
(18)	502-0163.8	Idler Wheel (give saw model and number)
	502-0164.6	Drive Wheel (not illustrated)
(19)	502-0165.4	Tire
(20)	502-0101.8	Oilite Bushings (Set of 2)
(21)	502-0197.2	4 Step V-Pulley 5/8" I.D.
(22)	502-0198.0	4 Step V-Pulley 3/4" I.D.
(23)	502-0199.9	Reducer
(24)	502-0200.6	V-Belt (29-inch)
(25)	502-0157.3	Table Top
(26)	502-0205.7	Small Work Attachment Riser
(27)	502-0206.5	Small Work Attachments
(28)	502-0204.9	Outrigger Bracket
(29)	502-0152.2	L-Stop
(30)	502-0153.0	Stop Gauge Pipe





Complete parts list available from factory.

Give Saw Model Number and Serial Number when ordering parts.

~~TOWARD~~

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