

# OPERATING INSTRUCTIONS AND PARTS LIST FOR LOCKFORMER BAND SAW

## Model 14-SM

**CAUTION:** Before operating your new Lockformer Saw read instructions carefully to be sure that both proper blade speed and blade type are correct for the material to be worked. Table 1 explains blade selection and speed. Table 2 gives stack cutting recommendations, and Table 3 explains blade pitch with reference to radius cutting.

Proper machine set-up is shown in Fig. 1, 2 & 3 with accompanying text. Figures 4 & 5, with text, explain various adjustments.

Blade life as well as cutting efficiency is dependent upon proper blade selection and speed, so recommendations, given herein should be followed closely. Your Lockformer is a precision cutting tool and, with proper care, will give many years of trouble-free, efficient service.

**TABLE 1**  
Speed and Tooth Recommendations  
*(Keep at least 3 teeth in work at all times!)*

MATERIAL WORKED	PITCH	SPEED FT./MIN.	MATERIAL WORKED	PITCH	SPEED FT./MIN.
<b>FERROUS METALS</b>					
Carbon Tool Steel	10 to 14	100	Mild Steel (not rolled)	10 to 14	100
Cast Iron	14	100	Nickel Silver	10 to 14	100
Cast Nickel Iron	10 to 14	100	Nickel Steel	10 to 14	100
Chromium Steel	10 to 14	100	Pipe	14 to 18	100
Cold Rolled Steel	10 to 14	100	Stainless Steel up to 12 gauge	10 to 14	3000
Drill Rod	10 to 14	100	Stainless Steel over 12 gauge	10 to 14	100
High Chrome Carbon Steel	10 to 14	100	Steel (Structural)	10 to 14	100
High Speed Steel	10 to 14	100	Galvanized Sheet Steel	14 to 32	600
Iron Sheets	14 to 32	100	Tool Steel	10 to 14	100
Machine Steel	10 to 14	100	Tubing (Steel)	14 to 18	100
Malleable Iron	10 to 14	100			
Manganese Steel	10 to 14	100			

### NON FERROUS METALS

Aluminum Airplane Alloys	6 to 14	600	Brass, sheets (thin)	10 to 14	3000
Aluminum Castings	6 to 8	600	Brass tubing (thin)	10 to 14	3000
Aluminum, pure	6 to 8	600	Bronze Castings	8 to 14	600
Aluminum, single sheets	10 to 18	3000	Bronze, manganese	10 to 14	600
Aluminum sheets stacked	4 to 10	600	Bronze, government	10 to 14	600
Aluminum tubing	10 to 14	3000	Bronze, nickel	10 to 14	600
Babbitt (type & bearing metal)	6 to 10	600	Copper	10 to 18	600
Brass Castings	8 to 14	600	Copper, drawn	10 to 14	600
Brass, soft screw stock	10 to 18	600	Monel Metal	10 to 14	600
			Monel Sheets	14 to 24	600

### PLASTIC and NON-METALLIC

Asbestos Board	8	600	Metal Wood	14	600
Asbestos Sheet	8 to 14	600	Mica	10 to 14	600
Bakelite (plastics)	8 to 18	600	Rubber, hard	8 to 10	600
Fibre	8 to 10	600	Wood	6 to 14	3000
Formica	8	600			

Manufactured by  
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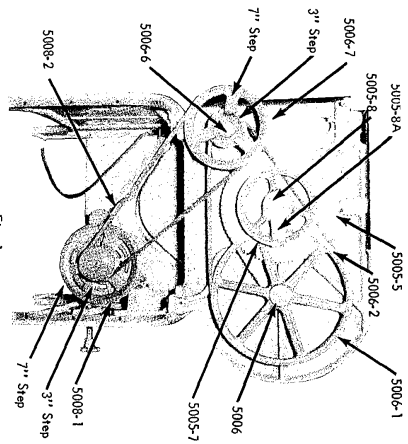


Fig. 1

**FOR 100 FEET PER MINUTE BLADE SPEED-**

The two Allen socket head cap screws are engaged, #5005-8 is engaged in the 10" sprocket #5005-5 and the shaft locking hub of the 7" pulley #5005-7, the second cap screw #5005-16 is engaged in keyed drive collar #5005-15 and the rear 10" sprocket #5005-5. Note warning tag #5005-8A is on hub of 7" pulley. (See Figure 1.) The 3/4" V-Belt #5008-2 is placed on the 7" groove of the step idler pulley #5006-7 and the 3" step groove of the motor drive pulley #5006-1. Turn on switch and you will operate at 100 F.P.M.

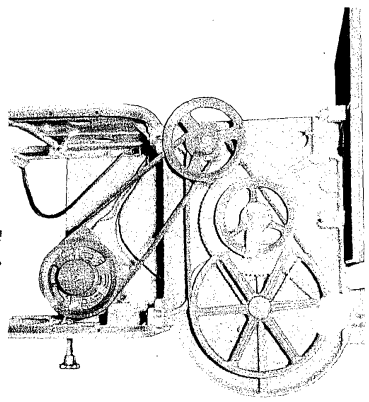
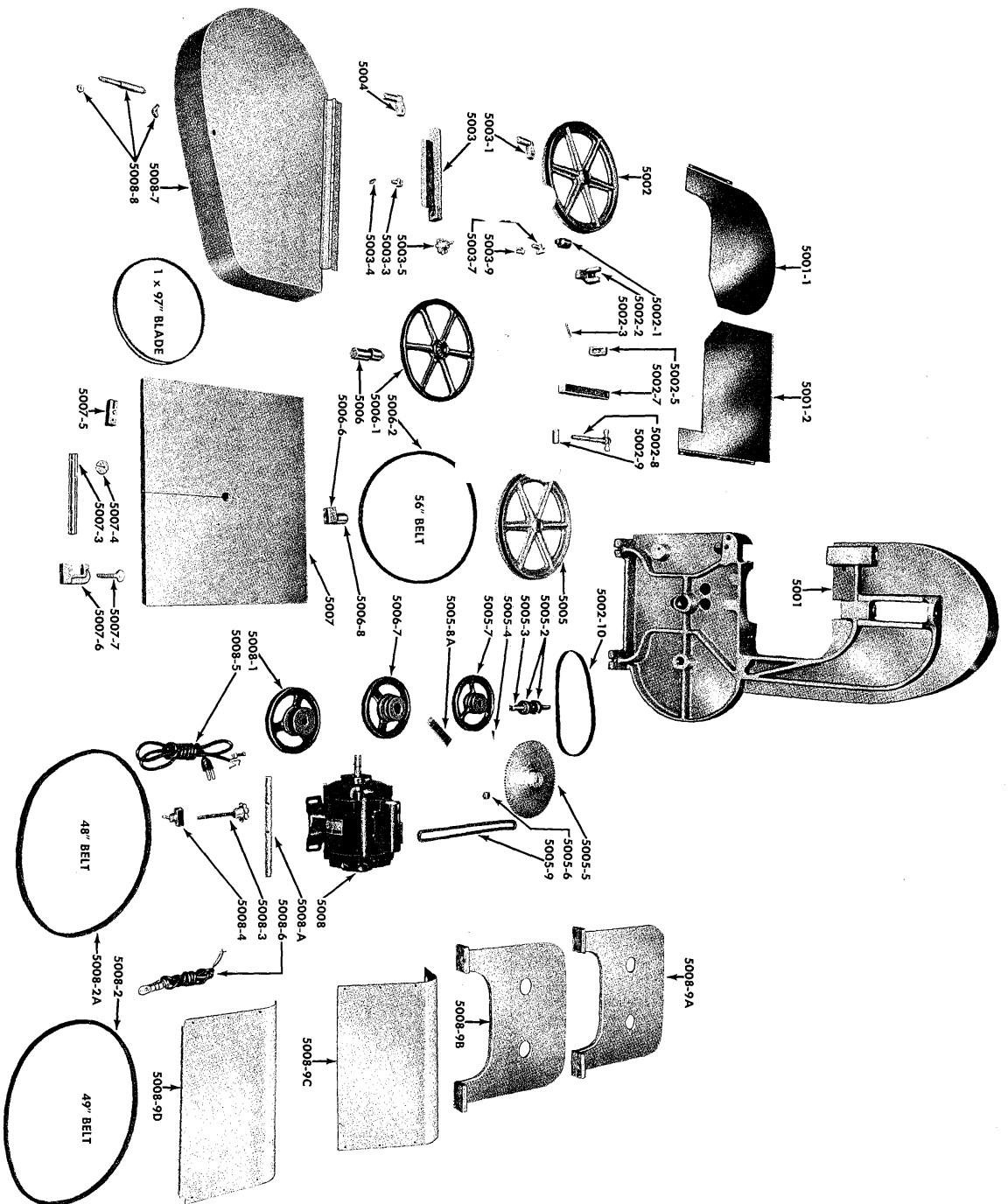


Fig. 2

**FOR 600 FEET PER MINUTE BLADE SPEED-**

The two Allen socket head cap screws are engaged, #5005-8 is engaged in the 10" sprocket #5005-5 and the shaft locking hub of the 7" pulley #5005-7, the second cap screw #5005-16 is engaged in keyed drive collar #5005-15 and the rear 10" sprocket #5005-5. Note warning tag #5005-8A is on hub of 7" pulley. (See Figure 2.) The 3/4" V-Belt #5008-2 is placed on the 7" groove of the step idler pulley #5006-7 on the 7" step groove of the motor drive pulley #5006-1. Turn on switch and you will operate at 600 F.P.M.



# PARTS LIST and DESCRIPTION LOCKFORMER BAND SAW Model 14-SM

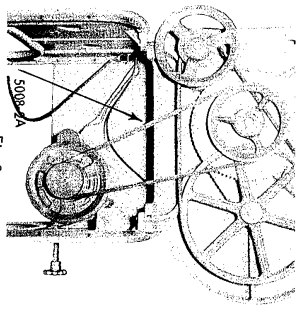


Fig. 3

## FOR 3000 FEET PER MINUTE BLADE SPEED

Remove the two Allen socket head cap screws, #5005-8 and #5005-16 and wearing tag #5005-8A from the 10" sprocket #5005-5 and the shaft locking hub of the 7" pulley #5005-7, and from the keyed drive collar #5005-15 and the rear 10" sprocket #5005-5. (See Figure 3.) This disengages the speed reduction unit from the band saw drive shaft. It is imperative that these cap screws be removed before operating at 3000 F.P.M. Remove 54" V-Belt completely from the machine.

The 51" V-Belt #5008-2A (this belt is furnished with the machine and is packed separately) is placed on the 3rd step groove of the motor drive puller #5008-1 and the 7" pulley #5005-7. Turn on switch and you will operate at 3000 F.P.M.

NOTE: The 56" V-Belt #5006-2 that connects the 12" pulley #5006-1 with the second 28" groove of the 7" step idler pulley #5006-7 is engaged on this assembly during all speed changes.

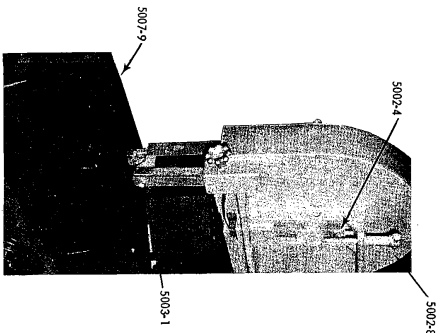


Fig. 4

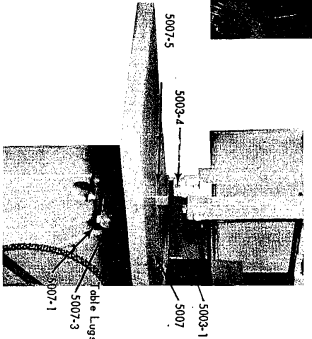


Fig. 5

PART NO.	NO. REQ.	DESCRIPTION	PART NO.	NO. REQ.	DESCRIPTION	PART NO.	NO. REQ.	DESCRIPTION
<b>FRAME PARTS</b>								
5001	1	Frame	5003-3	1	Guide insert holder	5007-7	4	Clamp thumb screw
5001-1	1	Upper Cover	*5003-3A	1	7/16x10-32 Fillister Hd. Set Screw	*5007-8	1	Riser bar cap screw
5001-2	1	Lower Cover	5003-4	1	Lifetime carbide thrust & blade guide	*5007-9	1	Table slot cap screw
*5001-3	5	Hinge cover machine screws	<b>LOWER WHEEL ASSEMBLY</b>					
*5001-4	2	Knurled cover studs	5005	1	Band saw wheel (lower)	5008	1	3/4 H.P. Motor
<b>UPPER WHEEL ASSEMBLY</b>								
5002	1	Band saw upper wheel	5002-10	1	Neoprene wheel tire	5008-A	1	5/8x10 1/2 Motor mount bar
5002-1	1	Shaft & Bearing Assembly	5005-3	1	Lower wheel bearing shaft	*5008-B	2	5/16x1 1/2 HHCS
5002-2	1	Upper wheel bracket	*5005-5	1	Shaft key	5008-C	2	5/16 Hex Nuts & Washers
5002-3	1	Upper wheel bracket pin	5005-6	2	10" sprocket and hub assembly	5008-1	1	7x3 step pulley
*5002-4	1	Adjusting bolt, nuts and washer	5005-7	1	10" sprocket on the bearing	5008-2	1	49" A Belt
5002-5	1	Riser bar cap screw	*5005-8	1	Allen cap screw and washer	5008-2A	1	48" A Belt High Speed
*5002-6	1	Flat head 5/16 cap screw	5005-8A	1	Warning Belt Guard	5008-3	1	Motor adjustment bolt assembly
5002-7	1	Wheel riser bar	5005	1	Roller chain	5008-4	1	2 pole motor switch
5002-8	1	Riser tensioner	<b>IDLER AND DRIVE ASSEMBLY</b>					
5002-9	1	Riser bar	5006	1	Sealed bearing, shaft & holder assembly	5008-5	1	Card and work light assembly
5002-10	1	Neoprene tire	5006-1	1	A pulley and 2" sprocket assembly	5008-6	1	Belt guard
<b>UPPER BLADE GUIDE PARTS</b>								
5003	1	Riser guide bar and blade guard	5006-2	1	56" belt	5008-7	1	Belt guard attachment stud & wing nut
5003-1	1	Blade guide bracket (upper)	5006-6	1	Idler Holder	*5008-8A	2	5/16x1 HHCS Mounting Bolts
*5003-2	1	5/16 cap backing screw	*5006-6A	1	Idler Arm	5008-8B	2	5/16 HH Nuts for above
5003-3	1	Guide insert holder locking set screw	5006-7	1	7x3x2 1/2 step pulley	5008-9A	1	Back Base
*5003-3A	1	7/16x10-32 Fillister Hd. Set Screw	5006-8	1	Ball bearing and shaft	5008-9B	1	Front Base
5003-4	1	Lifetime carbide thrust & blade guide	<b>TABLE AND CLAMP ASSEMBLY</b>					
5003-5	1	Riser bar locking bolt and wheel	5007	1	20x22 cast iron table	*5009	1	30° angle guides (set)
5003-6	1	Guide bracket locking cap screw	*5007-1	2	Table attaching studs	*5009-1	1	Acc-Matic (circle cutting attachment)
5003-7	1	Blade oiler holder assembly	*5007-2	1	3/8" table mounting bolt	<b>EXTRA EQUIPMENT</b>		
5003-8	1	Oiler locking screw	*5007-2A	1	5/16x1 Sq. Hd. Leveler Screw			
5003-9	1	Felt oiler pad	*5007-2B	1	5/16 Locknut for above			
<b>LOWER BLADE GUIDE PARTS</b>								
5004	1	Blade guide bracket (lower)	*5007-2C	1	5/16x1 HHCS			
*5003-2	1	5/16 locking cap screw	5007-3	1	Table mounting shaft			
			5007-4	1	Table blade insert			
			5007-5	1	Insert Riser Bar			
			5007-6	4	Stacking clamp No. 8			

\*Not illustrated

**TABLE 2**  
Stack-Cutting Recommendations

<b>GALVANIZED SHEETS:</b>	26 gauge, stack 1 to 50 sheets	600 F.P.M.
<b>SHEET STEEL:</b>	Hot roll, cold roll, and any other metal than galvanized, stack 1 to 10 sheets.	100 F.P.M.
<b>COLD ROLL, SHEET STEEL, ALUMINUM COATED:</b>	Stack 1 to 10 sheets, cut at lowest speed.	100 F.P.M.
<b>ALUMINUM SHEETS:</b>	Stack 15 to 30 or more, use 4 pitch blade. Single sheets use 24 pitch blade. Lubricate scribe line with bees wax or cutting oil to aid in the lubrication of cutting teeth.	600 F.P.M.
<b>STAINLESS SHEET STEEL:</b>	FRICITION CUT, use 14 or 24 pitch blade, dull or sharp, CUT SINGLE SHEETS ONLY UP TO 12 GAUGE.	3000 F.P.M. (Direct Drive)

For cutting thin sheets use a fine pitched blade with at least three teeth engaged in the work at all times. If the teeth "come out of the work" they will tear out and the blade ruined. Generally, thick stock requires larger teeth and a slower cutting speed than thin stock.

**TABLE 3**  
Radius Cutting Recommendations

SAW WIDTH	SMALLEST RADIUS CUT
1/8 in.	1/8 in.
3/16 in.	5/16 in.
1/4 in.	5/8 in.
3/8 in.	1 7/16 in.
1/2 in.	2 1/2 in.

Avoid twisting blade. Use gradual, constant pressure in feed of work into blade with gradual radius of cut.

**SIMPLE REMINDERS TO INSURE MAXIMUM BLADE LIFE**

In most instances, experience has shown that shortened blade life results from the following:

1. Incorrect blade speed (with reference to material being cut)
2. Incorrect blade pitch (with reference to thickness of material or stacked material)
3. Blade being improperly set in guides
4. Excessive feed pressure or undue forcing of work into blade.

In addition to following the recommendations made herein, these additional general rules may be helpful:

- FIRST:** Since the blade travels from top to bottom, blade teeth should always be pointing downward.
- SECOND:** Keep at least three teeth in the work at all times. If you cut a thin piece of steel with a coarse tooth blade, you may rip off teeth or break the blade. In general, the thinner the material or the stack of material, the finer the blade tooth should be.
- THIRD:** Be sure the teeth of the blade clear the outside slot of the guide blocks.

**ASSEMBLY AND ADJUSTMENT PROCEDURE**

**ADJUSTMENT TAKE-UP**

The reduction unit is mounted on an eccentric hub and bearing assembly #5006 (see Figure 1) that can be revolved to the right slightly to take up any undue slack in the drive chain and V-belt.

**MOTOR BELT INSTRUCTION**

Motor belt can be tightened by turning hand wheel on base to the left. DO NOT have belt too tight.

**ASSEMBLY OF TABLE ON SAW**

First, remove the table slot screw #5007-9 from the table. (See Figure 5.) Guide the blade through the slit in the front edge of the table #5007 and then rest the two front table lugs on the 3/4" round table mounting shaft #5007-3. At the same time slip the rear table lug over the 3/8" table mounting pin #5007-2 in the frame until the lug contacts the frame. Finally, lock the front lugs to the mounting shaft with the two 1-1/4" long studs and washers #5007-1. Screw the table slot screw into the front edge of the table.

The insert riser bar #5007-5 is fastened to the top of the table when cutting stacked galvanized or stacked aluminum sheets.

**UPPER WHEEL ADJUSTMENT AND TRACKING THE BLADE**

Place the blade on the rubber tires of both the upper and lower wheels and shift the back edge of the blade up against the flange of both wheels. Then, increase the tension on the blade by screwing the riser bolt #5002-8 to the right (see Figure 4.) Care should be taken that the tension is not too great to interfere with free movement of the wheels. Too great tension on the blade is a common cause of blade breakage. When tension has been adjusted, revolve the wheels slowly forward by hand. NEVER ADJUST ANY PART OF THE SAW WHILE MOTOR IS RUNNING. If the blade creeps away from the flange on the upper wheel, tilt the upper wheel in at the top slightly by turning the upper wheel bracket adjusting bolt #5002-4 to the right. This will cause the blade to gradually creep up against the flanges, in which position the blade is tracking properly. Lock the adjusting nut in place to prevent shifting during operation of the saw.

**SETTING AND ADJUSTING THE BLADE GUIDES**

After the blade has been "tracked" properly, the blade guide brackets #5003-1 (Upper) and #5004 (Lower) in Figure 5 should be adjusted so that the slit in the carbide thrust and blade guides #5003-4 Upper and Lower are parallel and centered with the blade. Also, when centering the blade guides, adjust the carbide thrust and blade guide #5003-4 Upper and Lower in or out, so that the back of the blade clears the back of the slot in the carbide guides by about 1/64"

The blade should run freely through both the blade guides when the blade guides are adjusted properly. Finally, lock the carbide guides into position by tightening the Allen screws in the guide insert holders.

NOTE: The carbide thrust guides furnished with the saw are for 1/4" and 3/8" blades. The carbide guides are reversible, one side is for 1/4", the reverse side is 3/8". Make sure that proper slots are used on upper and lower. Teeth MUST project outside of carbide insert. Carbide guides may also be purchased for 3/16" and 1/2" blades.

<b>ATTACHMENTS AVAILABLE</b>
Ar-Matic Circle Cutting Attachment
30° Angle Guides
1/4" - 1/4" Carbide Inserts
3/16" - 1/2" Carbide Inserts