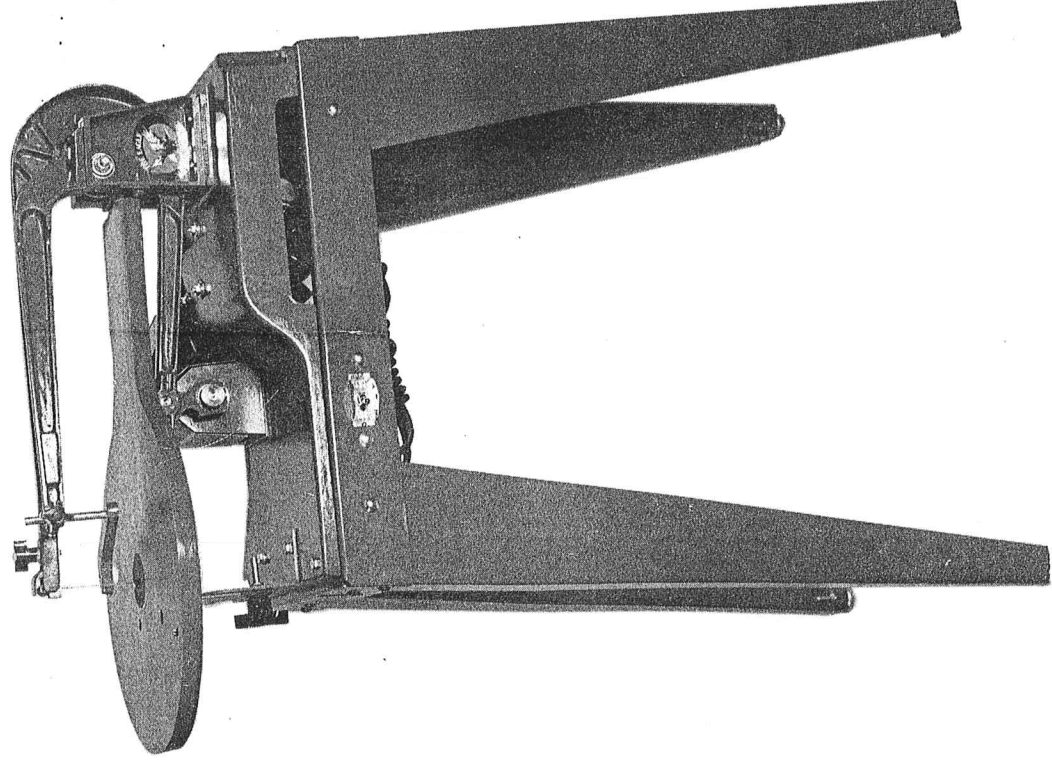




Bushton Manufacturing, LLC  
P O Box 127  
Bushton, KS 67427  
Phone: 620-562-3557



# MODEL 216 PRECISION SCROLL SAW OPERATORS MANUAL



PATENT PENDING



**READ THOROUGHLY BEFORE  
OPERATING**



MANUAL #ES-1284



# ALL ON SAFETY



## TRAINING:

1. Read the operators manual carefully. Be thoroughly familiar with the operation of the equipment.
2. Know where the controls are and how to operate them.
3. Wear safety goggles, ear protection and mask in dusty operations.
4. Never allow children to operate equipment. Never allow adults to operate the equipment without proper instruction.
5. Keep work area clear of other persons.
6. Maintain a clean uncluttered work area.



## OPERATION SAFETY:

1. Never make any adjustments while the machine is running.
2. Keep hands and feet away from rotating parts.
3. Disconnect electrical power supply before doing any adjustments on the machine.

4. Remove all working tools and equipment before starting machine.
5. Wear proper clothing. Avoid loose fitted clothing, long sleeves, long hair, gloves, neck ties, jewelry, watches, rings, etc.
6. Do Not operate an electrical device in a damp or wet area to avoid electrical shock.
7. Maintain all safety guards.
8. Do not operate machine while under the influence of medication, alcohol or drugs.
9. Never leave machine running unattended.
10. Don't overload machine. Follow operators instruction for safe operation.
11. Keep equipment in proper working order. Follow recommended maintenance procedures in the operators manual.

## WARRANTY

We guarantee each Eagle Scroll Saw to be free from defects in material and workmanship for 1 year from date of delivery to original user. This warranty does not cover damage sustained in transit or from misuse of this piece of equipment.

**This warranty does not obligate us to bear the cost of labor, or transportation charges in connection with the replacement or repair of defective parts, nor shall it apply to any saw upon which repairs or alterations have been made unless authorized by us.**

We make no warranty in respect to components, not of our manufacture, including motors, such being subject to the warranties of their respective manufacturers.

We shall in no event be liable for consequential damages or contingent liabilities arising out of the failure of any saw to operate properly.

No express, implied or statutory warranty other than herein set forth is made or authorized to be made by us.

**ENCLOSED WARRANTY REGISTRATION CARD MUST BE RETURNED TO VALIDATE YOUR WARRANTY.**

## TO VALIDATE WARRANTY

**CUSTOMERS** Must mail in warranty card on receipt of machine.

**SPECIFICATIONS**

- LENGTH 29"
- WIDTH 16"
- HEIGHT 16"
- TABLE HEIGHT WITH STAND 45.5"
- WEIGHT: SAW 56#
- WEIGHT: LEGS 26#
- THROAT 16"
- MAX. CUTTING DEPTH 2"
- STROKE LG. 1-1/8"
- STROKES/MIN. 1300 FAST SLOW 700
- TABLE ADJ. 0°-45° RIGHT 0°-20°LEFT
- ALL BALL BEARING DRIVE
- 1/8 HP teFc MOTOR
- BELT DR. MOTOR TO BLADE DR.

**SET-UP INSTRUCTIONS**

All parts required for assembly are supplied by us.

**Note:** Damages or shorted parts are to be reported to the transportation carrier. **Manufacturer is not responsible for shipping damage.**

**SAW CARTON:**

- A. Saw ..... 1
- B. Operators Manual ..... 1
- F. Box (contains hardware), (4) Glides, (1) blade package, Slow Speed Belt, 4 Hold-down Brackets ..... 1
- Leg Carton: ..... 4

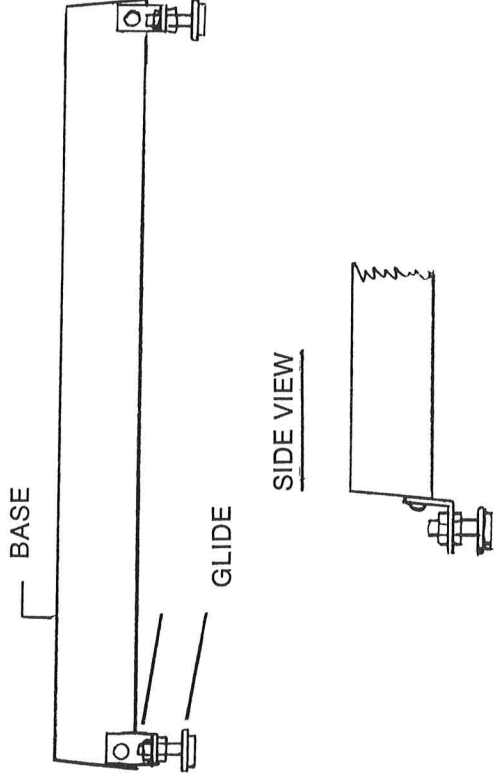
1. Install the (4) Holddown Brackets to the sheet metal base sides through the slotted hole of the bracket.

2. Install one nut on the glide, insert glide through the round hole in the bracket and install second nut to secure. Adjust as required to level, after installing all four glides.

3. You may wish to mount the saw direct to your table or workbench. In this case, leave off the glides and bolt the holddown directly to the table. Bolts or screws are not supplied for table mounting.

**SET UP - BENCH MOUNTING**

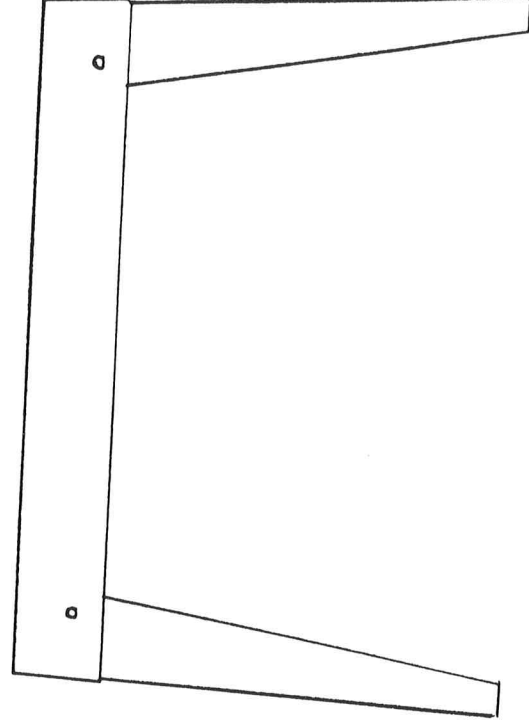
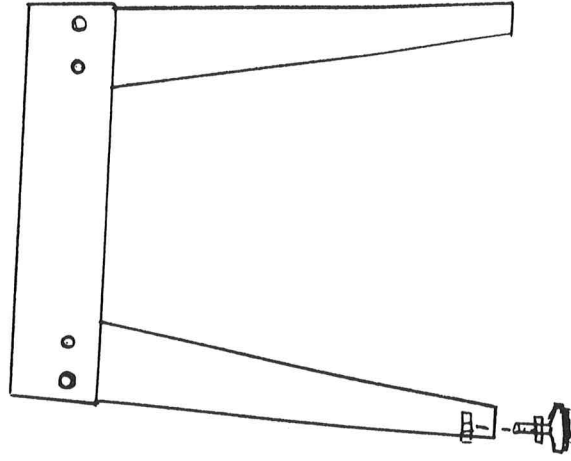
TABLE MOUNTING SET-UP



## (B) LEG INSTALLATION

1. Install one nut on the glide, insert the glide through the round hole in the leg and second nut to secure. Adjust as required to level after installing and securing the legs to the base.
2. Install one leg to each of the four corners of the sheet metal base using the 1/4"-20 carriage bolts, nuts, etc.

(Leg & Glide Installation Drawings)



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## OPERATING INSTRUCTIONS

1. After completing saw set up to fit your application, proceed as follows.

2. Select the correct Blade.

Basic rules to follow:

Have at least 2 teeth in the material at all times.  
For Example: 1/8" thick wood will be cut best

with a blade having at least 16 teeth per inch.  
More teeth per inch will cut slower but provide a smoother, finer finish that will require virtually no sanding.

Use narrower blades for intricate or tight radius (scroll) cutting and wider blades for straight and large contour cutting.

ALL BLADES HAVE SKIP TEETH FOR GREATER CHIP CLEARANCE. ALL BLADES ARE 5" LONG

SLOWER, FINER, SMOOTHER FINISH WITH A SMALLER TURN RADIUS

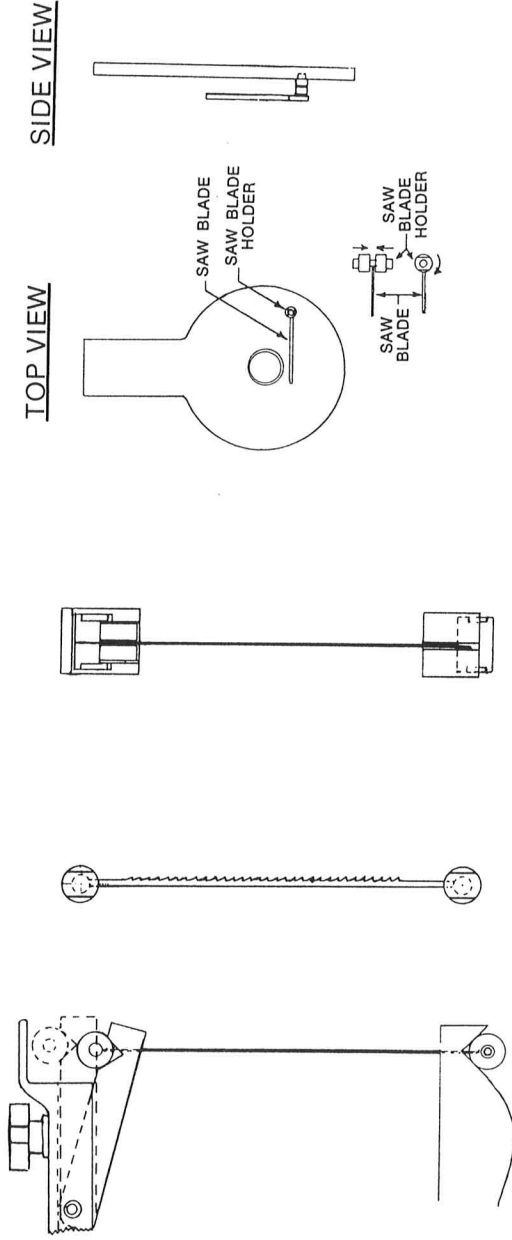
FASTER, COARSER, ROUGHER FINISH AND LARGER TURN RADIUS

SCROLL / FRET SAW BLADES

R.B.I. NO.	MATERIAL CUT / USAGE	WIDTH	THICKNESS	TPI
2/0	For extremely intricate sawing. Very thin cuts in 1/16" to 3/32" materials. Excellent for cutting wood veneer, plastics, hard rubber, pearl. Very good finish with fast cutting. Excellent for tight radius cuts.	.022"	.010"	27
2	For tight radius work in thin materials 3/32" to 1/8" wood veneer, wood, bone, fiber, ivory, plastic. Good finish, fast cutting tight radius.	.029"	.012"	20
5	For close radius cutting in materials 1/8" or thicker. Great for sawing hard/soft wood, bone, horn, plastics. Good general purpose cutting with a medium finish.	.037"	.015"	16
7	Popular sizes for cutting hard and soft woods 3/15" up to 2". Also cut plastic, paper, felt, bone. Medium finish may require some sanding.	.043"	.016"	14
9		.053"	.018"	12
420-R	For smooth splinter-free finish on top and bottom sides. Excellent for hard/soft wood, Plywood with thickness of 1/4" or more Fast cutting.	.100"	.022"	9 with 3 reverse teeth

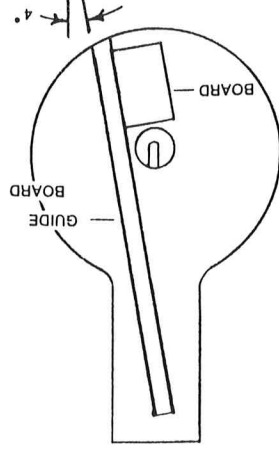
**SAW BLADE HOLDER TIGHTENING**

1. Set on end of the ES-65 Saw Blade Holder in the slot of the table.
2. Slide the Saw Blade between the halves of the ES-65 Blade Holder, centered and to the depth of the connecting screw. See figure.
3. Tighten the Holder.
4. For tightening, out of the holder, secure hand tight and tighten using two end wrenches.

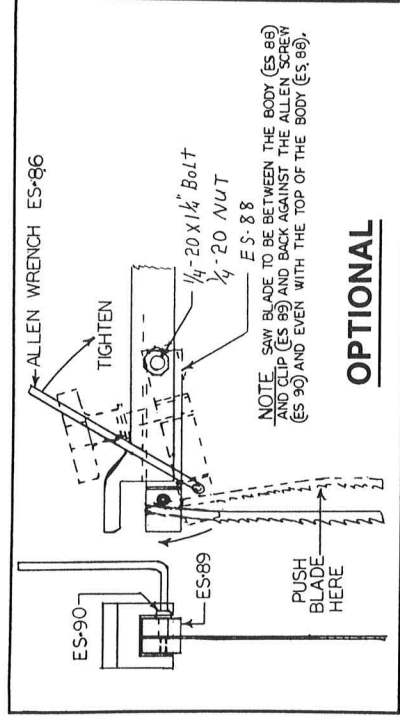
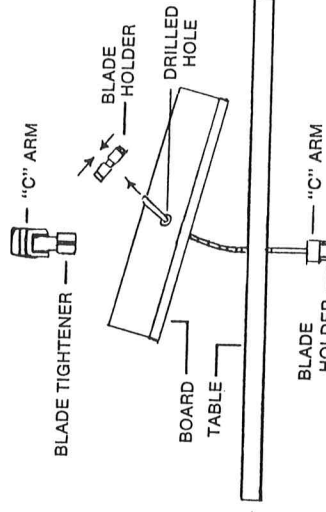


# SAWING

1. Remember to let the saw blade do the work.
2. Feed the material to be cut. Slowly into the saw blade. Maintain downward pressure (this may be done by hand or by the holddown foot provided) on the material as you guide it along the table surface. NOTE: Always keep hands away from the saw blade and out from under the "C" Arm.
3. To use a guide board to saw a straight line, it is necessary to angle the guide board approximately 4° from right to left. (See drawing) This is necessary due to the manufacture of all scroll saw blades.
4. To saw inside cuts, drill a hole in the board in the area to be cut out slightly larger than the blade you are using. Remove the blade from the saw and loosen the blade holder. Slide the blade through the hole and reinstall the blade holder. Install the blade holder in the blade tightener and tension.



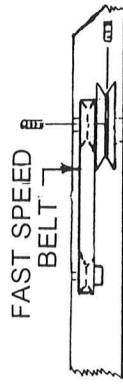
5. Install the saw blade, with the bottom blade holder attached, in the lower slot of the "C" arm and, while holding the blade up, push back slightly (See figure) on the blade and secure with the blade flush with the top of the blade tightener body (see figure).
6. Tighten the ES-37 Knob until the body touches the "C" arm.
7. You are now ready to saw.



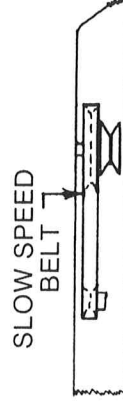
## SPEED CHANGE PROCEDURE (FAST TO SLOW SPEED)

1. Disconnect Electrical source.
2. Remove the ES-29 Drive Guard
3. Remove the Fast Drive Belt.
4. Loosen the two set screws in the ES-71 Sheave.
5. Slide the ES-71 Sheave off the pitman shaft, turn half around (Larger diameter to the inside) and replace on the Pitman Shaft.

6. Align to the motor sheave and secure the two set screws.
7. Replace the drive belt (Use the slow speed drive belt supplied.)
8. Replace the Drive Guard.
9. Connect electrical source.



TURN AROUND →



REPLACE →

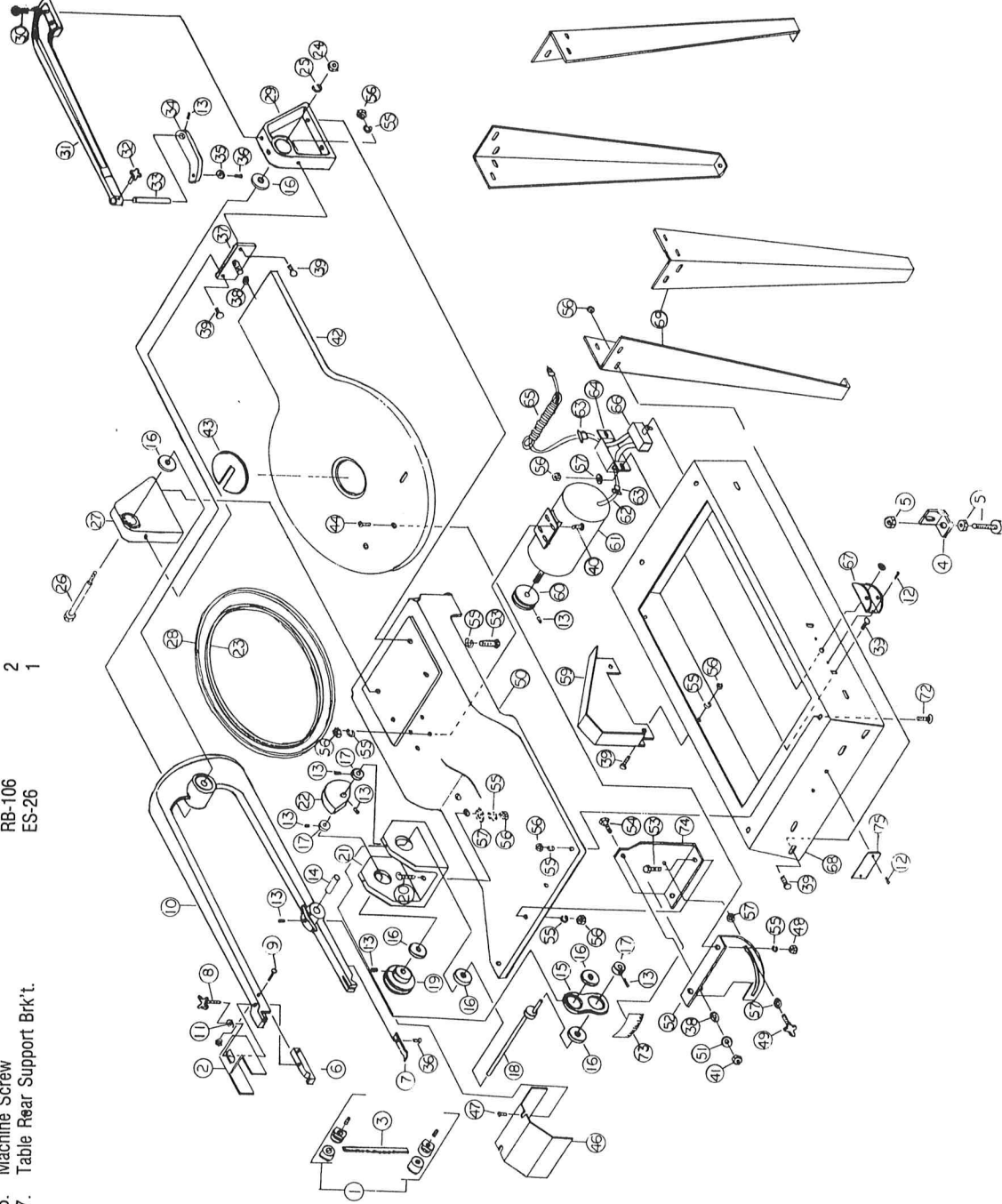


KEY #	PART #	DESCRIPTION
1.	ES-65	Saw Blade Holder Set
2.	ES-69	Blade Holder Guard
3.	ES-34	Saw Blade
4.	ES-55	Bench Holddown Brk't.
5.	ES-57-S	Glides (Set of 4 with Nuts 3/8)
6.	ES-25	Blade Tightner
7.	ES-37	Clip
8.	PS-52	Knob
9.	ES-04	1/4x1" Hex Hd Bolt
10.	ES-11	"C" Arm
11.	RZ-52	Friction Washer
12.	RZ-83	U-Drive Screw
13.	ES-20	1/4"-20x1/4" Set Screw
14.	ES-16	"C" Arm Pitman Shaft
15.	PS-07	Pitman Arm
16.	ES-15	Ball Bearing
17.	ES-12	Collar
18.	ES-71	Pitman Shaft
19.	ES-19	V-Pulley
20.	ES-39	1/4"-20x1 1/4" Hex Hd
21.	ES-13	Pitman Mounting Br. K't.
22.	ES-72	Pitman Wt.
23.	RZ-69	V-Belt Fast Feed
24.	RB-11	3/8" Hex Nut
25.	ES-02	3/8"L/W
26.	ES-73	1/2" Shoulder Bolt
27.	ES-17	R.H. Arm Support Brk't.
28.	ES-03	Belt (Slow Speed)
29.	PS-17	L.H. Arm Support Brk't.
30.	ES-06	1/4-20x3/4" Socket Hd Cap Screw
31.	ES-40	Hold Down Arm
32.	ES-08	Knob
33.	ES-09	Shaft (Foot to Arm)
34.	ES-10	Foot
35.	RB-106	Foot Seat Pod
36.	ES-26	Machine Screw
37.		Table Rear Support Brk't.

PART #	QUANT.
ES-65	1
ES-69	2
ES-34	1
ES-55	4
ES-57-S	1
ES-25	1
ES-37	1
PS-52	1
ES-04	1
ES-11	1
RZ-52	4
RZ-83	9
ES-20	1
ES-16	1
PS-07	6
ES-15	3
ES-12	1
ES-71	1
ES-39	1
ES-13	1
ES-72	1
RZ-69	1
RB-11	1
ES-19	1
ES-02	1
ES-73	1
ES-03	1
PS-17	2
ES-06	1
ES-40	1
ES-08	1
ES-09	1
ES-10	1
RB-106	1
ES-26	2
	1

KEY #	PART #	DESCRIPTION
38.	RB-517	Spacer Slide
39.	PS-29	1/4" Carriage Bolt
40.	ES-41	1/4" Carriage Bolt
41.	RZ-81	5/16" Hex Nut
42.	ES-05	Table
43.	ES-21	Insert Table Blade
44.	RZ-182	1/4" Socket Flat Hd.
46.	ES-56	Pitman Brk't. Cover
47.	ES-75	Screw
48.	ES-49	1/4"-28 Hex Nut
49.	ES-42	Knob Table Tilt
50.	ES-01	Base
51.	ES-23	5/16" Flat Washer
52.	PS-43	Table Tilt Brk't.
53.	RZ-181	1/4" Hex Bolt
54.	RBZ-207	5/16"x1" Hex Hd Bolt
55.	RBZ-208	1/4" L/W
56.	RB-177	1/4" Hex Nut
57.	ES-29	1/4" F/W
59.	ES-70	Drive Guard
60.	ES-44	Sheave, Motor
61.	ES-45	Motor
62.	RB-101	Cord, Motor to Switch
63.	ES-46	Strain Relief Bushing
64.	ES-47	Switch Enclosure
65.	PS-44	Plug-In Cord
66.	RB-111	Switch
67.	ES-27	Switch Lock
68.	CD-07	Sheet Metal Base
69.	ES-51	Legs
72.	ES-54	1/4"x1" Carriage Bolt
73.	ES-24	Degree Label
74.	ES-53	Base Tilt Brk't.
75.		Serial Tag

PART #	QUANT.
RB-517	2
PS-29	14
ES-41	4
RZ-81	1
ES-05	1
ES-21	1
RZ-182	2
ES-56	1
ES-75	2
ES-49	2
ES-42	2
ES-01	1
RB-150	1
ES-23	1
PS-43	6
RZ-181	1
RBZ-207	18
RBZ-208	18
RB-177	2
ES-29	2
ES-70	1
ES-44	1
ES-45	1
RB-101	1
ES-46	2
ES-47	1
PS-44	1
RB-111	1
ES-27	1
CD-07	4
ES-51	4
ES-54	4
ES-24	1
ES-53	1



## ACCESSORIES

### LIGHT

#### 2LK STANDARD LIGHT

Heavy duty flexible arm, 16" long which uses a maximum 60 watt incandescent bulb with metal globe. Allows light to be put close to the work and maintain this position. Comes complete with everything to mount on your saw.

#### 2MK MAGNIFIER LIGHT

Flexible arm light with built-in 2 to 1 magnification lens and scale to measure through the lens. Comes with bracket to attach to a work bench edge. Uses 60 Watt Incandescent bulb maximum.

#### 2BK BLOWER

Kit comes complete with blower, tubing, and attaching hardware to mount on your saw. Maintains an area the size of a quarter, around the saw blade, free of dust so you can see lines to saw. Blower is a vibrating diagram type.

#### 6LE LEG EXTENSION KIT

Bottom mounted Leg Extension which increases the height of your saw up to six inches, with 2" increment adjustments.

#### QUICK CHANGE BLADE HOLDER

Replaces ES-25 blade tightner and secures the blade without the use of blade holders. Secures the blade between two pieces of steel.

### HOW AND WHERE TO ORDER REPLACEMENT PARTS AND ACCESSORIES

TO SPEED DELIVERY AND REDUCE ERROR OF REPLACEMENT PARTS,  
ALWAYS INCLUDE THE FOLLOWING INFORMATION:

1. Give the complete identification of the machine.
3. Give us an address to return the part to

A. Machine Name .....

Ship to: .....  
Your Name (Please Print)

B. Model Number .....

Address .....  
Street P. O. Box Rural Route

C. Serial Number .....

City .....

2. Give the identification of the part.

State ..... Zip .....

A. Part Number .....

Country .....

B. Part Name .....

4. Send your order to:

C. If necessary, return the old part as a sample.

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