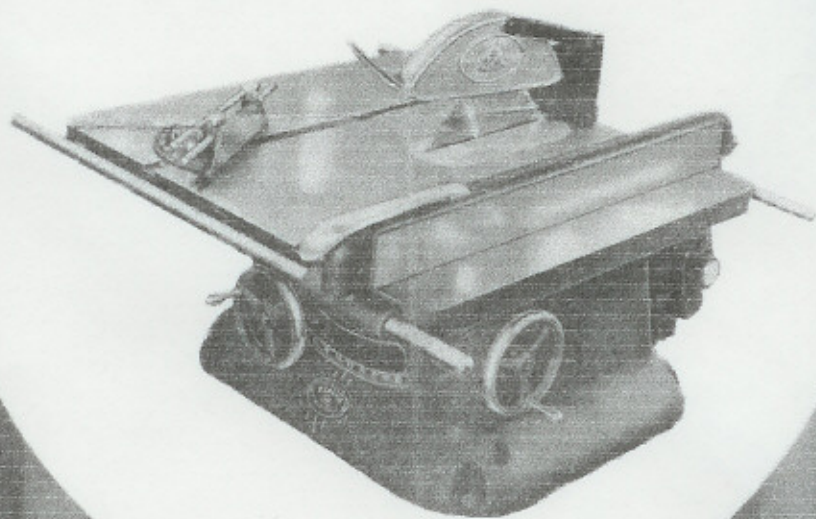


# Beaver Power Tools

## SERVICE MANUAL

8" TILTING ARBOR  
CIRCULAR SAW



CS-3200



84-2294

*Designed and Manufactured by*  
**The CALLANDER FOUNDRY & Mfg. Co. Ltd.**  
**GUELPH CANADA**

# Beaver



## HELPFUL HINTS ON THE SET-UP AND OPERATION OF YOUR BEAVER 8" TILTING ARBOR CIRCULAR SAW

### GENERAL

Your BEAVER 8" Saw, composed of the following various parts, is of tilting arbor design with the motor-mounting bracket attached to the mandrel bracket.

### THE BASE

Is a one-piece aluminum casting which supports the table and has suitable openings through which the angle tilt and depth-of-cut handwheels protrude. A large legible degree scale is well positioned for easy reading.

### THE TABLE

Is a semi-steel ground top casting with two slots, one on each side of the blade opening, for the mitre gauge. Two machined trunnion ways, in which the sawdust chute and mandrel bracket assembly ride smoothly to permit angle setting of the blade from 0° to 45°, are fastened on the underside of the table. The opening in the table top has an aluminum throat plate inserted for saw blade protection. Two ground-finish bars are mounted on the sides of the table at right angles to the blade to support the ripping fence.

### THE RIPPING FENCE

Of cast construction, is ground on both sides for use on either side of the saw blade and slides smoothly on the support rails. It is readily clamped in position by means of a lever arm on one end which actuates a link-clamping bar, thereby locking both ends simultaneously. The fence is used for cutting lumber lengthwise with the grain. This operation is known as ripping or rip-sawing.

### THE MANDREL BRACKET AND SAW ARBOR

Are supported on the sawdust chute which rides on machined trunnion ways attached to the underside of the table. By turning the saw tilt hand-wheel, conveniently

located over the degree scale, the entire assembly may be tilted from 0° to 45° and locked by means of a cam handle incorporated in the tilt rod and hand wheel. A rod, threaded through brass eye attached to the mandrel bracket, protrudes through the right hand side of the base and supports another hand-wheel which, when revolved, will raise or lower the blade for depth of cut settings.

### THE MOTOR BRACKET

Is attached to the mandrel bracket and moves with the tilting assembly. It is designed to permit adjustment for belt tension and to take standard  $\frac{1}{3}$  and  $\frac{1}{2}$  H.P. motors.

### THE MITRE GAUGE

May be used on either side of the blade and is graduated from 0° to 60° both ways. It is equipped with gauge rods and a 12" guide bar. This fence is used for mitre cutting and cross-cutting.

### THE BLADE GUARD AND SPLITTER ASSEMBLY

Is fastened to the mandrel bracket and has anti-kick-back strips mounted on it which are automatically effective on any thickness of work.

### PACKING LIST

The carton in which you receive your BEAVER Saw contains the following: The Saw assembly, consisting of base, arbor assembly, and table with rip fence bars attached. Wrapped separately for safety in shipping, but contained in master shipping cartons are the rip fence, mitre gauge and rods, saw guard and splitter assembly, 8" combination saw blade, motor mount bracket, and motor pulley.

## INSTALLATION

Four holes are provided in the base of the circular saw for bolting it to the table, work bench or BEAVER machine legs. It is sometimes convenient to locate the saw on the same bench as the jointer, as the operations performed on these two machines are frequently correlated. Provision should be made under the supporting bench or table for a sawdust drawer or box.

When the saw has been bolted down it is advisable to make a few checks for saw and fence alignment to ensure accurate work. The most important adjustments concern the parallelity of the saw blades, ripping fence and mitre gauge slots. The saw blade must be parallel to the mitre fence slots. This adjustment is taken care of before the BEAVER saw leaves the factory. If, however, after the saw has been in operation for a while, a re-alignment is necessary, it may be accomplished by a slight movement of the trunnion supports where they fasten to the underside of the table. The fence must also be parallel to the mitre gauge slots. If adjustment is required, loosen the clamp handle and, holding the guide at handle end of fence against the guide rails, loosen socket head screws in top of fence and adjust by means of set screws in the side, until the fence is correctly lined up with the slot in table top. Tighten top screws.

Extra pulleys and belt are available for double belt drive if required.

All adjustments for pulley line-up must be made on the motor pulley. Do not move the arbor pulley, as it also acts as a bearing retainer.

## POWER REQUIREMENTS

The BEAVER Saw is designed for use with a  $\frac{1}{3}$  or  $\frac{1}{2}$  H.P. motor. The following speeds are attainable:

Motor Pulley Diam.	25 Cycle	60 Cycle
5"		3800 R.P.M.
5 $\frac{5}{8}$ "		4300 R.P.M.
5 $\frac{7}{8}$ "	3500 R.P.M.	

## MAINTENANCE

Your BEAVER Saw is equipped with sealed lifelong ball bearings requiring no lubrication. An occasional drop of machine oil on tilt and raising screw shafts will ensure ease of operation. Frequent cleaning of the entire machine is advised to prevent collection of sawdust particles. This may be done with brush, air hose or clean cloths.

## OPERATING HINTS

### RIPPING

Rip cutting is probably the most useful operation performed by a circular saw. The fence is set at the de-

sired distance from the saw and the work is held along the fence and fed through the blade. A steady pressure should be maintained when feeding the work to prevent jamming of the blade. Stand a little to either side of the blade, never directly behind it. This affords a measure of protection in the event of kick-back. When making long rip cuts the work should be supported past the table.

### CROSS-CUTTING AND MITREING

The mitre gauge is used for cross-cutting the work either at right angles or on a mitre. The work is held against the face of the gauge and both are advanced into the blade, guided by the slots in the table top. When making mitre cuts, the work will tend to pull into the saw blade, making it difficult to do accurate mitre work. This may be overcome by attaching an auxiliary hardwood fence to the face of the gauge by means of screw nails through the holes provided and setting small pointed brads in the face of the hardwood. They should protrude about  $\frac{1}{16}$ " and will prove ample anchorage for accurate mitre work. The auxiliary fence will also prove beneficial in straight cross-cutting because of the added bearing. The work to be cut should have a straight edge against the face of the gauge.

### LENGTH CUTTING

The mitre gauge on the BEAVER Saw is equipped with gauge rods for use in cutting a number of pieces to identical length. Set the rods to the required length and feed the work through in the usual manner. Another method of gauging for length is to clamp a wood block to the auxiliary fence and use it as a length stop.

### ABRASIVE CUTTING

The BEAVER Circular Saw may frequently be used to advantage as an abrasive cut-off saw. Abrasive wheels are obtainable in various grades, thicknesses and diameters. They may be used for cutting plastics, glass or metals. The abrasive wheels are mounted in the same manner as a saw blade except that heavy paper washers are added between the blade and steel washers on both sides.

### TAPER RIPPING

It is frequently desirable to make rip cuts on a taper. This is impossible without the use of some form of tapering jig. A very simple adjustable jig can be made by taking two pieces of hardwood and hinging them at one end. A line is scribed one foot from the hinge on the top edge of the pieces and a locking device placed on the end opposite the hinge. By clamping one side to the ripping fence and opening the two pieces up to the required taper per foot—measured at the one-foot mark—an accurate job of taper ripping can be done.

## ACCESSORIES

Your BEAVER saw is equipped with a fine quality 8" combination saw blade for either ripping or cross-cutting operations. Single duty saw blades are available if desired; i.e., a rip saw, for cutting through the length of the wood with the grain and a cross-cut saw for cutting across the grain of the wood.

The aluminum throat plate in the table can be removed and an accessory plate is available to permit the use of a dado head or moulding head.

A dado head consists of two saw blades, usually  $\frac{1}{8}$ " thick and a set of inner cutters which may be set up in different combinations to cut varying widths of grooves. The dado head is mounted on the mandrel in the same manner as the saw blade. Care must be taken to see that the thick or swaged portions of the inside cutters are opposite the gullet of the teeth on the outside cutters. The outside cutters are very similar to a combination saw and the dado head may be used for either cross or rip grooving.

The moulding head consists of a cutter-head to fit the mandrel, equipped with slots and locking screws to take flat, shaped knives. These knives are available in various shapes and can be used to cut any type of moulding. The moulding head is mounted on the arbor in the same manner as a saw blade except that a thick flat washer is used for knife clearance.

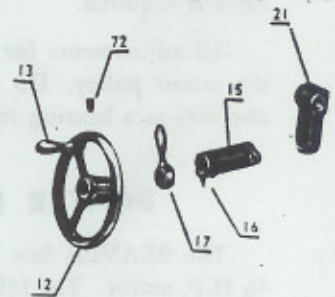
### HOW TO ORDER REPAIR PARTS FROM YOUR DEALER

To have your order filled promptly and correctly please furnish all the following information:

1. Model and serial number shown on name plate.
2. Part number and name and description. (See list repair parts.)  
You pay shipping charges from factory based on size and total weight of order. One of the following shipping methods will be used:
  1. Parcel Post — for small packages add postage to remittance.
  2. Express — for fast service on larger items.
  3. Freight — cheapest way on larger items.

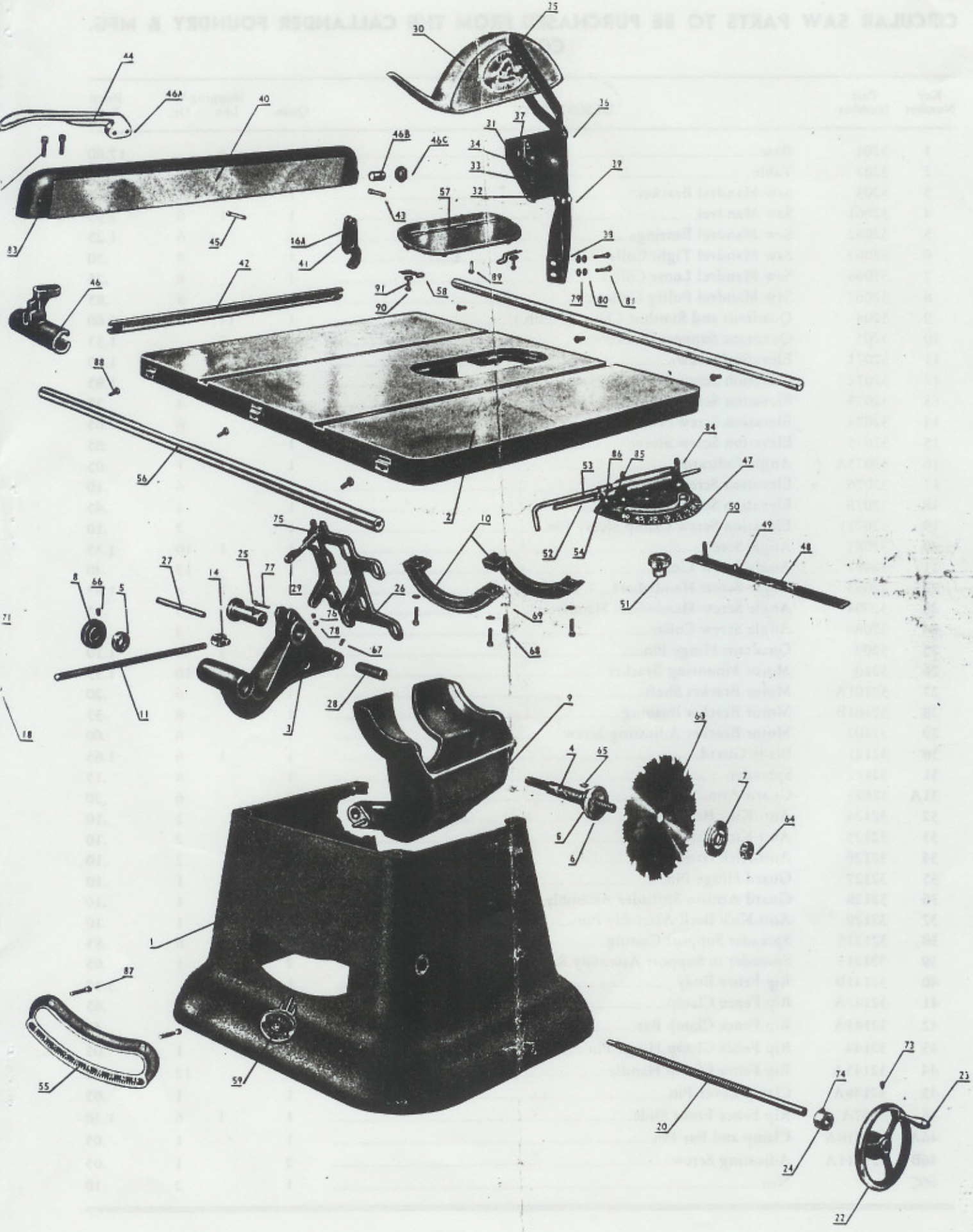
All nuts, bolts, screws, washers, etc., are standard in size and may be obtained from local sources.

**IMPORTANT** — The parts shown and listed may include accessories not necessarily a part of this tool. All prices are subject to change without notice and are subject to an additional charge to cover any applicable sales tax, use, occupation, or other tax affecting our purchase or sale of merchandise.



19	ELEVATION SCREW CLAMP SLEEVE PIN
20	MOTOR PULLEY
21	BASE TO TABLE ASS'Y SCREWS
22	BASE TO TABLE ASS'Y WASHERS
23	ANGLE INDICATOR RETAINING SCREW
24	TRADE MARK RETAINING SCREWS
25	DRIVE BELT
26	$\frac{1}{4}$ " SOCKET SCREW WRENCH
27	$\frac{3}{16}$ " SOCKET SCREW WRENCH
28	MOTOR PULLEY SET SCREW

CIRCULAR SAW PARTS TO BE PURCHASED FROM THE CALLAHAN FOUNDRY & MFG. CO.



**CIRCULAR SAW PARTS TO BE PURCHASED FROM THE CALLANDER FOUNDRY & MFG.  
CO. LTD.**

Key Number	Part Number	DESCRIPTION	Quan.	Shipping Wt.		Price Each
				Lbs.	Oz.	
1	3201	Base.....	1	14		17.60
2	3202	Table.....	1	40		15.40
3	3203	Saw Mandrel Bracket.....	1	9		2.65
4	32061	Saw Mandrel.....	1	1	6	2.95
5	32062	Saw Mandrel Bearings.....	2		6	1.25
6	32063	Saw Mandrel Tight Collar.....	1		8	.50
7	32064	Saw Mandrel Loose Collar.....	1		8	.25
8	32067	Saw Mandrel Pulley Collar.....	1		8	.85
9	3204	Quadrant and Sawdust Chute (Comb.).....	1	14		6.60
10	3205	Quadrant Support Brackets.....	2	2		1.35
11	32071	Elevation Screw.....		2		1.00
12	32072	Elevation Screw Handwheel.....	1	1	8	1.85
13	32073	Elevation Screw Handwheel Handle.....	1		4	.55
14	32074	Elevation Screw Nut.....	1		6	.65
15	32075	Elevation Screw Sleeve.....	1		10	.85
16	32075A	Angle Indicator.....	1		1	.05
17	32076	Elevation Screw Cam Lock.....	1		6	.10
18	32078	Elevation Screw Collar.....	1		4	.45
19	320711	Elevation Screw Clamp Sleeve Pin.....	1		2	.10
20	32081	Angle Screw.....	1	1	10	1.35
21	32082	Angle Screw Link.....	1		12	.40
22	32083	Angle Screw Handwheel.....	1	1	8	1.85
23	32084	Angle Screw Handwheel Handle.....	1		4	.55
24	32086	Angle Screw Collar.....	1		4	.45
25	3209	Quadrant Hinge Pin.....	1	1	8	1.10
26	3210	Motor Mounting Bracket.....	1	4	10	1.35
27	32101A	Motor Bracket Shaft.....	1		6	.20
28	32101B	Motor Bracket Bushing.....	1		8	.35
29	32102	Motor Bracket Adjusting Screw.....	1		8	.60
30	32121	Blade Guard.....	1	1	6	1.65
31	32122	Spreader.....	1		8	.15
31A	32123	Guard Arms.....	2		6	.20
32	32124	Anti-Kick Back, 3 $\frac{3}{4}$ ".....	1		2	.10
33	32125	Anti-Kick Back, 2 $\frac{1}{8}$ ".....	1		2	.10
34	32126	Anti-Kick Back, 1 $\frac{3}{4}$ ".....	1		2	.10
35	32127	Guard Hinge Pin.....	1		1	.10
36	32128	Guard Armsto-Spreader Assembly Pin.....	1		1	.10
37	32129	Anti-Kick Back Assembly Pin.....	1		1	.10
38	321212	Spreader Support Casting.....	1		6	.85
39	321213	Spreader to Support Assembly Rivets.....	2		1	.05
40	32141B	Rip Fence Body.....	1	7		3.30
41	32142A	Rip Fence Clamp.....	1		8	.65
42	32143A	Rip Fence Clamp Bar.....	1	1		.40
43	32144	Rip Fence Clamp Hinge Pin.....	1		1	.05
44	32145A	Rip Fence Clamp Handle.....	1		12	.85
45	32148A	Clamp Lever Pin.....	1		1	.05
46	3367A	Rip Fence Front Slide.....	1	1	6	1.30
46A	321410A	Clamp and Bar Pin.....	1		1	.05
46B	321411A	Adjusting Screw.....	2		1	.05
46C		Nut.....	1		2	.10

Key Number	Part Number	DESCRIPTION	Quan.	Shipping Wt.		Price Each
				Lbs.	Oz.	
47	32151	Mitre Fence Body Casting.....	1	2	6	2.00
48	32152	Mitre Fence Guide Bar.....	1		10	1.40
49	32153	Mitre Fence Guide Bar Pin.....	1		1	.10
50	32154	Mitre Fence Assembly Screw.....	1		2	.10
51	32155	Mitre Fence Hand Knob.....	1		6	.25
52	32158	Trammel Bar (Straight).....	1		6	.05
53	32159	Trammel Bar (Hooked).....	1		6	.10
54	321510	Trammel Bar Clamps.....	2		2	.05
55	3216	Angle Scale Casting.....	1		10	1.10
56	3217	Rip Fence Support Rods.....	2	4		2.30
57	32181	Table Throat Plate.....	1		12	1.00
58	32182	Table Throat Plate Springs.....	2		1	.05
59	3219	Beaver Trade Mark Plate.....	1		2	.15
60	3221	8" Combination Blade.....	1	1		4.05
61	32271	Motor Pulley.....	1	2		1.40

### C.S. No. 3200 CIRCULAR SAW PARTS WHICH MAY BE PURCHASED LOCALLY

62	10-008	Base to Table Assembly Screws, Hexagon Head Cap $\frac{5}{16}$ -18X1.....	4		2	.05
63	14-002	Base to Table Assembly Washers, Standard Lock $\frac{5}{16}$ .....	4		1	.05
64	12-205	Saw Mandrel Nut, Standard Hexagon $\frac{5}{8}$ -18 Thread.....	1		2	.05
65	22-001	Saw Mandrel Key, Standard Woodruff No. 5.....	1		1	.05
66	16-400	Saw Mandrel Pulley Set Screw Socket Set $\frac{1}{4}$ -20X $\frac{1}{4}$ .....	1		1	.10
67	16-406	Quadrant Set Screw Socket Set $\frac{3}{8}$ -16X $\frac{1}{2}$ .....	1		2	.10
68	10-205	Quadrant Bracket to Table Screws, Socket Head Cap $\frac{5}{16}$ -18X1.....	1		2	.10
69	12-800	Quadrant Bracket to Table Washers, Standard Square $\frac{5}{16}$ -18.....	4		2	.10
70	10-400	Angle Ind. Retain. Screw, Rd. Hd. Mach. Screws No. 632- $\frac{3}{16}$ .....	1		1	.05
71	16-400	Elevation Screw Collar Set Screws, Socket Set $\frac{1}{4}$ -20X $\frac{1}{4}$ .....	2		1	.10
72	16-404	Elevation Screw Handwheel Set Screws, Sock. Set $\frac{5}{16}$ -18X $\frac{5}{16}$ .....	1		1	.10
73	16-404	Angle Screw Handwheel Set Screws, Sock. Set $\frac{5}{16}$ -18X $\frac{5}{16}$ .....	1		1	.10
74	16-400	Angle Screw Collar Set Screw, Socket Set $\frac{1}{4}$ -20X $\frac{1}{4}$ .....	2		1	.10
75	12-204	Motor Bracket Adj. Screw Locknut, Std. Hex. $\frac{1}{2}$ -13 Thread.....	2		2	.05
76	16-400	Motor Bracket Shaft Set Screw, Socket Set $\frac{1}{4}$ -20X $\frac{1}{4}$ .....	1		1	.10
77	10-005	Motor Bracket Adj. Screw Hinge Pin, Hex. Hd. Cap $\frac{3}{8}$ -16X2.....	1		2	.05
78	12-202	Motor Brckt. Adj. Screw Hinge Pin Nut., Std. Hex. $\frac{3}{8}$ -16 Thd.....	1		2	.05
79	14-200	Guard to Saw Assembly Washers, Standard Flat $\frac{1}{4}$ ".....	5		1	.05
80	14-001	Guard to Saw Assembly Washers, Standard Lock $\frac{1}{4}$ ".....	2		1	.05
81	10-404	Guard to Saw Assembly Screws, Rd. Hd. Mach. $\frac{1}{4}$ -20X $\frac{3}{4}$ .....	2		2	.05
82	10-201	Rip Fence Assembly Screws, Sock. Hd. Cap $\frac{5}{16}$ -18X $\frac{3}{4}$ .....	2		2	.10
83	16-407	Rip Fence Adj. Screws, Socket Set Screws $\frac{5}{16}$ -18X $\frac{3}{8}$ .....	2		2	.10
84	10-601	Mitre Fence Thumb Screws $\frac{1}{4}$ -20X $\frac{1}{2}$ .....	2		2	.05
85	10-1000	Trammel Bar Clamps Screw, Carriage Bolt $\frac{3}{16}$ X1.....	1		2	.05
86	12-400	Trammel Bar Clamp Wing Nut, Standard Wing $\frac{3}{16}$ .....	1		2	.05
87	10-402	Angle Scale Retaining Screws, Rd. Hd. Mach. 8-32X $\frac{1}{2}$ .....	4		2	.05
88	10-017	Rip Fence Rod Retain. Screws, Hex. Hd. Cap $\frac{1}{4}$ -20X $\frac{3}{4}$ .....	6		2	.05
89	16-1001	Table Throat Drive Screws No. 6X $\frac{5}{16}$ .....	4		2	.05
90	10-401	Table Throat Spring Retain. Screws, Rd. Hd. Cap $\frac{1}{4}$ -20X $\frac{3}{4}$ .....	2		2	.05
91	14-204	Table Throat Assembly Washers, Standard Flat No. 6.....	2		1	.05
92	16-1000	Trade Mark Retain. Screws, No. 2X $\frac{3}{16}$ Drive Screws.....	2		1	.05
93	32-007	Drive Belt, F.H.P. V Belt No. 1420.....	—		—	—
94	44-001	$\frac{1}{4}$ " Socket Screw Wrench.....	1		2	.05
95	44-002	$\frac{5}{16}$ " Socket Screw Wrench.....	1		2	.05
96	16-404	Motor Pulley Set Screw, Socket Set $\frac{5}{16}$ -18X $\frac{5}{16}$ .....	1		1	.05

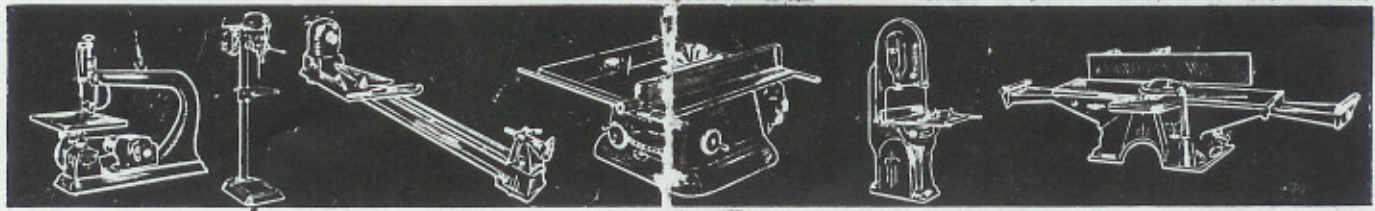
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Beaver



Power Tools

*Lyndell*



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