OPERATING INSTRUCTIONS AND PARTS LIST FOR

BENCH SAW

8 INCH

Model Number 103.22160

The model number of your Bench Saw will be found on a plate on the rear of the Base. Always mention this model number when communicating with us regarding your Bench Saw or when ordering parts.

Instructions For Ordering Parts

All parts listed herein must be ordered through a Sears retail store or mail order house. Parts are shipped prepaid. When ordering repair parts, always give the following information:

1. The Part Number.
2. The Part Name and Price.
3. The Model Number 103.22160.

This list is valuable. It will assure your being able to obtain proper parts service. We suggest you keep it with other valuable papers.

SEARS, ROEBUCK and CO.

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SOURCE FORM 37979

OPERATING INSTRUCTIONS AND PARTS LIST FOR
8 INCH BENCH SAW
Model 103.22160

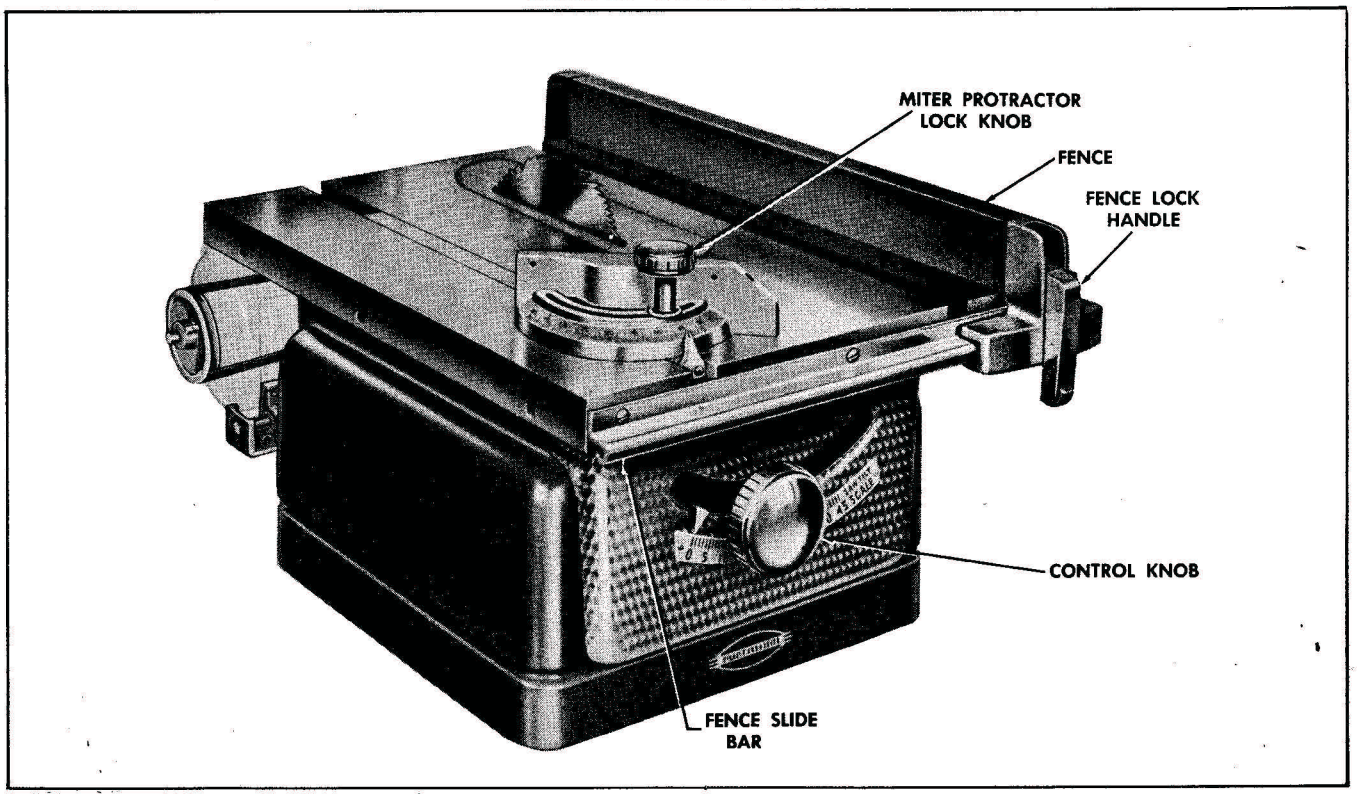


FIGURE 1

Careful planning, precision machining, and rigid inspection have all contributed toward maintaining the high standard of quality found in this tool. We are confident that you will find it satisfactory in every respect.

To increase the versatility of this saw beyond the normal range of bench saw operations, various attachments are readily available.

To prevent damage in shipment some of the parts were disassembled from the tool. These parts are listed below. Be sure they are all accounted for before discarding any of the packing material.

1. Fence; item 111.
2. Miter gage assembly; item 123.
3. Motor alignment rod; item 17.
4. Motor mount complete; item 26.
5. Insert with clips; items 12, 13, 14 and 15.
6. Motor pulley; item 64.
7. V-belt; item 62.

ASSEMBLY:

Fence and Miter Gage

Install as shown in Fig. 1.

Motor Alignment Rod

The 5/16 x 4 1/2 inch motor alignment rod, No. 17, fits into the hole in the back of the splitter bracket. Insert the rod as far as it will go into the bracket and tighten the set screw.

Motor Mount

Install as shown in Fig. 2 and outlined under "Installation of Saw".

Insert with clips

Install in opening provided in table top. See Fig. 4.

INSTALLATION OF SAW:

There are four 5/16 diameter holes provided in the base of the saw through which the tool should be fastened securely with screws or bolts to a well built work bench. A large hole in the bench below the blade will allow sawdust to escape.

The Motor Mount Bracket should be installed as shown in Fig. 2.

1. Set the saw at 0 inches elevation and 0 degrees tilt. (See paragraph headed "Controls".)

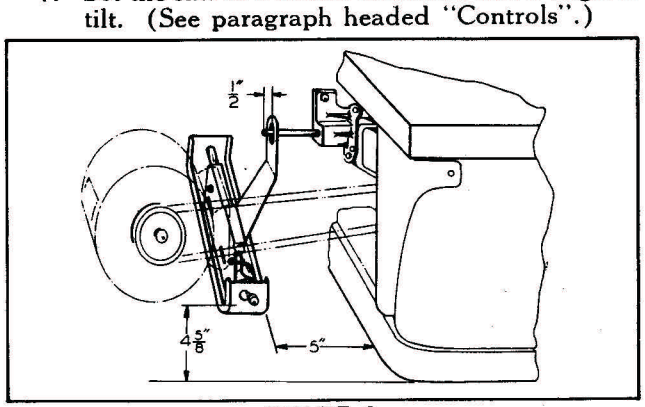


FIGURE 2

2. Draw a line on the bench 5 inches from the rear of the saw base. (Measure at two points 12 inches apart to be sure that the line is parallel to the rear of base.)
3. Place the bracket, No. 22, on the bench as follows; The end with the elongated hole 4 5/8 inches in from the left side of saw base and the front edge on the line drawn previously. Fasten it securely in this position.
4. Assemble motor rail, No. 21, and motor rail guide and plate, No. 18, to the motor rail bracket as shown. The grooved end of the motor rail to be placed in end of bracket with elongated hole.
5. Bolt your motor to the mount so that the motor pulley will be in line with the saw pulley when the motor alignment rod is through the slot in the motor rail guide and plate.

Check before Operation!

1. The motor alignment rod must project at least 1/4 inch through the mount slot with the blade retracted and tilted 45 degrees. This setting should be checked often during operation. As the belt wears or stretches, loosen the set screw and pull the alignment rod out of the bracket the amount needed.
2. The motor mount must not strike the motor mount bracket at either end of the motor rail at 0 or 45 degrees tilt.
3. Be sure that the teeth of the blade point toward the front of the saw and the top of the blade turns toward the front.

MOTOR:

For general home workshop use, a 1/2 horsepower 3450 R.P.M. motor will provide adequate speed and power. However, to enable you to take full advantage of the rugged performance features and full cutting efficiency of this saw, especially for heavy duty work, a 3/4 horsepower 3450 R.P.M. motor should be used.

SPEED:

The motor pulley, No. 64, installed on a 3450 R.P.M. motor with a 1/2 inch diameter shaft will drive the saw at the recommended speed—4500 R.P.M.

BELT:

If your motor shaft is approximately 4 inches from the bottom of the base of the motor, the V-belt, No. 62, should fit the installation previously described.

LUBRICATION:

The precision ball bearing assembly used on the saw arbor has been packed with lubricant and sealed at the factory. It should require no further attention for the life of the bearing assembly.

To maintain the smooth, easy operation of the controls, oil the following points occasionally;

1. The guide, No. 48, at the front of the arbor support.
2. The guide ways of the front and rear trunnions, Nos. 80 and 96.
3. The elevation screw, No. 76.
4. The motor rail, No. 21.

CONTROLS:

The Control Knob raises the saw from 0 to 2 1/2 inches above the table level when **pushed in** and turned. It tilts the saw 0 to 45 degrees when **pulled out** and turned.

The Angle of Tilt is shown by a pointer on the scale just below the control knob.

The Depth of Cut Gauge and Pointer can be seen through the curved slot to the left of the control knob.

The Miter Protractor face is a guide surface for cross cutting or diagonal cutting to a definite angle. The protractor may be used on either side of the blade at any angle or depth of cut setting. The angle is shown by the pointer on the calibrated scale on the protractor head. The lock knob clamps the head in the selected position.

CAUTION:

This saw has an extra long spindle for greater dado capacity. If the blade is extended more than 2 3/8 inches according to the depth of cut gauge, the spindle will strike the table insert when the saw blade is tilted.

The Fence Lock Handle when down clamps the fence at both ends of the table. Raise the handle to unlock and by **grasping the front fence end** move the fence to any point across the table. **To make sure that the fence is perpendicular to the table, push down on fence as you lock it.**

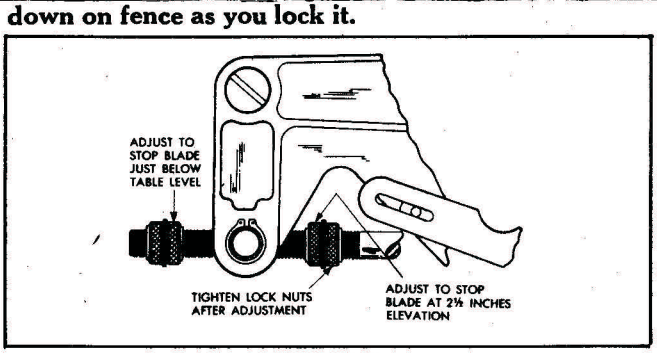


FIGURE 3

ADJUSTMENTS:

The following items may require adjustment due to rough handling during shipment.

The Blade Tilt Stop Screw, No. 103, located just behind the front trunnion on the left side of the body casting stops the tilt mechanism when the blade is at right angles to the table.

The Pointer for the Tilt Scale should indicate 0 degrees when the blade is at right angles to the table.

The Depth of Cut Pointer should be set at 0 when the blade is lowered with the teeth just flush with the table surface.

The Elevation Limit Stop Nuts shown in Fig. 3 automatically stop the saw at high (2 1/2 inch projection) and low position. The front pair of stops control the high position while the rear pair stop the blade at low position.

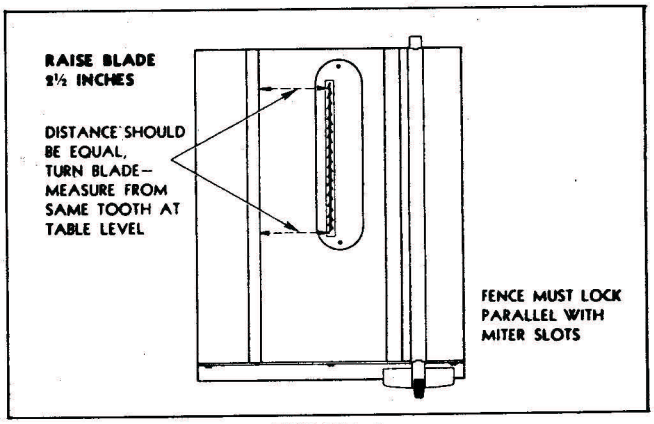


FIGURE 4

The Blade Must Be Parallel with the Miter Slots in the Table to Get a Straight Cut. (See Fig. 4).

Adjustment, if necessary, may be made as follows;

1. Raise the blade to 2 1/2 inches depth of cut and set at right angle (0 degrees) to table.
2. Measure **accurately** from a raker tooth on the blade to an edge of either miter slot, as explained and shown in Fig. 4.
3. Loosen the bolts, Nos. 79 and 97, holding each trunnion, Nos. 80 and 96, to the lower table surface. (4 bolts total.)
4. Shift the complete under-table mechanism until the blade is parallel with the miter slot.
5. Re-tighten the four trunnion screws, front pair first.
6. Check this adjustment as previously explained to be certain it is correct after re-assembly is complete.

The Fence Must Lock Parallel with the Miter Slots. Using one hand on the front end of the fence, slide the fence to the edge of the miter slot. Push the lock handle down slowly. If fence isn't parallel to miter slot adjust as follows;

1. Loosen the two screws, No. 105, on the underside of the front fence end.
2. Release the fence lock handle.
3. Hold the fence flush to the edge of the miter slot. Turn both screws up just snug. Then tighten each one securely.
4. Check the adjustment by sliding the fence away from the slot and returning several times to see if it locks parallel each time.

The Fence Must Be Square with the Table Surface. Adjust by loosening the screws, No. 10, holding the fence slide bar to the table. Slide the bar up or down at either end to square the face of the fence with the table. Re-tighten the screws.

The Arbor Tilt Tension Spring, No. 100, provides tension to keep the mechanism tilted at any angle, thus eliminating the need for a manual control lock. After the tool is "broken in," you may find it necessary to increase this tension. Loosen the lock nut, No. 90, and turn the bolt, No. 101, until enough tension has been applied. Re-tighten the lock nut.

Note: After a few hours of operation, tighten all pulley set screws.

CARE OF THE BLADE:

Keep the blade teeth sharp and properly set.

To sharpen the blade;

1. Lower the blade until an oil stone laid on the table will just touch the teeth. Rotate the blade **backward** by hand until the ends of all the small cutting teeth have been touched.
2. File the gullets (space between teeth) of all teeth of the same shape to a uniform depth and width. Maintain the original shape, bevels, and dimensions. Avoid sharp corners or nicks in the gullets between the teeth.
3. The top one-quarter of each cutting tooth should be set at an angle of approximately 10 degrees. The set should be uniform and should alternate from left to right on successive teeth. The large raker teeth require no set—they should be kept approximately 1/64 inch shorter than the cutting teeth.
4. File the bevel of each cutting tooth—15 to 20 degree bevel on the inside front face of each tooth. Maintain the original bevel angle and be careful not to shorten the teeth.

Blade Wobble is often noticed at slow speeds when starting or stopping the saw. If this does not disappear at full speed, check the saw blade and clamp washers for dirt or saw dust on the clamping surfaces.

Gummy residue can generally be removed with kerosene.

OPERATION:

The blade provided with this saw may be used for both cross-cutting and ripping.

For proper chip clearance and best general results, the blade should project through the work-piece approximately 1/4 inch.

Do not force material into the blade too fast. Use a straight, direct, steady feed which does not overtax the cutting capacity of the blade.

To eliminate creep of your work when making a miter cut, clamp the work piece to the miter gage.

Support long work as it leaves the rear of the table.

SAFETY:

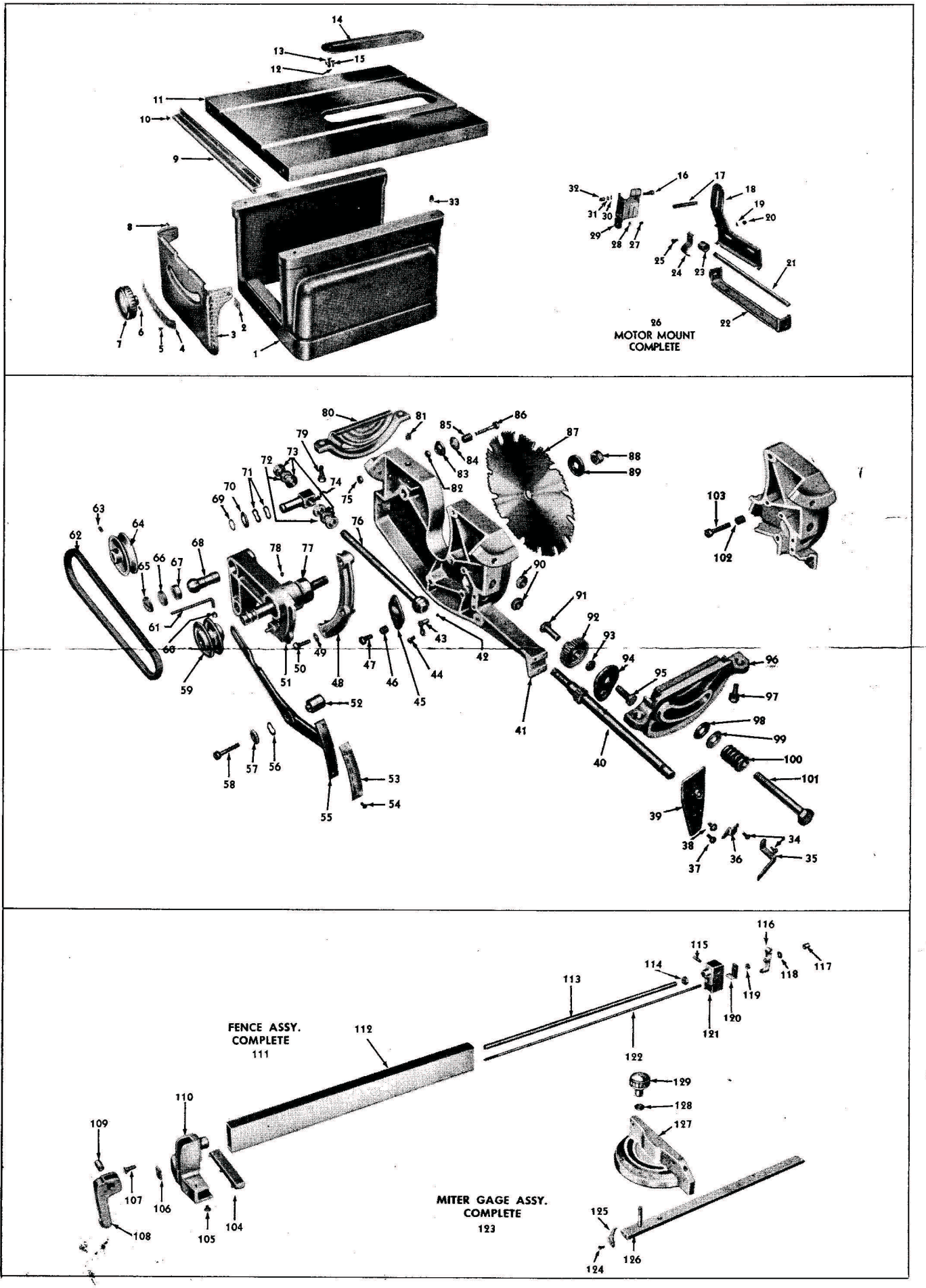
While the bench saw is one of the most widely used woodshop power tools, it is by nature of its general design, one of the most dangerous in the hands of inexperienced or careless operators. The bench saw is not, however, an unsafe tool when used with common sense and good judgment.

Use a push block rather than letting the hands get closer than 3 inches to the blade on narrow cuts.

Never hold the hands over the blade when making blind groove type cuts. Stand to one side when completing a cut. A loose piece caught by the blade can fly back with surprising force.

Always stop the saw when removing waste stock from near the blade, when making adjustments, or when changing settings.

Do not wear dangling neck ties, loose baggy sleeves, etc., while operating power tools.


MOTOR MOUNT COMPLETE
26
FENCE ASSY. COMPLETE
111
MITER GAGE ASSY. COMPLETE
123

PARTS LIST

Illust. No.	Order by Part No.	PART NAME	Prepaid Selling Price Each
1	37009	Base	$ 11.00
2	X-1376	Speed nut No. 6-32	.15
3	37737	Front panel	3.50
4	37763	Arbor tilt scale	.35
5	X-332	Machine screw No. 6-32 x ¼ binding head	.10
6	X-182	Set screw 5/16-18x5/16 socket head cone pt.	.10
7	38120	Hand wheel with set screw	2.25
8	X-1806	Sheet metal screw No. 7-16 x ⅜	.10
9	18635	Fence slide bar	1.20
10	*X-377	Binding head screw No. 10-24 x ⅜	.10
11	37211	Table	26.00
12	X-375	Binding head screw No. 6-32 x ⅛	.10
13	18993	Table insert clip	.15
14	37724	Table insert	1.10
15	X-2451	External tooth lock washer No. 6	.10
16	X-736	Machine screw ¾-20 x 1¼ hex head with external lock washer	.10
17	37636	Motor alignment rod	.15
18	37150	Motor rail guide and plate	1.30
19	*X-605	Lock washer ¼ inch	.10
20	X-430	Hex nut ¼-20	.10
21	37654	Motor rail	.80
22	37761	Motor rail bracket	.70
23	37821	Motor rail bushing	.15
24	37743	Motor rail bushing clip	.25
25	*X-201	Cap screw ¼-20 x ¾ hex head	.10
26	37107	Motor mount, complete	3.25
27	X-740	Machine screw ¼-20 x ½ hex head with external lock washer	.10
28	X-100	Set screw ¼-20 x ¼ slotted head cup pt.	.10
29	37418	Splitter bracket	1.20
30	X-622	Plain washer 17/32 I.D. x ⅞ O.D.	.10
31	37757	Tension washer	.15
32	37627	Spacer	.20
33	X-741	Machine screw 5/16-18 x ½ hex washer head with external lock washer	.10
34	*X-516	Machine screw No. 8-32 x ¼ round head	.10
35	37722	Arbor tilt pointer	.15
36	37721	Depth of cut pointer	.15
37	*X-377	Binding head screw No. 10-24 x ⅜	.10
38	X-734	Machine screw No. 10-24 x ⅜ round head with external lock washer	.10
39	37751	Control shaft spacer plate	.60
40	37160	Shaft with gear	1.60
41	37432	Frame	14.00
42	X-1307	Steel ball 3/16 diameter	.10
43	37310	Control shaft tension spring	.15
44	X-734	Machine screw No. 10-24 x ⅜ round head with external lock washer	.10
45	37731	Tension plate	.15
46	37812	Tension plate spring	.10
47	*X-201	Cap screw ¼-20 x ¾ hex head	.10
48	37423	Guide	.90
49	X-607	Plain washer ¼ I.D. x 19/32 O.D.	.10
50	X-738	Machine screw ¼-20 x 1 round head with external lock washer	.10
51	37320	Spindle support with bearing	7.50
52	37634	Depth gage spacer	.15
53	37718	Depth of cut scale	.15
54	X-1551	Eyelet ⅛ x ¼	.10
55	37130	Elevation indicator arm with scale	.60
56	37729	Spring washer	.15
57	X-628	Plain washer ⅜ I.D. x ⅝ O.D.	.10
58	X-732	Machine screw ¼-20 x 1½ hex head with internal lock washer	.10
59	18035-B	Tool pulley with set screw—2 inch single groove V-pulley. ⅝ inch bore. Purchase from your nearest Sears retail store or mail order house. Ask for Catalog No. 9-2801-⅝ inch bore	—
60	X-179	Set screw 5/16-18 x 5/16 socket hd. cup pt.	.10
61	*X-1400	Allen wrench 5/32	.15
62	X-1464	V-belt ½ x 40 inches long. Purchase from your nearest Sears retail store or mail order house. Ask for Catalog No. 9-1640	—
63	X-179	Set screw 5/16-18 x 5/16 socket hd. cup pt.	.10
64	18036-A	Motor pulley with set screw—2½ inch single groove V-pulley ½ inch bore. Purchase from your nearest Sears retail store or mail order house. Ask for Catalog No. 9-2802—½ inch bore	—
65	37633	Pivot bearing retaining screw	.20
66	37823	Pivot bearing retaining washer	.15
67	37632	Pivot bearing	.20
68	37622	Ball and pivot pin	.35
69	18447	Retaining ring	.15
70	X-631	Plain washer 41/64 I.D. x 1 O.D.	.10
71	37744	Spring washer	.15
72	38714	Fibre washer	.15
73	37649	Knurled stop nut	.15
74	37651	Saw elevation stud	.45
75	X-430	Hex nut ¼-20	.10
76	37652	Saw elevation shaft	1.50
77	38619	Arbor and bearing unit	5.30
78	X-181	Set screw No. 10-24x¼ socket head cone pt.	.10
79	X-737	Machine screw 5/16—18 x ¾ hex head with external lock washer	.10
80	37417	Rear trunnion	1.60
81	X-179	Set screw 5/16—18x5/16 socket head cup pt.	.10
82	X-430	Hex nut ¼-20	.10
83	37646	Splitter spacer	.20
84	18448	Dished face splitter washer	.15
85	18449	Splitter clamp tension spring	.15
86	*X-284	Cap screw ¼-20 x 2 hex head	.10
87	18992	8 inch diameter combination blade. Purchase from your nearest Sears retail store or mail order house. Ask for Catalog No. 9-4937—½ inch bore	—
88	X-403	Hex nut ½-20 jam nut	.10
89	18444	Saw clamp washer	.15
90	X-413	Hex nut ⅜-16 jam nut	.10
91	37655	Spacer	.15
92	37429	Control gear	.80
93	X-630	Plain washer	.10
94	37754	Gear cover	.15
95	X-744	Machine screw ⅜-16 x 1¾ hex head with external lock washer	.15
96	37422	Front Trunnion	1.60
97	X-737	Machine screw 5/16-18 x ¾ hex head with external lock washer	.10
98	37748	Fibre washer	.10
99	37752	Flat washer	.15
100	37822	Arbor tilt tension spring	.20
101	37648	Arbor tilt tension bolt	.20
102	37812	Tension plate spring	.15
103	*X-379	Replace with Fillister head machine screw ¼-20 x ¾	.10
104	37190	Fence slide	1.00
105	*X-380	Binding head screw No. 10-24 x ⅝	.10
106	37732	Fence lock handle friction plate	.15
107	*X-542	Machine screw ¼-20 x ¾ flat head	.10
108	37428	Fence lock handle	1.25
109	37641	Fence lock handle pivot pin	.20
110	37424	Front fence end	1.90
111	37006	Fence assembly, complete	10.00
112	37818	Fence body	4 00
113	37643	Fence rod	.75
114	X-413	Hex nut ⅜-16	.10
115	37642	Fence lock clamp pivot pin	.15
116	37425	Fence lock clamp	.35
117	37639	Fence lock rod nut	.20
118	X-607	Plain washer ¼ I.D. x 19/32 O.D.	.10
119	37825	Rubber grommet	.15
120	37758	Fence shoe	.15
121	37426	Fence end rear	1.00
122	37638	Fence lock rod	.35
123	37109	Miter gage assembly, complete	5.00
124	X-554	Machine screw No. 6-32 x 5/16 Fillister head	.10
125	37712	Miter protractor pointer	.15
126	37110	Miter bar	2 50
127	37240	Miter protractor	3 25
128	X-630	Plain washer 25/64 I.D. x ¾ O.D.	.15
129	37411	Lock knob	.75

***Parts marked in this manner may be purchased locally.**

This sheet is intended for instruction and repair parts only and is not a packing slip. The parts shown and listed may include accessories not necessarily part of this tool. All parts are shipped prepaid. All prices are subject to change without notice.

31,500—4-52