

OPERATING INSTRUCTIONS AND PARTS LIST FOR

CRAFTSMAN BENCH SAW

9 INCH

Model Number 103.20000

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.

HOW TO ORDER REPAIR PARTS

All parts listed herein may be ordered through Sears, Roebuck and Co. or Simpsons-Sears Limited. When ordering parts by mail from the mail order house which serves the territory in which you live, selling prices will be furnished on request or parts will be shipped at prevailing prices and you will be billed accordingly.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION AS SHOWN IN THIS LIST:

1. The PART NUMBER.
2. The PART NAME.
3. The MODEL NUMBER.
4. The NAME of item.

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.—U.S.A.
SIMPSONS-SEARS LIMITED—CANADA**

LITHOGRAPHED IN U. S. A.

**OPERATING INSTRUCTIONS AND PARTS LIST FOR
9 INCH BENCH SAW
MODEL 103.20000**

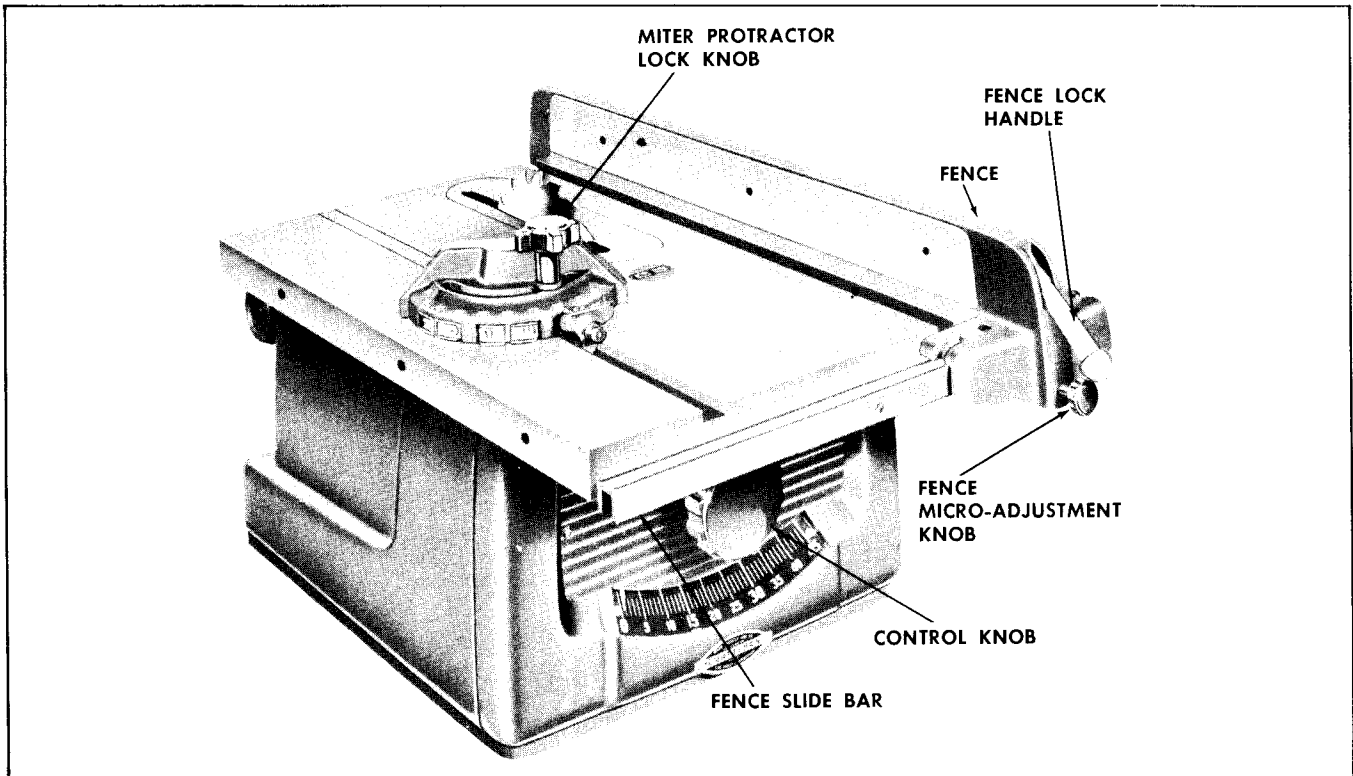


FIGURE 1

This 9-inch Tilting Arbor Bench Saw will produce quality work satisfying the demands of the most exacting craftsman.

To increase the versatility of this saw beyond the normal range of Bench Saw operations, various attachments are readily available. See Page 6.

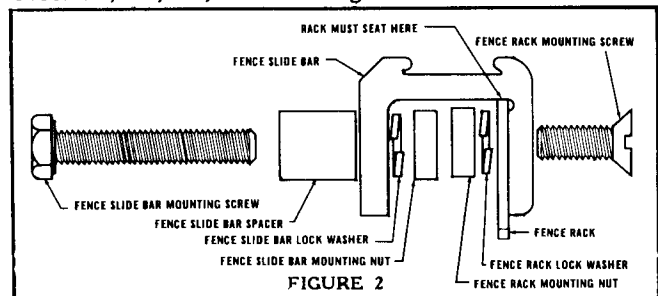
To prevent damage in shipping, some of the parts were disassembled from the tool. These parts are listed below. Be sure they are all accounted for before discarding any of the packing material.

1. Fence: No. 71.
2. Miter Gage Assembly: No. 86.
3. Fence Slide Bar with Scale: No. 4.
4. Fence Rack: No. 5.
5. Motor Pulley with Set Screw: No. 123.
6. V-Belts, Set of Two: No. 121.
7. Cloth bag containing:
 - a. No. 19; Fence Slide Bar mounting screws—4 pcs.
 - b. No. 15; Fence Slide Bar mounting nuts—4 pcs.
 - c. No. 17; Fence Slide Bar lock washers—4 pcs.
 - d. No. 13; Fence Rack mounting screws—3 pcs.
 - e. No. 16; Fence Rack Mounting nuts—3 pcs.
 - f. No. 14; Fence rack lock washers—3 pcs.
 - g. No. 18; Fence Slide Bar spacers—4 pcs.
 - h. No. 48; Motor Mounting bolts—2 pcs.
 - i. No. 44; Motor Mounting nuts—2 pcs.
 - j. Nos. 43 & 47; Motor Mounting washers—4 pcs.
 - k. Nos. 117, 118, 120; Allen wrenches.

ASSEMBLY:

NOTE: This assembly can be made most easily with the saw in an upside down position. The confining area in which to work when assembling lock washers and nuts will cause no trouble if pliers are used to position and hold these items while using fingers to turn screws.

The Fence Rack, No. 5, is mounted to the Fence Slide Bar, No. 2, by three slotted flat head screws, lock washers, and nuts, Nos. 13, 14, 16. Insert screws from outside of Fence slide Bar and through the Rack. Making sure the Rack is seated along the top wall of the Fence Slide Bar, install lock washers and nuts. Tighten securely. This assembly is to be mounted to the front end of the table by four machine screws, spacers, lock washers, and nuts, Nos. 15, 17, 18, 19. See Fig. 2.



MOUNTING MOTOR:

Place the Motor Pulley, No. 123, on the Motor Shaft with the hub side turned away from the motor. Bolt the motor to the Motor Support Bracket, No. 40, with bolts, washers, and nuts supplied. Position the motor pulley so the grooves are in line with the grooves of the saw pulley when the Guide

Pin, No. 45, is through the slot in the Motor Rail Guide, No. 39. The motor shaft should be flush with or extend beyond the pulley hub when belt alignment is established. Securely tighten motor pulley set screw onto key.

Install the set of two V-belts, No. 121. Adjust motor toward or away from saw to insure belt clearance at the two extreme positions. They are: Blade at 90° and fully raised—and—blade tilted to 10° and in the extreme down position.

INSTALLATION OF SAW:

There are four 7/16 diameter holes provided in the saw base through which bolts or screws should be inserted to fasten the tool securely to a well built work bench. A large hole in the bench below the blade will allow the sawdust to escape.

CHECK BEFORE OPERATION:

1. The belts must have proper tension and alignment.
2. Be sure the teeth of the blade point to the front of the saw.
3. Be sure motor rotation—CLOCKWISE—when viewed from pulley is correct.

MOTOR:

For General Home Workshop use, a ¾ horsepower, 3450 R.P.M. motor will provide adequate speed and power. For continued heavy duty use, a 1 horsepower, 3450 R.P.M. motor is recommended.

SPEED:

Using the specified motor pulley, No. 123, a 3450 R.P.M. motor will drive the saw at the recommended speed—3900 R.P.M.

BELTS:

The saw is driven by a matched set of two V-belts, No. 121. Replacement sets may be purchased by ordering under part number given in parts list.

Note: As this is a matched set of V-Belts, the inside diameters are held very closely in relation to each other, therefore each belt transmits an equal amount of power from motor to saw. Complete sets of belts must be changed. Individual belts from different sets will not produce satisfactory results.

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. 110, at the front of the arbor support.
2. The Guide Ways of the Front and Rear Trunnions, Nos. 87, 139.
3. The Motor Rail, No. 41.

Occasionally Lubricate the gear teeth on Items 87, 101, and 147 with a good grade of cup grease.

CONTROLS:

The Control Knob raises the saw blade from 0 to 3 inches above the table when pushed in and turned. It tilts the saw blade 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. It should indicate 0 degrees when the blade is at right angles to the Table Top (See ADJUSTMENTS).

The Miter Protractor Face is a guide surface for cross-cutting, or mitering. The Protractor may be used on either side of the blade with the Protractor Head set at any angle. The angle is shown by the pointer over the calibrated scale on the Protractor Head. The Protractor also has three indexing positions which will insure quick and accurate setting at the 90 degree and two 45 degree angles.

To Use The Indexing Mechanism:

1. Loosen the Protractor Lock Knob.
2. Turn Protractor to approximate degree of any one of the three indexing positions and insert Plunger.
3. While holding Indexing Plunger engaged in Protractor, tighten Protractor Lock Knob securely.

The Micro-Adjustment Knob, Fig. 1, is used for making fine fence adjustments. This is done by pushing in on Knob until Pinion Gear Teeth freely engage the Rack and turning knob in either direction.

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, the Fence can be moved to any point across the table. To make sure that the Fence is perpendicular to the Table, push down on the Fence as you lock it.

CAUTION:

This saw has an extra long spindle for greater dado capacity.

If the blade is raised more than 2 13/16 inches the spindle will strike the table when the saw blade is tilted.

For various other cutting devices, check spindle clearance at 45 degrees tilt before operating tool.

ADJUSTMENTS:

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

The Blade Tilt Stop Screw, No. 151, 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. Adjust if necessary.

The Pointer and Scale were set at the factory. Should adjustment be necessary, follow the procedure outlined below.

1. Elevate blade to maximum cut, 3 inches.
2. Check blade with combination square and set perpendicular to the table top.
3. Pointer should indicate 0 degrees. If it does not, adjust pointer by loosening the screw, No. 93, holding the pointer to the mechanism, and set to 0 degrees.
4. Tilt blade to 45 degrees. Check with combination square. Pointer should indicate 45 degrees on scale.
5. If it does not, loosen the two Phillips head screws in the scale, one turn.
6. Move the scale up or down until both 0 degree and 45 degree marks are properly positioned under pointer. Re-tighten screws in scale.

The Craftsman Exclusive Exact-I-Cut Indicator is an adjustable gage which allows the operator to establish a guide line which will indicate either side of

the cut made by the Saw Blade. Adjustments, if necessary, may be made as follows:

1. Loosen the two set screws, No. 26, with Allen wrench.
2. Holding a piece of wood firmly against the Miter Gage set at 90 degrees, make an accurate cut.

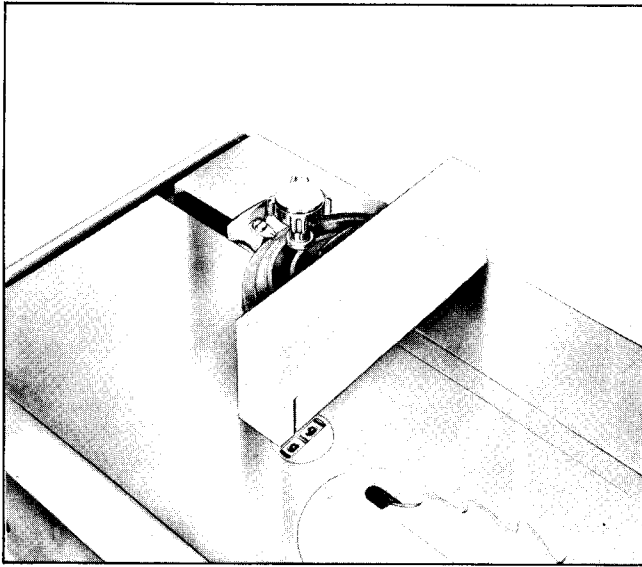


FIGURE 3

3. Withdraw from Blade until the saw cut and cut indicator shoes, No. 25, are approximately in line as shown in Fig. 3.
4. Using Allen Wrench, adjust each shoe to line up exactly with the sides of the saw cut and tighten securely.
5. Recheck by making second cut and retracting to see if shoe adjustment was accurately made.

The Fence Must Lock Parallel to The Miter Slots.

1. Place a block of wood or steel, which fits the Miter Slot snugly; at both ends of the Table (See Fig. 4).
2. Loosen the three Adjusting Screws, Nos. 58 & 66, in the Front End of the Fence, and place the Fence in position against these blocks.
3. While holding the Fence tight against the blocks, turn all screws up snug, then tighten each one securely.
4. Check this adjustment by moving the Fence away from and back to the blocks several times.

The Fence Must be Square with the Table Surface.

This adjustment may be checked by placing a combination square against the fence body, see Fig. 4.

1. Adjustment may be made by loosening the mounting screws of the Fence Slide Bar, and moving the Bar up or down at either end to adjust the Fence Body perpendicular to the Table.
2. Clearance between the bottom of the Fence Body, No. 57, and the Table Top should be held uniform along the entire length of the Fence.

Note: The two Nylon tipped self-locking set Screws, No. 68, have the function of providing for smoother sliding of the Fence over the Fence Slide Bar. The Nylon tips, therefore, must contact the Slide Bar to insure smooth and easy operation. These set screws provide some

slight additional adjustment for setting fence perpendicular to the Table Top.

CAUTION: Do not let set screw tips project more than 1/64 inch below the surface of the Fence End. When fence is set at extreme end of the Fence Slide Bar, the screw drops off of Bar, and the Fence is thrown out of square. Also, the screw will drag over the end of the Bar, and ultimately damage the Bar and Screw.

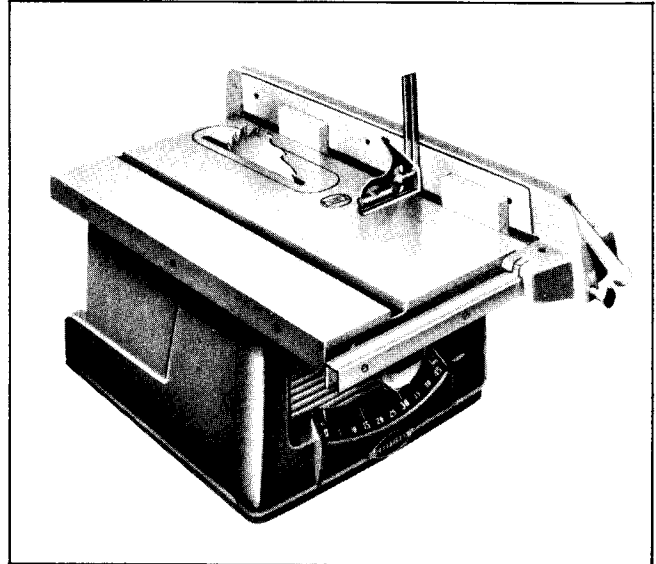


FIGURE 4

3. After all adjustments have been made, re-tighten the mounting screws.

The Micro-Adjustment mechanism has been pre-set at the Factory. If adjustment should be necessary it may be made as follows:

1. With the Fence in position on the Table loosen the screw, No. 61.
2. Push in on Knob and move Pinion Bracket, No. 64, up or down until the Gear meshes smoothly with the Rack.
3. Re-tighten screw securely.

Pinion Gear must mesh properly with Rack for full width of table. Adjustment may be made as follows:

1. Move fence the full width of the table using the Micro-Adjustment Knob to check engagement. If there is binding, rack must be adjusted up slightly; for looseness, lower rack.
2. Slightly loosen the three screws mounting Rack to Fence Slide Bar. Starting at one end, adjust toward other, moving rack to pinion gear.
3. When proper mesh is set, re-tighten rack mounting screws.

The Blade Must Be Parallel With the Miter Slots In The Table to Get a Straight Cut. Adjustment, if necessary, may be made as follows:

1. Raise the Blade to 3 inches depth of cut and set at right angle to Table (0 Degrees).
2. Measure accurately from the Point of a Tooth to an edge of either Miter Slot, as explained and shown in Fig. 5.
3. Loosen the Bolts, Nos. 88, 138, holding the Trunnions, Nos. 87, 139, to the lower table surface.

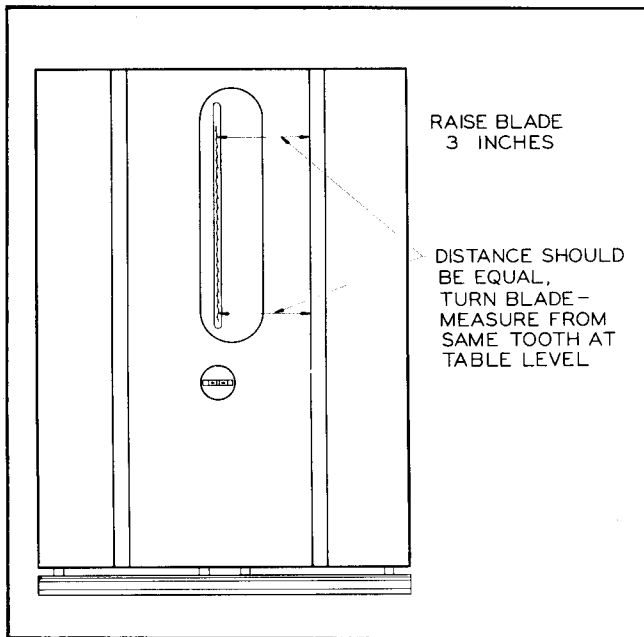


FIGURE 5

4. Shift the complete Table Mechanism until the Blade is parallel to the Miter Slot.
5. Re-tighten the four Trunnion Screws, Front Pair first.
6. Check the Adjustment as previously explained to be certain it is correct after re-assembly is complete.

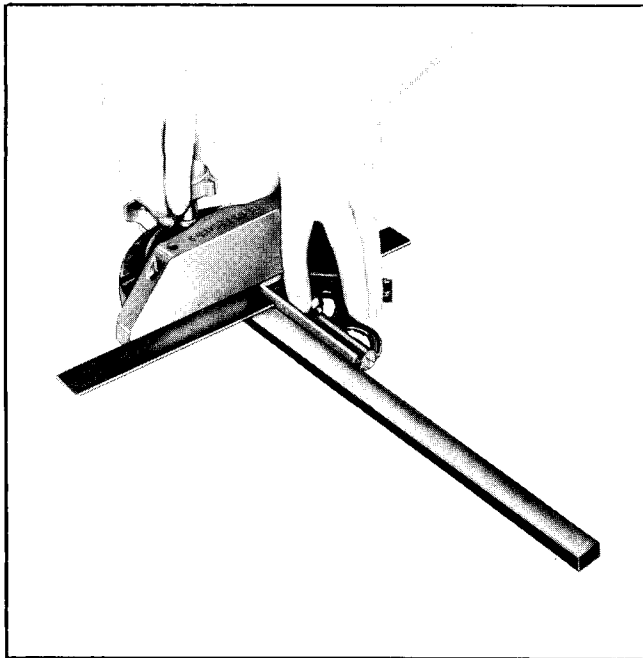


FIGURE 6

The Miter Protractor Index Plates can be adjusted to 90° and 45° in the following manner:

1. Loosen the Miter Protractor Lock Knob.
2. Using a combination square, set the Miter Protractor Face 90° to Bar and tighten securely. See Fig. 6.
3. Loosen Index Plate Retaining Screws, No. 78, to allow for movement of plates.
4. While holding the Indexing Plunger fully engaged, retighten the screws securely. See Fig. 7.

5. Repeat operation for remaining two positions using 45° settings of combination square.

The Fence Lock Arm may require occasional adjustment to maintain proper locking pressure.

1. With the Cam Lock Handle in the unlocked position, turn Fence Rod, No. 51, in a clockwise direction to attain required pressure. (See Fig. 8.)
2. Cam will hold Fence rigidly on the Table when only a slight force is used to press the Handle to the locked position.

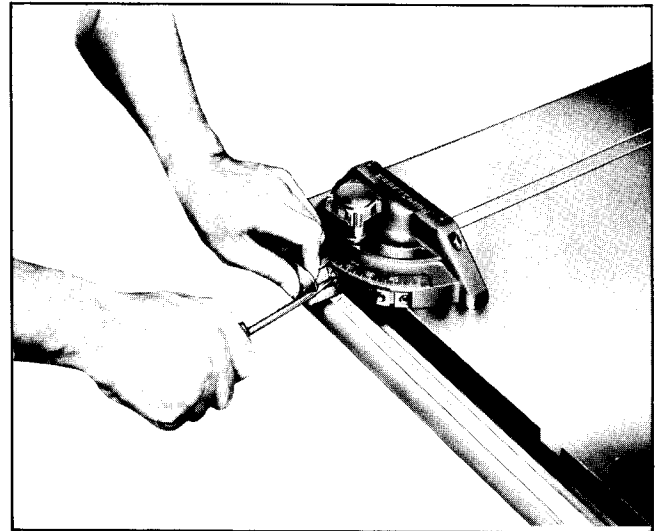


FIGURE 7

The Arbor Tilt Tension Spring, No. 91, provides tension to keep the mechanism tilted at any angle, thus eliminating the need for any manual control lock. After the tool is "broken in", you may find it necessary to increase this tension.

1. Loosen the Lock Nut, No. 144, and turn the Bolt, No. 92, until enough tension has been applied.
2. Re-tighten the Lock Nut.

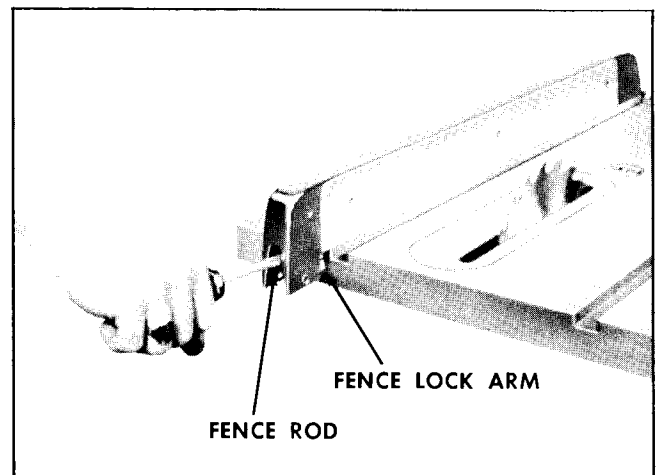


FIGURE 8

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 over-tax the cutting capacity of the blade.

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

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

If overall thickness of Dado set exceeds $\frac{5}{8}$ of an inch in width, the Saw Clamp Washer, No. 143, should not be used in order to insure proper thread engagement of Hex Nut, No. 142, on the Arbor.

For other ideas, suggestions, etc. pertaining to the operation of Circular Saws, refer to the Circular Saw Booklet found in the envelope.

NOTE: After a few hours' operation, tighten all Pulley Set Screws.

SAFETY:

While the Bench Saw is one of the most widely used Workshop Power Tools, it is by the 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 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.

ACCESSORIES:

The following Accessories are available for this Bench Saw:

Rear Roller Extension.....	Catalog No.	9-22165
Saw Guard	Catalog No.	9-20008
Single Table Extension	Catalog No.	9-2085
Double Table Extension..	Catalog No.	99-2088
Tool Stand	Catalog No.	99-20007
Dado Insert	Catalog No.	9-20006
Molding Insert	Catalog No.	9-20005
Miter Gage Stop Rods	Catalog No.	9-2125

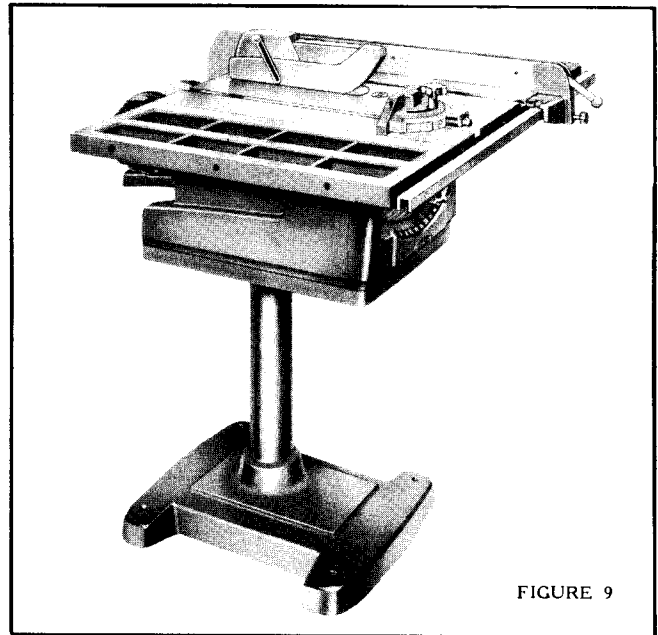


FIGURE 9

PARTS LIST

When ordering repair parts, be sure to specify the color, gold or grey, of all painted parts.

No.	Order By Part No.	PART NAME	No.	Order By Part No.	PART NAME
1	53101	Base	34	38230	Splitter bracket with set screw
2	38861	Fence slide bar	35	X-740	Machine screw $\frac{1}{4}$ -20 x $\frac{1}{2}$ hex. head with external lock washer
3	53726	Fence bar scale	36	*X-100	Set screw $\frac{1}{4}$ -20 x $\frac{1}{4}$ slotted head cup point
4	53250	Fence slide bar, complete with #2, 3, 5, 13, 14, 16	37	38857	Grommet
5	38758	Fence rack	38	*X-601	Plain washer $\frac{11}{32}$ I.D. x $\frac{1}{16}$ O.D.
6	53716	Trim panel	39	38757	Motor rail guide
7	53717	Tilt scale	40	53120	Motor mount bracket with set screws
8	X-179	Set screw $\frac{5}{16}$ -18 x $\frac{5}{16}$ socket head cup point	41	53612	Motor rail
9	53260	Handwheel with set screw	42	38856	Retaining ring
10	X-332	Machine screw #6-32 x $\frac{1}{4}$ Phillips binding head	43	*X-601	Plain washer $\frac{11}{32}$ I.D. x $\frac{1}{16}$ O.D.
11	X-1376	Speednut #6-32	44	*X-418	Square nut $\frac{5}{16}$ -18
12	X-1806	Sheet metal screw #7-16 x $\frac{3}{8}$ Phillips head	45	38672	Guide pin
13	*X-520	Machine screw #10-32 x $\frac{1}{2}$ slotted flat head	46	*X-601	Plain washer $\frac{11}{32}$ I.D. x $\frac{1}{16}$ O.D.
14	*X-608	Lock washer #10	47	*X-322	Machine screw $\frac{5}{16}$ -18 x 2 square head
15	X-477	Square nut #10-32	48	38835	Self locking screw
16	X-477	Square nut #10-32	49	X-736	Machine screw $\frac{1}{4}$ -20 x $\frac{1}{4}$ hex. head with external lock washer
17	*X-608	Lock washer #10	50	53817	Wear Plate
18	38676	Fence bar spacer	51	53615	Fence rod
19	X-288	Cap screw #10-32 x $\frac{1}{4}$ hex. head	52	53419	Fence lock arm
20	53211	Table	53	*X-607	Plain washer $\frac{17}{64}$ I.D. $\frac{1}{32}$ O.D.
21	*X-501	Machine screw #8-32 x $\frac{3}{8}$ slotted round hd.	54	38815	Fence lock spring
22	38747	Cut indicator plate	55	38674	Fence lock pin
23	38746	Spring washer	56	53816	Flat head Riv-Nut
24	38844	Cut indicator housing	57	53415	Fence body
25	38845	Cut indicator shoe	58	X-3701	Screw #10-32 x $\frac{1}{8}$ flat socket head
26	X-3700	Screw #4-40 x $\frac{3}{4}$ flat socket head	59	X-512	Machine screw #8-32 x $\frac{3}{16}$ slotted round head
27	53180	Table insert with clips attached	60	53725	Fence pointer
28	18993	Table insert clip	61	*X-529	Machine screw $\frac{1}{4}$ -20 x $\frac{5}{8}$ slotted flat head
29	38863	Rivet	62	53618	Fence swivel
30	X-741	Machine screw $\frac{5}{16}$ -18 x $\frac{1}{2}$ hex. washer head with external lock washer	63	53421	Fence lock cam
31	*X-622	Plain washer $\frac{17}{32}$ I.D. $\frac{7}{8}$ O.D.	64	53210	Fence micro-adjustment
32	38756	"U" Bend washer	65	X-477	Square nut #10-32
33	38671	Splitter bracket spacer	66	X-397	Machine screw $\frac{1}{4}$ -20 x $\frac{3}{4}$ button head

No.	Order By Part No.	PART NAME	No.	Order By Part No.	PART NAME
67	53417	Fence adjusting shoe	111	*X-607	Plain washer $1\frac{7}{16}$ I.D. x $1\frac{1}{32}$ O.D.
68	38859	Nylon tipped Fence Slide screw	112	X-738	Machine screw $\frac{1}{4}$ -20 x 1 round head with external lock washer
69	*X-421	Square nut $\frac{1}{4}$ -20	113	38434	Spindle support
70	X-588	Machine screw #8-32 x 1 slotted flat head	114	53240	Spindle support with bearing and key
71	53103	Fence complete	115	38831	Square key
72	38429	Knob	116	X-179	Set screw $\frac{5}{16}$ -18 x $\frac{5}{16}$ soc. hd. cup point
73	38647	Washer	117	*X-1406	Allen wrench $\frac{1}{16}$
74	38827	Fiber washer	118	*X-1405	Allen wrench $\frac{1}{8}$
75	38330	Miter protractor	119	53140	Tool pulley with set screw
76	38320	Miter bar	120	*X-1400	Allen wrench $\frac{5}{32}$
77	*X-501	Machine screw #8-32 x $\frac{3}{8}$ slotted round hd.	121	X-1474	Set of 2 matched V-Belts $\frac{3}{8}$ x 36 inches long
78	X-393	Machine screw #8-32 x $\frac{3}{8}$ slotted truss head	122	X-179	Set screw $\frac{5}{16}$ -18 x $\frac{5}{16}$ soc. hd. cup point
79	38433	Index plate	123	53150	Motor pulley with set screw
80	38843	Retaining ring	124	38666	Pivot bearing retaining screw
81	38842	Index plunger spring	125	38848	Pivot bearing retaining washer
82	38260	Index plunger	126	38665	Pivot bearing
83	38431	Index plunger housing	127	38664	Pivot pin
84	38745	Miter gage pointer	128	X-179	Set screw $\frac{5}{16}$ -18 x $\frac{5}{16}$ soc. hd. cup pt.
85	*X-389	Machine screw #8-32 x $\frac{1}{4}$ slotted binding head	129	38846	Plug—rubber
86	38762	Shim—Protractor	130	38847	Plug—nylon
87	38438	Front Trunnion	131	18447	Retaining ring
88	X-387	Bolt $\frac{5}{16}$ -18 x $\frac{3}{4}$ Spin lock hex. head	132	X-631	Plain washer $1\frac{1}{4}$ I.D. x 1 inch O.D.
89	38755	Fiber washer	133	38728	Spring washer
90	38754	Trunnion lock washer	134	X-181	Set screw #10-24 x $\frac{1}{4}$ soc. hd. cone pt.
91	38854	Trunnion lock spring	135	53190	Bearing with key
92	38667	Trunnion lock bolt	136	38663	Saw elevation shaft
93	X-2908	Thread cutting screw #8-32 x $\frac{1}{4}$ slotted round hd.	137	38340	Swivel with plugs and set screw
94	53718	Tilt pointer	138	X-387	Bolt $\frac{5}{16}$ -18 x $\frac{3}{4}$ Spin lock hex. hd.
95	X-734	Machine screw #10-24 x $\frac{3}{8}$ round head with external lock washer	139	38439	Rear trunnion
96	*X-377	Machine screw #10-24 x $\frac{3}{8}$ slotted binding head	140	X-179	Set Screw #10-24 x $\frac{1}{4}$ soc. hd. cup point
97	38752	Control shaft plate	141		9 inch diameter chisel tooth blade. Purchase from your nearest Sears Retail Store or Mail Order House. Ask for Catalog No. 9-3240— $\frac{5}{8}$ inch bore.
98	38849	Retaining ring	142	38673	Arbor nut
99	38748	Plain washer	143	53613	Saw clamp washer
100	38748	Plain washer	144	*X-413	Hex. jam nut $\frac{3}{8}$ -16
101	38435	Drive gear	145	38753	Dust shield
102	53170	Control shaft with pin	146	38669	Control Gear Spacer
103	53411	Frame	147	53416	Control gear
104	X-1307	Steel ball $\frac{3}{16}$ Dia.	148	X-636	Plain washer $1\frac{3}{32}$ I.D. x $\frac{3}{4}$ O.D.
105	38190	Control shaft tension spring	149	53719	Gear plate
106	X-734	Machine screw #10-24 x $\frac{3}{8}$ slotted round head with external lock washer	150	X-206	Cap screw $\frac{3}{8}$ -16 x $1\frac{3}{4}$ hex. hd.
107	38751	Tension plate	151	*X-379	Screw $\frac{1}{4}$ -20 x $\frac{3}{4}$ slot. hex. hd. May be replaced by machine screw $\frac{1}{4}$ -20— $\frac{3}{4}$ hex. hd.
108	38853	Tension Plate Spring	152	38853	Spring—tension
109	*X-201	Cap screw $\frac{1}{4}$ -20 x $\frac{3}{4}$ hex. hd.	153	38761	Arbor nut wrench
110	38437	Guide shoe	154		Miter Gage — Complete. Purchase from your nearest Sears Retail Store or Mail Order House. Ask for Cat. No. 9-2720.

***Standard hardware items—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.

