

**OPERATING INSTRUCTIONS AND PARTS LIST FOR
9 INCH BENCH SAW
Model 103.22181**

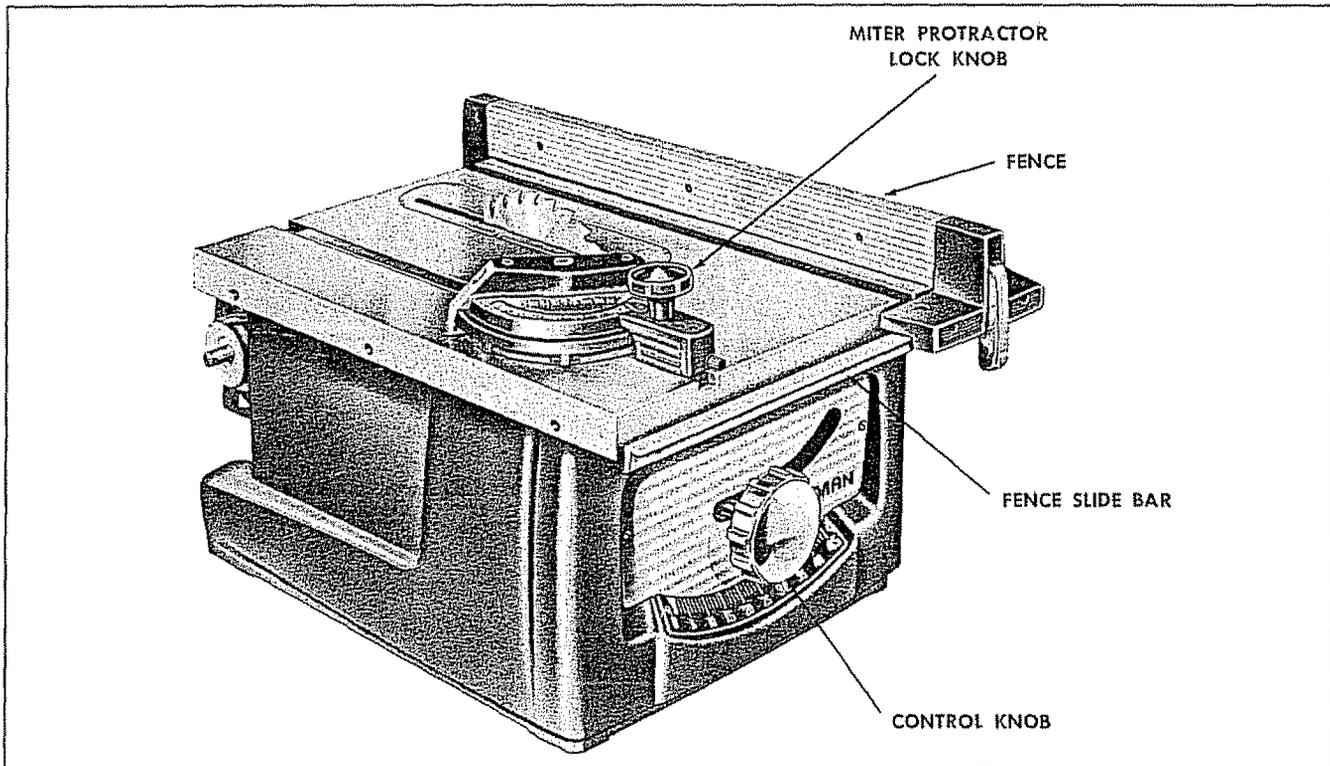


FIGURE 1

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 accessories are readily available. See Page 5.

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; item 106.
2. Miter gage assembly; item 114.
3. Insert with clips; items 15, 16 and 17.
4. Motor pulley; item 66.
5. V-belt; item 64.
6. Bag contains 10, 11, 12, 13, 19, 20, 23, 24, and 63.
7. Fence Slide Bar; item 2.

ASSEMBLY:

Front Fence Bar

The front fence bar must be fastened to the front edge of the saw table with three (3) slotted head screws, No. 10, spacers, No. 11, lock washers, No. 12, and hex nuts, No. 13. See Fig. 2.

Before tightening the screws securely, the fence bar must be accurately adjusted to the $21/32$ dimension over the entire length.

INSTALLATION OF TABLE INSERT:

The insert in the saw has six tabs which rest on the ledge of the table insert opening.

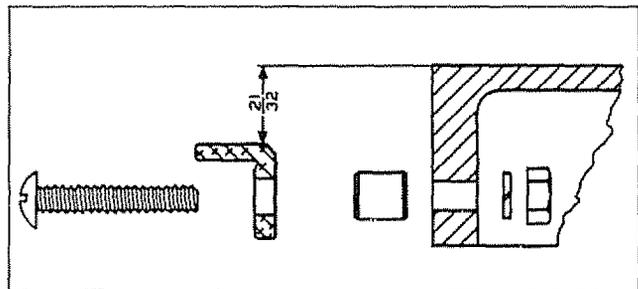


FIGURE 2

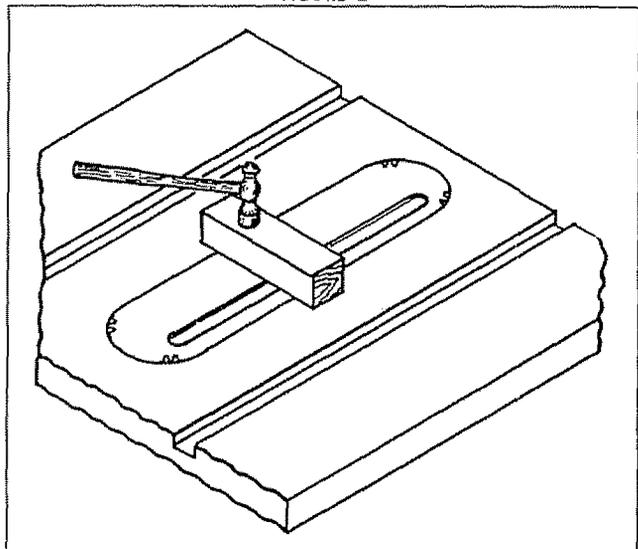


FIGURE 3

If the insert is not flush with the table top proceed as follows:

1. Remove insert from table.
2. Bend tabs slightly away from top side.
3. Replace insert in table.
4. Place a piece of hard wood over one tab and hammer carefully until insert is flush with table at that spot.

Repeat process on remainder of tabs until insert and table are completely flush.

Note: If insert is too high to start with, eliminate steps 1, 2 and 3.

MOUNTING MOTOR:

Place the Motor Pulley, No. 66, on the Motor Shaft with the hub side turned away from the motor. Bolt the motor to the Motor Support Bracket, No. 25, with bolts, washers, and nuts supplied. Position the motor pulley so the groove is in line with the groove of the saw pulley when the Guide Pin, No. 31, is through the slot in the Motor Rail Guide, No. 28. 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 V-belt, No. 64. 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 belt 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. 66, a 3450

R.P.M. motor will drive the saw at the recommended speed — 3900 R.P.M.

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 lubrication 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. 55, at the front of the arbor support.
2. The Guide Ways of the Front and Rear Trunnions, Nos. 32, 82.
3. The Motor Rail, No. 26.

Occasionally Lubricate the gear teeth on Items 32, 46, and 90 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).

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. 94, 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. 38, 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 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 Blade Must Be Parallel with the Miter Slots in the Table to Get a Straight Cut. (See Fig. 5).

Adjustment, if necessary, may be made as follows:

1. Raise the blade to 3 inches depth of cut and set at right angle (0 degrees) to table.

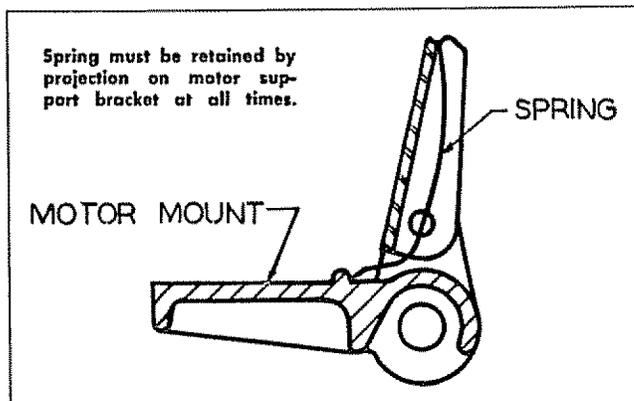


FIGURE 4

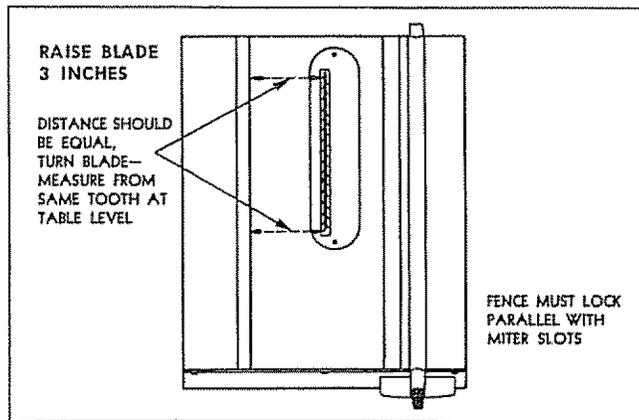


FIGURE 5

2. Measure accurately from a raker tooth on the blade to an edge of either miter slot, as explained and shown in Fig. 5.
3. Loosen the bolts, Nos. 81 and 33, holding each trunnion, Nos. 82 and 32, 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 does not lock parallel to miter slot adjust as follows:

1. Loosen the two screws, No. 104, on top of the fence end.
2. Release the fence lock handle, No. 99.
3. Adjust the two set screws on the front of the fence end until the fence is parallel with miter slot. Turn the two screws, on the top, up 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 lock arm may require occasional adjustment to maintain proper tension.

With the fence lock handle, No. 99, in the unlocked position turn the fence lock rod, No. 108, slightly in a clockwise direction until proper tension is attained when fence lock handle is placed in the lock position.

The Arbor Tilt Tension Spring, No. 36, 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. 87, and turn the bolt, No. 37, until enough tension has been applied. Re-tighten the lock nut.

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

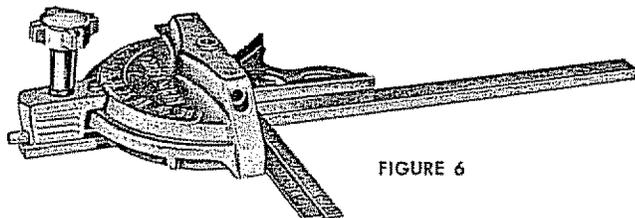


FIGURE 6

The Mitre Gauge has been designed to assure a maximum amount of accuracy. It has been adjusted at the factory to give accurate 45° and 90° settings and carefully packed to protect this fine setting in shipment.

It is possible that rough handling in shipment may have disturbed this setting. By use of a combination square, see figure 6, its setting may be checked before use. If it should be found necessary to reset the stops, proceed as follows:

1. Loosen the Mitre Gauge Lock Knob.
2. Back off the Adjusting Screws.
3. Using a combination square, set the Mitre Protractor 90° to the Mitre Bar. Then tighten the Lock Knob. Push in the Indexing Pin and turn the Socket Hd. Set Screw until its oval tip contacts the Indexing Pin.
4. Repeat the operation above to adjust the two 45° positions using the 45° face of the Combination Square.
5. The pointer may also have to be re-adjusted to indicate exactly 90° and 45°.

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 ¼ 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 gauge.

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

If overall thickness of Dado set exceeds ⅝ of an inch in width, the Saw Clamp Washer, No. 86, should not be used in order to insure proper thread engagement of Hex Nut No. 85, 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 of operation, tighten all Pulley Set Screws.

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.

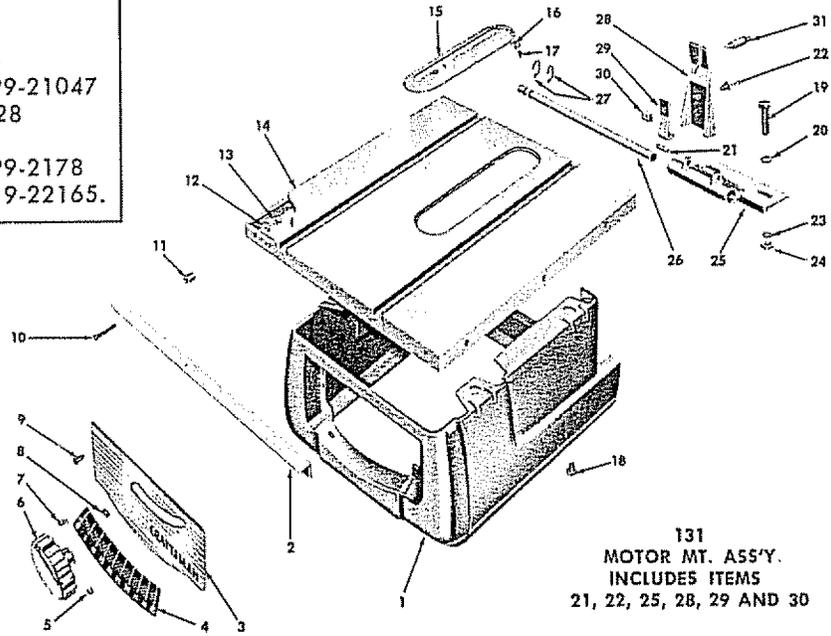
Never hold the hands over the blade when making blind groove type cuts. Stand to one side when completing a cut. A loose piece caught by the blade can fly back with surprising force.

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

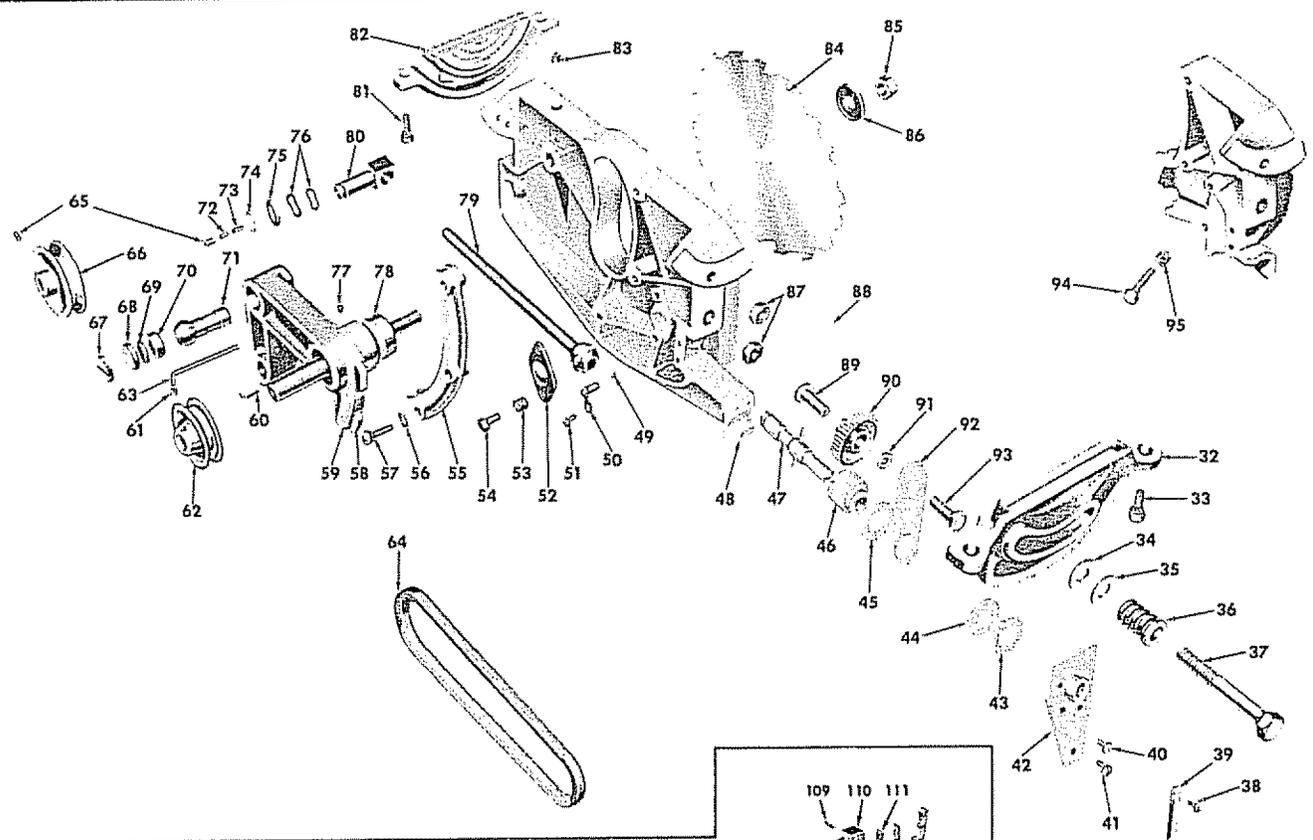
Do not wear dangling neckties, loose baggy sleeves, etc., while operating power tools.

ACCESSORIES:

- SAW GUARD — CATALOG No. 9-21046
- TABLE EXTENSION — CATALOG No. 99-21047
- TOOL STAND — CATALOG No. 99-2228
- POWER PAK — CATALOG No. 9-2134
- TABLE EXTENSION — CATALOG No. 99-2178
- ROLLER EXTENSION — CATALOG No. 9-22165.

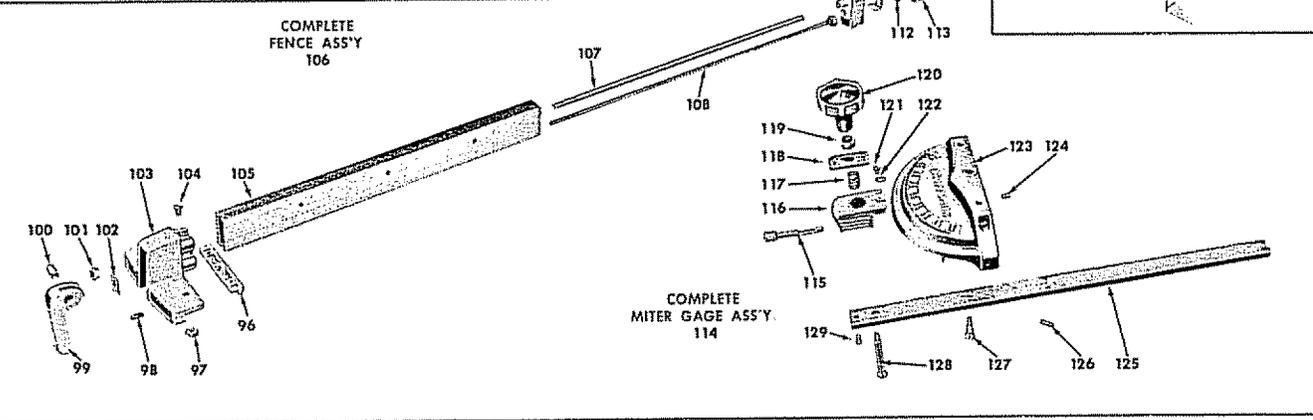


131
MOTOR MT. ASS'Y.
 INCLUDES ITEMS
 21, 22, 25, 28, 29 AND 30



COMPLETE
FENCE ASS'Y
106

COMPLETE
MITER GAGE ASS'Y.
114



PARTS LIST

Do not use Key Numbers when ordering Repair Parts, always use Part Numbers.

| Key No. | Part No. | Name | Key No. | Part No. | Name |
|---------|----------|---|---------|----------|---|
| 1 | 53740 | Base | 65 | X-179 | Set Scr. 5/16-18 x 5/16 Soc. Hd. Cup Point |
| 2 | 53818 | Fence Slide Bar | 66 | 8036-B | Motor Pulley with Set Scr. |
| 3 | 53742 | Trim Panel | 67 | 38666 | Pivot Bearing Retaining Screw |
| 4 | 53736 | Tilt Scale | 68 | 38848 | Pivot Bearing Retaining Washer |
| 5 | *X-179 | Soc. Hd. Set Scr. 5/16-18 x 5/16 | 69 | 38766 | Disc |
| 6 | 53260 | Handwheel With Set Scr. | 70 | 38665 | Pivot Bearing |
| 7 | *X-332 | Mach. Scr. #6-32 x 1/4 Phillips Binding Head | 71 | 38664 | Pivot Pin |
| 8 | X-1376 | Speed Nut #6-32 | 72 | 38846 | Plug - Rubber |
| 9 | X-1806 | Sheet Metal Scr. #7-16 x 3/8 Phillips Head | 73 | 38847 | Plug - Nylon |
| 10 | X-398 | Truss Head Mach. Scr #10-24 x 1 1/4 | 74 | 18447 | Retaining Ring |
| 11 | 38676 | Spacer | 75 | *X-631 | Plain Washer 41/64 I.D. x 1 Inch O.D. |
| 12 | *X-608 | Washer #10 Amer. Std. | 76 | 38728 | Spring Washer |
| 13 | *X-424 | Hex Nut #10-24 | 77 | X-181 | Set Screw #10-24 x 1/4 Soc. Hd. Cone Pt. |
| 14 | 53214 | Table | 78 | 53190 | Bearing with Key |
| 15 | 53180 | Table Insert with Clips Attached | 79 | 38663 | Saw Elevation Shaft |
| 16 | 18993 | Table Insert Clip | 80 | 38340 | Swivel with Plugs and Set Scr. |
| 17 | 38863 | Rivet | 81 | X-387 | Bolt 5/16-18 x 3/4 Spin Lock Hex Hd. - See Key # 33 |
| 18 | X-741 | Machine Screw 5/16-18 x 1/2 (Sems Ass) | 82 | 38439 | Rear Trunnion |
| 19 | *X-309 | Mach. Scr. 5/16-18 x 1 Square Head | 83 | *X-179 | Set Screw 5/16-18 x 5/16 Soc. Hd. Cup Point |
| 20 | *X-601 | Plain Washer 11/32 I.D. x 11/16 O.D. | 84 | 53722 | 9 Inch Diameter Chisel Tooth Blade |
| 21 | 38874 | Roll Pin | 85 | 38673 | Arbor Nut |
| 22 | *X-525 | Machine Screw 5/16-18 x 3/8 Slotted Round Hd. | 86 | 53613 | Saw Clamp Washer |
| 23 | *X-601 | Plain Washer 11/32 I.D. x 11/16 O.D. | 87 | *X-413 | Hex Jam Nut 3/8-16 |
| 24 | *X-418 | Square Nut 5/16-18 | 88 | 38753 | Dust Shield |
| 25 | 53213 | Motor Support Bracket | 89 | 38669 | Control Gear Spacer |
| 26 | 53612 | Motor Rail Bar | 90 | 53416 | Control Gear |
| 27 | 38856 | Retaining Ring | 91 | *X-636 | Plain Washer 13/32 I.D. x 3/4 O.D. |
| 28 | 38764 | Motor Rail Guide | 92 | 53719 | Gear Plate |
| 29 | 38765 | Flat Spring | 93 | *X-206 | Cap Screw 3/8-16 x 1 1/4 Hex Hd. |
| 30 | *X-418 | Square Nut 5/16-18 | 94 | *X-379 | Screw 1/4-20 x 3/4 Slot Hex Hd. May be replaced by Machine Screw 1/4-20 - (3/4) Hex Hd. |
| 31 | 38691 | Guide Pin | 95 | 38853 | Spring - Tension |
| 32 | 38438 | Front Trunnion Card Say 5:1 | 96 | 53423 | Fence Lock Bar |
| 33 | X-387 | Bolt 5/16-18 x 3/4 Spin Lock Hex Hd. | 97 | *X-407 | Square Nut No. 10-24 |
| 34 | 38755 | Fibre Washer | 98 | C-3801 | Slotted Head Set Screw No. 10-24 x 9/16 |
| 35 | 38754 | Trunnion Lock Washer | 99 | 38442 | Fence Lock Handle |
| 36 | 38854 | Trunnion Lock Spring | 100 | 38688 | Fence Swivel |
| 37 | 38667 | Trunnion Lock Bolt | 101 | *X-420 | Hex Nut 1/4-20 |
| 38 | *X-516 | Mach. Screw #8-32 x 1/4 Slotted Rd. Hd. | 102 | 38871 | Wear Plate |
| 39 | 53718 | Tilt Pointer | 103 | 53424 | Front Fence End |
| 40 | X-753 | Machine Screw #10-24 x 3/8 Pan Hd. with Ext. Lock Washer | 104 | X-378 | Slotted Oval Head Machine Screw No. 10-24 x 3/8 |
| 41 | X-753 | Machine Screw #10-24 x 3/8 Pan Hd. with Ext. Lock Washer | 105 | 53823 | Fence Body |
| 42 | 38752 | Control Shaft Plate | 106 | 53108 | Fence Ass'y. |
| 43 | 38849 | Retaining Ring | 107 | 53619 | Fence Tie Rod |
| 44 | 38748 | Plain Washer | 108 | 53621 | Fence Lock Rod |
| 45 | 38748 | Plain Washer | 109 | 38674 | Fence Lock Pin |
| 46 | 38435 | Drive Gear | 110 | 53425 | Rear Fence End |
| 47 | 53170 | Control Shaft with Pin | 111 | 53738 | Fence Shoe |
| 48 | 53411 | Frame | 112 | 53737 | Lock Arm Spring |
| 49 | X-1307 | Steel Ball 3/16 Dia. | 113 | 53426 | Fence Lock Arm |
| 50 | 38190 | Control Shaft Tension Spring | 114 | 53109 | Complete Miter Gage Ass'y. |
| 51 | X-753 | Machine Screw No. 10-24 x 3/8 Slotted Pan Hd. with External Lock Washer | 115 | 38699 | Index Pin |
| 52 | 38751 | Tension Plate | 116 | 53428 | Index Pin Housing |
| 53 | 38853 | Tension Plate Spring | 117 | 38882 | Spring |
| 54 | *X-201 | Hex Head Cap Screw 1/4-20 x 3/4 | 118 | 38771 | Lock Plate |
| 55 | 38437 | Guide Shoe | 119 | 38698 | Sleeve |
| 56 | *X-607 | Plain Washer 17/64 I.D. x (19/32) O.D. | 120 | 53824 | Knob |
| 57 | X-738 | Machine Screw 1/4-20 x 1 1/8 Rd. Hd. with External Lock Washer | 121 | *X-512 | Mach. Scr. #8-32 x (3/16) Slotted Rd. Hd. |
| 58 | 38434 | Spindle Support | 122 | 38724 | Pointer |
| 59 | 53240 | Spindle Support with Bearing & Key | 123 | 38443 | Protractor |
| 60 | 38831 | Square Key | 124 | X-3164 | Set Scr. #10-24 x 3/16 Soc. Hd. Cup Pt. |
| 61 | *X-179 | Set Scr. 5/16-18 x 5/16 Soc. Hd. Cup Point | 125 | 58612 | Miter Gage Bar |
| 62 | 38160 | Tool Pulley with Set Scr. | 126 | 58611 | Set Scr. #10-24 x 3/8 Self Locking |
| 63 | X-1400 | Hex Wrench 5/32 | 127 | 38552 | Pivot Scr. |
| 64 | X-1480 | V-Belt 1/2 x 36 | 128 | 53625 | Screw |
| | | | 129 | *X-504 | Mach. Scr. #10-24 x 3/8 Flat Hd. |
| | | | 130 | X-1407 | Hex Wrench 3/32 |
| | | | 131 | 53280 | Motor Mount Ass'y. |

*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.

**Items are regular stock in Sears Hardware Department and Mail Order Houses.

May also be ordered as repair parts by part number provided.

OPERATING INSTRUCTIONS AND PARTS LIST FOR CRAFTSMAN BENCH SAW

9 INCH

MODEL NUMBER 103.22181

The model number of your Bench Saw will be found on the front panel of the Saw. 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. | 3. The MODEL NUMBER. | 103.22181 |
| 2. The PART NAME. | 4. The NAME of item. | BENCH SAW |

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SEARS, ROEBUCK AND CO. and SIMPSONS-SEARS LIMITED in Canada back up your investment with quick, expert mechanical service and genuine CRAFTSMAN replacement parts.

If and when you need repairs or service, call on us to protect your investment in this fine piece of equipment.

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IN CANADA, SIMPSONS-SEARS LIMITED