

ASSEMBLY, OPERATING INSTRUCTIONS AND PARTS LIST FOR CRAFTSMAN 12 INCH RADIAL SAW

SPD

MODEL NUMBER 113.29520

The Model Number will be found on a plate attached to your saw, at the left side of the base. Always mention the Model Number in all correspondence regarding the CRAFTSMAN RADIAL SAW or when ordering repair parts.

Carefully read the instructions provided, observe the simple safety precautions and you will have many hours of satisfactory use from your new Craftsman tool.

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 catalog 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 113.29520
4. The NAME of item — RADIAL SAW

COAST TO COAST NATION-WIDE SERVICE FROM SEARS FOR YOUR CRAFTSMAN RADIAL SAW



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.

SEARS, ROEBUCK AND CO.-U. S. A.
IN CANADA, SIMPSONS - SEARS LIMITED

SAFETY RULES FOR POWER TOOLS

1. KNOW YOUR POWER TOOL

Read owner's manual carefully. Learn its applications and limitations as well as the specific potential hazards peculiar to this tool.

2. GROUND ALL TOOLS — UNLESS DOUBLE-INSULATED

If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If adapter is used to accommodate two-prong receptacle, the adapter wire must be attached to a *known ground*. Never remove third prong.

3. KEEP GUARDS IN PLACE

and in working order.

4. KEEP WORK AREA CLEAN

Cluttered areas and benches invite accidents.

5. AVOID DANGEROUS ENVIRONMENT

Don't use power tool in damp or wet locations, and keep work area well lit.

6. KEEP CHILDREN AWAY

All visitors should be kept safe distance from work area.

7. STORE IDLE TOOLS

When not in use, tools should be stored in dry, high or locked-up place — out of reach of children.

8. DON'T FORCE TOOL

It will do the job better and safer at the rate for which it was designed.

9. USE RIGHT TOOL

Don't force small tool or attachment to do the job of a heavy duty tool.

10. WEAR PROPER APPAREL

No loose clothing or jewelry to get caught in moving parts. Rubber gloves and footwear are recommended when working outdoors.

11. USE SAFETY GLASSES

with most tools. Also face or dust mask if cutting operation is dusty.

12. DON'T ABUSE CORD

Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.

13. SECURE WORK

Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.

14. DON'T OVERREACH

Keep proper footing and balance at all times.

15. MAINTAIN TOOLS WITH CARE

Keep tools sharp at all times, and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

16. DISCONNECT TOOLS

When not in use, before servicing; when changing accessories such as blades, bits, cutters, etc.

17. REMOVE ADJUSTING KEYS AND WRENCHES

Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.

18. AVOID ACCIDENTAL STARTING

Don't carry plugged-in tool with finger on switch.

ASSEMBLING AND ADJUSTING YOUR SAW

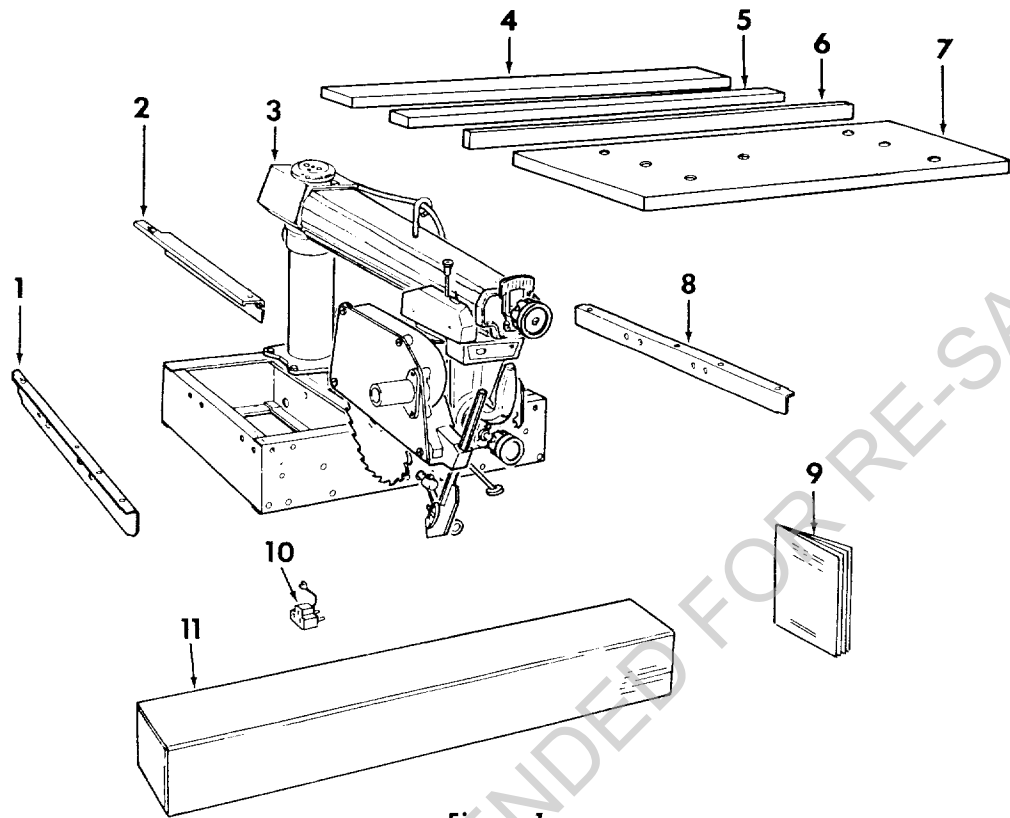


Figure 1

UNPACKING AND CHECKING CONTENTS

This Craftsman Radial Saw is shipped complete in one carton. In order to prevent damage during shipment, and facilitate packaging, certain items are removed at the factory and must be reassembled when received by the purchaser. These "loose" parts are listed below and should be accounted for before discarding any packing material.

NOTE: Assemble your saw as outlined in the "UNPACKING INSTRUCTIONS", then read this manual carefully in order to become thoroughly familiar with the saw and its operation. Continue all remaining assembly operations.

KEY NO. (Fig. 1)	ITEM NAME	Qty.
1	Table support (left-hand)	1
2	Table support No. 2 (center)	1
3	Basic saw assembly	1
4	Rear table	1
5	Table spacer	1
6	Rip fence	1
7	Front table	1
8	Table support (right-hand)	1
9	"Assembly, Operating Instructions and Parts List"	1
10	Adapter plug (electrical)	1
11	Loose Parts Carton	1
	(Containing the following items):	
	Hex-"L" Wrench (1/8")	1
	Hex-"L" Wrench (1/4")	1
	Hex-"L" Wrench (3/16")	1

KEY NO. (Fig. 1)

ITEM NAME

Qty.

Elevation Crank Assembly	1
Swivel Latch Pin Handle	1
Machine Screw, Hex.-Hd., 3/8-16 x 1" ..	28
Lockwasher, Medium, 3/8"	28
Steel Washer, 13/32 x 7/8 x 1/16" ..	28
Square Nut, 3/8-16 x 5/8 x 21/64" ..	28
Clamp	4
Rip Scale Indicator	2
Twin Nut	2
Machine Screw, Pan.-Hd., 6-32 x 7/16" ..	4
Wing Screw	1
Anti-Kickback Pawl Assembly	1
Set Screw, Hex.-Socket, Flat-Point, 1/4-20 x 1/2"	2
Exhaust Tube	1
Machine Screw, Hex.-Hd., 5/16-18 x 3/4" ..	1
Steel Washer, 11/32 x 7/8 x 1/16"	1
Lockwasher, Medium, 5/16"	1
Nut, Hex., 5/16-18 x 1/2 x 21/64"	1
Machine Screw, Pan.-Hd., 1/4-20 x 1" ..	7
Steel Washer, 17/64 x 5/8 x 1/32"	7
Lockwasher, Medium, 1/4"	6
Nut, Hex., 1/4-20 x 7/16 x 3/16"	6
Table Clamp	3
Shaft Wrench	1
Arbor Wrench	1
Switch Key	2
Leg	4
Nut, "U" Clip	1
Hook, Cord	1

POWER SUPPLY & MOTOR CONNECTIONS

MOTOR SPECIFICATIONS

The AC motor used in this saw is a capacitor start, non-reversible type, with the following specifications:

Horsepower 120V	4.0 (developed)
240V	4.5 (developed)
Voltage	120/240
Amperes	16.8/8.4
Cycles	60
Phase	Single
RPM	3450
Rotation (viewed from saw blade end)	Clockwise

CAUTION: The motor is wired for 115-120 volt operation. Connect to a 20 amp. branch circuit and use a 20 amp., time-delay fuse.

ELECTRICAL CONNECTIONS

NOTE: This saw motor is wired at the factory for 120-volt, 60 cycle, AC service as shown in figure 2 and described in paragraph 1, below. Under normal home workshop use with proper voltage to the motor, the saw will operate with adequate efficiency. However, if any of the following conditions exist, it may be necessary to reconnect the saw for 240 volts AC as described in paragraph 2, below.

1. Continuous heavy-duty use.
2. Undersize wiring in circuit from motor to power source, or overloaded circuit.
3. Low voltage from power source to motor (which may be due to overloaded power source).

The power cord must also be changed from the 120-volt type to the 240-volt type, when changing to 240-volt operation.

1. Connections For 120-Volts AC. (See figure 2.) When replacing a motor or connecting the saw to 120-volts for any reason, make sure the wires inside the motor terminal box are connected as follows:

- a. Connect the YELLOW, WHITE and BLUE leads in the motor terminal box to the WHITE cord lead. (The

black motor cord lead is already connected to the overload protector.)

- b. Connect the BLACK and BROWN leads to the ORANGE lead.
- c. Twist bare ends of wires together and install a wire nut on each connection.
- d. Push all leads carefully into motor terminal box and install terminal box cover.

2. Connections For 240-Volts AC. (See figure 2.) When connecting the motor for 240-volt operation, the following connections must be made inside the motor terminal box:

- a. Connect the YELLOW and BLUE leads in the motor terminal box to the WHITE cord lead. Twist bare ends together and install a wire nut as shown in figure 2.
- b. Leave the BROWN lead (from overload protector) disconnected and insulate it with tape to prevent short circuiting inside motor terminal box.
- c. Connect the ORANGE, BLACK and WHITE leads together, twist bare ends and install a wire nut.
- d. Push all leads carefully into motor terminal box and install terminal box cover.

3. Modifying the Power Cord.

- a. Cut off the existing molded plug (for 120-volts).
- b. Attach an appropriate 240-volt plug.

CAUTION: Do not connect the standard 120-volt plug to a 240-volt receptacle.

MOTOR SAFETY PROTECTION

The saw motor is equipped with a manual-reset thermal overload protector, designed to open the power line circuit when the motor temperature exceeds a safe value.

1. If the protector opens the line and stops the saw motor, press the saw switch to the "OFF" position immediately and allow the motor to cool.
2. After cooling to a safe operating temperature, the overload protector can be closed manually by pushing in the red button on the motor capacitor cover. If the red

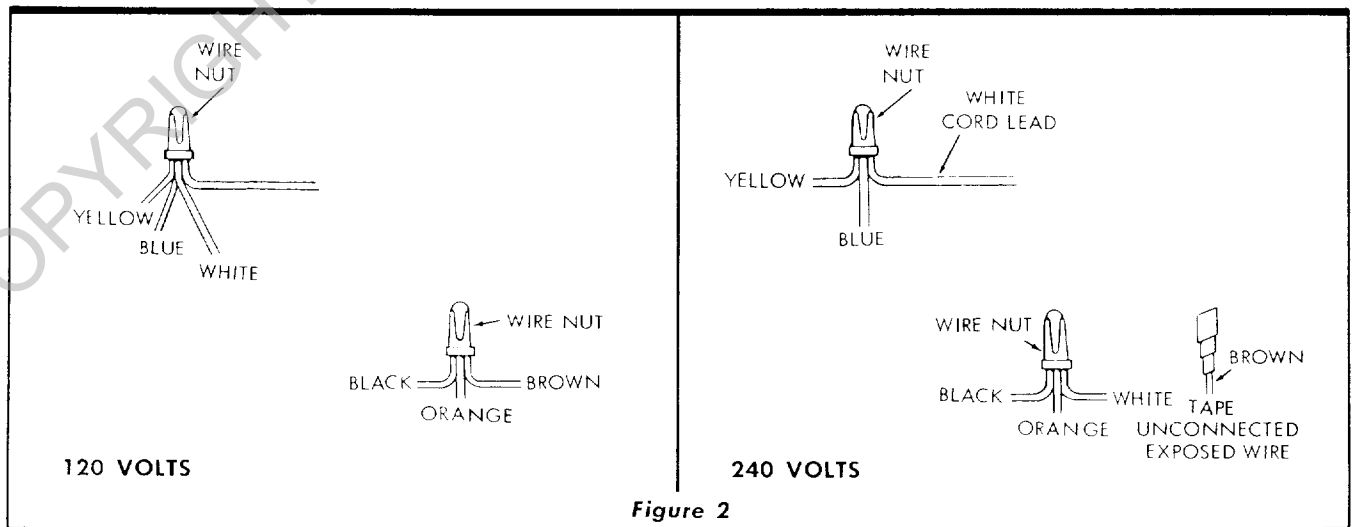


Figure 2

button will not snap into place immediately, the motor is still too hot and must be allowed to cool for a while longer. (An audible click will indicate protector is closed.)

3. As soon as the red button will snap into running position, the saw may be started and operated normally by pressing the saw switch to the "ON" position.
4. Frequent opening of fuses or circuit breakers may result if motor is overloaded, or if the motor circuit is fused with a fuse other than those recommended. Do not use a fuse of greater capacity without consulting the power company.
5. Although the motor is designed for operation on the voltage and frequency specified on motor nameplate, normal loads will be handled safely on voltages not more than 10% above or below the nameplate voltage. Heavy loads, however, require that voltage at motor terminals be not less than the voltage specified on nameplate.
6. Most motor troubles may be traced to loose or incorrect connections, overloading, reduced input voltage (which results when small size wires are used in the supply circuit) or when the supply circuit is extremely long. Always check connections, load and supply circuit when the motor fails to perform satisfactorily. Check wire sizes and lengths with the table in the next paragraph.

WIRE SIZES

The following table lists recommended wire sizes for connecting the motor to the power source. These sizes should be maintained for trouble-free operation of the saw.

Length of Conductor	Wire Size Required (American Wire Gauge No.)	
	120 Volt Lines	240 Volt Lines
50 feet or less	No. 12	No. 14
100 feet or less	No. 10	No. 12
100 feet to 150 feet	No. 8	No. 10
150 feet to 200 feet	No. 6	No. 8
200 feet to 400 feet	No. 4	No. 6

NOTE: For circuits of greater length, the wire size must be increased proportionately in order to deliver ample voltage to the saw motor.

NOTE: The seven basic "steps" that follow are essential in order to insure correct alignment of the saw.

WARNING: Make sure the power cord is not plugged into an electrical outlet when working on the saw.

FINAL ASSEMBLY AND ADJUSTMENTS

STEP ONE — INSTALLATION OF FRONT TABLE

1. Place the large front table board on table supports so that holes in board match holes in supports. (See figure 3.)
2. Place a 1/4-inch plain washer and a 1/4-20 x 1-inch screw in each of the seven counterbored holes located above the table supports. One screw is threaded into a "U"-clip nut mounted on the No. 2 support.
3. Attach lockwashers and nuts to the six screws in the table supports. Do not tighten these screws at this time.

STEP TWO — CHECKING FOR LOOSENESS OF COLUMN TUBE IN COLUMN SUPPORT

1. Tighten arm latch handle (22, figure 20.)
2. Grasp arm latch handle (22, figure 20) with one hand and hold fingers of other hand at parting line between column tube and column support. (See figure 4.) Apply gentle side force to the radial arm in opposing directions. Any looseness between column and column support (indicated by arrow in figure 4) can be felt with fingers.
3. If looseness can be felt, at point indicated by the arrow in figure 4, perform operations outlined in instructions that follow:

NOTE: Before attempting to adjust the column tube key, the function of this adjustment should be understood. Figure 5 shows a sectional view through the column tube support (looking downward) at this location. By loosening the left-hand set screw and tightening the right-hand set screw the column tube key will be forced tighter into the column tube keyway. Conversely, loosening the right-hand set screw and tightening the left-hand

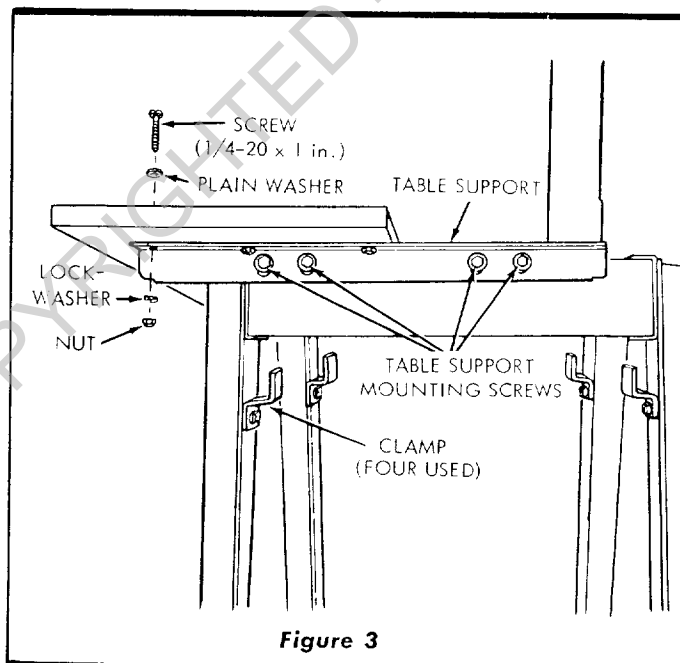


Figure 3

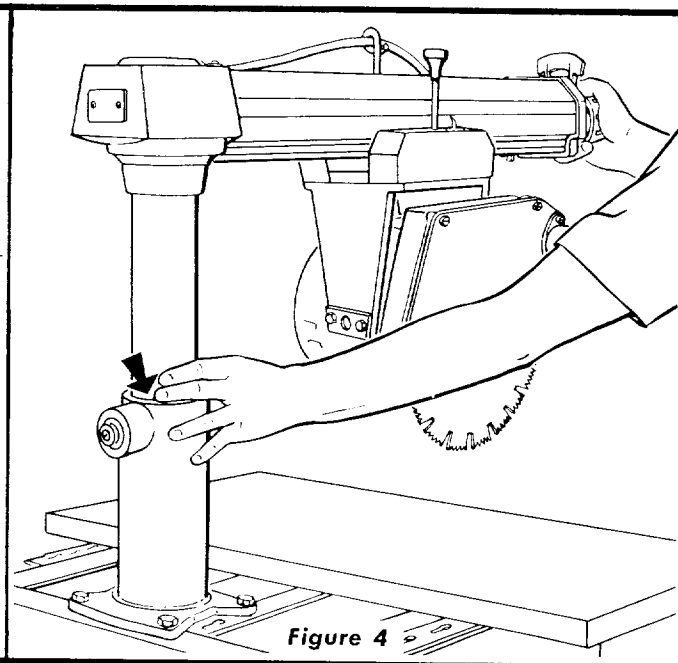


Figure 4

set screw, the column key will be retracted out of the column tube keyway. The set screw in outer end of column tube key must be loosened while adjustment is being made and tightened with medium firmness after adjustment is completed. This screw applies pressure on the Nylon friction plug and provides smoother elevation movement of column tube. This set screw should be tightened to provide maximum smoothness of operation. **Right and left positions are given with operator facing the saw — standing in front of saw table.**

- Loosen set screw in center of column tube key. (See figure 5.)
- Loosen left-hand set screw 1/4 turn. (See figure 5.)
- Tighten right-hand set screw. (See figure 5.)
- Tighten left-hand set screw. (See figure 5.)
- Turn elevation crank to raise and lower radial arm. (See figure 6.) If too tight, loosen right-hand set screw (figure 5) slightly and check again for smooth operation. When correct, tighten left-hand set screw
- Tighten set screw in center of column tube key (figure 5) until smoothest operation is obtained.
- Lock the yoke clamp handle (7, figure 20) and bevel lock knob (17) securely.**

STEP THREE—SQUARING THE CROSS CUT

- Loosen the arm latch handle (22, figure 20) 1/4 turn. Make sure the yoke clamp handle (7) and bevel lock knob (17) are tight.
- Pull the arm latch lever (1) outward and move radial arm approximately 10° to the right. Release arm latch lever and move radial arm into the 0° (index) position. Do not bump or jar the arm. Push the arm latch handle, or arm latch lever solidly with palm of hand in order to seat arm lock pin in the arm latch. (Refer to figure 24.)
- Tighten arm latch handle. (Refer to "PRECISION INDEXING" for detailed instructions on indexing the radial arm.)

CAUTION: When moving the radial arm in any direction beyond 45° left or right, always pull out the arm latch lever (at end of radial arm) to prevent damaging the arm lock pin. If damage occurs, the radial arm will not index properly at 0° and 45° positions (left to right).

- Place a framing square on the table as shown in figure 7 and position the saw and square until the leg of the square just contacts a tooth of the saw blade. (Position "A", figure 7.) Mark this tooth with crayon or chalk.
- When the carriage is moved back and forth on the radial arm, the saw tooth "A" should just touch the square at all positions. If saw tooth "A" does not touch the square at all points, make the following adjustments:
 - If saw tooth ("A", figure 7) moves away from the square when moving the blade from the rear toward the front of the table, tap the right-hand front edge of the table.
 - If the saw tooth ("A", figure 7) moves into the square when moving saw from the rear to the front of saw table, tap the left-hand front edge of table.
 - Recheck . . . and, if correct, tighten all table hold-down screws. (See figure 3.)
- In extreme cases, due to rough handling during ship-

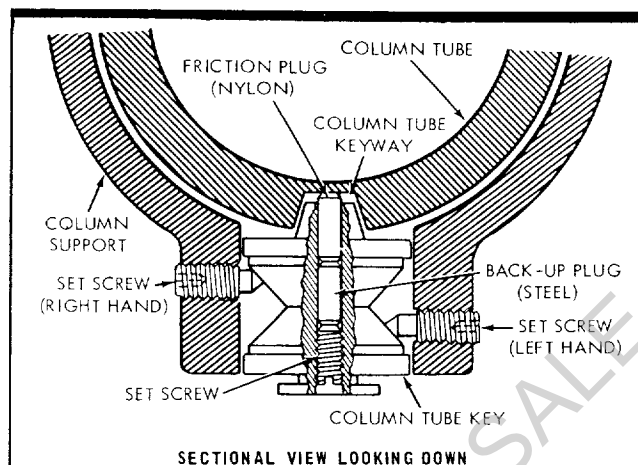


Figure 5

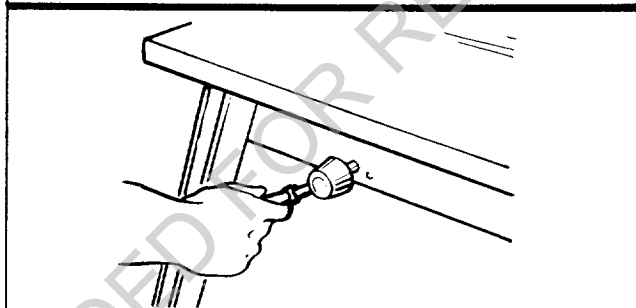


Figure 6

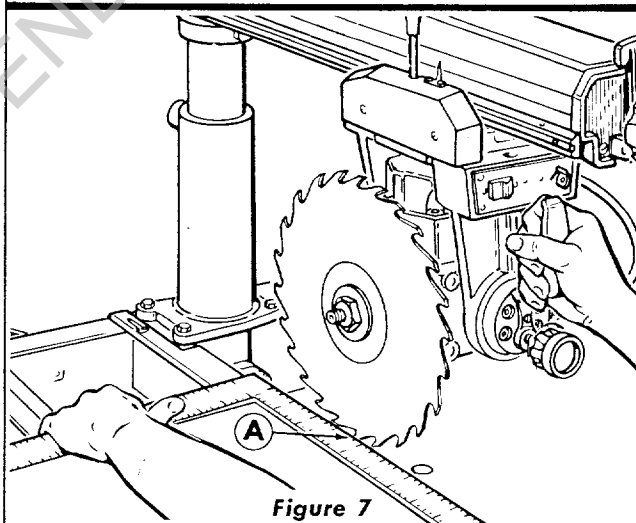


Figure 7

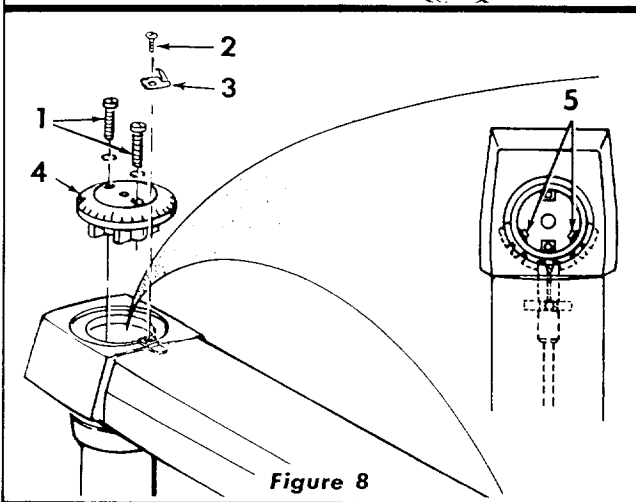


Figure 8

ment, the above adjustment procedure may not be sufficient. Make the following adjustment only after tightening the table screws and the cross-cut cannot be squared according to the preceding adjustment routine.

- Remove three screws (1 and 2, figure 8), miter-scale indicator (3) and radial arm cap (4).
- Turn the arm latch handle (22, figure 20) one-quarter turn counterclockwise but do not pull it out.
- Loosen (do not remove) two hex-head screws (5, figure 8) located inside the column tube.
- Move radial arm slightly in the proper direction to

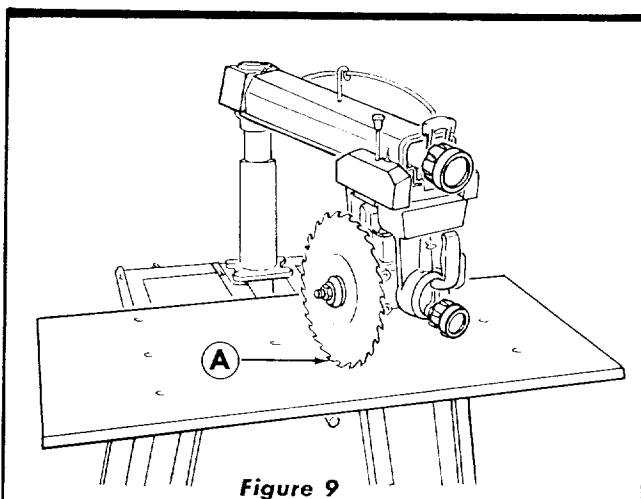


Figure 9

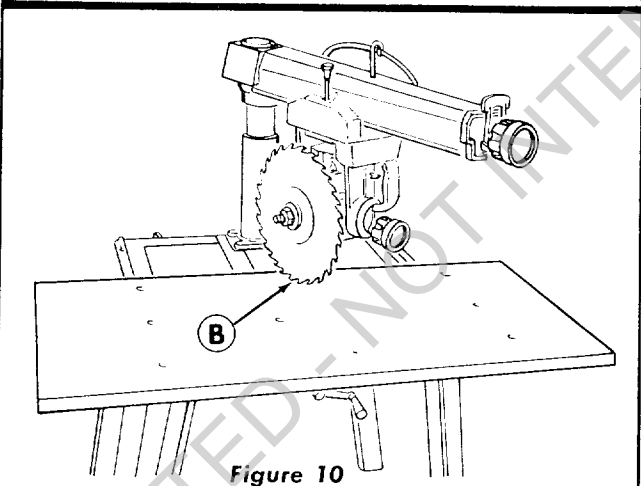


Figure 10

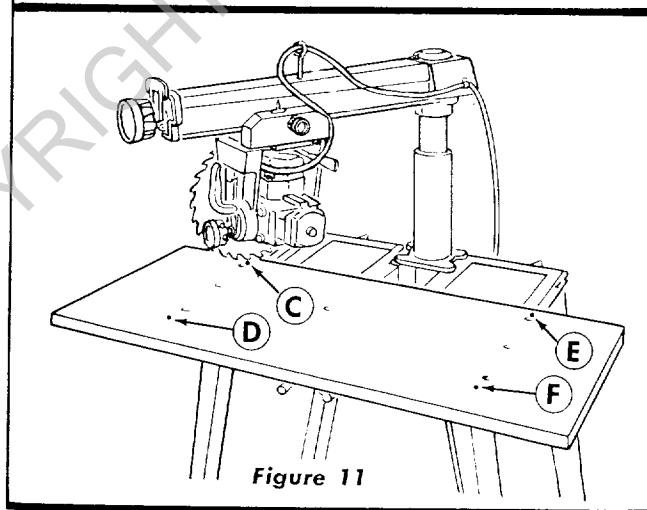


Figure 11

make saw tooth ("A", figure 7) follow edge of square when the saw blade is moved in and out in a "cross cut" manner.

- Re-tighten the hex-head screws (5, figure 8) and a latch handle.
- Recheck travel of blade tooth ("A") with the square.
- After the cross-cut has been accurately squared, install the radial arm cap (4, figure 8), miter-scale indicator (3) and screws (1 and 2). Set the indicator (3) at 0° position.

STEP FOUR — ADJUSTING THE TABLE PARALLEL TO RADIAL ARM

NOTE: DO NOT USE A CARPENTER'S LEVEL.

- Remove the saw guard.
 - Loosen table support mounting screws (figure 3) both left and right sides of the base. Re-tighten to finger tightness for adjustment of table.
 - Loosen arm latch handle (22, figure 20) enough to obtain free movement of radial arm. Release arm latch lever (1, figure 20), and loosen carriage lock knob for easy movement of motor and carriage assembly during this operation. Move the motor and carriage assembly out to the end of radial arm and lower the saw blade until it just touches the table at point A, which is the front central position. (See figure 9.)
- NOTE:** Actual contact with table can be determined by rotating saw blade and listening for a light "pinging" sound as the carriage is lowered.
- Move the blade to point B near the rear edge of table. (See figure 10.) If saw blade starts to ride on table as it is moved rearward, loosen the nut near the rear of the No. 2 table support and tap the table downward until the blade just contacts the table at this point. If table is too low at the back, tap it upward until a pinging sound can be heard as blade is rotated. Recheck at both A and B locations and correct as required. Tighten nut at rear of No. 2 table support when correct center height is obtained.
 - Move the blade to the left-rear of table at point C and tap table up or down as required. (See figure 11.) Then move blade to point D and adjust table as required. Tighten screws in left-hand table support angle when height is correct. (See figure 3.)
 - Move blade to points E and F and adjust the right-hand table support in the same manner as described for the left-hand support. Tighten screws in right-hand support when adjustment is correct.
 - Move the saw blade to all six positions to recheck proper leveling of table. (See figures 9, 10 and 11.) Make slight corrections if required, and make sure all support mounting screws are tight. (See figure 3.)
 - Place the rip fence in vertical position behind the front table board.
 - Place the rear table board behind the rip fence and the table spacer board behind the rear table.
 - Insert the three table clamps (9, figure 20) and tighten them finger tight to secure all table boards.

STEP FIVE — SQUARING THE SAW BLADE TO THE TABLE TOP

- Place the edge of a framing square on the table top and against the saw blade, as shown in figure 12.

2. When the saw blade is square with the table top, no light will be visible between the square and face of saw blade. Do not allow the square to rest against a tooth of the saw. If light is visible between the square and face of saw blade (with square leg held firm against the table top) perform the following adjustments:

- Using a 1/4-inch hex "L" Allen wrench, loosen just slightly the four socket-head screws (2, figure 12).
- Tilt the motor until the saw blade is square with the table top as shown in figure 12. Then, while holding the square firmly against the saw blade and table top, apply pressure against lower part of saw blade with the thumb until approximately 1/32-inch clearance exists between the square and lower edge of saw blade. This is to compensate for the possible slight shifting of the motor while screws (2) are being tightened.
- Tighten the four socket-head screws (2, figure 12).

NOTE: It may be necessary to perform more than one trial operation before the saw blade remains perfectly square with table top after screws have been tightened.

- Recheck for blade squareness with table top.
- The indicator (3, figure 12) should read 0° on the bevel index scale. If not, loosen the indicator attaching screw, adjust indicator to zero and tighten the screw securely.

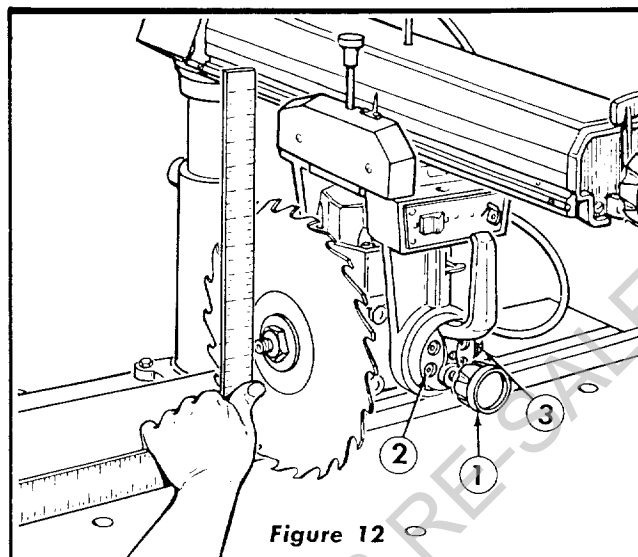


Figure 12

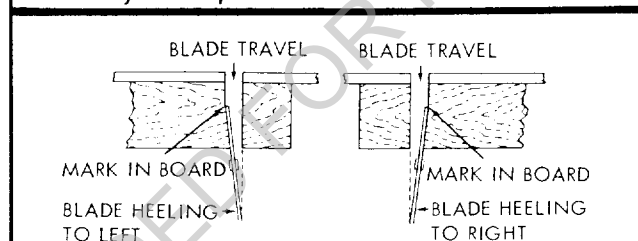


Figure 13

STEP SIX — CHECKING THE SAW BLADE FOR "HEEL" (LEFT AND RIGHT)

- Place a square against the rip fence and the saw blade as shown in figure 14. The long leg of the square must be held firmly against the rip fence and table top and the short leg must not touch any of the teeth on the saw blade.
- If a gap exists between the saw blade and the square, one of two types of "heel" exists. (See figure 13.) To correct for either type of condition, proceed as follows:
 - Remove the left-hand carriage cover (1, figure 14) by removing the two attaching screws (2).
 - Loosen the yoke clamp handle (7, figure 20).
 - Loosen (slightly) two hex-head screws (1, figure 15).
 - Rotate the yoke until the gap between saw blade and square is eliminated. (See figure 14.)
 - Lock the yoke and tighten the two hex-head screws (1, figure 15).
 - Recheck for "heel" after tightening screws, and make corrections if necessary.
 - Install left-hand carriage cover. (See figure 14.)

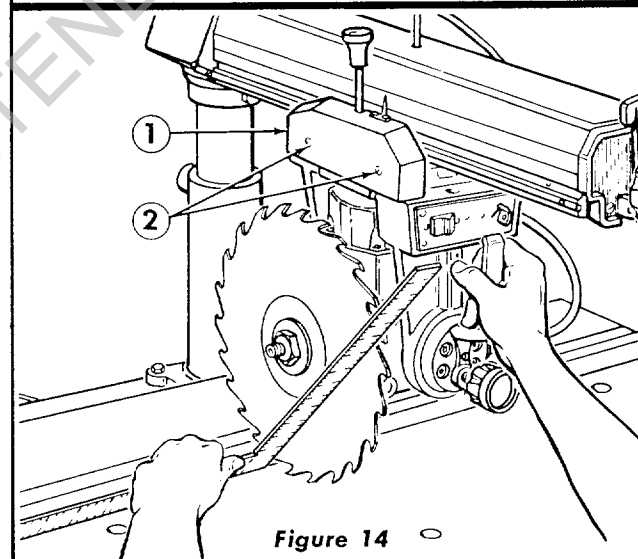
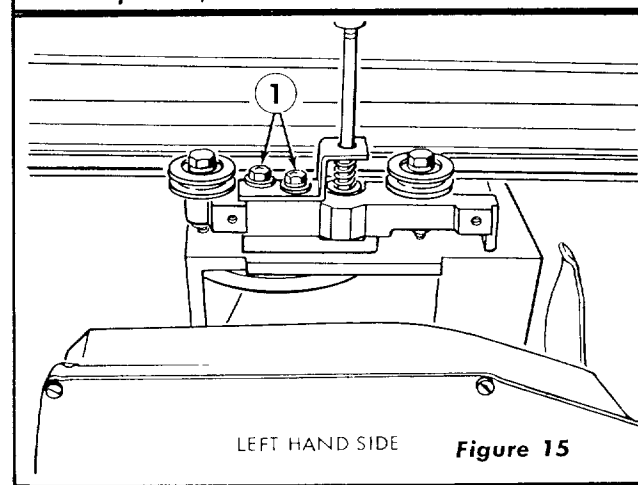


Figure 14

STEP SEVEN — DOUBLE CHECK SQUARING OF SAW

- Recheck for correct adjustment of the saw by performing "STEPS THREE, FIVE and SIX".
- If the cross-cut is not perfectly squared, proceed with "STEP THREE" (paragraphs 5 and 6), and "STEP SIX", if a correction is required.

NOTE: If after making all adjustments outlined in STEPS "ONE" through "SEVEN," refer to Trouble Shooting Charts for any existing problems.



LEFT HAND SIDE

Figure 15

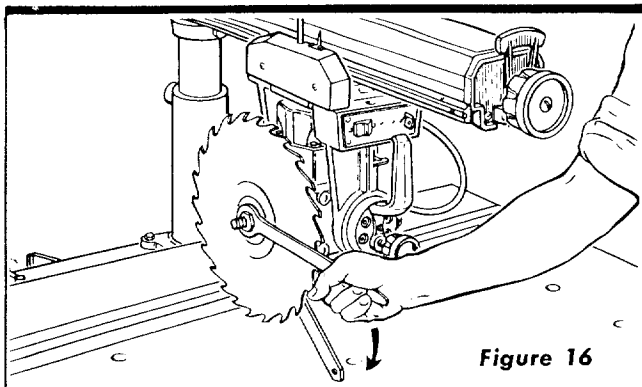


Figure 16

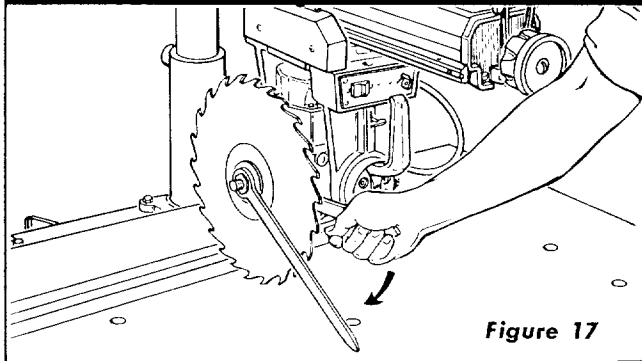


Figure 17

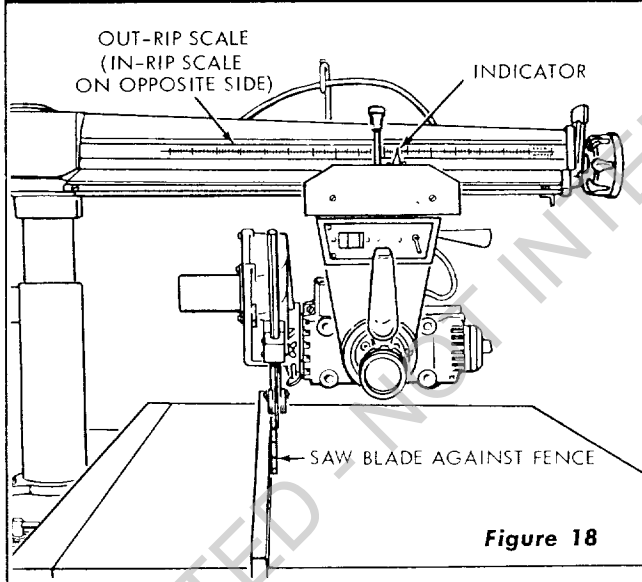


Figure 18

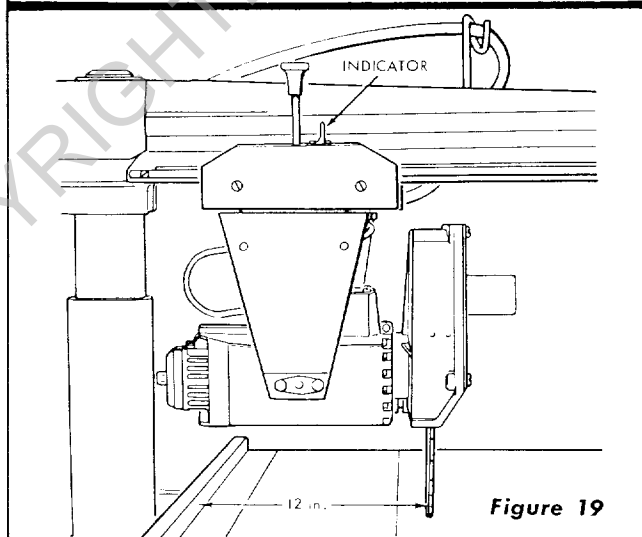


Figure 19

ATTACHING AND DETACHING SAW BLADE

1. Locate the motor carriage assembly midway on radial arm and tighten carriage lock knob (6, figure 20).

2. REMOVAL (See figure 16.)

- a. Place the open-end shaft wrench on hex portion of motor shaft on inside of saw blade. Allow end of wrench to rest on saw table.

- b. Using the box-end arbor wrench, loosen the shaft nut

NOTE: The motor shaft has left-hand threads.

- c. Remove shaft nut, collar, saw blade and second collar

3. INSTALLATION (See figure 17.)

- a. Place inside collar on motor shaft, with flange next to saw blade.

- b. Install saw blade, outside collar and nut.

NOTE: Make sure the larger (flange) face of each collar is next to saw blade.

- c. Place box-end arbor wrench on shaft nut and let rest on saw table.

- d. Use open-end shaft wrench on hex portion of shaft and tighten by pushing downward as shown in figure 17.

ADJUSTMENT OF RIP SCALE INDICATORS

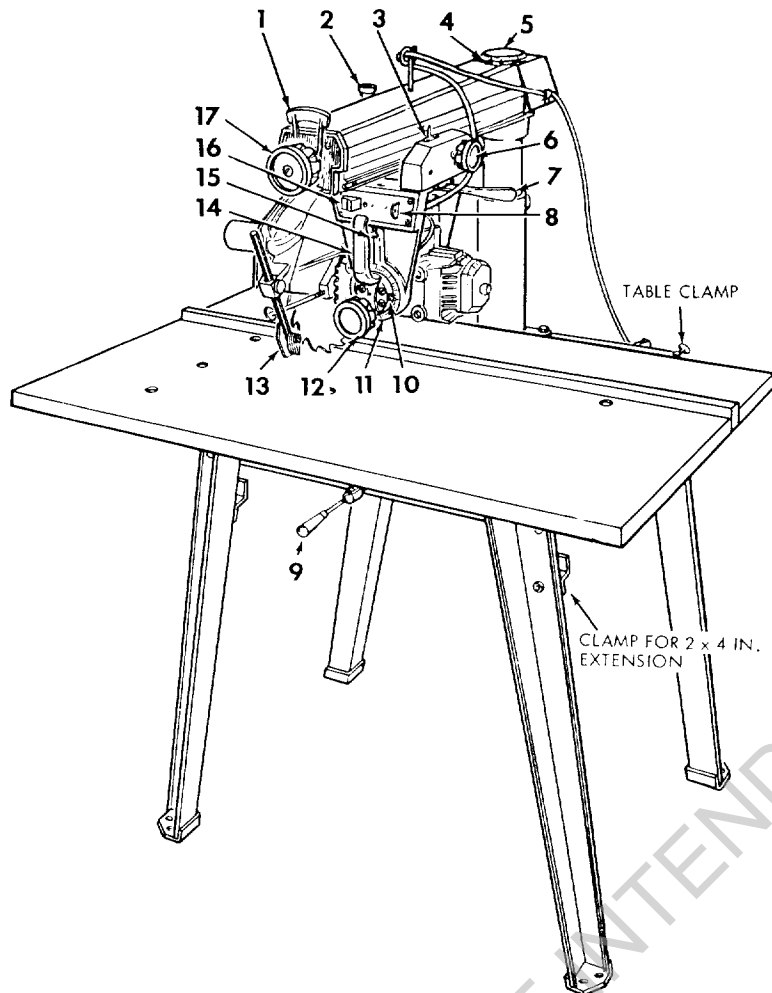
NOTE: The rip scales and pointers are intended to be used for quick settings. For greater accuracy, take direct measurement between blade and fence.

1. When the fence is in its normal position (next to the front table), index the yoke 90° from the cross-cut position so that the blade is between the motor and the fence. Lock the yoke.
2. Move the motor along the radial arm until the blade when spun by hand, just touches the front face of the fence. (See figure 18.) The indicator on the right-hand side of radial arm should now read 0-inches on lower portion of the "In-Rip" scale. If not, loosen the two screws and shift the indicator to read 0-inches.

NOTE: With the saw blade and fence in the position shown in figure 18, the lower portion of the "In-Rip" scale is used. If the fence is moved to the extreme rear position, the upper portion of the scale is used.

3. The "Out-Rip" scale pointer, located on the left-hand side of radial arm, is adjusted in essentially the same manner as the "In-Rip" scale pointer, except the blade should be positioned as shown in figure 17. With 12 inches measured between the fence (when in full retraction) and face of saw blade, the pointer should be set to the 12" position. The upper portion of the "Out-Rip" scale is used when the fence is in the rear position (See figure 19.) The lower portion of the scale is used when the fence is located in the usual position — at the rear edge of front table board.

OPERATING CONTROLS



- | | |
|--------------------------|---------------------------------|
| 1. Arm Latch Lever | 10. Bevel Index Indicator |
| 2. Swivel Latch Pin Knob | 11. Bevel Index Scale |
| 3. Rip Scale Indicator | 12. Bevel Lock Knob |
| 4. Radial Arm Indicator | 13. Anti-Kickback Pawl Assembly |
| 5. Radial Arm Scale | 14. Bevel Index Handle |
| 6. Carriage Lock Knob | 15. Latch Pin Handle |
| 7. Yoke Clamp Handle | 16. On-Off Switch |
| 8. Switch Lock and Key | 17. Arm Latch Handle |
| 9. Elevation Crank | |

Figure 20

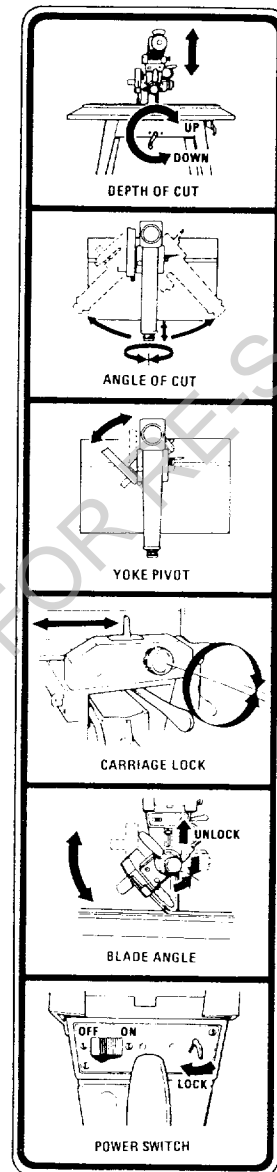


Figure 21

CONTROLS

A series of six diagrams are located on the top surface of the radial arm in order to designate the controls that must be used in basic "set-ups" and operating procedures. (See figures 20 and 21). The inexperienced operator should become familiar with these diagrams before operating the saw.

1. **"DEPTH OF CUT"**. The diagram shows the elevation crank (9, figure 20) which is used to raise and lower the saw blade. Clockwise rotation raises the blade . . . counterclockwise rotation lowers it.
2. **"ANGLE OF CUT"**. Two controls are involved in releasing, securing and indexing the angle of the radial arm.

These are: arm latch handle, (17, figure 20) and arm latch lever (1, figure 20).

3. **"YOKE PIVOT"**. Two controls are used in this operation. They are: swivel latch pin knob (2, figure 20) and yoke clamp handle (7, figure 20).
4. **"CARRIAGE LOCK"**. The carriage lock knob (6, figure 20) is rotated clockwise to secure the carriage on the radial arm, and counterclockwise to release it.
5. **"BLADE ANGLE"**. The two controls used in angular positioning and indexing of the motor to provide the desired saw blade angle are: bevel lock knob (12, figure 20) and latch pin handle (15, figure 20).
6. **"POWER SWITCH"**. This "On-Off" switch (16, figure 20) is located in the upper left area of the carriage.

USE OF KEY AND SWITCH

NOTE: This saw cannot be operated without the key, and likewise, the key cannot be removed from the lock while the saw motor is running. This feature was designed into your saw for safety and protection.

1. Insert key in slot and turn it. (See figure 22.)

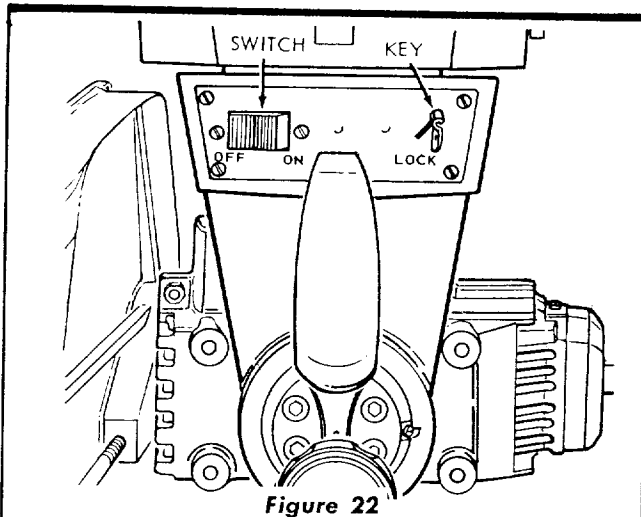


Figure 22

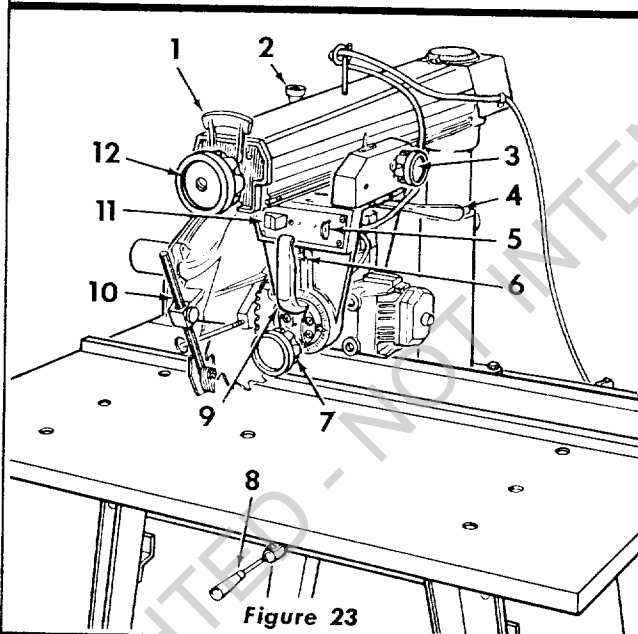


Figure 23

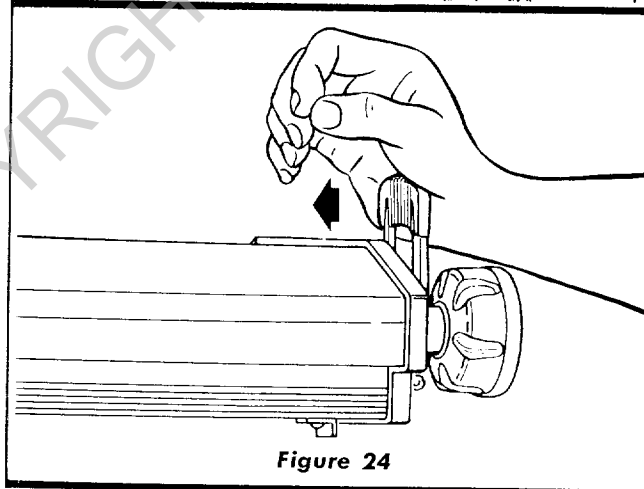


Figure 24

2. Press the right-hand side of toggle switch lever to the saw ON. Press left-hand side of switch to saw OFF.

RAISING AND LOWERING THE RADIAL ARM

This is accomplished by the elevation crank (8, figure 23). **One complete turn of this handle will raise or lower the radial arm 1/8-inch.**

LOCKING THE CARRIAGE TO THE RADIAL ARM

This is accomplished by the carriage lock knob (3, figure 23). Turn the knob clockwise to lock; counterclockwise to unlock.

ANGULAR MOVEMENT AND LOCKING OF RADIAL ARM

These movements are controlled by the arm latch lever (1, figure 23) and the arm latch handle (12). The radial arm can be rotated 360° and locked in any position. The arm is unlocked from any position by a slight counterclockwise rotation of the arm latch handle (12) and is locked in any position by rotating the arm latch handle clockwise until tight. The radial arm has positive stops at 0° and 45° left and right, and is released from these index positions by unlocking the arm latch handle (12) and pulling the arm latch lever (1).

For most positive and accurate settings at the index positions, the following is recommended:

1. If the radial arm is already indexed, rotate the arm latch handle (12, figure 23) **1/4 turn counterclockwise from the locked position**, pull out the arm latch lever (1) and move the radial arm off the index position. Release the arm latch lever (1).
2. Move the radial arm into the index position (do not bump or jar it) and push on the handle (12) or the arm latch lever (1) solidly with the palm of the hand. (See figure 24). This is very important as it insures proper seating of the arm lock pin in the arm latch, thus also returning the arm to the correct cross-cut (0°) position.
3. Lock the radial arm by rotating the arm latch handle (12, figure 23) clockwise until tight.

CAUTION: When moving the radial arm in any direction beyond 45° left or right, always pull out the arm latch lever (at end of radial arm) to prevent damaging the arm lock pin. If damage occurs, the radial arm will not index properly at 0° and 45° positions (left to right).

MOVEMENT AND POSITION OF MOTOR IN YOKE

These movements are controlled by the latch pin handle (6, figure 23) and bevel lock knob (7). The bevel scale indicates the angular position of the motor with respect to horizontal from 0° to 90° in either vertical position. The latch pin handle (6) automatically indexes the motor to 0°, 45° and 90° up and down. Lift the latch pin handle to release. At any other position, the latch pin handle is not engaged. The bevel lock knob (7) locks the motor to the yoke when the motor is in any position. Rotate it clockwise to lock; counterclockwise to unlock.

MOVEMENT AND POSITION OF THE YOKE

These are controlled by the swivel latch pin knob (2, figure 25) and the yoke clamp handle (4). The swivel latch pin knob automatically indexes the yoke at each 90° position. Lift the knob to release. The yoke clamp handle (4) locks the yoke to the carriage in any position. Pull the handle to release. Push it to tighten.

PRECISION INDEXING

Experienced operators of precision equipment, such as this Craftsman Saw, normally acquire the habit of indexing the machine in one direction only whenever a new setting is made in preparation for a different operation. For example: When moving the radial arm to a new position, it is advisable to move it slightly past the desired index position then move it back slowly and carefully to latch and lock it. (See figure 24). Swivel indexing and bevel indexing can be accomplished in the same manner. This technique tends to neutralize any stresses imposed upon saw components and contributes to the high degree of accuracy this saw is capable of producing when operated expertly.

REMOVAL OF MOTOR AND CARRIAGE ASSEMBLY

The motor and carriage assembly may be easily removed from the radial arm for servicing or storage at some location, away from the remainder of the saw, when desired.

Proceed as follows:

1. Release the power cord from cord clamp at rear of radial arm.
2. Insert the handle end of the arbor wrench (or shaft wrench) between the lower surface of radial arm and carriage to raise the carriage stop. (See figure 27.) The wrench need not be held, as it will remain in place when released.
3. Grasp motor and carriage assembly firmly and simply pull it forward, off radial arm.

NOTE: The wrench is not needed when installing the motor and carriage assembly on radial arm, as the carriage stop is designed to raise automatically, then "snap" back into safety stop position when the carriage is moved rearward onto the radial arm.

CAUTION: Make sure the carriage stop returns to correct down position after installation of motor and carriage assembly. (See figure 27.)

ADJUSTMENTS TO COMPENSATE FOR WEAR

Even though the finest materials and precision workmanship have been used to minimize wear, it is reasonable to expect some wear. Adjustments have been built into your Craftsman saw to reduce or eliminate this wear.

ELIMINATING LOOSENESS BETWEEN COLUMN TUBE AND COLUMN SUPPORT

This operation is explained fully in "STEP TWO - CHECKING FOR LOOSENESS OF COLUMN TUBE IN COLUMN SUPPORT."

YOKE CLAMP HANDLE ADJUSTMENT

The normal locking position of the yoke clamp handle (1), figure 25) is approximately midway between the two sides of the yoke.

When the handle moves considerably to the rear, or strikes the yoke before locking, the handle may be adjusted as follows:

1. Remove saw guard and blade.
2. Set yoke clamp handle to Position "A", (figure 25), which is just slightly ahead of the mid-position of handle.
3. Insert the handle end of the arbor wrench (or shaft wrench) between the lower inner surface of radial arm and carriage to raise the carriage stop. (See figure 27.) The wrench need not be held, as it will remain in place when released.
4. Grasp the motor and carriage assembly and move it carefully off end of radial arm.

CAUTION: When removing the motor and carriage assembly from radial arm, be sure to hold the assembly parallel to the arm until all bearing rollers are free of their tracks. If the assembly is allowed to tilt after the forward rollers are free, the adjustment of rear rollers will be altered. This same precaution should be taken when installing the motor and carriage assembly on the radial arm.

5. Rest the motor and carriage assembly on saw table.
6. Remove the lock screw (3, figure 26).

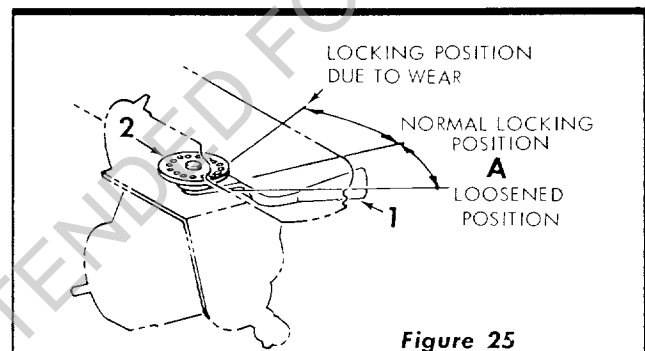


Figure 25

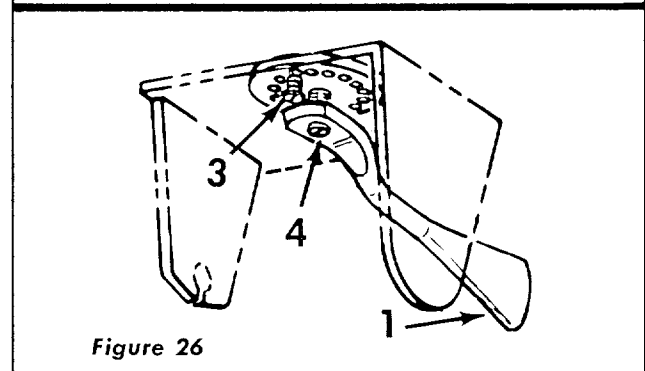


Figure 26

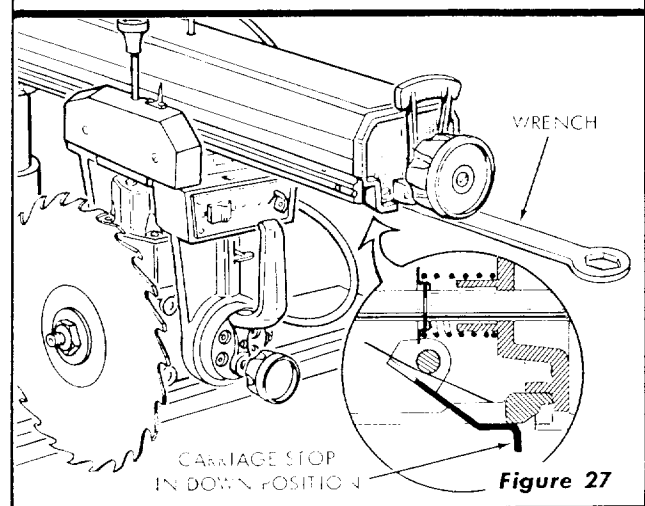


Figure 27

- Using a screwdriver or similar tool, rotate the yoke clamp assembly (2, figure 25) clockwise (when looking down) until the next hole will line up with the lock screw (See figure 28). Usually, rotating the yoke clamp assembly one hole will correct this adjustment. However, in some cases it may be necessary to rotate it two holes.

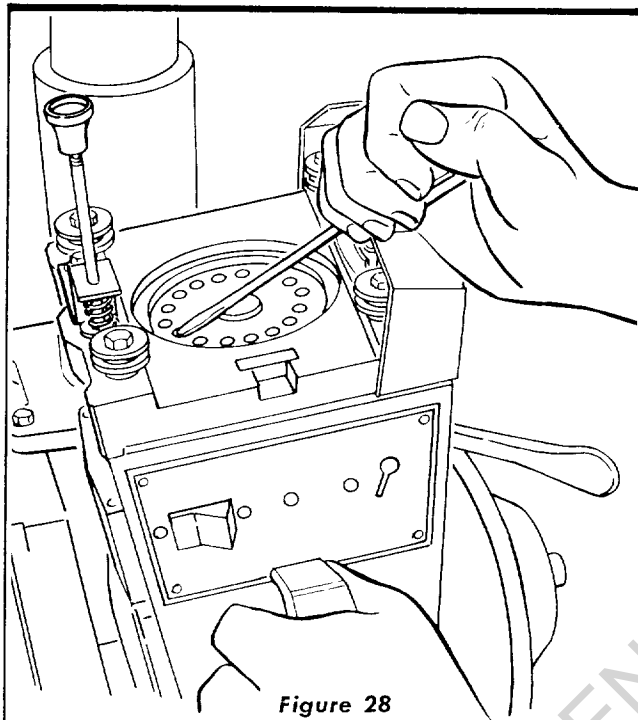


Figure 28

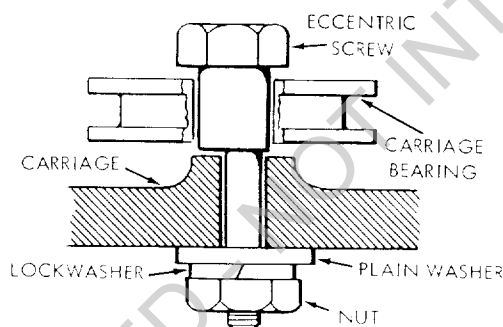


Figure 29

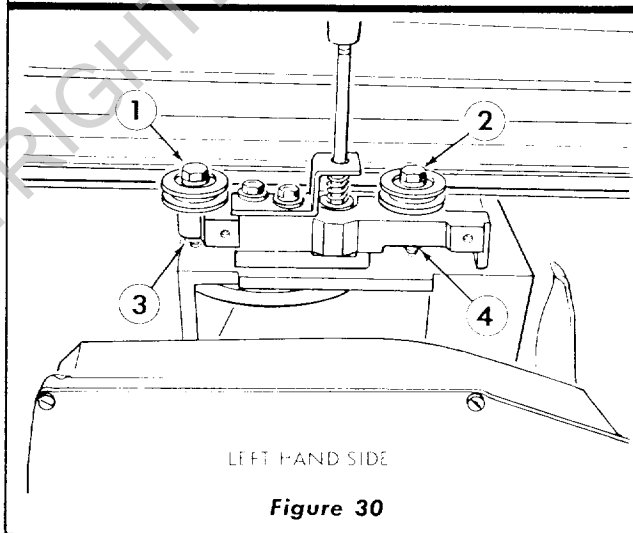


Figure 30

- Make sure the hole in yoke clamp assembly (2, fig 24) lines up with lock screw hole and install and tighten lock screw (3, figure 26).
- Slide motor and carriage assembly on radial arm. ("CAUTION" under preceding step 4.)

CAUTION: Make sure the carriage stop returns to correct down position after installation of motor and carriage assembly. (See figure 27.)

CARRIAGE BEARING ADJUSTMENT

To test for looseness in carriage ball bearings (between bearings and tracks on radial arm), lock yoke clamp, grasp the motor and carriage assembly firmly and apply a firm rocking motion. If looseness exists, the two bearings on left-hand side of radial arm must be adjusted. Two bearings on right-hand side of arm are attached to carriage with regular hex-head screws and are not adjustable. The two bearings on left-hand side of arm are attached to carriage with eccentric screws. (See figure 29.)

- Remove left-hand carriage cover (1, figure 14).
- Loosen nuts (3 and 4, figure 30) just enough to permit eccentrics to turn. (See figure 29.)
- Turn adjusting screws (1 and 2, figure 30) a partial turn left or right as required to take up looseness.
- Hold head of screws (1 and 2, figure 30) in position established in preceding step and tighten nuts (3 and 4) on underside of carriage.
- Correct adjustment exists when there is no play between the carriage and radial arm, and yet the carriage moves freely.

- Install carriage cover (1, figure 14).

NOTE: It will probably be necessary to recheck steps "THREE, FOUR and FIVE" under "ASSEMBLING AND ADJUSTING YOUR SAW," after adjusting carriage bearings.

LUBRICATION

Your saw is a fine machine and should be given the best of care. If kept clean and properly lubricated, it will give many years of trouble-free service. Before describing various points which may periodically require lubrication, IT IS MORE IMPORTANT TO FIRST MENTION THE VARIOUS SPOTS WHICH SHOULD NOT BE LUBRICATED.

NO LUBRICATION REQUIRED:

Do not lubricate carriage ball bearings.

Do not lubricate the motor bearings. These are sealed ball bearings and require no added lubrication.

Do not lubricate between radial arm cap and radial arm.

PERIODICALLY LUBRICATE THESE POINTS

Use SAE No. 10-30 auto engine oil and refer to Parts List for locations.

Apply a few drops of oil along the swivel latch pin and if the pin has a tendency to stick. Remove the left-hand carriage cover and use oil sparingly to prevent it from getting on the ball bearings or races.

A light film of oil can be wiped on the face of the column tube and keyway to lubricate the fit between this part and the key and column support.

Apply a few drops of oil to the bearing surfaces of the elevation crank shaft assembly. An oiling hole is provided in the elevation shaft bearing bracket to facilitate the lubrication of the bearing support. (See figure 31.)

The thread on the elevation shaft assembly can be lubricated through the oiling hole in the center of the radial arm cap.

CAUTION: Excessive oil at any location will attract dust particles and sawdust.

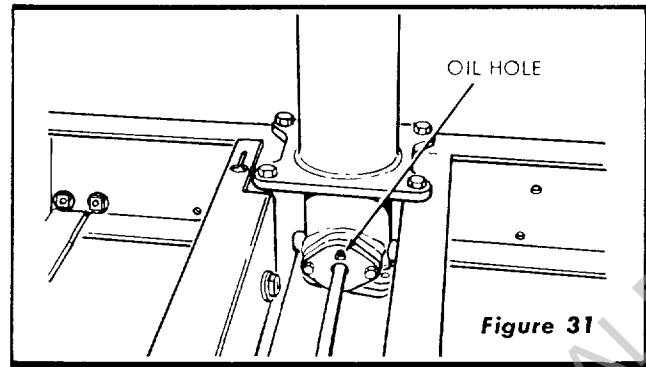


Figure 31

STANDARD SAW OPERATIONS

PRELIMINARY CROSS-CUT AT THE 0° POSITION

NOTE: The bevel index handle must be positioned at 0°, as indicated on the bevel index scale, and locked.

1. Pull motor forward of fence so that blade is free to rotate.
2. Lower radial arm until saw blade just clears the table top.
3. Tighten carriage lock knob (figure 20).

CAUTION: Before cutting, always be sure that the arm latch handle is locked.

4. Plug power cord into receptacle.
5. Insert switch key; turn the key and press the switch "ON".
6. Lower radial arm until blade cuts into table top approximately 1/32".
7. Hold the bevel index handle with the left hand and loosen the carriage lock knob with the right hand. Slowly pull the motor out to the extreme end of travel. Then push the motor back through the fence to the extreme rear position. Push the switch "OFF".

CROSS-CUTTING

Cross-cutting is the sawing of wood across the grain. Lumber is milled with the grain running the length of the board. If a straight cross-cut is desired, the board is placed on the saw table against the fence so that the grain is parallel to the fence. (See figure 32.)

NOTE: When cross-cutting normal pieces of lumber, the long end of the board should be placed to the left of the saw blade as the board is normally held by the left hand during operation. The saw is pulled through the stock — not pushed through.

The radial arm must be positioned at 0° as indicated by the radial arm position indicator. The arm latch lever must be indexed and arm latch handle tightened.

The yoke must be indexed at the 0° position, making the saw blade perpendicular to the rip fence, and the yoke clamp handle placed in the locked position. The bevel index handle must be positioned at 0°, as indicated by the bevel scale, and locked. Turn the elevation crank to lower the saw until the blade teeth are approximately 1/32-inch below the table surface and ride in the saw slot made when performing the "PRELIMINARY CROSS-CUT AT THE 0° POSITION".

Push the saw carriage to the rear of the radial arm so the blade is behind the rip fence. Adjust the saw guard so the bottom is parallel to the table and remove or set the

anti-kickback pawl assembly so it clears the board to be cut. Turn key and press the switch "On" to start the saw motor. Hold the board firmly against the rip fence with the left hand and grasp the bevel index handle with the right hand. The cut is then made by pulling the carriage forward until the saw blade cuts through the work. When the cut is complete, the saw should be returned to the back of the radial arm and the switch turned "Off". **When more experience is gained by using the saw, it will be noticed that when pulling the saw toward you during cross-cutting, the saw blade tends to feed itself through the work due to the rotation of the blade and the direction of feed. Therefore, the operator should develop the habit of holding his right arm straight from the shoulder to the wrist. After this method is used a few times the operator will find that it is necessary to roll or rotate the body from the waist up. Thus, it will become apparent that very little effort is required on the part of the operator to move the saw blade through the work, and in most cases, the right arm is used merely to control the rate of feed of the saw through the board. It will also be found that when cross-cutting a thick board it will be necessary to retard movement of the saw through the work. By holding the right arm (right hand normally grips the saw handle) straight, the operator can easily control the rate of feed, thus preventing the saw blade from overfeeding and stalling the saw motor. This must be avoided whenever possible.**

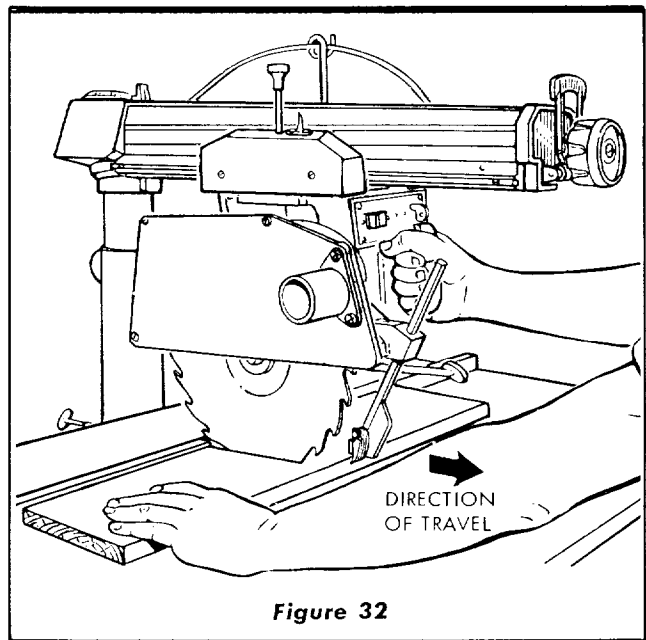


Figure 32

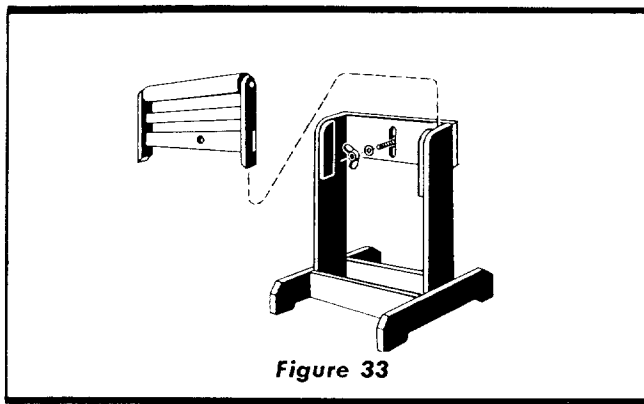


Figure 33

In some cases it may become necessary to cross-cut long boards which extend over the saw table on one, or both sides. This can cause buckling of the board and bind the saw during the cut. To eliminate this condition the ends of the board should be supported. Figure 33 illustrates a typical support which can be made and used to facilitate cross-cutting of long lumber.

Another type of work support for ripping long boards with the 12-inch radial saw can be constructed as follows:

1. Cut and assemble boards for the end support according to the dimensions shown in figure 34, which is designed specifically for use on the left-hand side of the saw table. The uprights are cut from standard size 2" x 4" stock and the cross pieces may be standard 1" x 6" or 2" x 6" stock. Scrap boards may be sawed to the dimensions shown, if standard 1" x 6" or 2" x 6" stock is not available.
2. Cut a corner of each upright 2 x 4 according to dimensions shown in figure 34, to fit the floor.

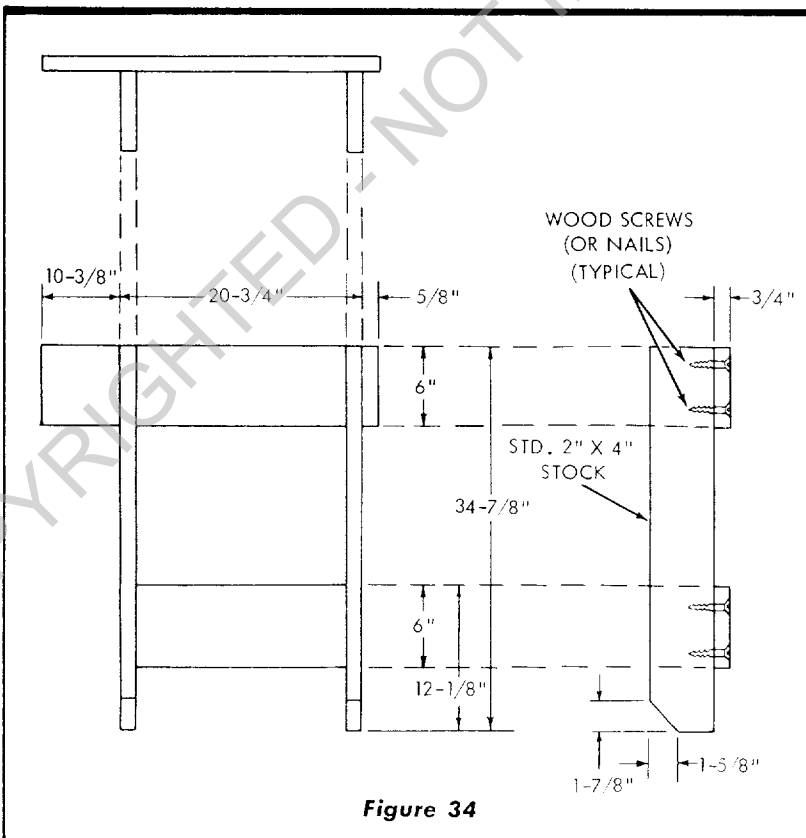
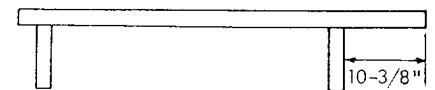


Figure 34

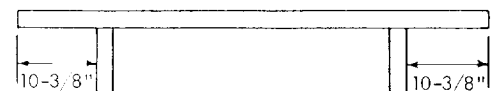
3. Screw or nail the cross members on the 2 x 4's as shown in figure 34. Make sure the support is square.
4. A right-hand configuration can be made by extending the top cross piece toward the opposite side as shown in figure 35. If only a single support is required, to be moved from the right or left-hand side as needed, a dual purpose unit may be made by allowing a 10-3/8" extension of the upper cross member as shown in figure 36.
5. Insert two standard 2 x 4's through the clamps on the legs of the saw table and tighten the clamps securely. These 2 x 4's may be as long as desired to handle the boards to be ripped.
6. Place the support stand in position with the upright members on the stand inside the 2 x 4's attached to saw table legs. (See figure 37.)
7. Position the lower ends of stand uprights outward until the cut angles fit the floor and secure the stand uprights to the 2 x 4's on the saw with two "C" clamps as shown in figure 37.
8. Lay a board on stand and saw table in ripping position as shown in figure 37, and adjust the angle of the stand until the board to be ripped is level with saw table.
9. If two stands are to be used, install the right-hand stand at right of saw in the same manner.

The clamp attached to each leg is for clamping one 2" x 4" board on the two front legs and another on the two rear legs. (See figure 38.) These 2" x 4" extensions may be used to attach outboard supports to assist in supporting long boards, or may be used to pick up the saw (one man at each side) and move it. They are also effective for supporting the saw in the bed of a pick-up truck when moving from one job to another.



RIGHT-HAND CONFIGURATION

Figure 35



**DUAL PURPOSE
(BOTH R.H. AND L.H.)**

Figure 36

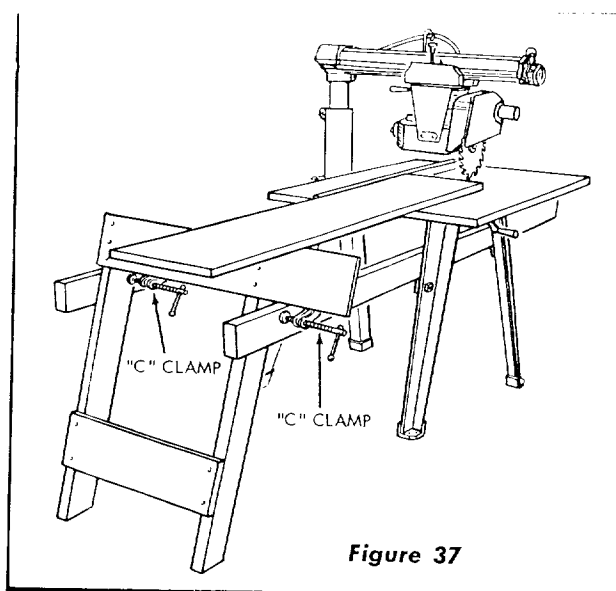


Figure 37

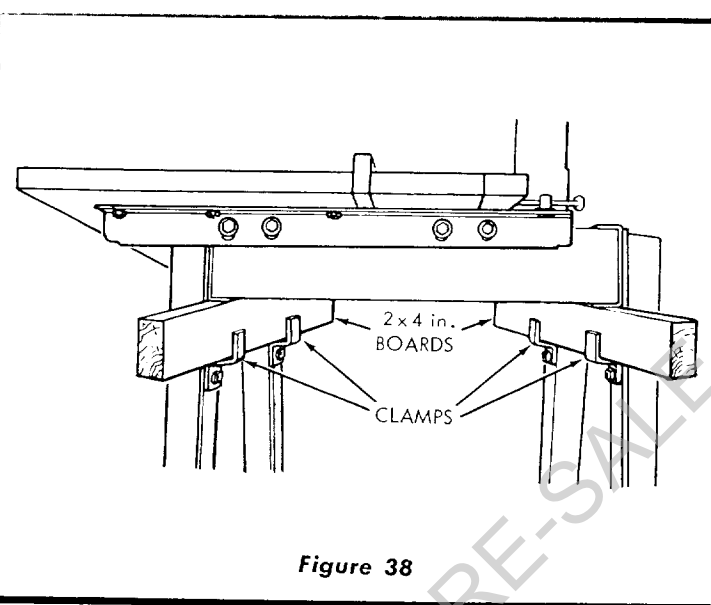


Figure 38

Holes are located in the saw base that permit legs to be extended outward horizontally if desired. This is accomplished by removing three attaching screws in each leg, rotating the leg to a horizontal position and re-installing the three screws. (See figure 39.) The lower inside screw at each location need not be removed, but should be loosened just enough to permit the leg to rotate on it as an axis.

RIPPING

Ripping is the sawing of wood with the grain. It is always done with the help of the fence as a guide to position and maintain the work at the correct width for the cut. Because the work is pushed along the fence, it must have a reasonably straight edge to make sliding contact with the fence. Also, the work must make solid contact with the table so that it will not wobble or rock. Provide a straight edge, even if this means temporary nailing or clamping an auxiliary straight edge board to the work. If work piece is warped, turn the hollow side up.

Use of the saw guard is always recommended; and the anti-kickback pawl assembly should always be used in both ripping operations.

Before ripping and after the saw has been positioned prior

to cutting, the saw guard and anti-kickback pawl assembly must be properly adjusted. Loosen the guard clamp screw holding the guard to the motor and lower the nose of the guard to within $1/8"$ above the top surface of the board to be cut. Retighten the guard clamp screw securely.

CAUTION: The nose of the guard refers to that end of the guard which is opposite to the end which mounts the anti-kickback pawl assembly. Always rip from the nose of the guard. See Warning Label on guard.

At the opposite end of the guard, loosen the wing screw holding the anti-kickback pawl assembly and lower the assembly until the tips of the pawls are $1/8"$ below the top surface of the board to be cut. Retighten the wing screw securely.

The anti-kickback pawl assembly is equipped with a "splitter" on its lower end to prevent the saw slot from closing and binding the saw blade. (See figure 40.) Therefore, the anti-kickback pawl must be adjusted so the splitter is aligned with the saw blade. This is accomplished by adjusting the two socket-head, set-screws in the guard assembly. Use a straight edge against the splitter and saw blade and adjust the socket-head set-screws so the splitter is aligned with the blade when the wing screw is tightened.

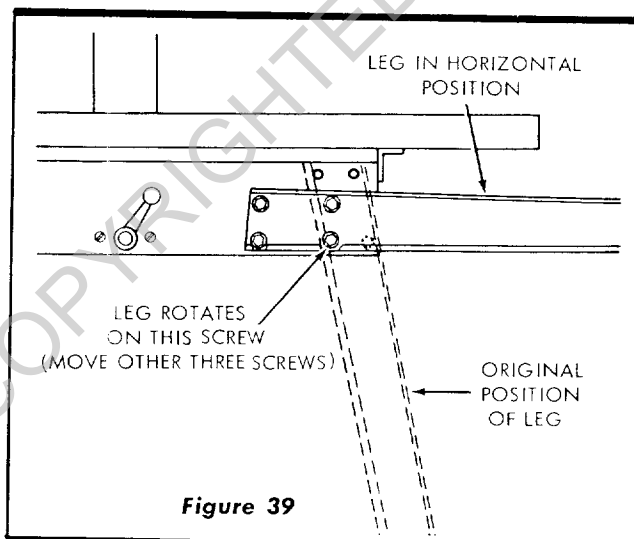


Figure 39

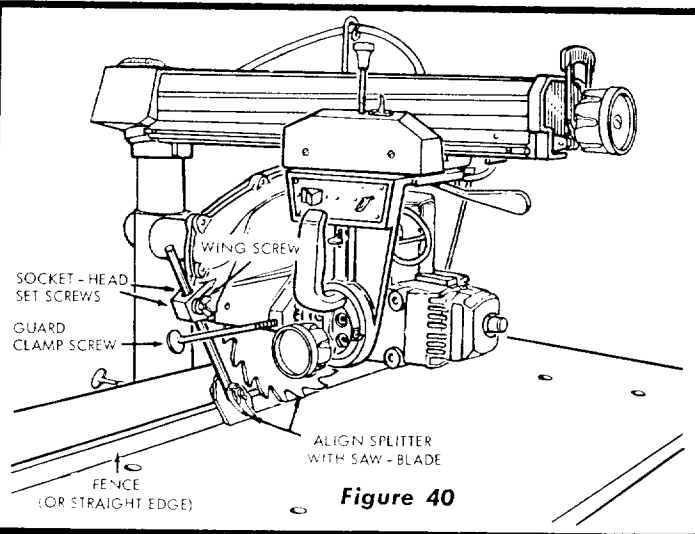


Figure 40

IN-RIPPING — refers to a position when the blade is between the motor and the fence and parallel to the fence. (See figure 41.) To place the saw in this position, unlock the yoke, disengage the swivel latch pin and rotate the yoke 90° clockwise (viewing it from the carriage) until the swivel latch pin automatically indexes the yoke 90°. Relock the yoke. Position the motor on the radial arm until the pointer on the "In-Rip" scale indicates the desired width of the finished cut board. Tighten the carriage lock knob securely. Turn the saw "On" and lower the radial arm until the saw blade cuts into the table top approximately 1/32-inch. Turn the saw "Off". Now adjust the saw guard and anti-kick pawl assembly as described in the paragraph "Ripping". The board to be ripped must be fed into the saw blade from the right-hand side of the table, therefore, the normal position for the operator is also at the right side of the table. With left hand safely clear of the blade and holding the board to be ripped down against the table and against the face of the fence as a guide, use the right hand to feed the board into the saw. The left hand should remain stationary, serving as a guide only. As the right hand approaches the left hand, hold a push stick with the right hand to complete the cut. Do not leave a long board unsupported so that the spring of the board causes it to shift on the table. A support (described in "Cross-Cutting") may be used to support the board behind the blade; and if the board is very long, use another support in front of the saw. Ripped boards up to 16-inches wide can be cut in the In-Rip position.

OUT-RIPPING — refers to a position when the motor is between the blade and the fence. Normally, this position is only used when the width of the required ripped board cannot be cut from the in-rip position. Ripped boards up to 17-1/2-inches wide can be cut in the out-rip position when the fence is against the front table. If the fence is moved to the extreme rear position against the table clamps, ripped boards up to 26-1/2-inches wide can be cut. To place the saw in the out-rip position, the yoke must be rotated and indexed 90° counterclockwise from the cross-cut position and locked. The same procedure for pre-cutting the table top (see "In-Ripping") and adjusting the anti-kickback pawl assembly should be followed. The same procedure for sawing is used except that the operator stands at the left-hand side of the table and a push stick is normally not required.

RESAWING

Resawing is cutting thick boards into thinner ones with a ripping operation. (See figure 42.) Small boards, up to 4-inches maximum width can be resawed in one pass; but larger boards require two passes, one pass along each edge of the board. When two cuts from opposite edges are required, these should be made to overlap 1/2-inch from the approximate center of the board. If the first cut is too deep, the kerf may close and bind the saw on the second cut, with danger of kickback. Also, when the kerf closes, the two sides of the cut are no longer parallel to the saw blade, and the saw will cut into them to spoil their appearance. Keep the same face of the board against the fence when making both cuts. When cutting boards thicker than 4 inches, a fence should be used which extends 3-1/2-inches above the table top.

BEVEL AND MITER CUTS

Bevel cuts may be made from either a cross-cutting or ripping position by tilting the blade to the desired angle. Miter cuts can be made only from a cross-cutting position when the blade and radial arm are at some angle other

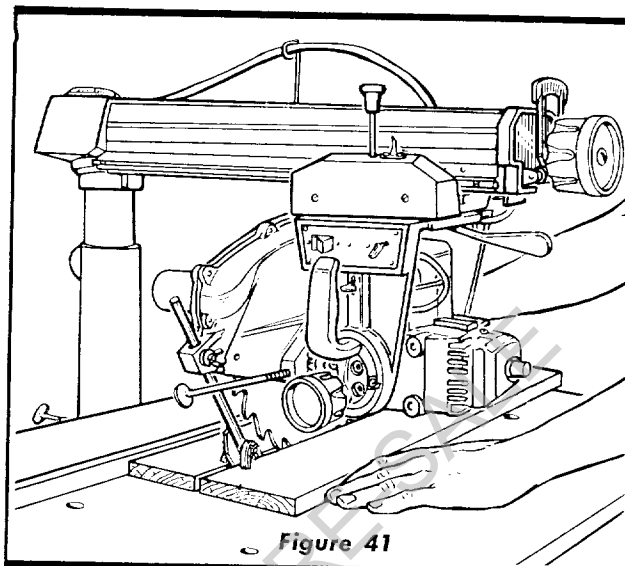


Figure 41

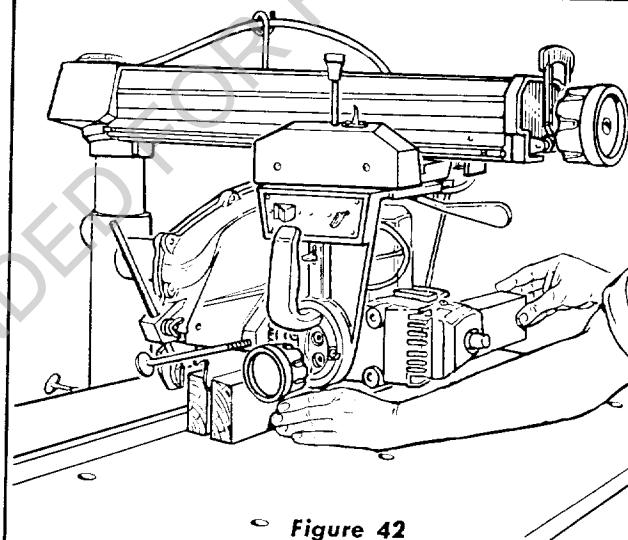


Figure 42

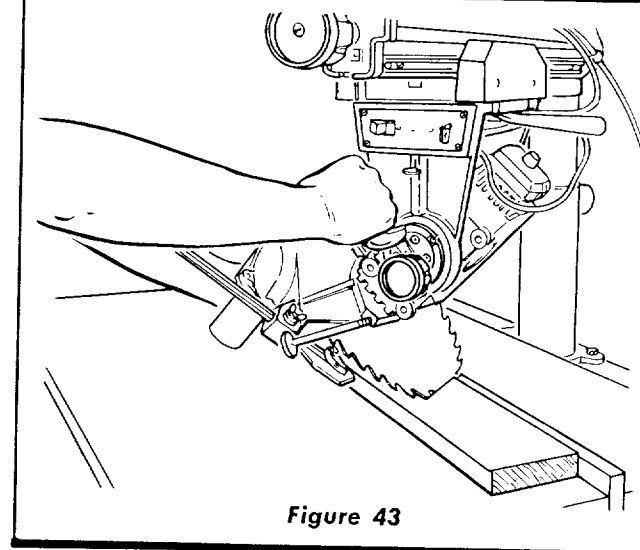


Figure 43

than 90° to the fence. A bevel miter cut is a cut which is both beveled and mitered. This cut is made with the blade and radial arm set at the desired miter angle to the fence; then the blade only is tilted to the desired bevel angle. This cut is also referred to as a compound miter. (See figure 43.)

USE OF THE DADO HEAD

The dado saw (or head) is a special set of blades for cutting grooves and dados. Craftsman 8-inch Kromedge Dado Set may be purchased at any Sears Retail Store or Mail Order House. The head consists of two outside blades 1/8-inch thick, six 1/8-inch thick chipper blades and paper washers for 1/16-inch width adjustments. With these blades, grooves of 1/8-inch, 1/4-inch and, additional widths increased in steps of 1/16-inch up to a maximum of 1-inch wide, can be cut. Outside blades may be used alone, chippers cannot be used alone.

When using the maximum width of dado of 1-inch on the motor shaft, the loose collars must not be used. The width of the dado may be reduced while using the loose collar and two or more passes made with the work to obtain the desired width of cut. Whenever two or more chippers are used, stagger the cutting ends as evenly as possible around the circumference.

Fractional adjustments in thickness of the head may be made by using paper washers between outside blades and chippers. Dado head operations are essentially the same as those with a standard blade. However, the dado head takes a bigger bite, so the work-piece should be held more firmly. When a groove wider than the dado head is needed, make two or more passes. Space the cuts so they overlap a trifle. Dado work is performed in the crosscut position. Ploughing is done in the ripping position. If the rip (or plough) position is used, the anti-kickback pawl assembly should be adjusted as described in the paragraph entitled "Ripping". Rabbeting is performed in the vertical position. (See figure 44). When rabbeting, the motor is indexed 90° to the vertical position so the blades are between the table top and the motor and yoke is indexed 90° clockwise and locked. The saw is moved back on the radial arm and locked to the arm when the amount of blade extending forward of the fence is equal to the depth of the rabbet desired. If the depth of the rabbet is large, do not attempt to cut it in one operation. Lower the radial arm until the blades are in a position to cut the desired width of rabbet in the edge of the board.

MOLDING OR SHAPING

This work is done with the Craftsman Molding Cutter Head and a set of cutters, depending upon the type of molding cut desired, with the saw in the same position as that described for rabbeting. (See figure 45.) Since the position of the cutters with respect to the fence and table top can be adjusted, any (or all) of the cutter shapes may be used.

ROUTING AND DOVETAILING

Routing and dovetailing are accomplished with the motor indexed and locked 90° from horizontal, except the externally threaded stub end (opposite the normal blade end) is between the motor and table top. The following chucks will mate with this external 1/2-20 thread. (See figure 46.)

- 0-inch to 1/4-inch Key Chuck
- 5/64-inch to 1/2-inch Key Chuck

The following routers and dovetails are recommended:

- | | |
|-----------------|-------------------|
| 1/8-inch router | 3/8-inch dovetail |
| 1/4-inch router | 1/2-inch dovetail |
| 3/8-inch router | |
| 1/2-inch router | |
| 5/8-inch router | |

Routing may be performed by either moving the work with a stationary router or by clamping the work to the table and moving the router. Always approach the router bit from the left-hand side of the saw.

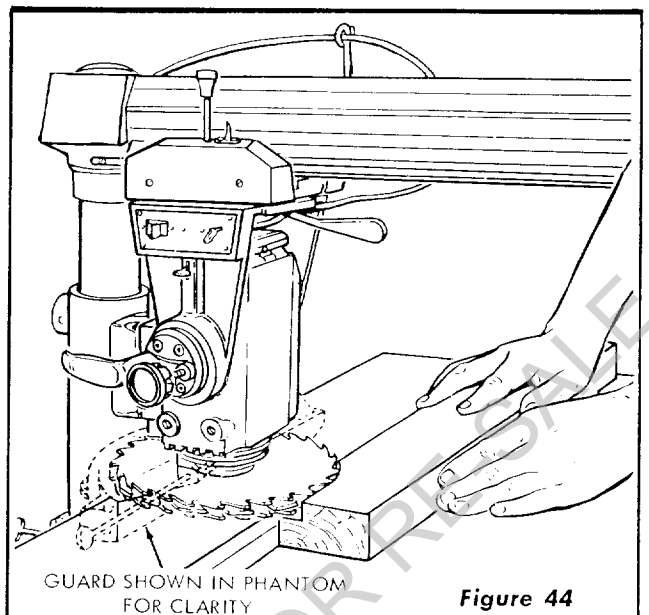


Figure 44

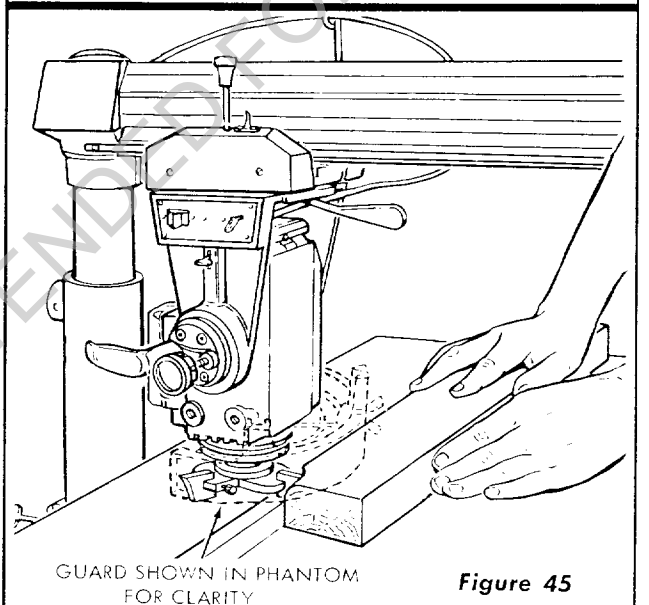


Figure 45

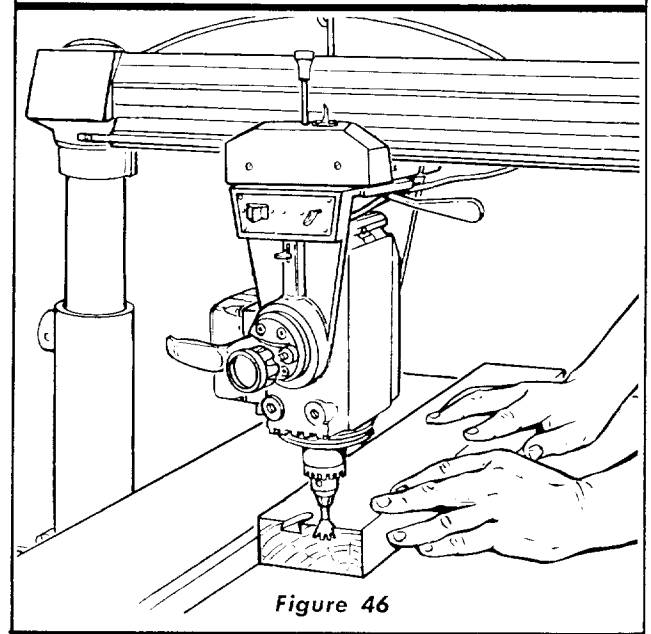


Figure 46

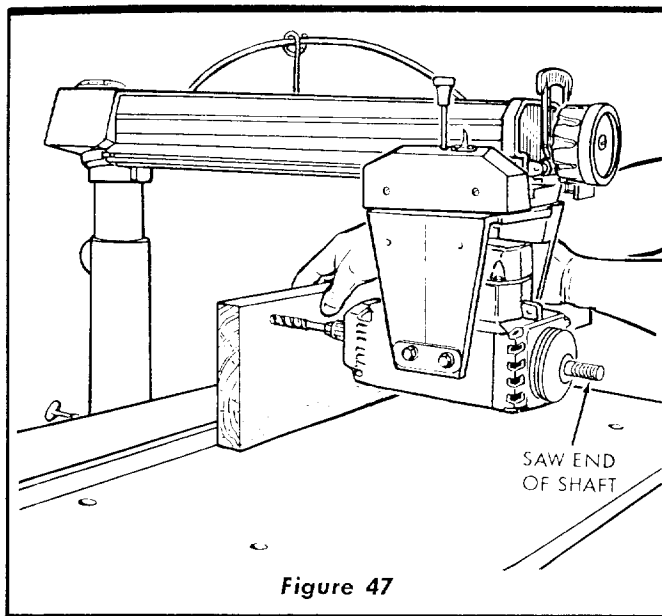


Figure 47

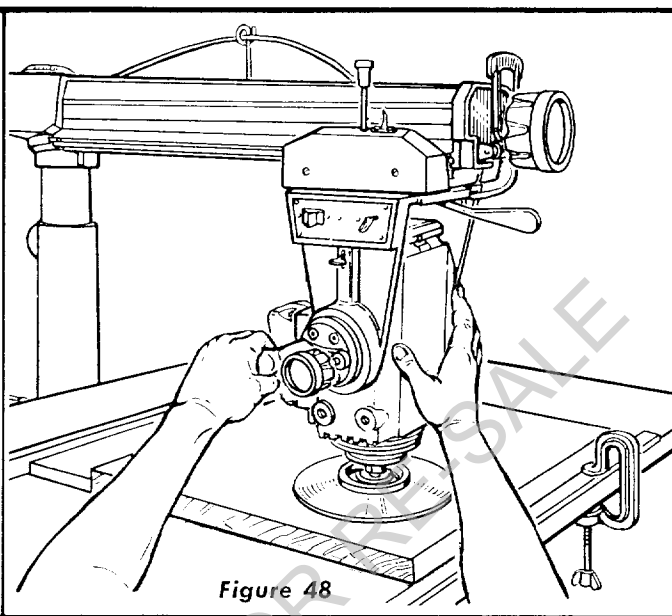


Figure 48

BORING

The saw may be converted to a horizontal drill for boring by using one of the recommended chucks and the proper drill. For drilling holes on an angle, the radial arm should be positioned to the desired angle while the work is held parallel to the fence. (See figure 47.)

SANDING

Using the 10-inch sanding disc mounted on the saw end of the motor, the saw can be converted into a sander and operated in any position. One loose collar should be used on each side of the sanding disc. (See figure 48.)

FENCE LOCATIONS

There are three positions in which the fence can be located. (See figure 49.)

1. Normal position.
2. Position used for maximum crosscut on one-inch material and for greater bevel and miter capacity.

CAUTION: Rip scales cannot be used in this position.

3. Position used for maximum out-rip capacity.

STABILIZING WASHERS FOR THIN BLADES

Stabilizing washers should be used with blades for improved appearance of the finished cuts.

BRAKE

The motor of this saw is equipped with a built-in electro-mechanical brake to eliminate a lengthy "coast" time after the saw is turned off. When the motor is started, the brake

shoe is instantly pulled away from the brake lining so the motor does not start under load. When the motor is turned off, braking action takes place automatically. This brake is designed to stop a free running saw blade in 20 to 25 seconds. DO NOT attempt to alter either the brake disc or the lining to obtain a faster stopping time. Stopping the blade too suddenly could possibly unscrew the shaft nut.

HELPFUL HINTS

1. The life of the laminated saw table can be greatly lengthened by tacking a piece of 1/4-inch thick plywood to the table top.
2. There is a possibility that after tacking a piece of plywood to the table top, the plywood surface may not be smooth or may be uneven. Lay a straightedge across the surface of the table and check for gaps or high spots on the table. Any portions of the table that are not flat may be sanded until flat. Sanding can be accomplished in the manner shown in figure 48.
3. When sanding on the table top, or routing with the work stationary, the arm lock pin can be prevented from automatically indexing at 0° and 45° by rotating the arm latch handle approximately six turns counter-clockwise from the locked position.
4. A scale may be provided to aid the operator when measuring lengths during cross-cut operations, by tacking or gluing a yard-stick or wood scale to the fence as shown. (See figure 50.)
5. In the event of a warped fence that cannot be straightened by tightening the table clamps, remove the fence and install a new fence cut to the same size from a piece of straight stock.

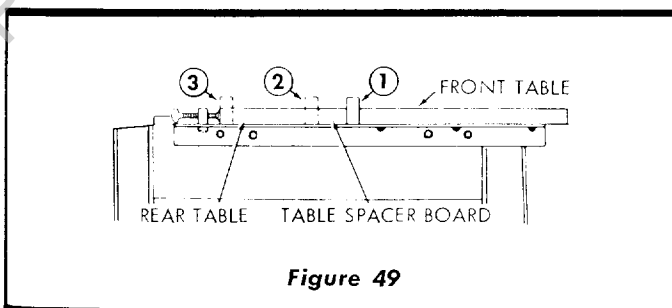


Figure 49

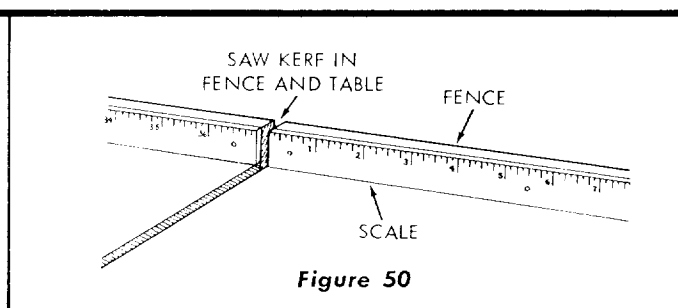


Figure 50

plan cutting tool, such as saw blades, drills, molding cutters, dados, etc., sharp and do not force feed the work to the point where the motor speed is drastically reduced. This will minimize effort, provide smoother and more accurate cuts, resist overheating and possible burn out caused by abuse due to overloading.

7. When using the planer, molding, or dado blades, re-

peated light cuts will produce best results. Deep cuts reduce the quality of the finish.

BENCH POWER TOOL GUARANTEE

One (1) year from date of sale against defects in material and workmanship. Sears will, at their option, repair or replace any part which proves to be defective under normal use.

FOR TROUBLE-SHOOTING CHARTS SEE PAGES 29 AND 30

PARTS LIST

CRAFTSMAN, 12-INCH RADIAL SAW, MODEL No. 113.29520

All parts illustrated in Figures 51 through 56 and listed under part numbers may be ordered through any Sears retail store or Catalog order store. Order parts by mail from the Catalog order house which serves the territory in which you live. In several instances, part numbers are listed for COMPLETE ASSEMBLIES. All parts are shipped prepaid within the limits of the Continental United States.

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

1. THE PART NUMBER
2. THE PART NAME

3. THE MODEL NUMBER 113.29520
4. THE NAME OF ITEM — RADIAL SAW

Always order by Part Number — not by Key Number

FIGURE 51 PARTS LIST

Key No.	Part No.	Description
1	448033	Screw, Mach., No. 10-32 x 3/8, Type 23 C.I., Pan Hd. Slotted
2	63098	Plate, Cover
3	63211	Cap, Radial Arm
4	115109	*Washer, Lock 1/4 x .109 x .062
5	226310	*Screw, Mach., 1/4-28 x 1-3/4, Fil. Hd.
7	9404351	Screw, Mach., No. 6-32 x 5/16, Type 23 C.I., Pan Hd.
8	63213	Indicator No. 1
9	63214	Clamp, Cord
10	448011	Screw, Mach., No. 8-32 x 3/8, Type 23 C.I., Pan Hd.
11	30662	Screw, Arm Lock
12	30482	Pin, Arm Lock
13	60021	*Screw, Mach., 1/4-20 x 7/16, Hex. Hd. Ind.
14	63102	Support Assy., Motor
15	30606	Washer, Index Handle
16	9421626	*Screw, Socket Hex. Hd., Cap, 5/16-18 x 1-1/2
17	37435	*Wrench, Hex. "L", 1/4 Across Flats
18	37861	Key, Safety Lock
19	37370	Shaft Assembly, Latch Arm
20	30655	Ring, Retaining
21	30489	Washer, Spring Support
22	443151	Pin, Groove

Key No.	Part No.	Description
23	30490	Spring, Arm Latch
24	63096	Cap, Trim
25	436753	Screw, Mach., No. 10-32 x 3/4, Type 23 C.I., Pan Hd.
26	60076	Washer, Plain, .505 x 1-1/8 x 1/16
27	37372	Lever, Arm Latch
28	37373	Washer, Spring
29	60030	Washer, Plain, .505 x 1 x 1/32, Steel
30	63210	Handle
32	60077	Screw, Mach., 1/4-20 x 1-3/8, Truss Hd., w/L/washer
33	63139	Clamp, Cord
34	63141	Wrench, Shaft
35	63142	Wrench, Arbor
36	30495	Nut, Shaft
37	30494	Collar
38	60177	Blade, Saw, 12"
39	63202	Motor Assembly (See figure 54)
40	30661	Shoe, Brake
41	30479	Latch, Arm
42	9415837	*Screw, Mach., 3/8-16 x 3/4, Hex Hd.
43	131202	Washer, Lock, 3/8 S.A.E. Stl.
44	63209	Trim, Radial Arm
45	63221	Hook, Cord
Not Shown	63219	Operating Instructions and Parts List For Craftsman 12" Radial Arm Saw Model 113.29520

* Standard Hardware Item — May be Purchased Locally.

NOTE: Shipping and handling charges for standard hardware items (identified by *) such as nuts, screws, washers, etc., make buying these items by mail uneconomical. To avoid shipping and handling charges, you may obtain most of these locally.

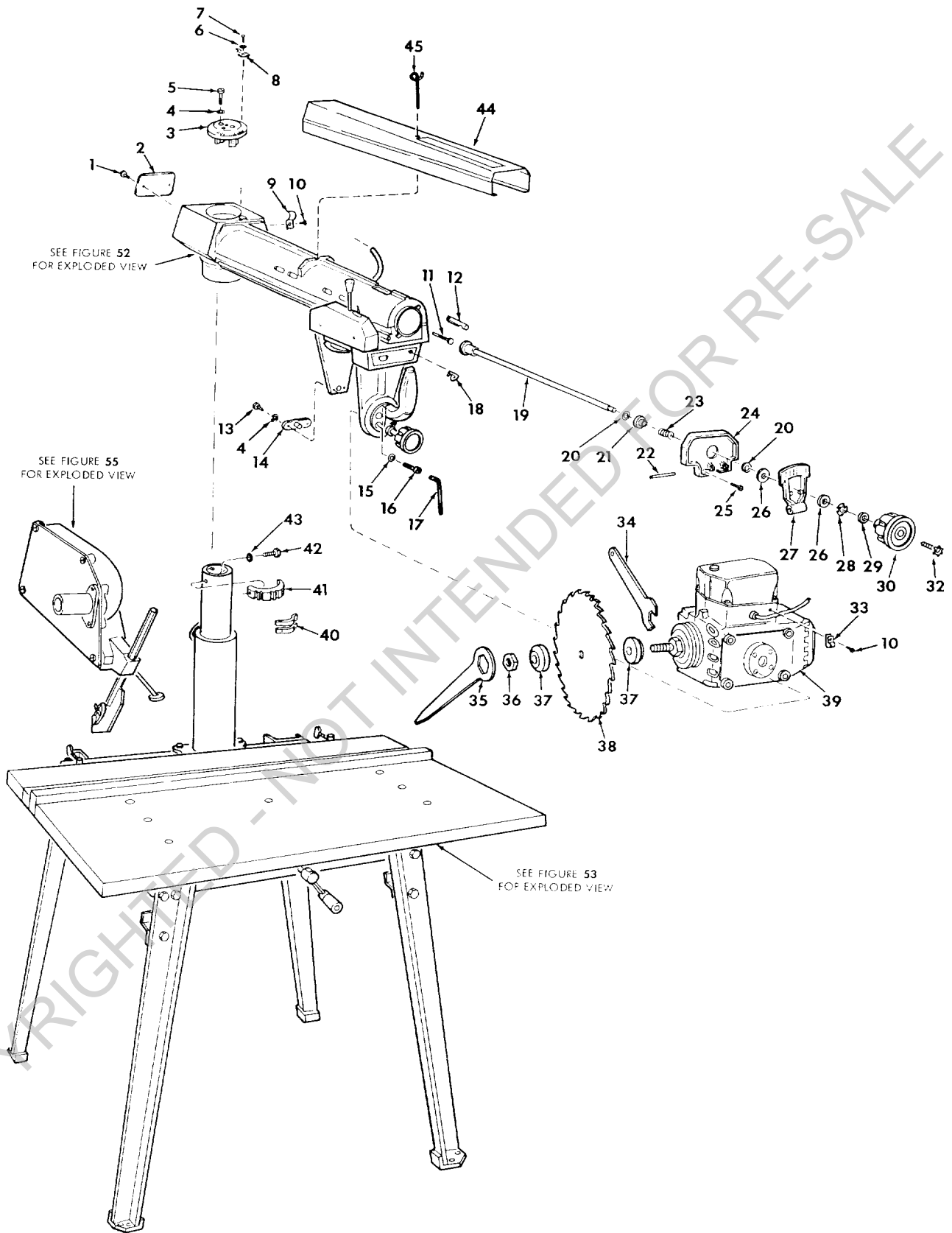


Figure 51

FIGURE 52 PARTS LIST

Key No.	Part No.	Description	Key No.	Part No.	Description
1	63208	Arm, Radial	19	30566	Clamp Assembly, Yoke
2	63129	Pin, Spring	20	30567	Bumper
3	60004	Ring, Retaining	21	456299	Pin, Roll
4	63128	Stop, Carriage	22	63148	Carriage
5	63130	Spring, Carriage Stop	23	120214	*Washer, Lock 5/16 x .125 x .078
6	436664	*Screw, Mach., No. 6-32 x 7/16, Pan Hd., Cad.	24	124824	*Nut, Hex., 5/16-18 x 1/2 x 3/16, Stl.
7	63215	Indicator, Rip Scale	25	37403	Handle, Yoke Clamp
8	63120	Shoe, Carriage Lock	27	37816	Washer, Flat, .630 x 1-1/8 x .093
9	63147	Pin, Carriage Lock	28	30558	Screw, Lock
10	63099	Cover, Carriage R.H.	29	63118	Housing, Latch Pin
11	63212	Knob, Carriage Lock	30	30565	Bumper
13	436751	*Screw, Mach., No. 10-32 x 5/8, Pan Hd., Cad.	31	63100	Cover, Carriage L.H.
14	30530	Nut, Twin	32	37494	Pin, Swivel Latch
15	60088	*Screw, Mach., 5/16-18 x 1-1/2, Hex. Hd. Ind., Steel	33	37387	Screw, Eccentric
16	37388	Sleeve, Bearing	34	30521	Spring, Swivel Latch
17	37936	Washer, Plain, .328 x 3/4 x 1/16	35	63119	Retainer, Spring
18	63117	Bearing, Carriage	36	63217	Handle, Swivel Latch Pin
			37	63127	Track
			38	448337	Screw, Mach., No. 10-32 x 5/8, Type 23 C.I., Rd. Hd., Cad.

* Standard Hardware Item — May be Purchased Locally.

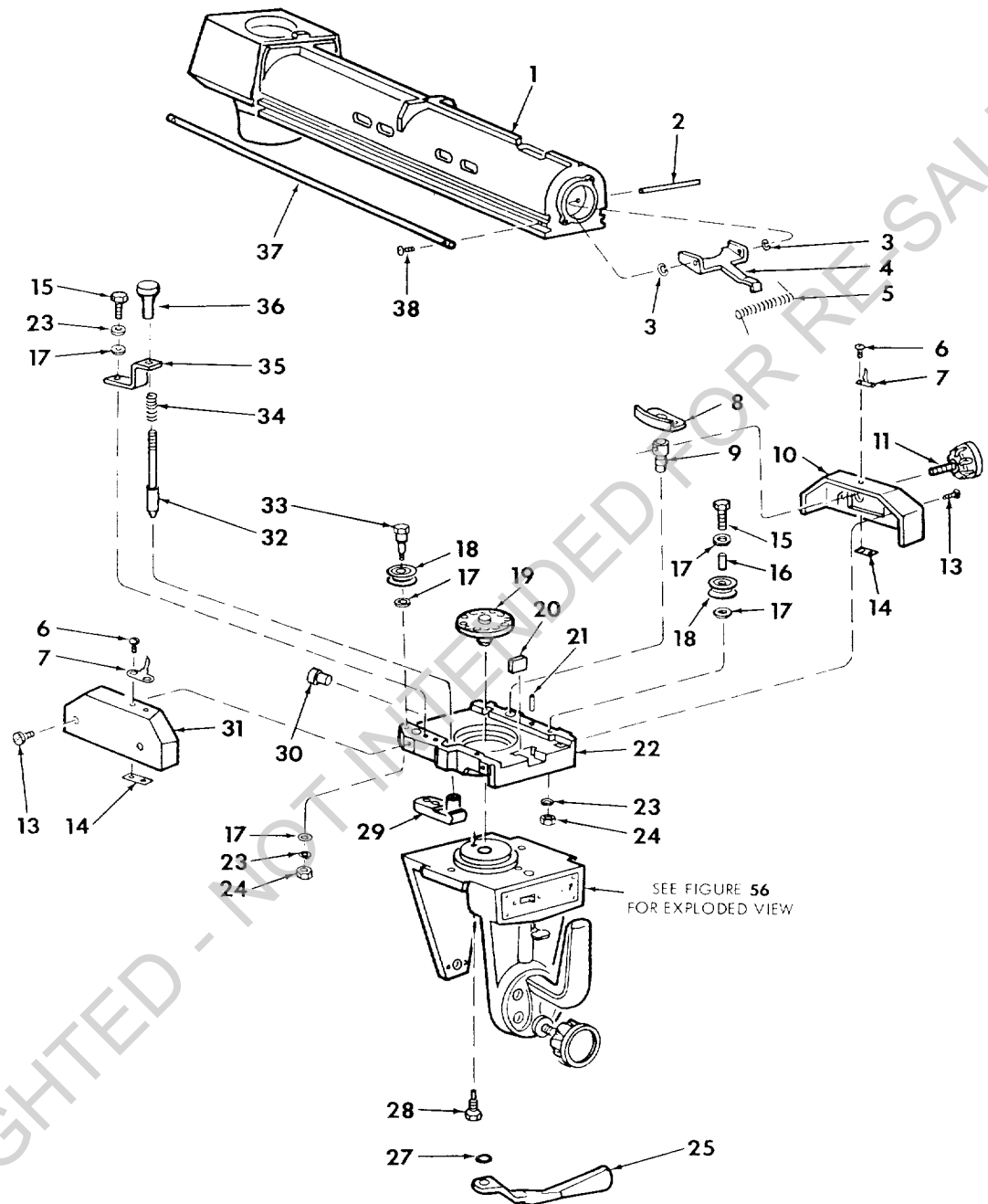


Figure 52

FIGURE 53 PARTS LIST

Key No.	Part No.	Description	Key No.	Part No.	Description
1	63146	Tube Assembly, Column	27	63116	Shaft Assembly, Elevating Crank
2	139416	*Screw, Set, 3/8-16 x 5/8, Socket Hd., Cone Pt.	28	30509	Washer, End Play, No. 8 (As Required)
3	63114	Support, Column	29	30510	Bracket, Elevating Shaft Bearing
4	60020	*Screw, Mach., 3/8-16 x 1-1/8, Hex. Hd. Ind.	30	448649	Screw, Mach., 1/4-20 x 3/4, Type 23 C.I., Hex. Hd.
5	63108	Table, Rear	31	30512	Bracket, Bearing
6	60056	*Screw, Mach., 1/4-20 x 1, Pan Hd., Slotted	32	60079	Washer, Plain, .203 x 7/16 x 1/16
7	37937	*Washer, Plain, 17/64 x 5/8 x 1/32	33	30604	Washer, Oil Sling
8	63109	Spacer, Table	34	30511	Pin, Pivot
9	63110	Fence, Rip	35	63330	Shaft Assembly, Elevation
10	63107	Table, Front	36	37428	Plate, Retaining
11	131202	Washer, Lock, 3/8 S.A.E. Stl.	37	60080	Washer, Plain, .515 x 7/8 x 1/32, Stl.
12	60022	*Screw, Mach., 3/8-16 x 5/8, Hex. Hd., Steel	38	63331	Ring, Retaining
13	125525	*Nut, Square, 3/8-16 x 5/8 x 21/64	39	423561	*Screw, Mach., 5/16-18 x 7/8, Hex. Hd. Ind. w/L/washer
14	63094	Base	40	63086	Clamp
15	60087	*Washer, Plain, 13/32 x 7/8 x 1/16	41	63104	Support, Table L.H.
16	9415838	*Screw, Mach., 3/8-16 x 1, Hex. Hd. Ind.	42	9415813	*Screw, Mach., 5/16-18 x 3/4, Hex. Hd. Ind.
17	63105	Support, Table R.H.	43	60013	*Washer, Plain, 11/32 x 7/8 x 1/16, Steel
18	115109	*Washer, Lock, 1/4 x .109 x .062	44	219463	*Nut, Hex., 5/16-18 x 1/2 x 21/64, Stl.
19	115120	*Nut, Hex., 1/4-20 x 7/16 x 3/16, Stl.	45	116120	*Washer, Lock, 5/16 x .125 x .078
20	118615	*Nut, Hex., 3/8-16 x 9/16 x 21/64, Stl.	46	63106	Support, #2 Table
21	120217	*Washer, Lock, No. 10 x .062 x .047	47	37862	Clamp, Table
22	448035	*Screw, No. 10-32 x 1/2, Pan Hd.	48	37911	*Wrench, Hex. "L", 3/16 Across Flats
23	30505	*Wrench, Hex. "L", 1/8 Across Flats	49	102718	*Screw, Set, 5/16-18 x 1/2, Slotted, Cup Pt.
24	102570	*Screw, Set, 1/4-20 x 3/8, Socket Hd., Cup Pt.	50	63078	Plug, Back up (Steel)
25	63218	Crank Assembly, Elevation	51	63077	Plug, Friction (Nylon)
26	63091	Leg	52	63079	Key, Column Tube
			53	37530	Nut, "U" Clip, 1/4-20

* Standard Hardware Item — May be Purchased Locally.

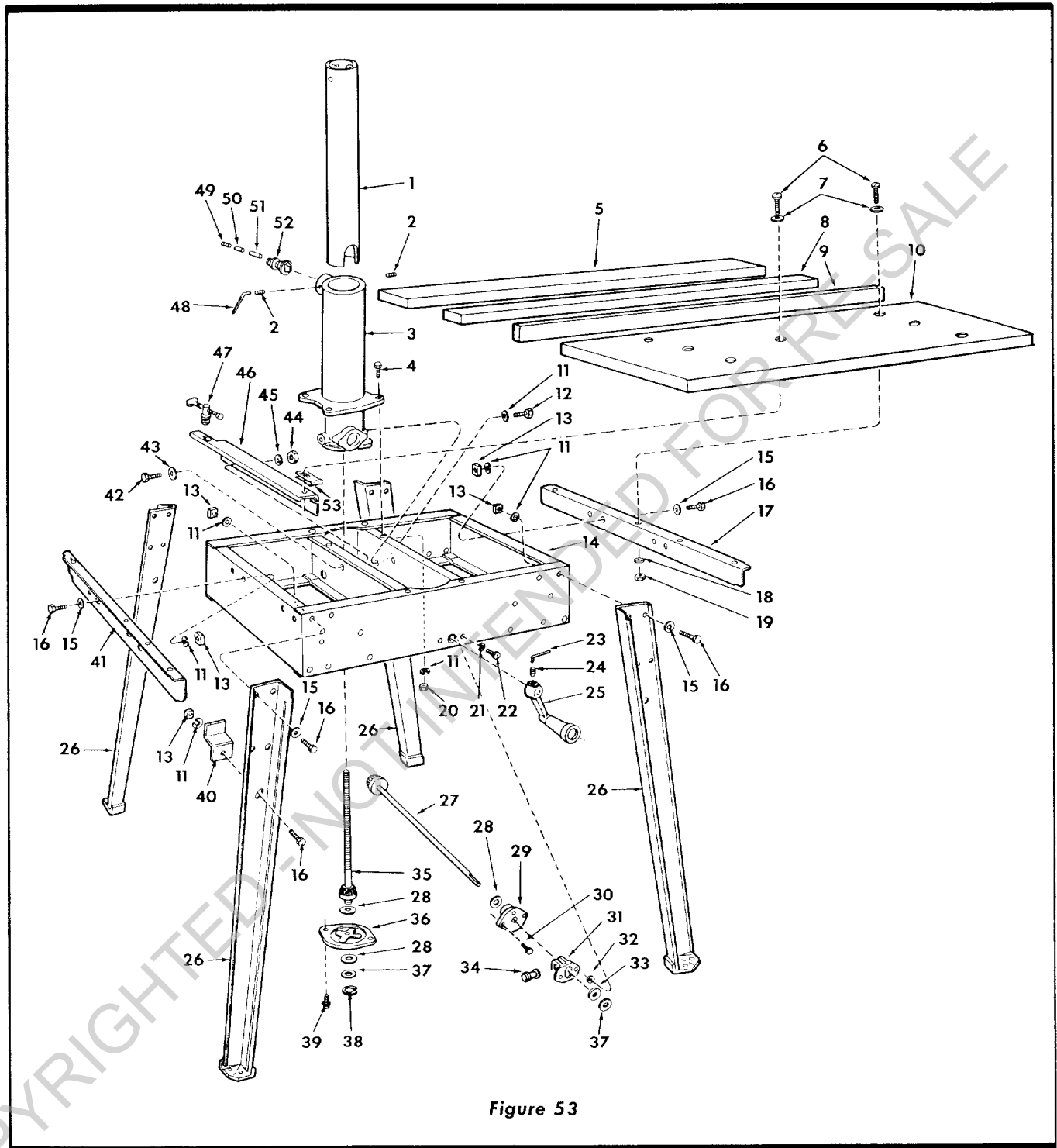


Figure 53

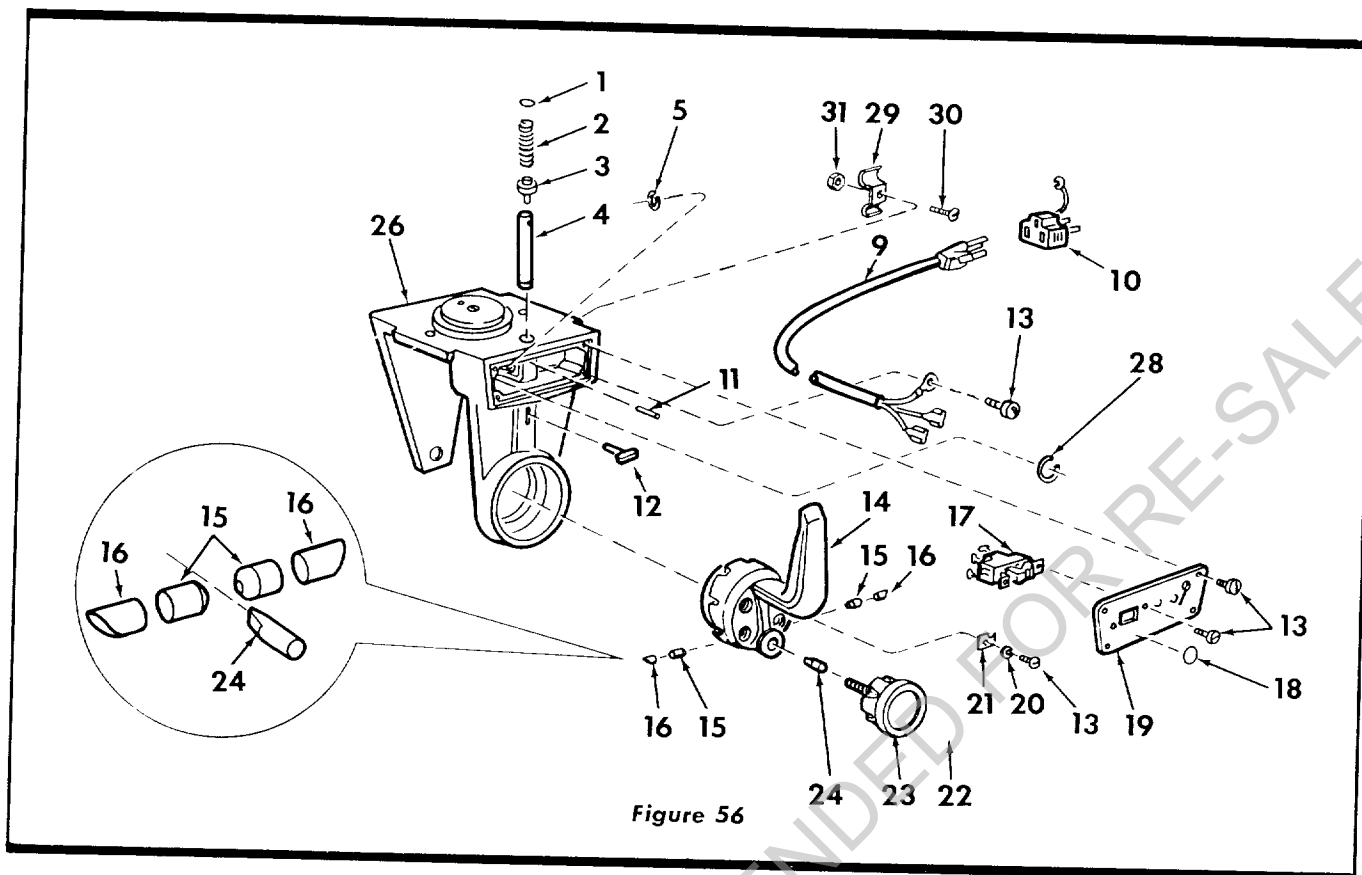


Figure 56

FIGURE 56 PARTS LIST

Key No.	Part No.	Description
1	30547	Disk
2	30548	Spring, Latch Pin
3	30690	Retainer, Latch Pin Handle
4	30689	Pin, Bevel Latch
5	30574	Ring, Hog
9	63207	Cord with Plug
10	37568	*Adapter, Plug
11	453676	Pin, Roll
12	30693	Handle, Latch Pin
13	448001	Screw, No. 6-32 x 1/4, Type 23 C.I., Pan Hd., Cad.
14	30556	Handle, Bevel Index
15	30663	Expander

Key No.	Part No.	Description
16	30665	Shoe, Index Handle Brake
17	63048	Switch (off-on)
19	63124	Lock Assembly, Switch
20	37935	Washer, Fibre, .140 x .250 x 1/32
21	30559	Indicator, No. 2
23	63204	Knob, Bevel Index
24	30664	Pad, Pressure
26	63203	Yoke Assembly
28	62258	Ring, Clamp
29	63222	Clamp, Cord
30	455330	*Screw, Sems, No. 10-32 x 1
31	115999	*Nut, 10-32 x 3/8 x 1/8

* Standard Hardware Item — May be Purchased Locally.

TROUBLE SHOOTING CHART — GENERAL

TROUBLE	PROBABLE CAUSE	REMEDY
Blade "heels" to right or left.	1. Heel has not been taken out of blade.	1. Refer to "STEP SIX — CHECKING THE SAW BLADE FOR HEEL (Left and Right)."
Cannot "rip" properly, wood smokes and motor stops.	1. Dull blade. 2. Crosscut and rip fence are not squared. 3. Radial arm not locked in 0° position. 4. Blade not squared to the table top.	1. Check sharpness of blade or warped board. Refer to the paragraph entitled "RIPPING." Ripping with hollow-ground blades when boards are badly warped is very difficult. 2. Refer to "STEP THREE — SQUARING THE CROSS-CUT." 3. Make sure the radial arm is locked and indexed properly in the 0° degree position. 4. Refer to "STEP FIVE — SQUARING THE SAW BLADE TO THE TABLE TOP."
Elevation crank operates roughly; chatter exists.	Column tube key not adjusted properly.	Check adjustment of key plug. Refer to "STEP TWO — CHECKING FOR LOOSENESS OF COLUMN TUBE IN COLUMN SUPPORT."
Motor will not run.	1. Protector open; circuit broken. 2. Low voltage.	1. Reset protector by pushing on red button, located on top of motor junction box (indicated by audible click). 2. Check power line for proper voltage.
Motor will not run and fuses "BLOW."	1. Short circuit in line cord or plug. 2. Short circuit in junction box, or loose connections.	1. Inspect line cord and plug for damaged insulation and shorted wires. 2. Inspect all terminals in motor junction box for loose or shorted terminals.
Blade does not maintain constant depth of cut across table.	1. Plane of table top not parallel to horizontal plane through radial arm. 2. Table badly warped.	1. Table is not aligned with radial arm. Refer to "STEP FOUR — ADJUSTING THE TABLE PARALLEL TO RADIAL ARM." 2. Replace table top.
Blade does not cut square, or repeat cuts cannot be secured.	1. Excessive free play in column tube key adjustment. 2. Excessive free play in radial arm. 3. Cross-cut travel and rip fence are not squared. 4. Improper movement of arm for miter cuts. 5. Saw blade not square to the table top. 6. Bearings loose on track. 7. Yoke does not index properly. 8. Yoke clamp does not tighten yoke; or looseness is felt in yoke assembly.	1. Refer to "STEP TWO — CHECKING FOR LOOSENESS OF COLUMN TUBE IN COLUMN SUPPORT." 2. Remove radial arm cap and check the two 3/8-inch screws for tightness. 3. Refer to "STEP THREE — SQUARING THE CROSS-CUT." 4. Before moving the radial arm to the desired miter index position, mainly 0° and 45° positions, make sure the arm latch handle is rotated just 1/4th. It may be advisable to push on the arm latch lever solidly with the palm of the hand to insure proper indexing at 0° and 45° positions. Refer to the paragraph entitled "ANGULAR MOVEMENT AND LOCKING OF RADIAL ARM." 5. Refer to "STEP FIVE — SQUARING THE SAW BLADE TO THE TABLE TOP." 6. Refer to paragraph entitled "CARRIAGE BEARING ADJUSTMENT," under "ADJUSTMENTS TO COMPENSATE FOR WEAR." 7. Check to see that yoke does index properly and/or swivel latch pin moves irregularly. If bolts on swivel latch pin housing are loose, tighten them after observing "STEP SIX — CHECKING THE SAW BLADE FOR HEEL." 8. Refer to paragraph entitled "YOKE CLAMP HANDLE ADJUSTMENT" under "ADJUSTMENTS TO COMPENSATE FOR WEAR."

TROUBLE SHOOTING CHART – MOTOR

NOTE: Motors used on wood-working tools are particularly susceptible to the accumulation of sawdust and wood chips and should be blown out or "vacuumed" frequently to prevent interference with normal motor ventilation.

TROUBLE	PROBABLE CAUSE	REMEDY
Motor will not run.	<ol style="list-style-type: none"> 1. Protector open; circuit broken. 2. Low voltage. 	<ol style="list-style-type: none"> 1. Reset protector by pushing on red button, located on top of motor junction box (indicated by audible click). 2. Check power line for proper voltage.
Motor will not run and fuses "BLOW."	<ol style="list-style-type: none"> 1. Short circuit in line cord or plug. 2. Short circuit in junction box, or loose connections. 	<ol style="list-style-type: none"> 1. Inspect line cord and plug for damaged insulation and shorted wires. 2. Inspect all terminals in motor junction box for loose or shorted terminals.
Motor fails to develop full power. (Power output of motor decreases rapidly with decrease in voltage at motor terminals. For example: a reduction of 10% in voltage causes a reduction of 19% in maximum power output of which the motor is capable, while a reduction of 20% in voltage causes a reduction of 36% in maximum power output.)	<ol style="list-style-type: none"> 1. Power line overloaded with lights, appliances and other motors. 2. Undersize wires or circuit too long. 3. General overloading of power company's facilities. (In many sections of the country, demand for electrical power exceeds the capacity of existing generating and distribution systems.) 4. Incorrect fuses in power line. 	<ol style="list-style-type: none"> 1. Reduce line load. 2. Increase wire sizes, or reduce length of wiring. 3. Request a voltage check from the power company. 4. Install correct fuses.
Motor start slowly or fails to come up to full speed.	<ol style="list-style-type: none"> 1. Low Voltage — will not trip relay. 2. Starting relay not operating. 	<ol style="list-style-type: none"> 1. Correct low voltage condition. 2. Replace relay.
Motor overheats.	<ol style="list-style-type: none"> 1. Motor overloaded. 2. Improper cooling. (Air circulation restricted through motor due to sawdust, etc.) 	<ol style="list-style-type: none"> 1. Correct overload condition. 2. Clean out sawdust to provide normal air circulation through motor.
Starting relay in motor will not operate.	<ol style="list-style-type: none"> 1. Burned relay contacts (due to extended hold-in periods caused by low line voltage, etc.) 2. Open relay coil. 3. Loose or broken connections in motor terminal box. 	<ol style="list-style-type: none"> 1. Replace relay and check line voltage. 2. Replace relay. 3. Check and repair wiring.
Motor stalls (resulting in blown fuses or tripped circuit breakers).	<ol style="list-style-type: none"> 1. Starting relay not operating. 2. Voltage too low to permit motor to reach operating speed. 3. Fuses or circuit breakers do not have sufficient capacity. 	<ol style="list-style-type: none"> 1. Replace relay. 2. Correct the low line voltage condition. 3. Replace fuses or circuit breakers with proper capacity units.
Frequent opening of fuses or circuit breakers.	<ol style="list-style-type: none"> 1. Motor overloaded. 2. Fuses or circuit breakers do not have sufficient capacity. 3. Starting relay not operating (motor does not reach normal speed.) 	<ol style="list-style-type: none"> 1. Reduce motor load. 2. Replace fuses or circuit breakers. 3. Replace relay.
Brake fails to work.	<ol style="list-style-type: none"> 1. Brake assembly "hums" excessively or "chatters." 2. Failure of brake coil (short circuit or "open"). 	<ol style="list-style-type: none"> 1. Replace the brake coil. 2. <ol style="list-style-type: none"> a. Check for foreign particles between the brake shoe inside diameter and shoulder of brake disk. b. Check for 0.020-inch clearance between brake shoe and brake disk. (Clearance is probably less than 0.020-inch.)

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