

Save This Manual
For Future Reference

SEARS

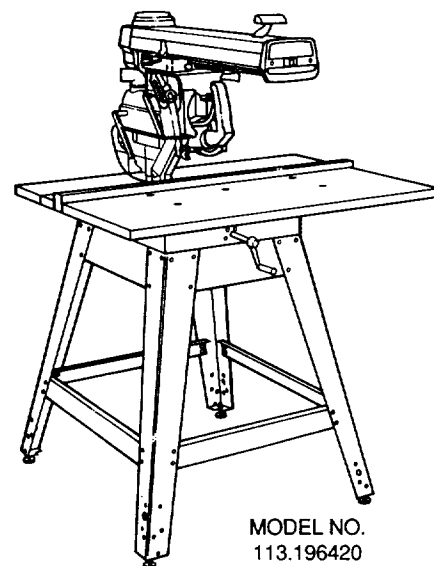
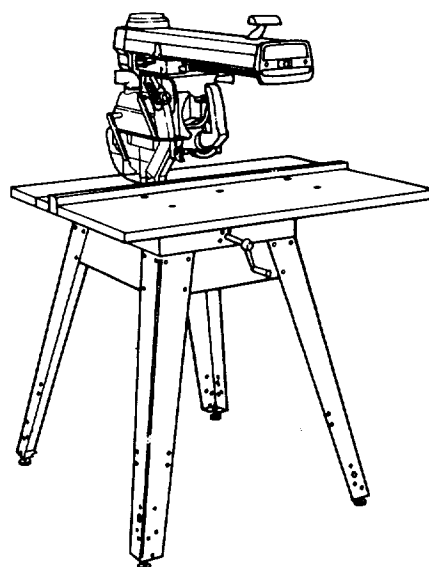
owner's manual

MODEL NO.
113.196120
SAW ONLY
or
113.196320
SAW WITH LEGS
or
113.196420
CONTRACTOR'S SAW

Serial
Number _____
Model and serial numbers
may be found at the front
of the base.
You should record both
model and serial number in
a safe place for future use.

FOR YOUR SAFETY:

**READ ALL
INSTRUCTIONS
CAREFULLY**



MODEL NO.
113.196420

SEARS / CRAFTSMAN

10-INCH RADIAL SAW

- assembly
- operating
- repair parts

Sold by SEARS, ROEBUCK AND CO., Chicago, IL 60684 U.S.A.

Part No. SP5599

Printed in U.S.A.

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FULL ONE YEAR WARRANTY ON CRAFTSMAN RADIAL ARM SAW

If within one year from the date of purchase, this Craftsman Radial Saw fails due to a defect in material or workmanship, Sears will repair it, free of charge.

**WARRANTY SERVICE IS AVAILABLE BY SIMPLY CONTACTING THE
NEAREST SEARS SERVICE CENTER/DEPARTMENT THROUGHOUT THE
UNITED STATES.**

This warranty applies only while this product is used in the United States.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**SEARS, ROEBUCK AND CO. D/817 WA
HOFFMAN ESTATES, IL 60195**

This manual has safety information and instructions to help users eliminate or reduce the risk of accidents and injuries, including:

1. Severe cuts, and loss of fingers or other body parts due to contact with the blade.
2. Eye impact injuries, and blindness, from being hit by a thrown workpiece, workpiece chips or pieces of blade.
3. Bodily impact injuries, broken bones, and internal organ damage from being hit by a thrown workpiece
4. Shock or electrocution
5. Burns.

Safety Symbol and Signal Words

An exclamation mark inside a triangle is the safety alert symbol.

It is used to draw attention to safety information in the manual and on the saw. It is followed by a signal word, DANGER, WARNING, or CAUTION, which tells the level of risk:

⚠ DANGER: means if the safety information is not followed someone **will** be seriously injured or killed.

⚠ WARNING: means if the safety information is not followed someone **could** be seriously injured or killed.

⚠ CAUTION: means if the safety information is not followed someone **might** be injured.

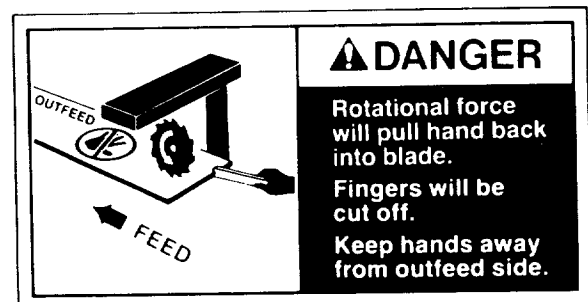
Read and follow all safety information and instructions.

Major Hazards

Three major hazards are associated with using the radial arm saw for ripping. They are outfeed zone hazard, kickback, and wrong way feed.

This section only briefly explains these hazards. Read the ripping and crosscutting safety sections for more detailed explanations of these and other hazards.

Outfeed Zone Hazard



If you reach around the blade to the outfeed side when ripping, and try to hold down or pull the workpiece through to complete a cut, the rotational force of the blade will pull your hand back into the blade.

Fingers will be cut off.

Read and follow the information and instructions under ripping safety.

Safety

Kickback Hazard

Kickback is the uncontrolled propelling of the workpiece back toward the user during ripping.

The cause of kickback is the binding or pinching of the blade in the workpiece. Several conditions can cause the blade to bind or pinch.

When a workpiece kicks back, it could hit hard enough to cause internal organ injury, broken bones, or death.

Read and follow the information and instructions under ripping safety.



Wrong Way Feed Hazard

Wrong way feed is ripping by feeding the workpiece into the outfeed side of the blade.

The rotational force of the blade can grab and pull the workpiece.

Before you can let go or pull back, the force could pull your hand along with the workpiece into the blade. Fingers or hand could be cut off.

The propelled workpiece could hit a bystander, causing severe impact injury or death.

Read and follow the information and instructions under ripping safety.

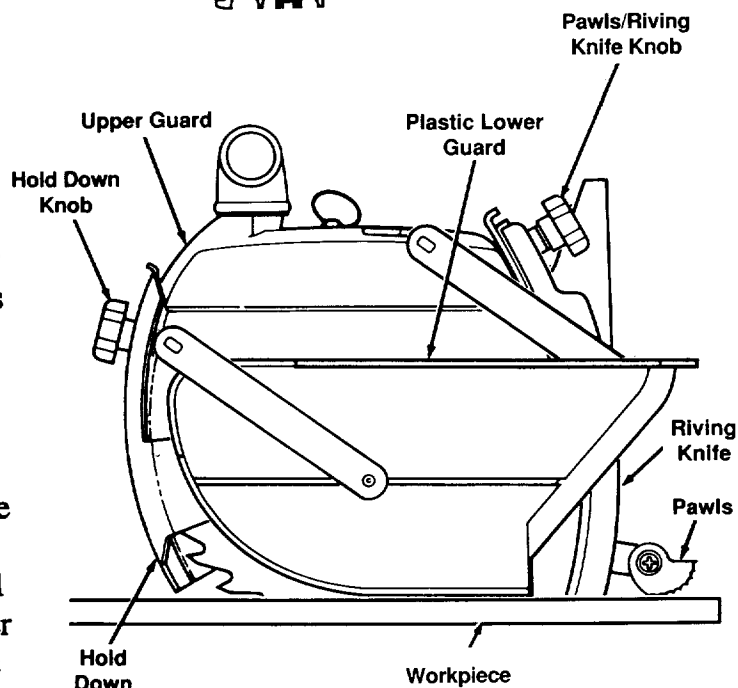
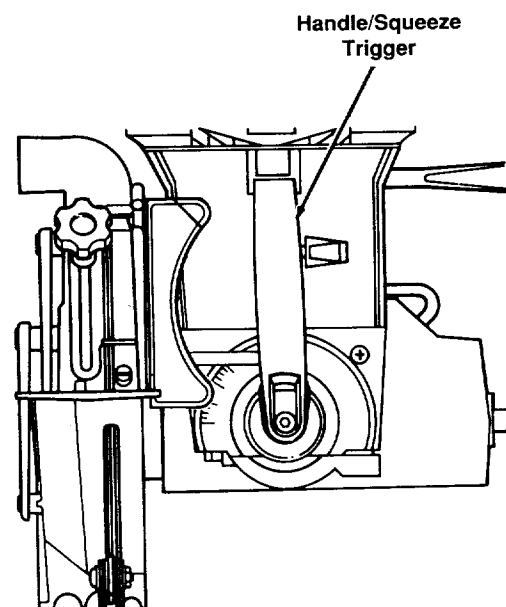


Guard Function and Features

The guard is a very important safety feature, designed to reduce the risk of injury associated with blade contact. **Install the guard correctly. Follow the specific instructions in the ripping and crosscutting sections to set and use the guard correctly for each type of cut.**

Guard Features Include:

1. A non-moveable **metal upper portion**, (Upper Guard) which is fastened to the motor by the guard clamp screw, and which fully covers the upper half of the blade.
2. A moveable **clear plastic portion**, (Plastic Lower Guard) which partially covers the lower half of the blade. It protects against contact with the side of the blade during crosscutting when blade is in its rear-most position and the guard is resting on the table, so the leading and trailing teeth of the blade are not exposed. It also protects against contact with the outfeed side of the blade during ripping, and acts as a barrier to prevent wrong way feed.
3. A **squeeze trigger** in the saw handle to raise the clear plastic guard at the start of a crosscut. *Note: This is necessary because the guard will not automatically raise to clear the fence.*
4. A **hold down** to be lowered to just clear the top of the workpiece for ripping. It acts as a barrier to the infeed side of the blade, keeps the workpiece from fluttering, and acts as a sawdust deflector. It is locked/unlocked by the hold down knob.
5. A **ripping knife** to be lowered to the table for ripping. It keeps the workpiece kerf open, thereby reducing blade pinching and the risk of kickback. It also acts as a barrier to the hazardous outfeed side and prevents wrong way feed. It is locked/unlocked by

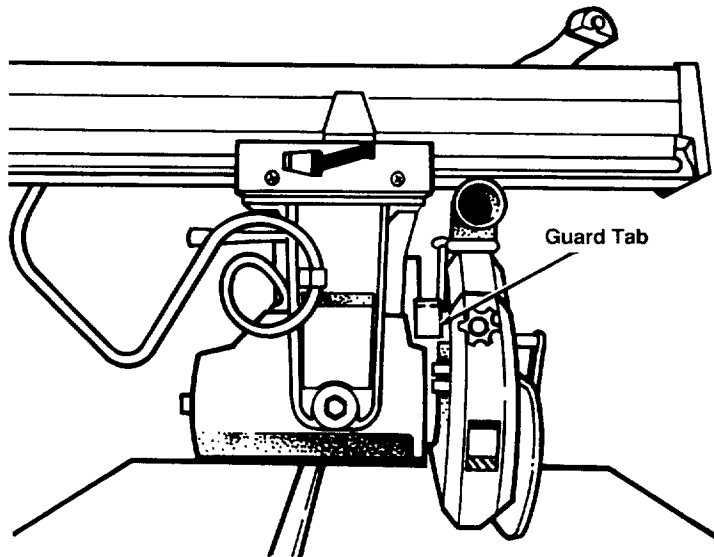


Safety

the pawls/ripping knife knob. When lowered for crosscutting, it acts as a barrier to the leading edge of the blade.

6. Set of pawls to be lowered to the workpiece surface for ripping. They allow the workpiece to pass freely from infeed to outfeed side, but help stop the kickback motion from outfeed to infeed side by grabbing into the workpiece surface. **Pawls** must be re-set each time a different thickness workpiece is cut.

7. A **guard tab** to manually raise the plastic guard at the start of ripping unusual workpieces whose size/shape do not cause the guard to raise automatically.



Hazards Associated with Clear Portion of Guard


The following safety information applies to all blades and accessories.

WARNING

Clear plastic portion of guard will not provide any protection during crosscutting if blade is pulled over your hand, or your hand enters blade path from front or rear of blade. Fingers or hand can be cut or cut off.

CAUTION

Clear plastic portion of guard can get caught or jam in fence or table kerfs. Read and follow the warning on the guard:

 **WARNING:**
TO AVOID INJURY
SHUT OFF POWER
BEFORE CLEARING A
JAMMED LOWER GUARD

WARNING

Clear plastic guard will increase risk of certain hazards:

- During rip and bevel cuts, narrow cut-off pieces can be pinched between guard and blade. Cut-off pieces can kickback.
- In bevel position blade teeth are fully exposed. Fingers or hand can be cut off.

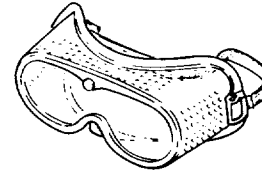
- Cut off pieces can jam between guard and blade. Turn saw off and wait for blade to stop before freeing jammed guard or blade.
- Workpiece or cut-off pieces can be violently thrown by blade. Wear safety goggles. Stand out of workpiece path.

Safety Instructions

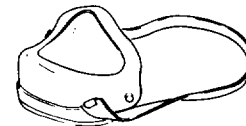
Read and follow all safety instructions.

Personal Safety Instructions

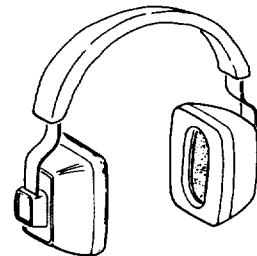
1. Wear safety goggles labeled "ANSI Z87.1" on the package. It means the goggles meet impact standards set by the American National Standards Institute. Regular eye-glasses are not safety goggles.
2. Wear close fitting clothes, short sleeved shirts, and non-slip shoes. Tie up long hair. Do not wear gloves, ties, jewelry, loose clothing, or long sleeves. These can get caught in the spinning blade and pull body parts into the blade.
3. Wear dust mask to keep from inhaling fine particles.
4. Wear ear protectors, plugs or muffs if you use saw daily.
5. Keep good footing and balance; do not over-reach.



Safety Goggles



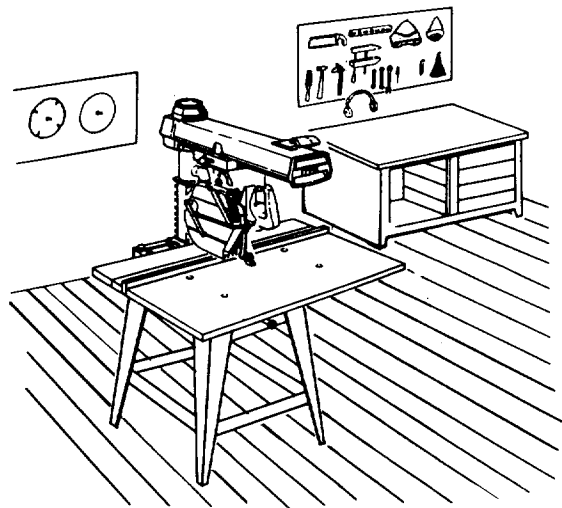
Dust Mask



Ear Protectors

Work Area Safety Instructions

1. Keep children, pets, and visitors out of work area; they could be hit by a thrown workpiece, workpiece chips or pieces of blade.
2. Turn saw off, remove yellow key, and unplug before leaving work area. Do not leave until blade has stopped spinning.
3. Make work area child-proof: remove yellow key to prevent accidental start-up; store key out of sight and reach; lock work area.
4. Keep floors clean and free of sawdust, wax and other slippery materials.
5. Keep work area well lighted and uncluttered.
6. Use saw only in dry area. Do not use in wet or damp areas.



Safety

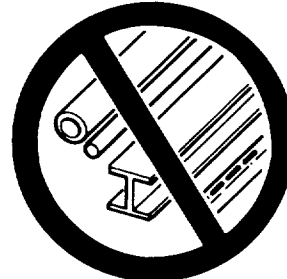
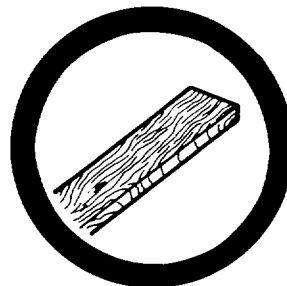
Saw Safety Instructions

1. Use guard, pawls and riving knife according to instructions. Keep them in working order.
2. Routinely check saw for broken or damaged parts. Repair or replace damaged parts before using saw. Check new or repaired parts for alignment, binding, and correct installation.
3. Unplug saw before doing maintenance, making adjustments, correcting alignment, or changing blades.
4. Do not force saw. Use saw, blades and accessories only as intended.
5. Have yellow key out and saw switched off before plugging in power cord.
6. Before turning on saw, clear table of all objects except workpiece to be cut and necessary fixtures, clamps, or feather-boards.
7. If blade jams, turn saw off immediately, remove yellow key, the free blade. Do not try to free blade with saw on.
8. Turn saw off if it vibrates too much or makes an odd sound. Correct any problem before restarting saw.
9. Do not layout, assemble, or setup work with saw on, or while blade is spinning.
10. Keep saw table clean.
11. Store items away from saw. Do not climb on saw or stand on saw table to reach items because saw can tip over.

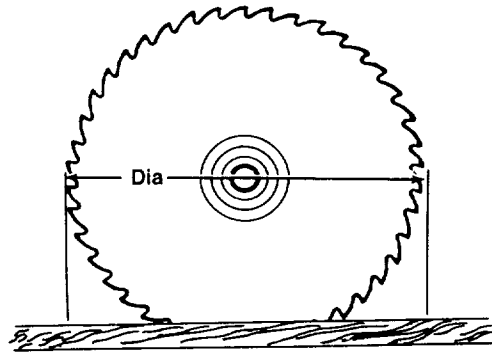
Workpiece Safety Instructions

1. Cut only wood, woodlike or plastic materials. Do not cut metal.

2. Cut only one workpiece at a time. Stacking or placing workpieces edge to edge can cause user to lose control of workpiece.



3. Rip only workpieces longer than the diameter of the blade. Do not rip workpieces that are shorter than the diameter of the blade being used.

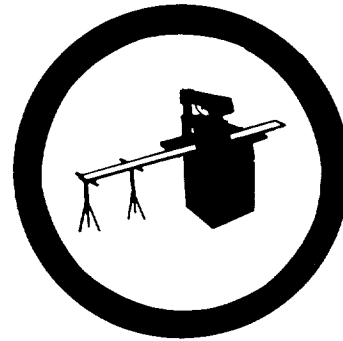


4. Workpieces that extend beyond the saw table can shift, twist, rise up from the table, or fall as they are cut or afterwards. Support workpiece with table extensions the same height as the saw table.

5. To prevent tipping, support outer ends of extensions with sturdy legs or an outrigger.

6. Do not use another person to help support workpieces or to aid by pushing or pulling on workpieces, because these actions can cause kickback. Use table extensions.

7. Use clamps or vice to hold workpiece. It's safer than using your hands.



Blade Safety Instructions

1. Use only blades marked for at least 3450 rpm.
2. Use only 10" or smaller diameter blades.
3. Use blades for their recommended cutting procedures.
4. Keep blade sharp and clean.

5. Do not overtighten blade nut because blade collar could warp.

6. Do not turn saw on and off in rapid sequence because blade can loosen.

7. Blade should stop within 15 seconds after saw is switched off. If blade takes longer, the saw needs repair. Contact Sears Service Center.

Safety

On-Product Safety Labels

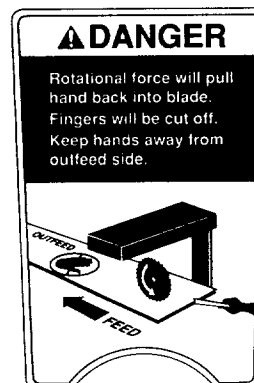
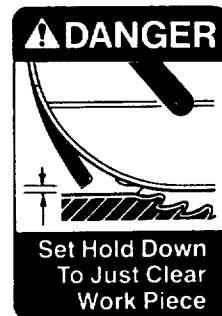
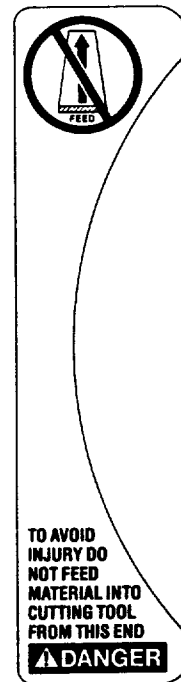
There are several safety labels on the saw. They alert the user to hazards explained in the manual and remind the user how to avoid the hazard.

At the outfeed side, to the right of the guard near the saw handle is this safety label to alert you to wrong way feed:

On the infeed side of the guard is this safety label to remind you to lower the hold down to just clear the top of the work-piece for ripping:

On the rear of the yoke, visible from the infeed side when the saw is in a rip position, is this safety label to alert you to outfeed zone hazard:

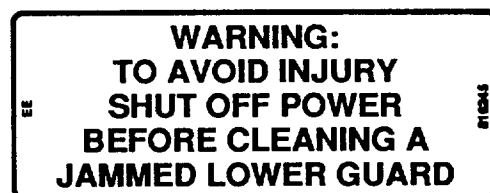
Note where they are located on the saw. Read and follow the safety information and instructions in these labels. Refer to the manual for detailed explanations and instructions.



Near the saw handle is this safety label to alert you to thrown objects and to remind you to wear safety goggles:

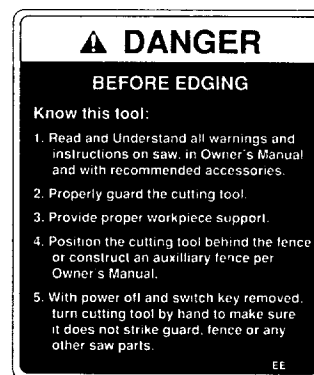


On the clear plastic guard is this OSHA required label:

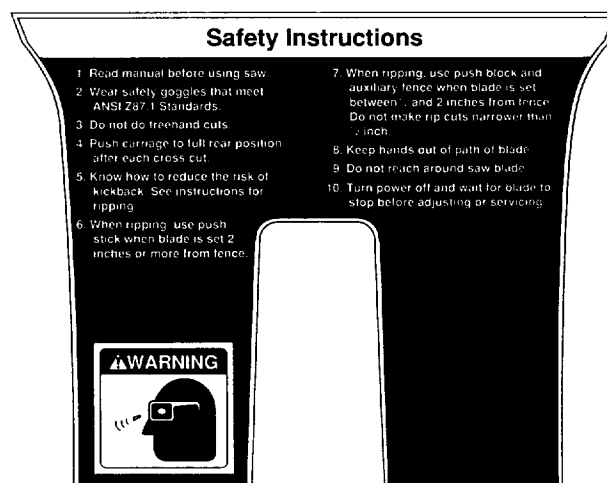


On the bottom surface of the motor, visible when the cutting tool is horizontal, is this safety label alerting you to use a guard when edge molding, and to position the cutting tool behind the fence:

(see Accessories Section)



On the front of the yoke is this general safety instruction label:



Assembly

Introduction

In order to get the most enjoyment out of your radial saw it is important that the machine be properly assembled, adjusted, and aligned. This procedure, although not difficult, takes time; perhaps eight hours or longer for the inexperienced user. However, after this initial set-up a weekly tune-up can be completed in approximately ten minutes by checking the alignment and only adjusting those settings which are incorrect.

Identify Parts

The following parts are included:

Note: Before beginning assembly, check that all parts are included. If you are missing any part, do not assemble the saw. Contact your Sears Service Center to get the missing part. Sometimes small parts can get lost in packaging material. Do not throw away any packaging until saw is put together. Check packaging for missing parts before contacting Sears. A complete parts list (Repair Parts) is at the end of the manual. Use the list to identify the number of the missing part.

All models include:

- A. Basic Saw Assembly1
- B. Rear Table.....1
- C. Spacer Table1
- D. Fence (wooden)1
- E. Front Table1
- F. Table Support2
- G. Loose Parts Bag(s)*
- H. Bag Containing
Accessory Guard1

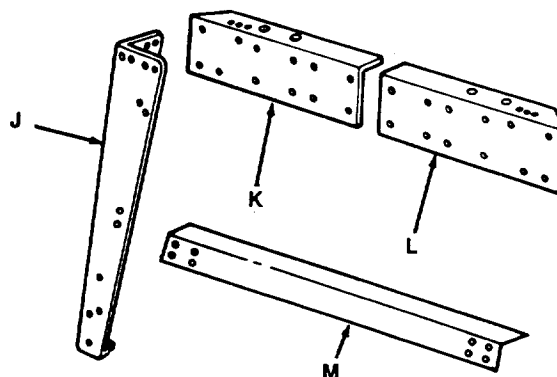
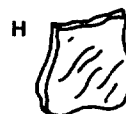
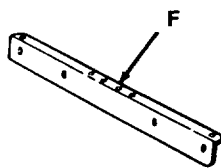
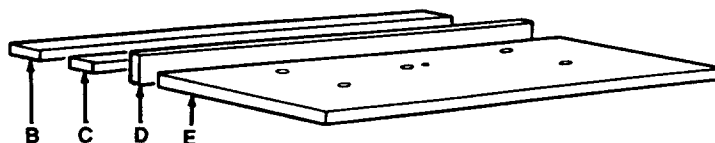
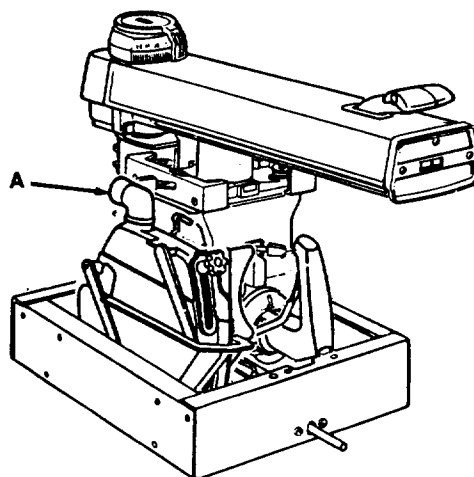
Only models with leg set include:

- J. Leg.....4
- K. Stiffener, L.H.....4
- L. Stiffener, R.H.....4

Only Contractor model includes:

- M. Lower Stiffener.....4

* Number varies; bags can contain other smaller bags. **Note:** To make assembly easier keep contents of each bag together and separate from contents of other bags.



Assembly

All models include:



5/16" - 18 x 3/4" long
square head screw (4)



1/4" - 20 x 1" long
pan head screw (4)



1/4" - 20 x 1-3/4" long
pan head screw (1)



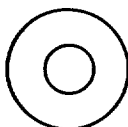
#6 - 32 x 1/2" pan head screw (4)



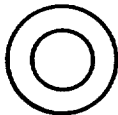
#10 - 32 x 7/8" long
pan head self threading screw (2)



1/4" - 20 x 1" long
slotted cup point set screw (1)



17/64" flat washer (5)



5/16" flat washer (4)



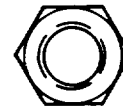
5/16" lockwasher (4)



1/4" lockwasher (4)



tee nut (1)

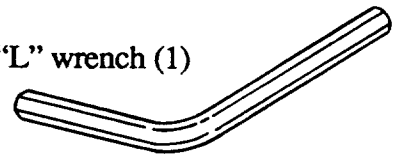


5/16" diam. hex nut (4)

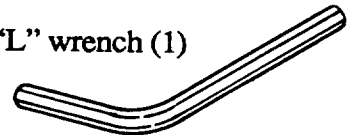


1/4" diam. hex nut (4)

1/4" hex "L" wrench (1)



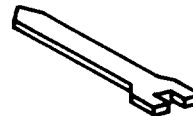
3/16" hex "L" wrench (1)



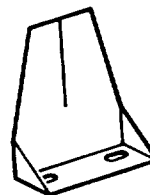
arbor wrench (1)



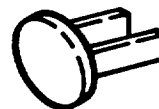
shaft wrench (1)



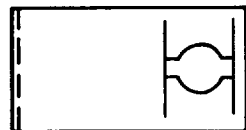
rip scale indicator (2)



yellow key (1)



1/4" U-clip (1)



twin nut (2)

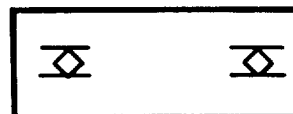
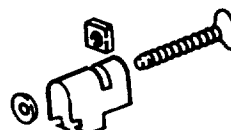


table clamp assembly (2)

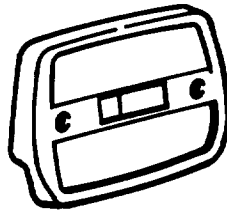
- thumbscrew
- square nut
- clamp bracket
- cup washer



Assembly



crank



arm cap

Model 113.196320 and 113.196420 Only



1/4" diam. x 5/8" long
truss head screw (40)
(56 for contractor)



1/4" external tooth lockwasher
(40 for 113.196320)
(56 for 113.196420)



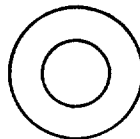
leveling foot (4)



5/16" diam. external
lockwasher (4)



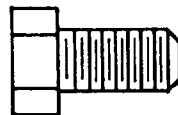
3/8" diam. hex nut
(8)



11/32" x 11/16" x 1/16"
washer (8)



5/16" diam. hex nut
(4)



5/16" diam. x 5/8" long
hex head screw (4)



1/4" diam. hex nut
(40 for 113.196320)
(56 for 113.196420)

Tools needed for Assembly and Alignment



7/16" Wrench



1/2" Wrench



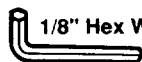
9/16" Wrench



5/8" Wrench



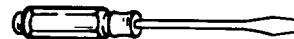
15/16" Wrench



1/8" Hex Wrench



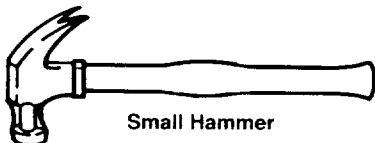
Pliers



Medium Screwdriver



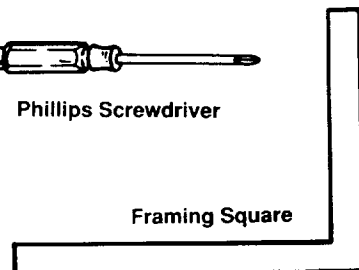
Phillips Screwdriver



Small Hammer



Pencil



Framing Square

WARNING

Plugging in saw during assembly could result in electrical shock, or severe cuts from contact with spinning blade.

Do not plug in saw at any time during assembly.

Plug in saw only when it is to be used.

Assembly Steps

It is important for your safety and to get accurate cuts that you put the saw together according to these instructions.

Follow these steps in order.

Assembling steel legs

Note: *Steel Legs are furnished with Models 113.196320 and 113.196420 (Not 113.196120).*

From among the loose parts, find the following Hardware:

40 Truss Head Screws, 1/4-20 x 5/8

40 Lockwashers, 1/4-External

40 Hex Nuts, 1/4-20

8 Hex Nuts, 3/8 - 16

4 Leveling Feet

1. Assemble a right stiffener to a left stiffener using four (4) each 1/4-20 x 5/8 long truss head screws, lockwashers and hex nuts.

Make two assemblies of the 17-3/4" length and the 21-1/4" length.

2. Attach the stiffener assemblies to the legs using three (3) screws, lockwashers, and nuts at each end. Use the holes shown with an "X". Tighten all nuts securely.

3. Install one 3/8-16 hex nut completely onto each of the leveling feet. Insert one leveling foot through hole in bottom of each leg and install a 3/8-16 hex nut.

4. To level steel legs, loosen nut on inside of leg and turn nut on outside to raise or lower feet. Adjust all four levelers if necessary, and then tighten nuts on inside of leg.

Note: *These levelers are not intended for height adjustment.*

For model 113.196420 only

From among the loose parts, find the following hardware:

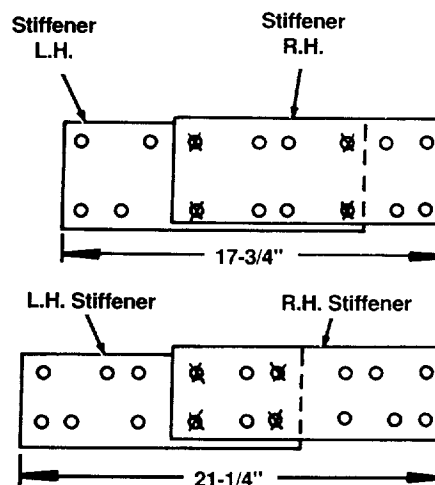
16 Truss Head Screws 1/4-20 x 5/8

16 Lockwashers, 1/4" external

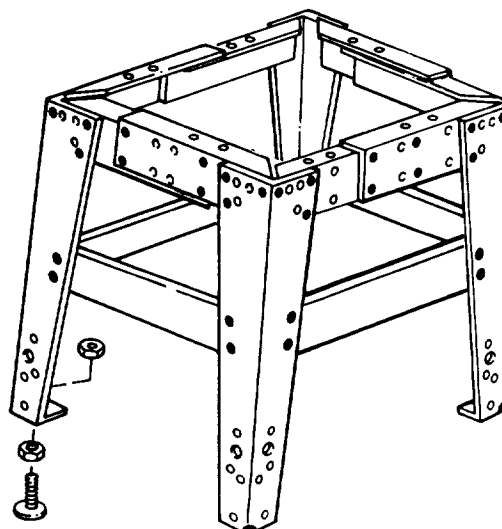
16 Hex Nuts, 1/4 -20

1. Attach the lower leg stiffeners to the steel legs using two (2) screws, lockwasher and hex nuts on each end. For the short side of stand, use the inside holes in the stiffeners. For the long side, use the outside holes.

2. Tighten all nuts securely.



X = Location of Truss Head Screws



Assembly

Mounting Saw

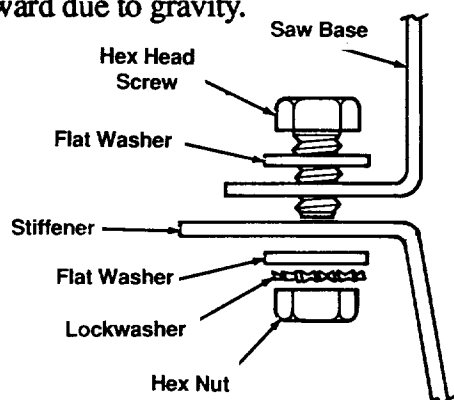
1. From among the loose parts, find the following hardware:

- 4 Hex Head Screws, 5/16-18 x 5/8
- 4 Lockwasher, 5/16 in. External Type
- 8 Washers, 11/32 ID
- 4 Hex Jam Nuts, 5/16-18

2. Place saw on legs so that holes in bottom of saw line up with holes marked X in top of legs.

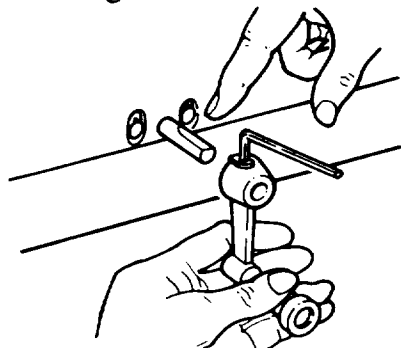
3. Install screws, washers and nuts as shown.

If you mount the saw on any other Craftsman base or flat bench, make sure Elevation Crank has proper clearance to rotate. The saw must be bolted down. Position saw to slope slightly rearward, so when the carriage is installed it will not roll forward due to gravity.



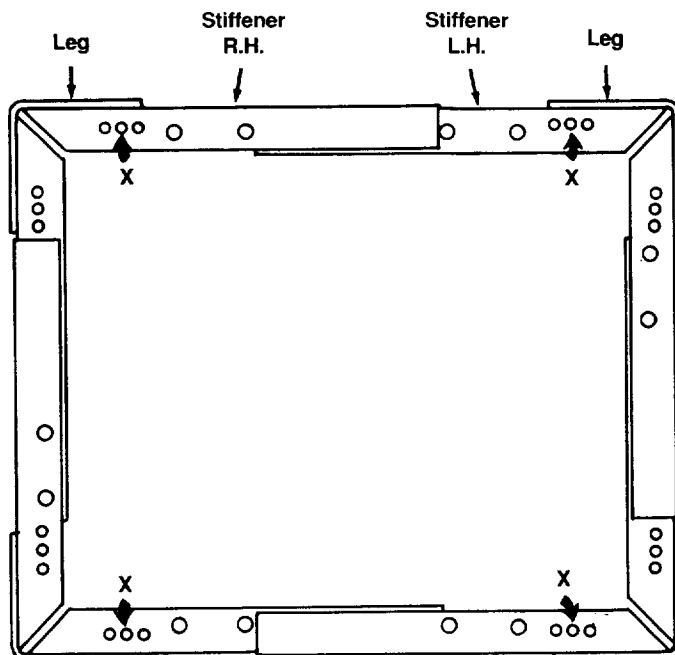
Attach Elevation Crank.

Install crank on elevation shaft. Be sure setscrew is tightened on flat of shaft.



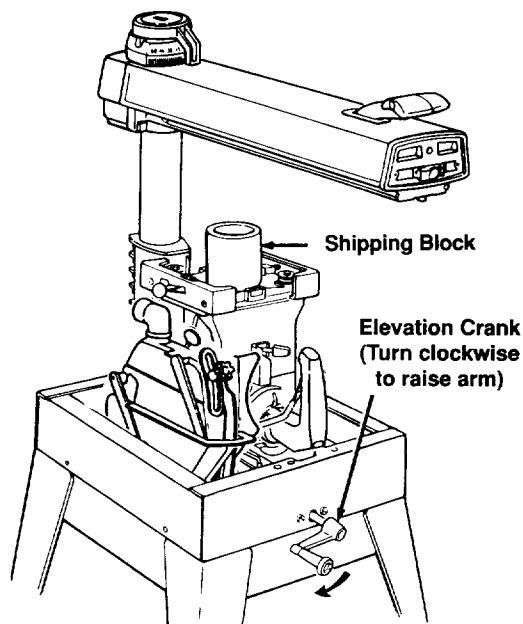
Elevate arm approximately 3 to 4 inches.

Remove shipping block and discard.



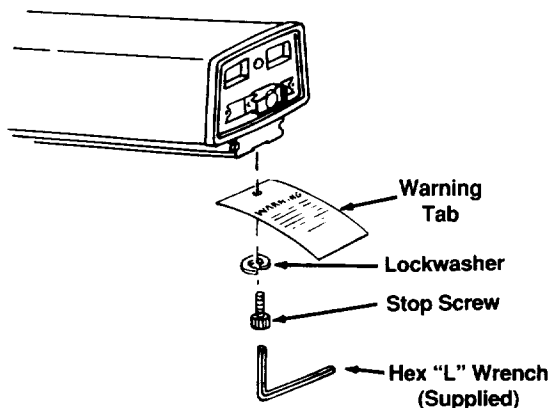
WARNING

Saw must slant slightly towards rear to keep blade carriage from rolling forward. Workpiece or saw can move unexpectedly if leg set rocks. Fingers, hand or arm could be cut off by blade contact. Adjust leveling feet before using saw.



Attaching Carriage - Motor to Arm

Remove carriage stop screw, lockwasher and tag. Read and understand warning tag before discarding.



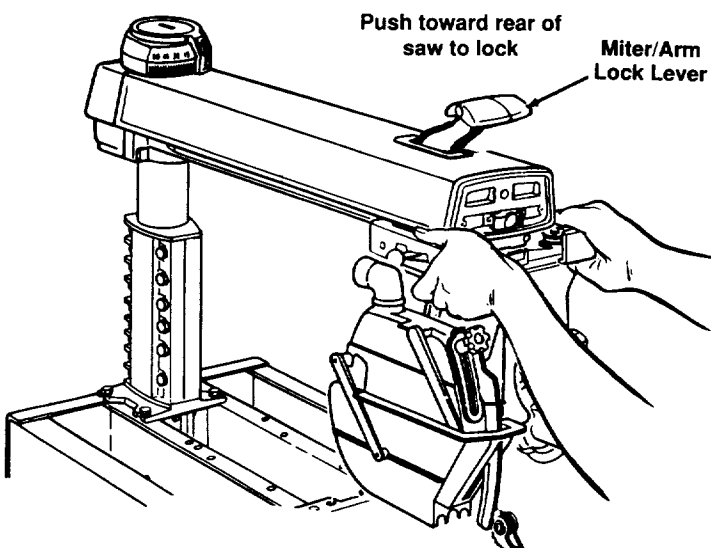
Lock miter/arm lock before proceeding.

Holding carriage assembly with both hands, carefully start and slide the carriage onto the tracks. The assembly must be held parallel with the arm so that all four bearings slide smoothly onto the arm, preventing any excessive strain on bearings and track.

⚠ WARNING

Reinstall carriage stop screw and lockwasher to prevent carriage from rolling off arm.

Remove two (2) motor packing studs that are threaded into bottom of motor.

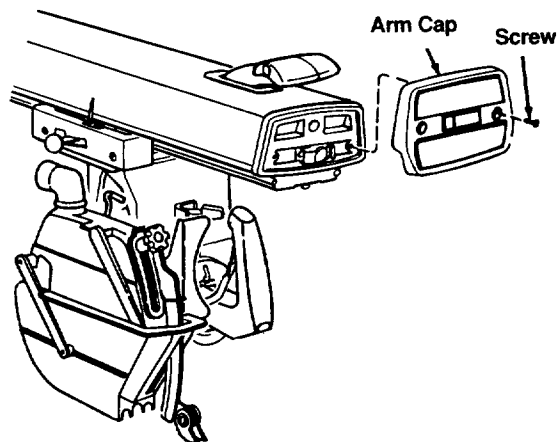


Install arm cap and arm cap trim

⚠ WARNING

Make certain power cord is unplugged.

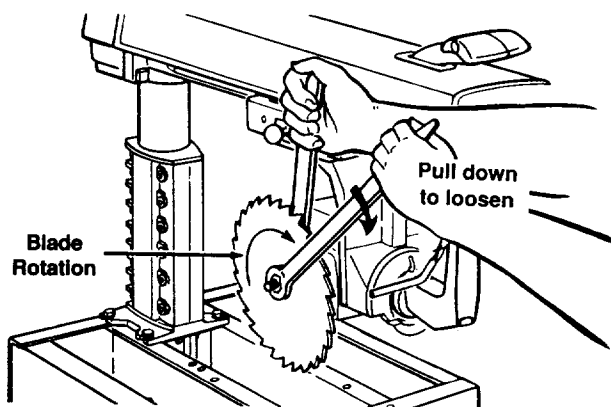
1. Insert finger under left end of switch lever and pull out to the "ON" position.
2. Place arm cap in position and install with (2) 10-32 x 7/8 self threading screws.
3. Push switch to "OFF" position.



Assembly

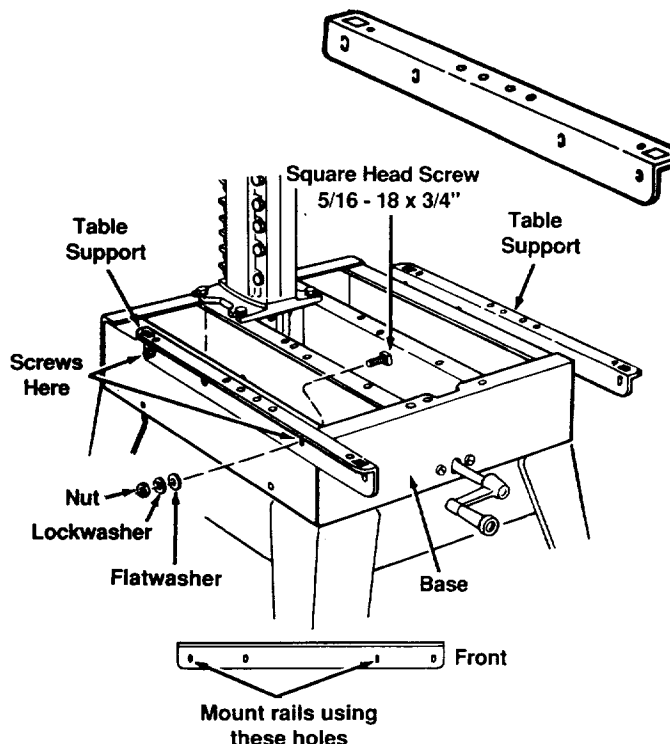
Remove saw blade.

1. Tighten carriage lock knob, located on right side of arm.
2. Loosen guard clamp screw approximately 4 turns.
3. Use one hand to lift the clear plastic guard at the front of the saw.
4. Use the other hand to grasp the rear of the guard (below the dust elbow).
5. Rotate the entire guard assembly forward approximately 45°.
6. Remove the guard assembly.
7. Motor shaft has left hand threads. Hold shaft wrench and rotate arbor wrench down (clockwise).
8. Remove shaft nut, outer collar, saw blade, and inner collar. Set aside and out of the way.



Attach Table Supports

1. Set out:
 - two table supports
 - four 5/16" 18 x 3/4" long square head screws
 - four 11/32" x 7/8" x 1/16" flatwashers
 - four 5/16" lockwashers
 - four 5/16" hex nuts
2. Attach supports to side frame, making sure to use correct holes in table supports and side frame: Use two screws per support (insert screws through base and then support); on end of each screw put a flat washer, lockwasher and nut then finger tighten so table supports rest in lowest position.



This concludes the assembly section. Except for installing table boards, fence, and table clamps the saw should be completely assembled. The next section deals with adjusting your saw to remove all "looseness" in order to get accurate cuts.

Adjustments

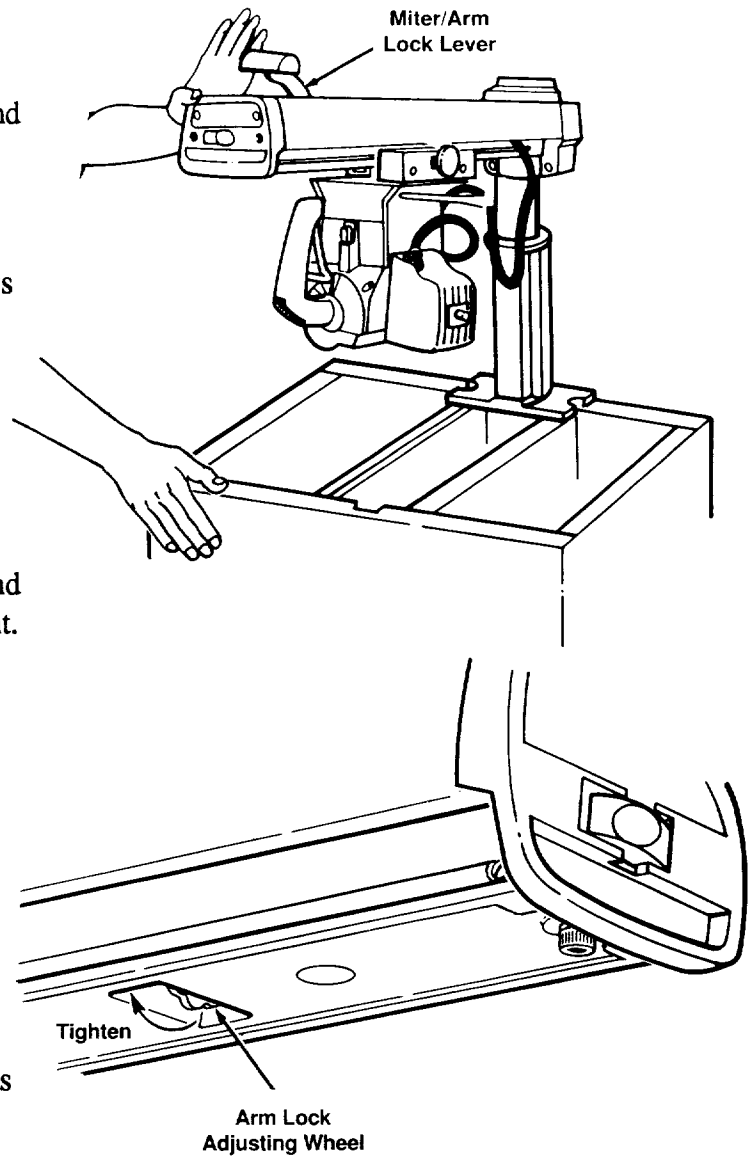
Arm Lock Adjusting Wheel

With the arm at an “unindexed” position and the miter lock applied, the locking action should feel tight and secure.

Considerable effort should be required to move the arm back towards 0°. It is always possible to force the arm because of the leverage advantage the long arm provides. However, the arm should resist moving when a reasonable amount of force is applied.

To check follow these steps:

1. Pull miter/arm lock forward to unlock and rotate arm to approximately 30° left or right.
2. Lock miter/arm lock by pushing handle toward rear of saw.
3. Apply pressure as shown above.
4. If the arm moves easily:
 - a. Unlock miter lock.
 - b. Locate the adjusting wheel as shown.
 - c. Turn wheel clockwise to tighten, counterclockwise to loosen.
5. Repeat steps 1, 2, 3 above and readjust as necessary.

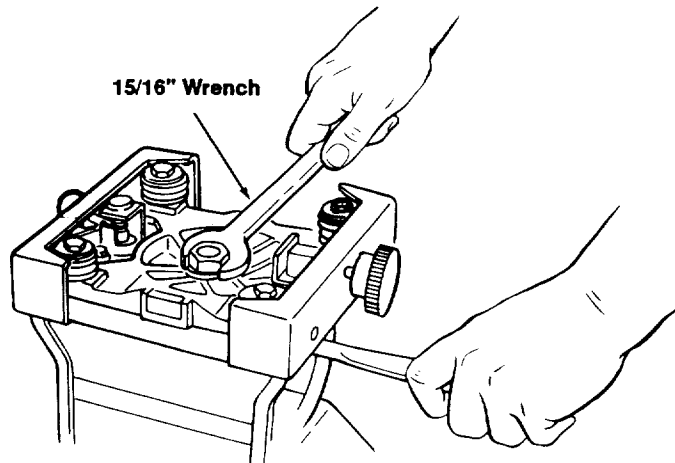
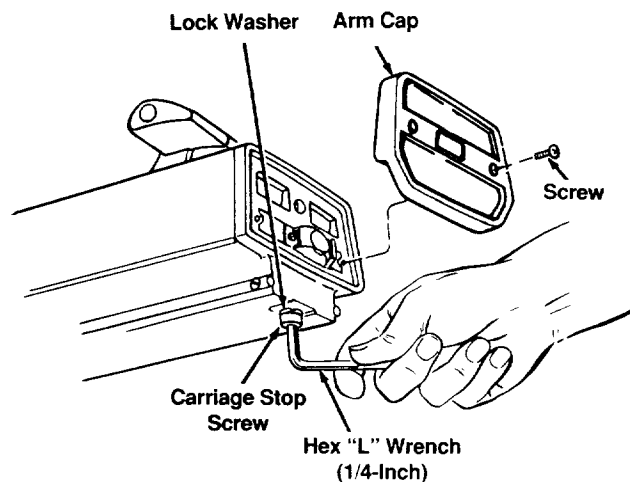
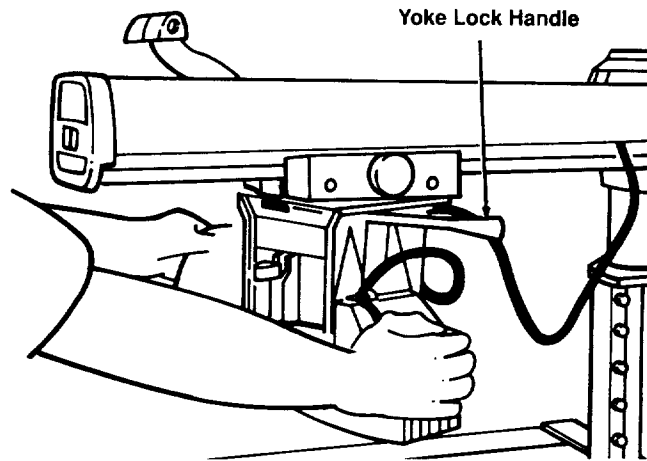


Adjustments

Yoke Clamp Adjustment

To check the yoke clamp adjustment follow these steps:

1. Pull the yoke lock handle towards the front of saw to unlock yoke. Pull forward on the swivel index pin (on the left side of carriage) to disengage index pin.
2. Swivel the motor halfway between the crosscutting and rip position so the index pin is not engaged.
3. Lock the yoke lock handle.
4. Grasp the motor with both hands and try to swivel it back into the crosscut position. It should not move.
5. If it does move follow these steps:
 - a. Remove arm cap.
 - b. Remove carriage stop screw and lockwasher with a 1/4 inch hex-L wrench.
 - c. Grasp the carriage assembly, move it carefully off the end of radial arm, holding it parallel to the radial arm until all carriage bearings are free of their tracks.
 - d. Rest the motor and carriage assembly on saw frame.
 - e. Set yoke lock handle at unlocked position. Tighten nut with 15/16" wrench, until lock handle locks mid-way between the two legs of the yoke.
 - f. Hold the motor and carriage assembly parallel to radial arm and start the rear bearings onto the tracks. Continue to hold the assembly parallel to the tracks until the forward bearings are on the tracks.
 - g. Slide the carriage rearward on the radial arm and install the carriage stop screw and lockwasher.
 - h. Install arm cap.
 - i. Repeat steps 1-4. Readjust if necessary.



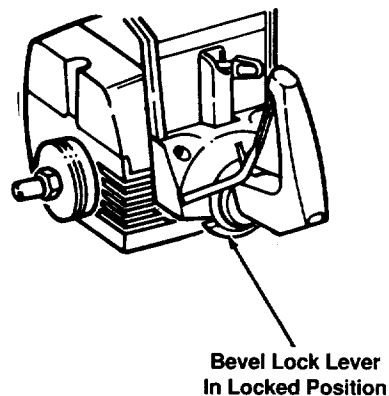
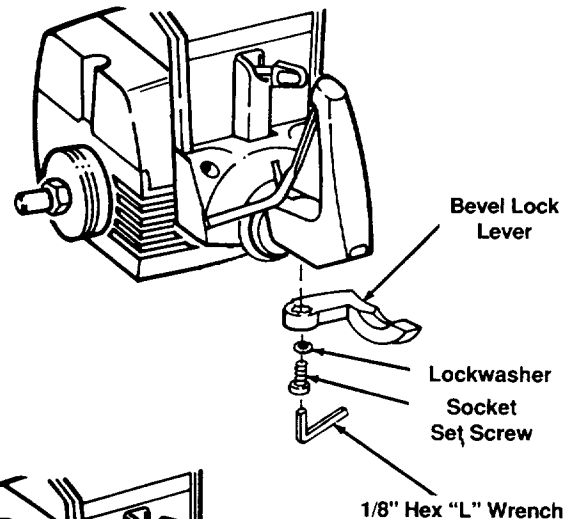
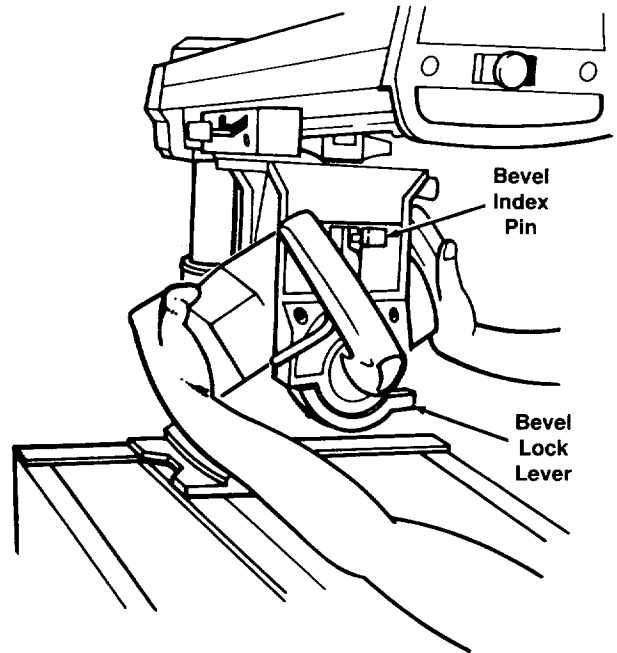
Adjustments

Bevel Lock Lever

The purpose of the bevel lock lever is to lock the motor at any angle. To check follow these steps:

1. Unlock the bevel lock lever. Move the bevel index pin to the left and rotate the saw to approximately 30°. Lock the bevel lock lever.
2. Use both hands as shown and try to force the motor out of position. If the motor moves, the bevel lock lever needs to be tightened. On the other hand if it is extremely hard to lock the bevel lock lever it has been over-tightened.
3. Follow these steps to adjust:
 - a. Remove the socket set screw with hex wrench as shown.
 - b. Use the bevel lock lever as a wrench to tighten or loosen the clamp bolt. Do not over tighten.
 - c. Repeat steps 1 and 2. Re-adjust if necessary
 - d. Replace bevel lock lever in the locked position.
 - e. Tighten the set screw.

Note: The clamp bolt has a left handed thread. Therefore, to increase the clamping effect, rotate the bevel lock lever – when used as a wrench – from right to left, or clockwise when viewed from above. If you accidentally rotate it the wrong way and disengage the bolt from the matching steel nut, it will be necessary to remove the Yoke Handle, and Bevel Scale, in order to re-install the bolt into the nut.

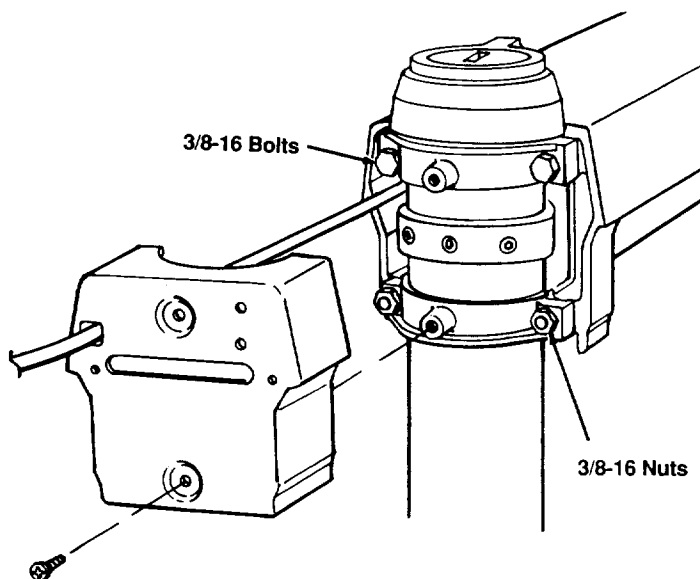


Adjustments

Arm to Column Adjustment

If you can move the end of the radial arm up and down when the arm is unlocked, adjust as directed below:

- a. Remove two (2) screws from rear cover plate. Tighten evenly top two 3/8-16 bolts until arm moves firmly. There should be no vertical or horizontal movement in the arm when miter/arm lock is locked and unlocked.
- b. Bottom two nuts should be snugged evenly, but not nearly as tight as top two bolts.
- c. Re-Install Rear Cover Plate.



Adjusting Column Tube in Column Support

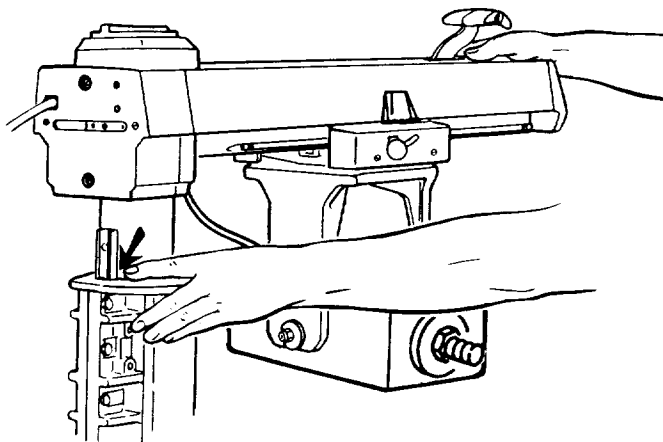
This adjustment serves two purposes;

- To remove any looseness between the column tube and column support to insure accurate cuts; and
- To allow the column tube to raise and lower smoothly.

Note: *The following adjustment is very critical. All future alignment procedures rely on this adjustment being performed correctly. All looseness must be removed.*

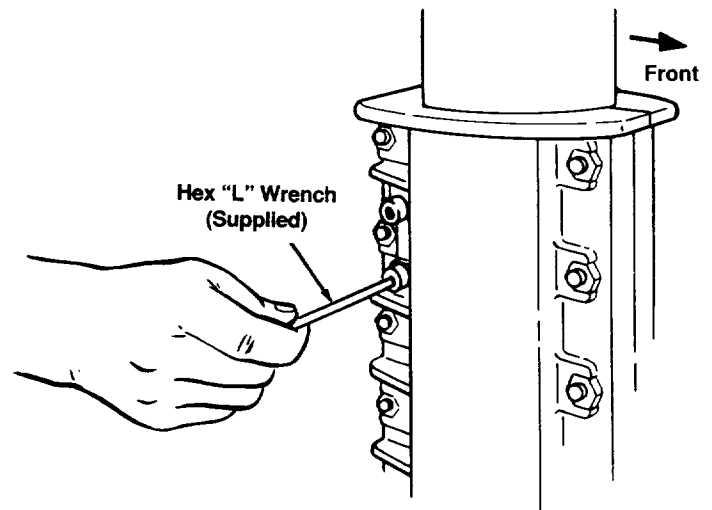
1. Index and lock arm at 0° Miter.

While holding the arm with one hand, hold fingers of other hand as shown, between column tube and column support. Apply gentle side-to-side pressure at end of arm. Any side-to-side or rotational movement can be felt with finger at arrow location. If looseness exists, the following adjustments are required.



Adjustments

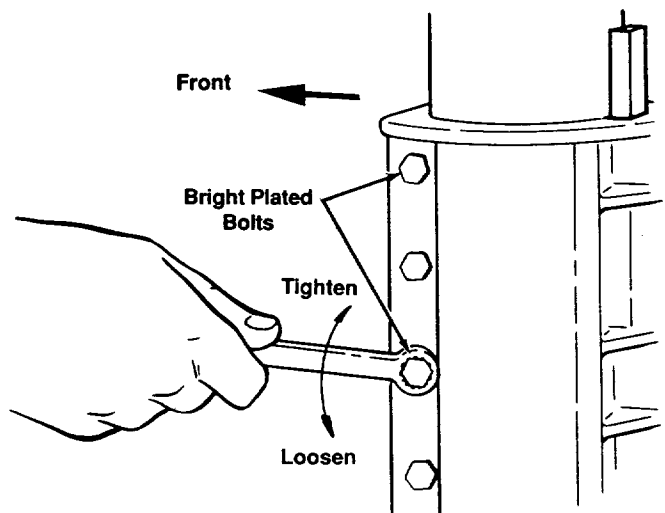
2. Loosen (2) 1/4 - 20 Gib socket cap screws on the left side at the rear of the column support slightly (1/2 turn).



3. Elevate, and then lower the Arm:

a. If the column tube binds and elevation is difficult, loosen two 5/16 - 18 plated bolts on front side of the column support until you achieve smooth but firm elevation.

b. If the column tube moves side-to-side within the column support, tighten the two 5/16 - 18 plated bolts until movement disappears – elevation should be smooth and firm.



4. Now tighten the (2) 1/4 - 20 Gib socket cap screws until no noticeable rotational play exists between Column Tube and Column Support as shown in step 1.

5. Turn the elevation handwheel to raise and lower the saw. If movement is too difficult slightly loosen the socket cap screws.

Adjustments

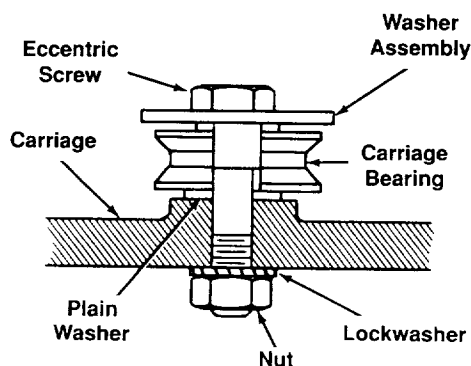
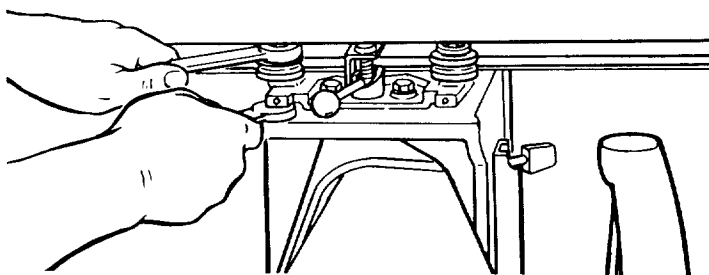
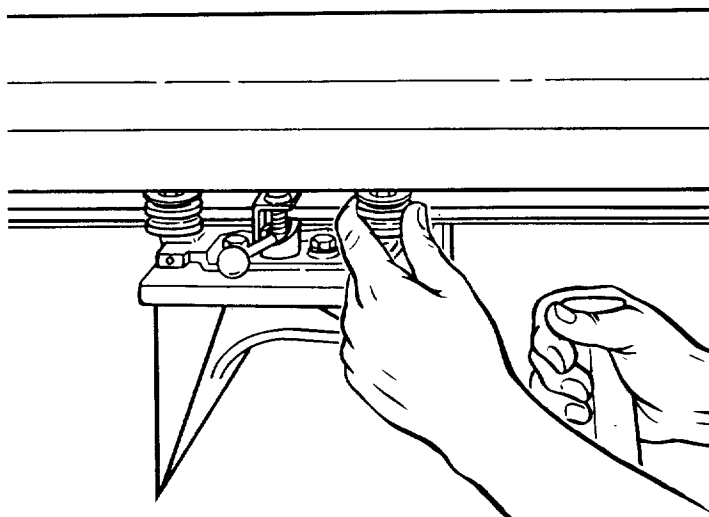
Adjusting Carriage Bearings

If the carriage bearings are loose it not only allows the saw blade to move up, down, and sideways but also results in inaccurate cuts. Before following these steps make sure the tracks (steel rods) and carriage bearings have been cleaned by wiping them with a clean cloth.

When properly adjusted, the top and bottom face of all four bearing grooves should be in contact with the arm tracks for their entire length and carriage should roll smoothly with some resistance.

To test for looseness between bearings and tracks on radial arm, perform the following steps.

1. Remove left-hand carriage cover. (2 screws)
2. Push the carriage to its full rearward position.
3. Grasp front carriage bearing as shown and hold as tight as possible. At the same time pull carriage forward. If you can stop the bearing from turning, it requires adjusting.
4. Check rear bearing in the same manner.
5. Adjust as follows:
 - a. Use two 1/2" wrenches to loosen nut just enough to permit the eccentric screw to turn.
 - b. Rotate the eccentric screw a partial turn (left or right) as required to take up looseness.
 - c. Hold the head of eccentric screw in the position established in the preceding step and tighten nut on underside of carriage. Correct adjustment exists when you cannot keep the bearings from turning. However, excessive bearing pressure will cause difficult operation and rapid wear.
 - d. Install carriage cover.



Left Side Carriage Bearings

Adjustments

Positioning Table Supports/Installing Front Table/Leveling Front Table

Note: The goal in adjusting the table supports and leveling the front table is to make sure that the table is the same distance from the radial arm at all points. This ensures that when the table and blade are installed the clearance between them will be equal at all points.

Positioning Table Supports

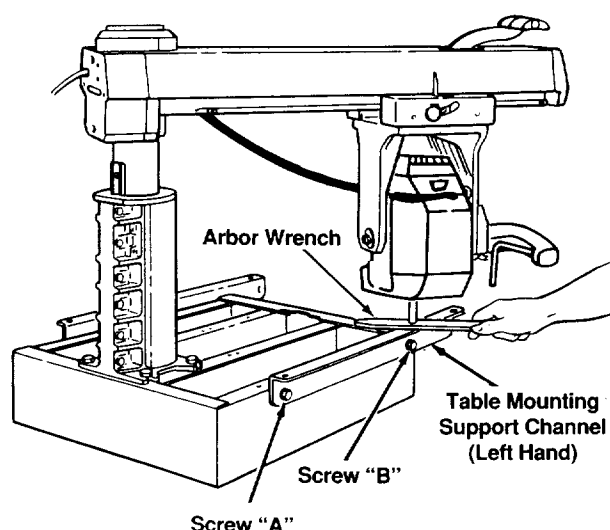
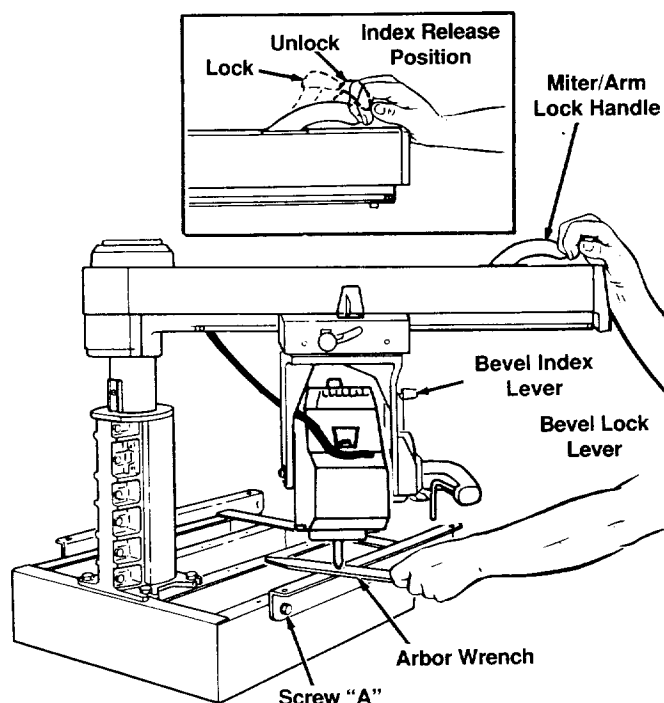
1. Release bevel lock lever, move bevel index lever to the left and rotate the motor to position arbor shaft down. Lock bevel lock.
2. Unlock and hold miter/arm lock lever in index release position as shown. Position arm against left stop (approximately 50° miter). Loosen carriage lock knob and position arbor shaft directly over left hand channel.

Note: For safety reasons in accordance with the UL standard, stops have been provided to prevent 360° rotation of the radial arm.

3. Slide the arbor wrench handle between end of motor shaft and table support to act as a feeler gauge. Carefully lower the motor with elevation crank until the end of shaft is just touching the arbor wrench. The wrench should slide back and forth with only slight resistance. Tighten screw "A".

Note: Do not change this elevation setting until both left and right hand table support channels have been adjusted.

4. Move arm and carriage to screw "B". Adjust position of table support so that the arbor wrench just slips between the end of the motor shaft and the support. Tighten screw "B".
5. Move arm and carriage to right hand table support and level in the same manner as in step 4.
6. Recheck both support channels to make sure that tightening screws did not affect the accuracy of the adjustment.
7. Elevate saw and return motor to horizontal position to provide clearance for installation of front work table.

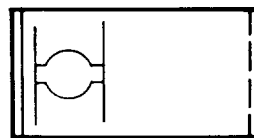


Adjustments

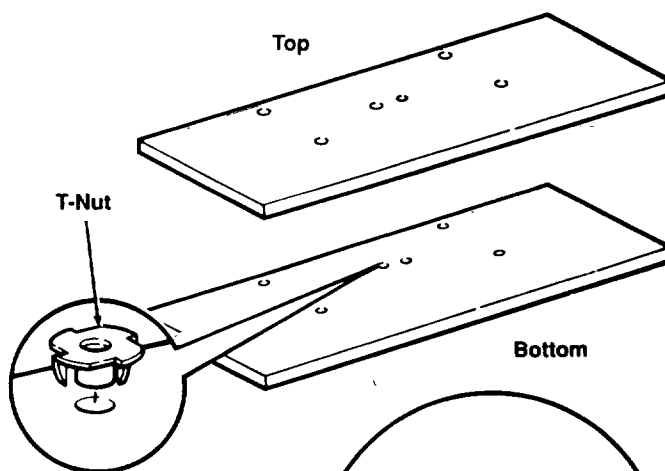
Installing Front Table

1. Set out:

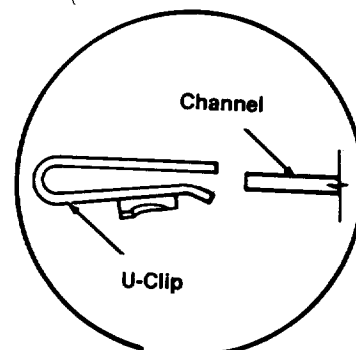
- front table
- tee nut
- 1/4" U-clip
- 1/4" diam. x 7/8" long cup point set screw
- four 1/4" diam x 1" long pan head screws
- 1/4" diam. x 1-3/4" long pan head screw
- five 17/64" I.D. x 5/8" O.D. flat washers
- four 1/4" lock washers
- four 1/4" diam. hex nuts.



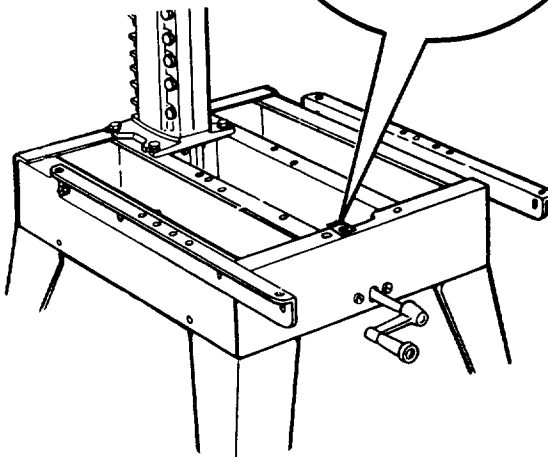
2. Identify top and bottom of table: top has counterbored holes. Place table **bottom side up** on solid surface. Hammer tee nut into leveling hole. (This hole is not counter-bored from the top).



3. Snap U-clip onto front edge of base so hole lines up with hole just to the left of center notch.

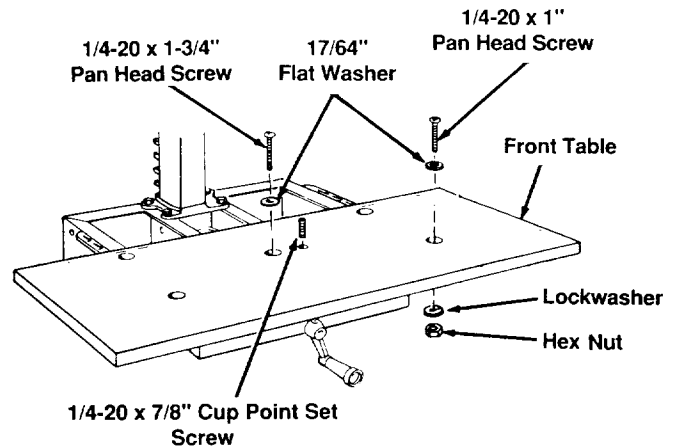


4. Place table, **top side up**, on saw so center counterbored hole lines up with hole in U-clip. *Note: Table will extend over front edge of saw frame.*



Adjustments

5. Drop a flat washer into each counter-bored hole.
6. Start 1-3/4" long pan head screw through center hole and into U-clip, but do not fully tighten.
7. Start cup point set screw through leveling hole and into tee nut, but do not fully tighten.
8. Put 1" long pan head screw in each of four remaining holes and through matching holes in table supports. On end of each screw, put lock washer then nut and tighten with screwdriver.



Make Front Table Flat

1. Place rear table on its edge, across center of front table. Check for gap between surfaces.

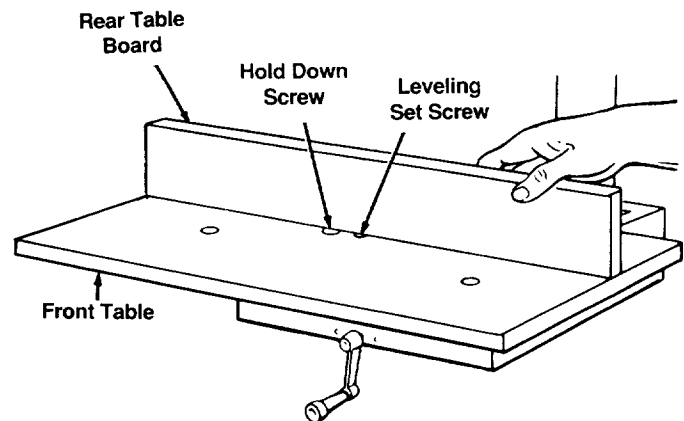
If there is less than 1/32" gap, tighten cup point set screw until it touches frame (look underneath table), then tighten center (1-3/4" long) pan head screw.

If there is more than 1/32" gap, close gap by raising or lowering center of front table:

to raise center, tighten cup point set screw against frame;

to lower center, tighten center (1-3/4" long) pan head screw.

2. When gap is closed, make sure cup point set screw touches frame (look underneath table), and center (1-3/4" long) pan head screw is tightened.



This concludes adjusting your saw where you have removed all "looseness" or slack between the different parts of the saw. The next section deals with actually aligning the sawblade to get accurate cuts.

Alignment

This section applies to all three models covered by this manual.

The saw and blade must be aligned correctly for two reasons:

- 1) to prevent binding of the blade and work-piece, which can cause jams, kickbacks, or thrown workpieces;
- 2) to make accurate cuts.

Alignment and Adjustment Steps

The following alignments and adjustments **must be made in order**. If you miss an adjustment, you must go back, make the missed adjustment, and repeat all steps from that point on.

These adjustments are like fine tuning a piece of equipment. Often, a series of steps must be repeated more than once in order to get the adjustment right. There are many adjustments to make. Because some adjustments may be awkward, you may want to ask someone to help you.

Before you start, make sure the framing square is true.

Square Crosscut Travel

The goal of this adjustment is to make accurate crosscuts. To do so, the radial arm must be square to the fence, otherwise, there will be a slight miter angle in all crosscuts.

Squaring cross cut travel.

1. Index but do not lock arm at 0° miter.
2. Install saw blade as shown. Motor shaft has left hand threads.

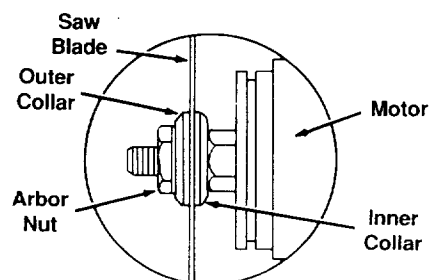
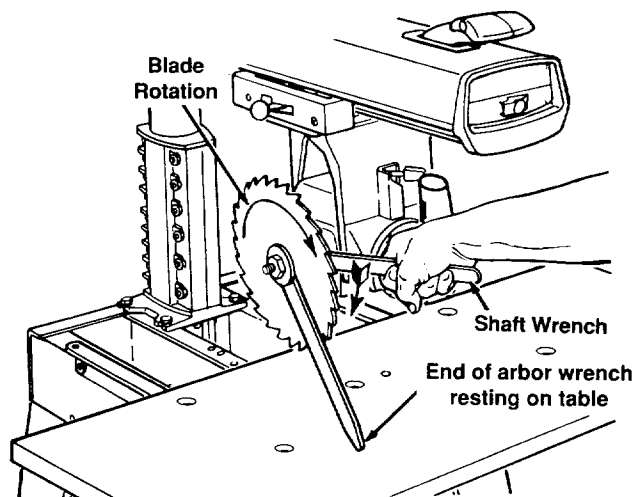
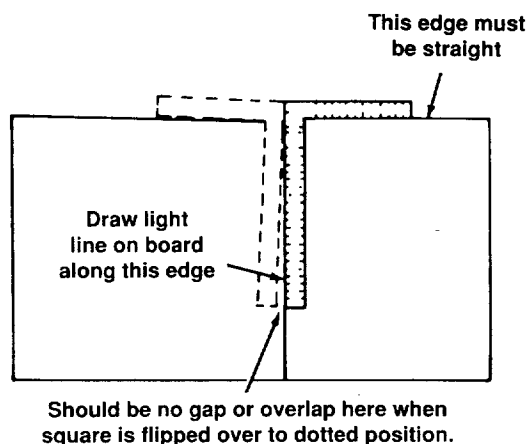
Note: Do not overtighten arbor nut. Use the arbor wrench to just “snug” it.

⚠ WARNING

Plugging in saw during alignment could result in accidental start-up and severe cuts from contact with spinning blade.

Do not plug in saw at anytime during alignment or adjustment.
Plug in saw only when it is to be used.

Check Framing Square



Alignment

3. Lower arm until saw blade just clears the front table. Lock the yoke lock handle and bevel lock lever.

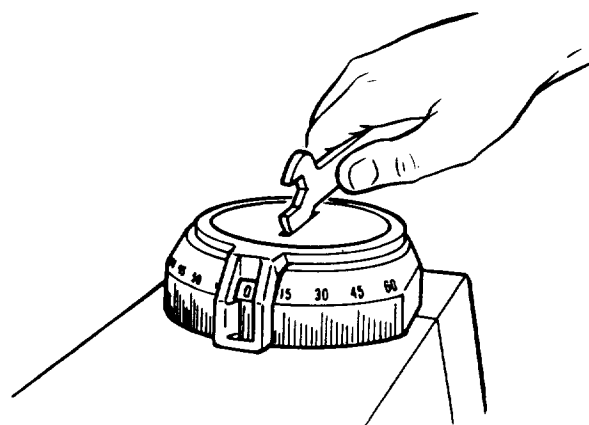
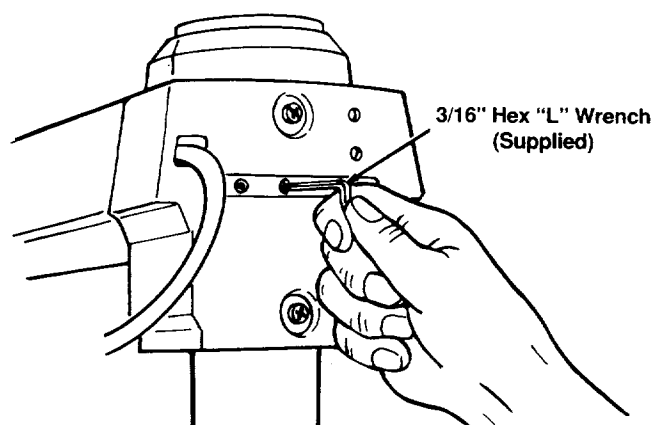
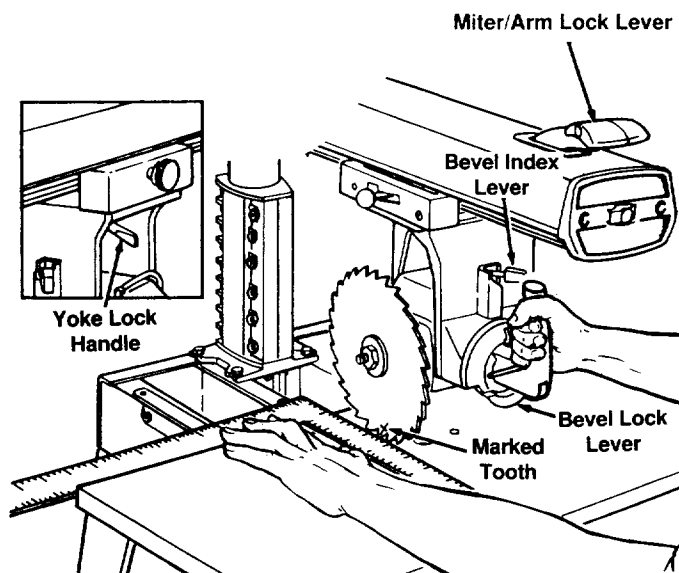
4. Place a framing square on the table, as shown, with one leg of square firmly against rear edge of front table. Position the blade and square until the leg of the square just contacts a tooth of the blade. Mark this tooth.

5. When the carriage is moved slowly back and forth on the arm, the marked tooth should just touch the square at all points. If marked tooth moves into or away from square the following adjustments are required:

- Loosen (3) $\frac{3}{8}$ – 16 set screws in arm latch at rear of arm.
- Move the arm in direction to make marked tooth follow edge of square when the saw blade is moved along arm in a “cross cut” manner.
- Lock miter/arm lock.
- Retighten (3) setscrews in arm latch as tight as possible and recheck “cross cut” travel.

Note: *This squaring of the cross cut travel will simultaneously set both of the 45° miter index positions.*

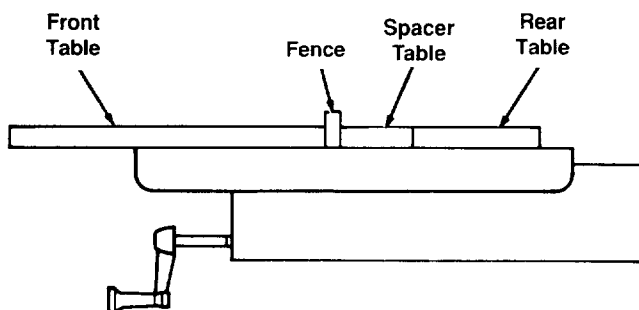
6. Set miter indicator on 0° position using end of blade wrench.



Alignment

Install Table Clamps

1. Insert fence, then spacer table, then rear table.

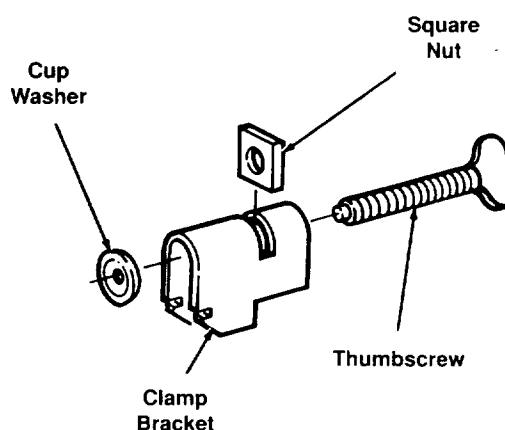


2. Set out two unassembled table clamps:

- two cup washers
- two clamp brackets
- two square nuts
- two thumbscrews

3. Slip square nut into slot at top of clamp bracket.

4. Insert thumbscrew through rear opening, and turn clockwise until it comes out other side about 1/2". *Note: If you put screw in front opening, clamp will not work.*

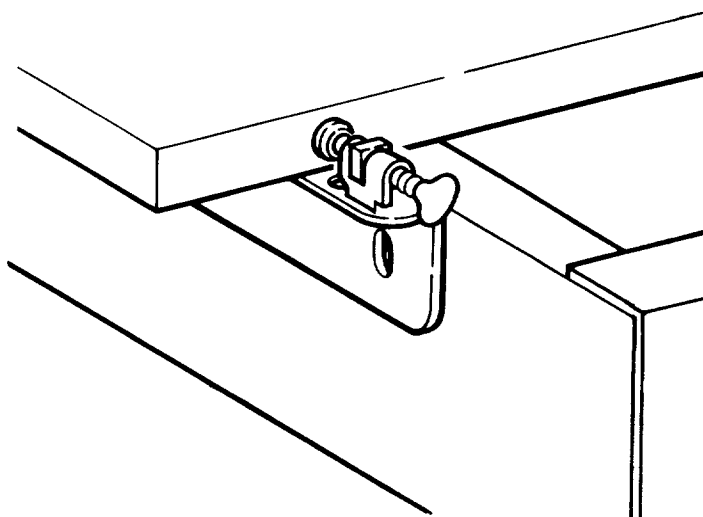


5. Tilt clamp bracket forward and snap into place in opening at rear of table support.

6. Hold cup washer with concave side against rear table. Turn thumbscrew clockwise until it snaps into washer.

7. Repeat steps for other table clamp.

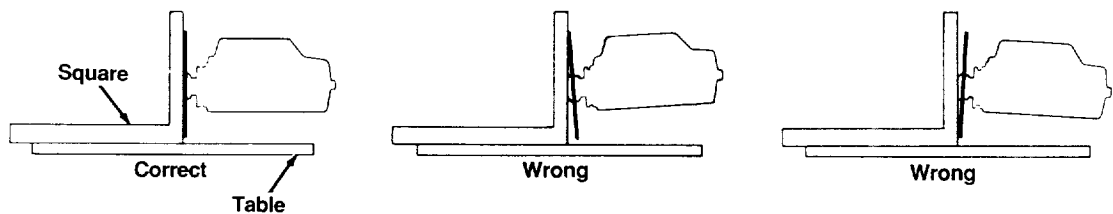
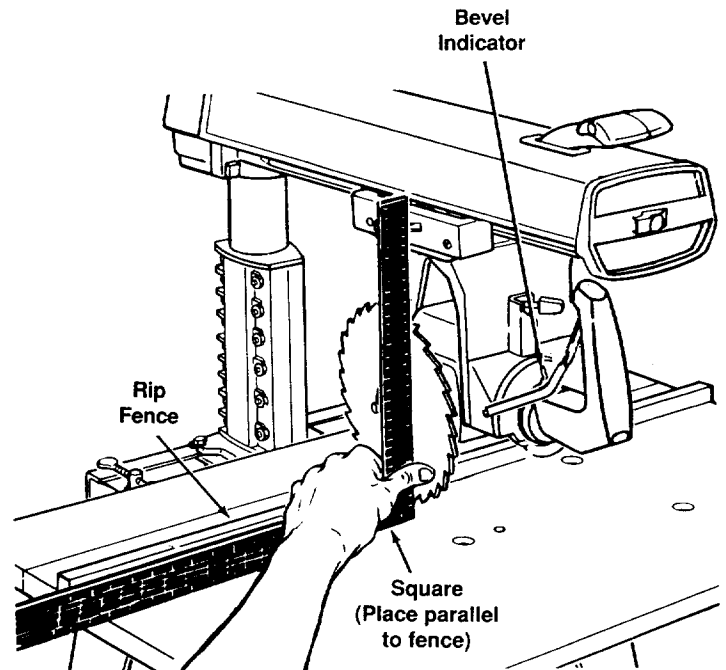
8. Tighten thumbscrews to clamp table sections in place.



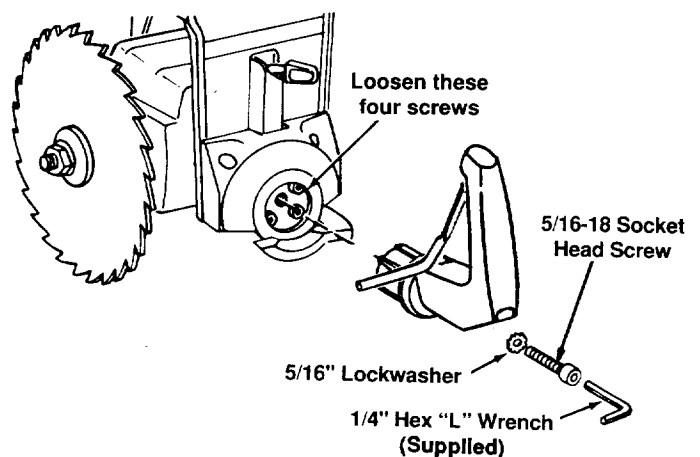
Square Blade to Table for Crosscutting

The goal of this adjustment is to make the blade square to the table so that crosscuts will be accurate; otherwise all crosscuts will have a slight bevel angle.

1. Lower blade until it just clears front table. Lock bevel, miter, rip, and yoke locks.
2. Place a framing square on the table with the short leg against the saw blade and long leg parallel to fence. Do not allow the square to rest against a "set-out" tooth; it must rest flat against the blade side.
3. If the saw blade is square with the table top (no visible gap appears between the saw blade and square) no adjustment is required. Set bevel indicator to 0° reading. If the square does not touch the saw blade as shown (with square leg held firmly against the table top), perform the following adjustments:



- a. Tighten rip lock knob.
- b. Remove handle by removing 5/16-18 socket head screw and lockwasher.
- c. Slightly loosen the four socket head screws with 1/4" Hex "L" Wrench. Rotate motor while holding square firmly against saw blade and table top.
- d. Slightly tighten each of the four screws and recheck...Now tighten each screw tight.
- e. Reinstall handle and adjust indicator to 0° reading.
- f. Loosen rip lock knob.



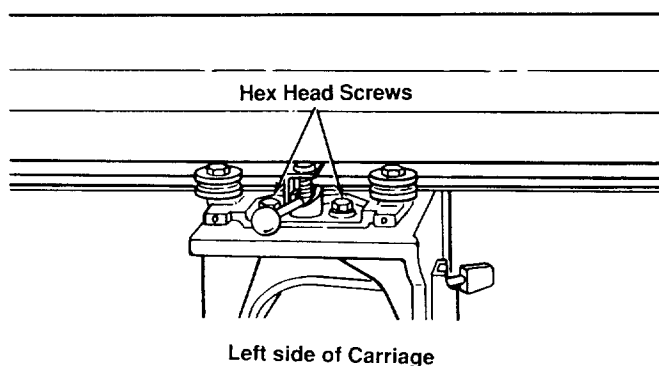
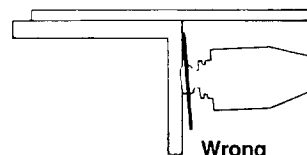
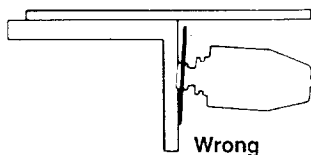
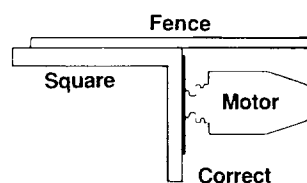
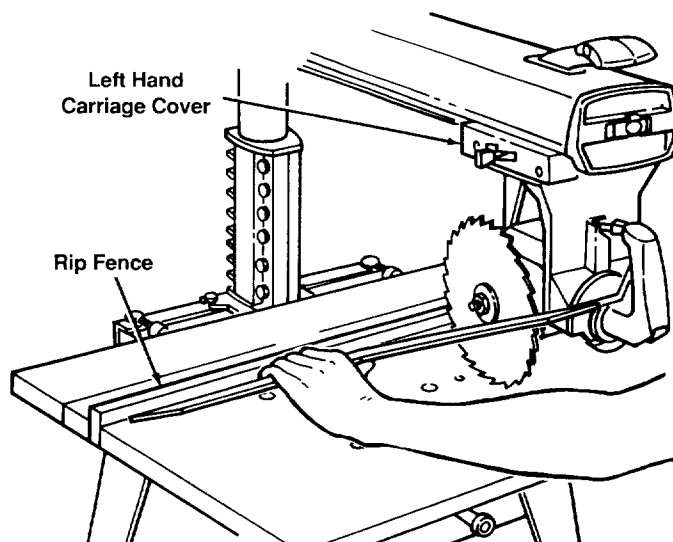
Alignment

Square Blade to Fence

The goal in setting the blade square to the fence is to reduce the risk of kickback when ripping. This adjustment will also reduce splintering of the workpiece and burning of the kerf during ripping and crosscutting.

1. Lower blade until it just clears table.
2. Unlock rip lock, Pull blade forward to front of arm. Lock rip lock.
3. Place square so short edge is against fence and long edge is against flat surface of blade (not on a tooth), just below blade collar.
4. There should be no gap between blade and square. **Note:** *Not all blades are perfectly flat. Check different points along blade surface by making quarter turns and looking for gap each time. Consider overall fit of blade. If there is no gap, no adjustment is needed.*
5. If there is a visible gap between the saw blade and square adjust as follows:
 - a. Remove left hand carriage cover.
 - b. Loosen the yoke lock handle. (on right side of carriage).
 - c. Loosen slightly the two hex-head screws holding yoke index pin.
 - d. Rotate the yoke assembly until gap between the saw blade and square is eliminated.
 - e. Lock yoke lock handle. Retighten the two hex-head screws.
 - f. Recheck blade squareness.
 - g. Install carriage cover.
 - h. Loosen carriage lock knob and return blade to rear of arm.

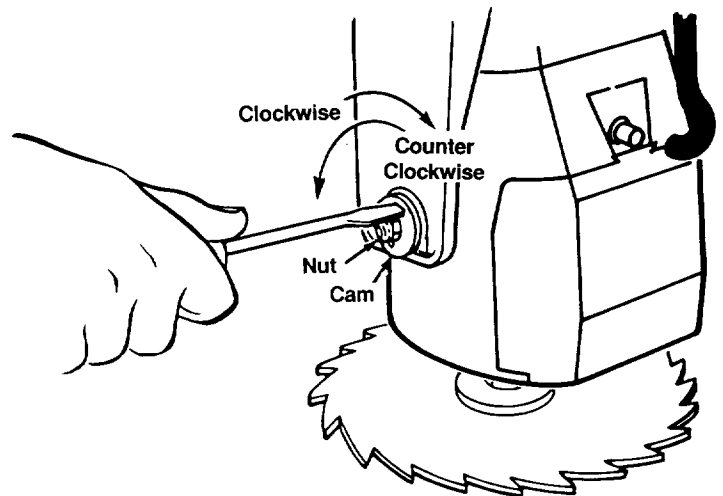
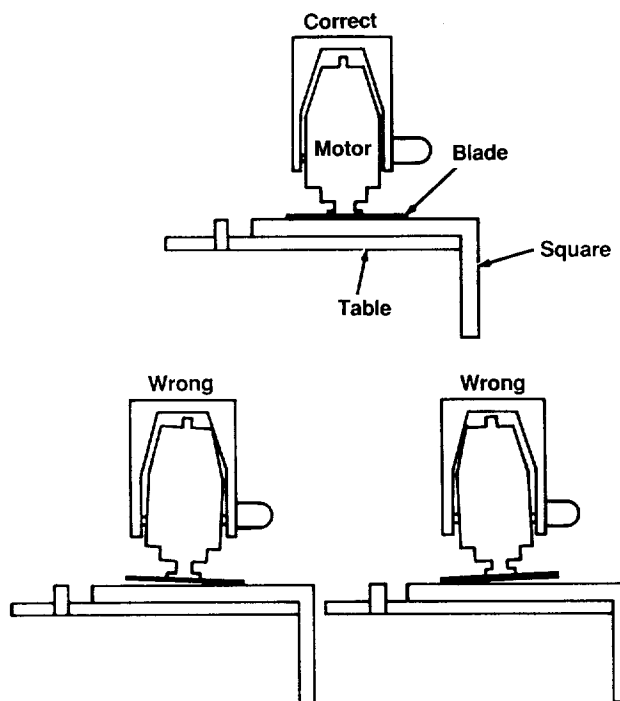
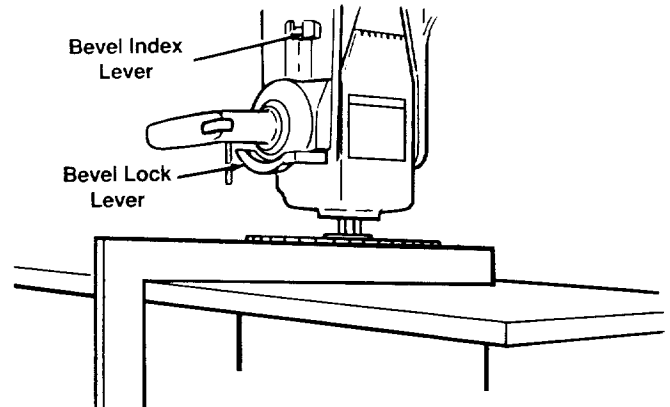
Note: *This alignment procedure will simultaneously set both yoke indexing positions for blade in and out rip.*



Make Blade Parallel to Table

The goal of this adjustment is to keep the workpiece from being thrown or damaged. This adjustment will also reduce splintering of the workpiece and burning of the kerf during ripping and crosscutting.

1. Lock arm in straight crosscut position.
2. Pull blade forward and lock rip lock.
3. Raise blade at least 2" above table.
4. Lock motor at 90° bevel (blade horizontal).
5. Place square so long side is on table under right side of blade, and short side hangs down vertically at front of saw.
6. Lower radial arm until blade surface, not a tooth, just rests on square.
7. There should be no gap between blade and square. *Note: Not all blades are perfectly flat. Check different points along blade surface by making quarter turns and looking for gap each time. Consider overall fit of blade.* If there is no gap, no adjustment is needed.
8. If there is a visible gap between saw blade and square, a bevel heel condition exists and adjustment is required.
 - a. To correct, unlock bevel lock lever. Loosen the rear motor mount nut until you can rotate Cam. Rotate Cam as shown until gap between saw blade and square is eliminated.
 - b. Tighten nut.
 - c. Tighten bevel lock lever and recheck blade to square.
 - d. Reposition motor to crosscut position with blade at rear of arm.



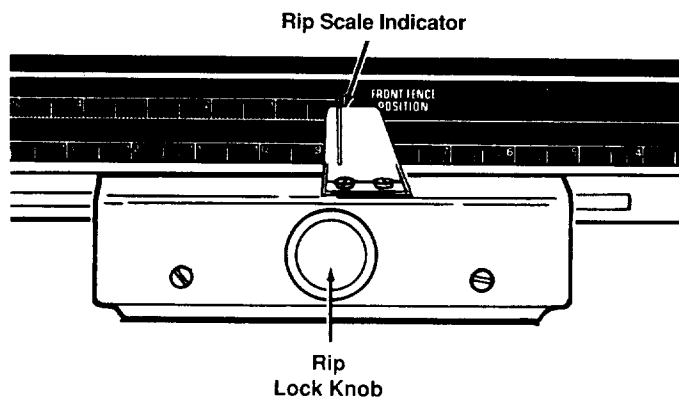
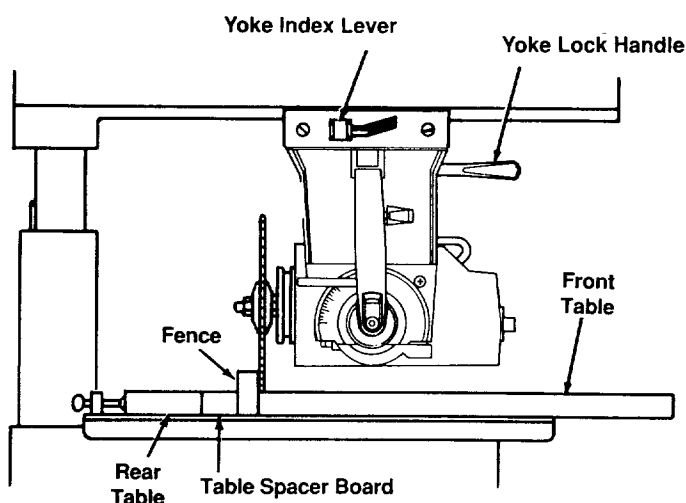
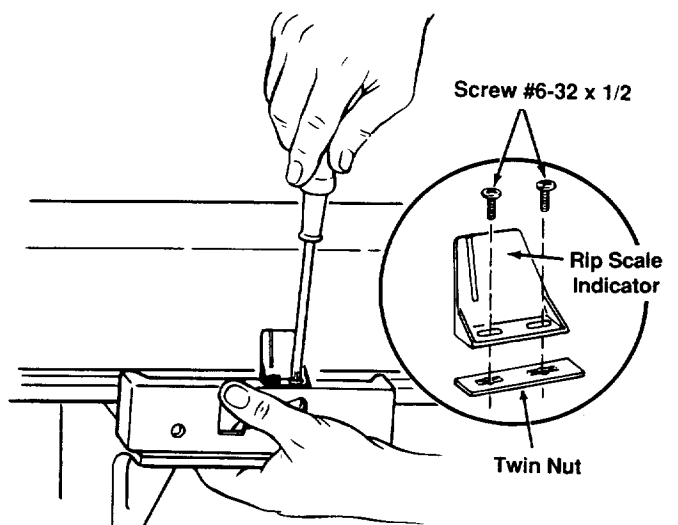
Alignment

Installing and Adjusting 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. Pre-assemble indicator and twin nut. Loosen but do not remove two screws which attach left hand carriage cover.
2. Tilt carriage cover and install rip indicator with twin nut on inside of cover. Tighten carriage cover attaching screws.
3. Loosen but do not remove rip lock knob in right hand carriage cover. Install rip indicator. Tighten carriage cover attaching screws.
4. With fence in its normal position (next to front table), loosen yoke lock handle, pull yoke index lever forward and rotate yoke to the left to index yoke 90° from the cross cut position. This will locate saw blade between motor and fence. Lock yoke lock handle.
5. Position carriage until edge of blade, when spun by hand, just touches front face of fence. The rip-scale indicator (on the right hand side of radial arm) should now read "0" inches on upper portion of the blade "In-Rip" scale. If not, loosen screws and shift the indicator until it is aligned with the "0" mark, then tighten the screws.

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



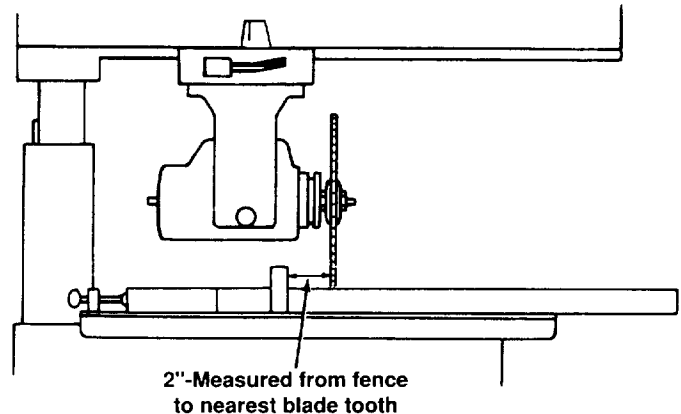
Alignment

6. The blade "Out-Rip" scale indicator on left hand side of the radial arm is adjusted in essentially the same manner as blade "In-Rip" indicator, except position blade with 2 inches between fence and face of saw blade. The rip-scale indicator should be positioned to read 2 inches on upper portion of the blade "Out-Rip" scale.

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

7. Loosen the yoke lock handle, pull the yoke index lever forward and return the blade to the crosscut position.

Note: Blade is now aligned. It is important that you periodically check alignment and adjustment to insure accurate cuts and improve and safety of cutting procedures.



Install Guard

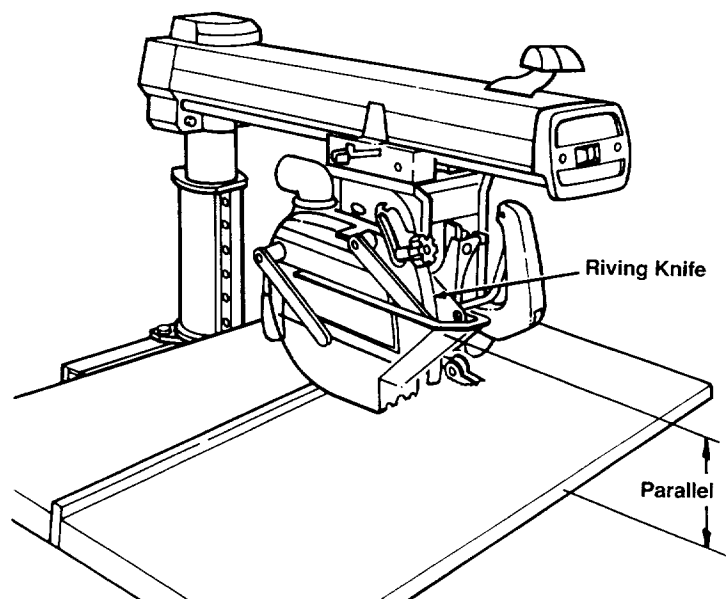
The guard is a very important safety feature. It covers a large part of the blade and helps protect against severe cuts. Always use the guard.

1. Lock motor at 0° bevel (blade vertical).
2. Use one hand to lift clear plastic guard; use other hand to grasp rear of guard (below dust elbow). Position guard so riving knife faces front of saw.

3. Tilt front of guard down about 45°; place over blade; rotate guard to level position.

Note: Make sure notch in guard fits onto tab on motor. This will prevent movement of guard about motor. Squeeze handle trigger to make sure it raises clear plastic guard. If it does not, remove and re-install guard, making sure that trigger mechanism engages pull link on guard.

4. Tighten guard clamp screw.

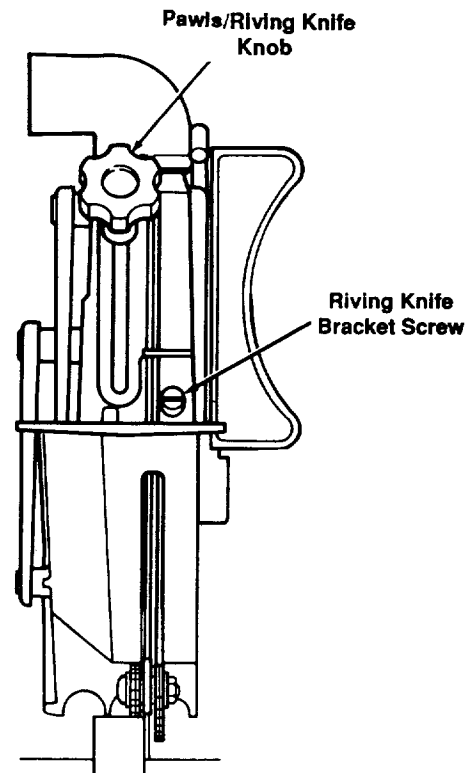
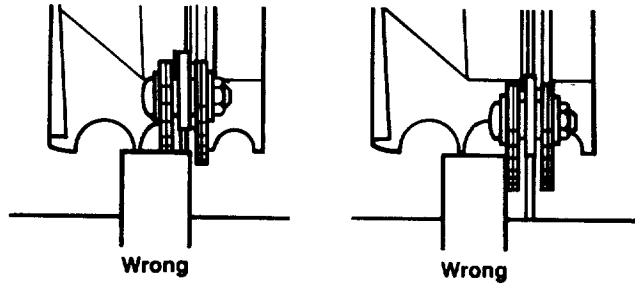
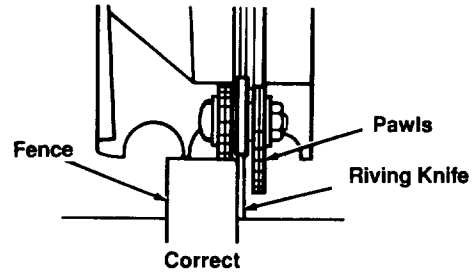


Alignment

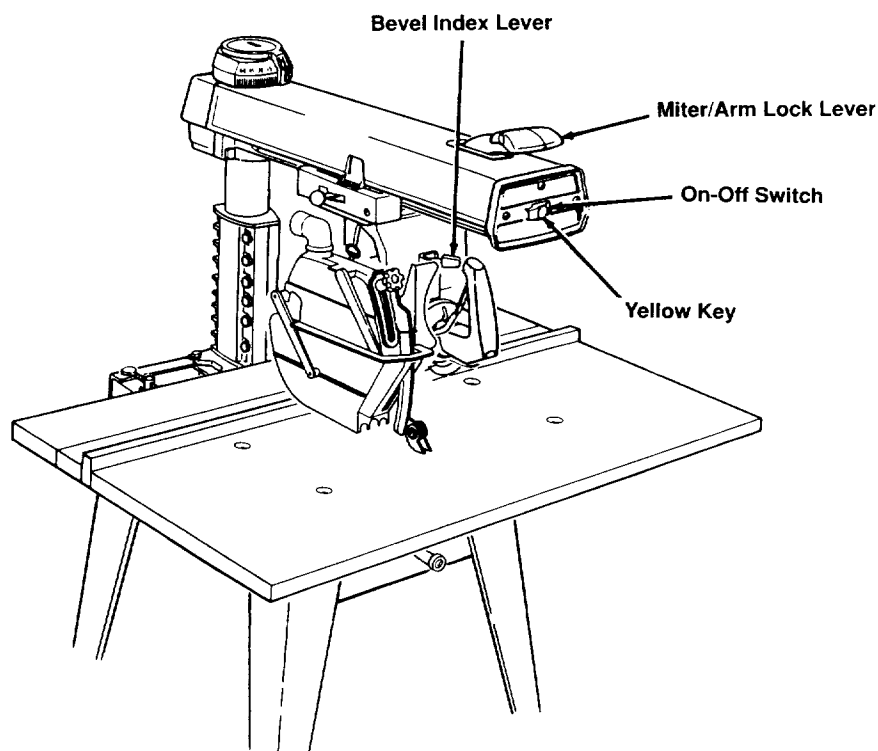
Align Riving Knife to Blade

The goal of this adjustment is to position the riving knife directly in line with the blade. Riving knife alignment is an important safety factor. The riving knife rides in the kerf of the cut workpiece during ripping to keep the two sides of the workpiece from pinching on the blade. Blade pinching is a cause of kick-back.

1. Lock yoke in in-rip position (blade towards column, motor towards front of arm).
2. Lower arm until blade just clears table.
3. Unlock rip lock while holding up lower plastic guard, move yoke back until blade touches fence. Lock rip lock.
4. Loosen pawls/riving knife knob. Lower riving knife to the table and tighten knob. The riving knife should rest flat against fence.
5. If adjustment is needed:
 - i) loosen riving knife bracket screw.
 - ii) slide riving knife so it rests against fence.
 - iii) secure riving knife bracket screw.
6. Raise riving knife and tighten pawls/riving knife knob.

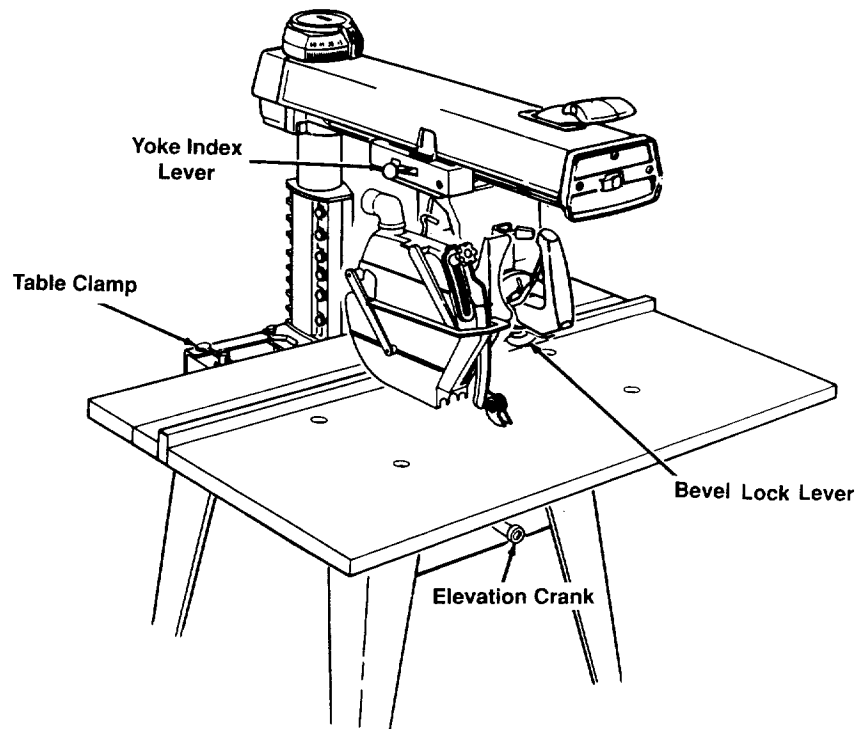


Controls



<u>Control</u>	<u>Function</u>	<u>Operation/Comments</u>
Miter/Arm Lock	Frees radial arm to move; locks in any desired position; pre-set indexed positions at 0°, 45°L, 45°R	Pull lever forward to release index then swing arm left or right <i>Hold in unlocked position while moving arm</i>
On-Off Switch	Turns motor on/off	Pull on, push off <i>Requires yellow key</i>
Yellow Key	Allows saw to be switched on	Insert into on-off switch <i>Remove after turning saw off</i>
Bevel Index Lever	Indexes the saw blade to 0°, 45°, or 90° pre-set index positions	Move bevel index lever to the left while positioning the blade, then release it

Controls



Control

Function

Operation/Comments

Bevel Lock Lever

Frees motor to rotate; locks in any desired position

Pull lever to release and push to lock
Support motor before unlocking because it can swing down quickly
Bevel index lever must be un-indexed before moving motor

Elevation Crank

Raises/lowers radial arm

Turn clockwise to raise, counterclockwise to lower

Table Clamp

Frees table sections to allow changing fence position

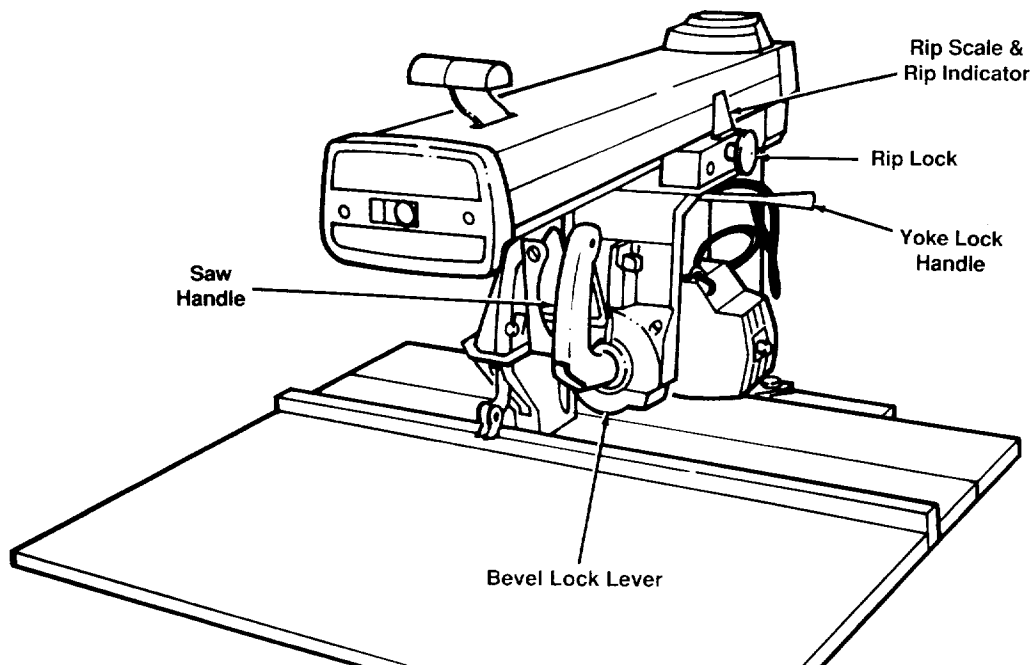
Turn clockwise to tighten, counterclockwise to loosen

Yoke Index Lever

Frees yoke to rotate between rip and crosscut positions

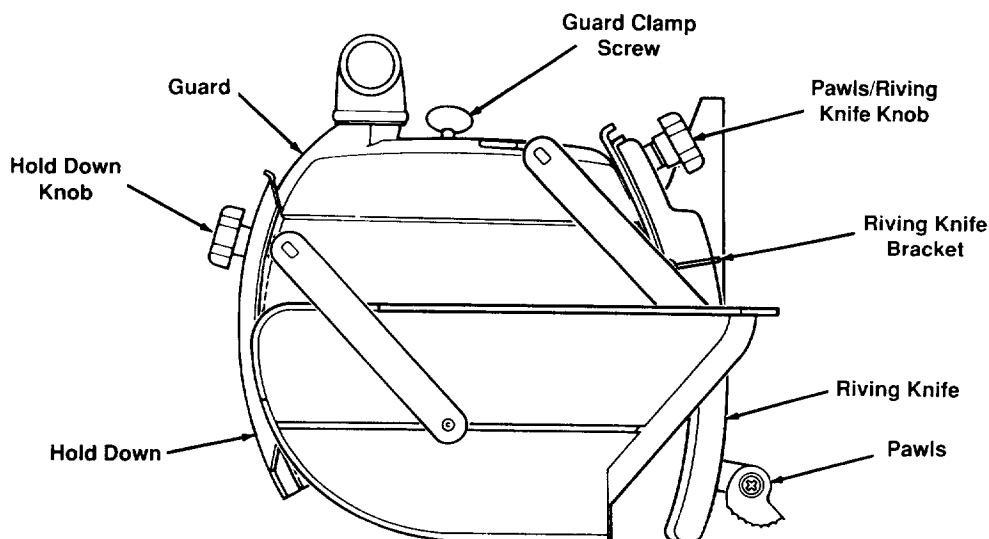
Pull the spring loaded yoke pivot latch forward to release this pin

Controls

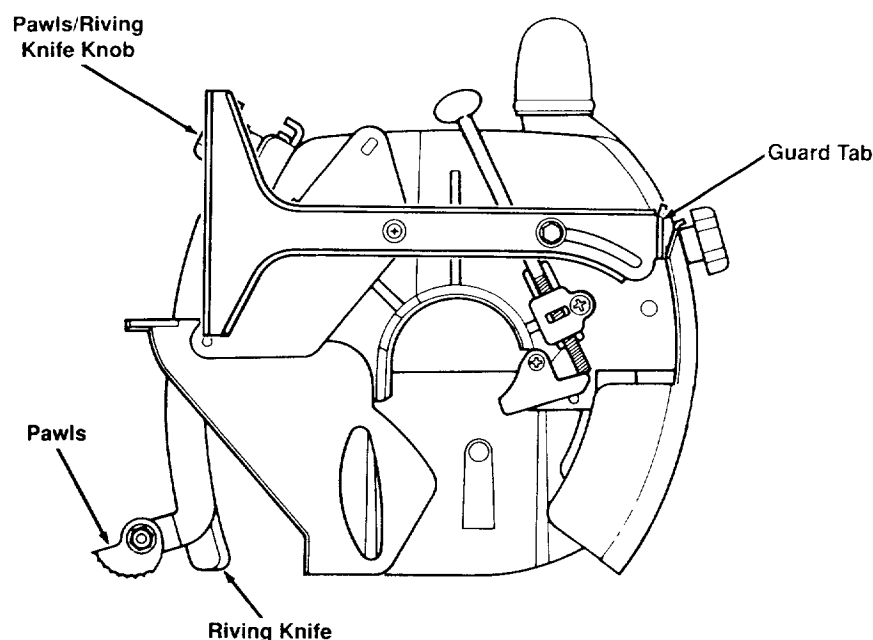


<u>Control</u>	<u>Function</u>	<u>Operation/Comments</u>
Yoke Lock Handle	Locks yoke in rip or crosscut position	Pull handle forward to release; push handle reward to tighten <i>Yoke index lever must be un-indexed before rotating yoke</i>
Rip Lock	Locks carriage to radial arm for ripping	Rotate counterclockwise to release carriage; turn clockwise to lock carriage in position <i>Lock before ripping</i>
Rip Scale & Rip Indicators	Tells approximate distance between blade and fence when saw is in in-rip or out-rip position	Move blade carriage along arm to align line on indicator with desired number on scale
Saw Handle	Provides grasping surface so carriage can be moved. Contains trigger mechanism to raise clear plastic guard when making a crosscut	Grasp to move blade carriage <i>Squeeze trigger to raise clear plastic guard. Clear guard must be raised over fence to start crosscut</i>

Controls



<u>Control</u>	<u>Function</u>	<u>Operation/Comments</u>
Guard Clamp Screw	Secures guard to motor; frees guard for removal	Turn counterclockwise to loosen, clockwise to tighten
Guard	Protects against contact with upper blade; partially protects against contact with lower blade; acts as sawdust deflector	Upper part remains fixed in level position. <i>Notch in guard fits securely into matching tab on motor</i> Clear guard is moveable: raise over fence at start of crosscut; <i>See Saw Handle</i> ; most workpieces will automatically raise clear guard during ripping; <i>See Guard Tab</i>
Hold Down Knob	Frees hold down to move up and down; locks hold down in place	Turn counterclockwise to loosen, clockwise to tighten
Hold Down	During ripping, acts as partial barrier to infeed side of blade; keeps infeed side of workpiece from fluttering; acts as sawdust deflector	For ripping, lower hold down to top of workpiece surface, then raise slightly and lock in place. For crosscutting lock in fully raised position
Riving Knife Bracket	Prevents side to side movement of riving knife and provides means for adjusting alignment	Loosen to align riving knife, then tighten



<u>Control</u>	<u>Function</u>	<u>Operation/Comments</u>
Guard Tab	Provides manual way to raise clear plastic guard during ripping when workpiece fails to raise it	Push and hold until workpiece clears guard, then release
Pawls/Riving Knife Knob	Frees pawls and riving knife to independently move up and down	Turn counterclockwise to loosen, clockwise to tighten
Pawls	During ripping, slow or stop kickback by digging into workpiece; when lowered during crosscutting, provide partial barrier to leading edge of blade	For ripping, set pawl level on workpiece surface. <i>For safety reasons set pawls before ripping; See Ripping Set-Up for details and illustrations</i>
Riving Knife	Reduces kickback by keeping kerf open; when lowered during crosscutting, provides partial barrier to leading edge of blade	For ripping, lower to table <i>For safety reasons riving knife must be in line with blade. See Alignment: Riving Knife to Blade</i>

Electrical Connections

Motor Specifications

The AC motor used on this saw is a capacitor-start, non-reversible type. The models covered in this manual have the following specifications:

Specification:	Model 113.196120	Model 113.196320	Model 113.196420
Rated H.P.	1.5	1.5	1.5
Max Developed H.P.	2.5	2.75	3.0
Voltage	120	120/240	120/240
Amperes	11	12/6	13/6.5
Hertz (cycles)	60	60	60
Phase	single	single	single
RPM	3450	3450	3450
Arbor Shaft Rotation	clockwise	clockwise	clockwise
Run Capacitor	No	No	Yes

Note: If saw does not start when switched on, immediately turn saw off and refer to *Troubleshooting*. Leaving the switch on will destroy the motor.

Power Supply

WARNING

Saw is factory wired for 120V operation. Connect to 120V, 15-AMP branch circuit and use 15-AMP time delay fuse or circuit breaker.

Failure to connect in this way could result in injury from shock or fire.

The saw must be properly grounded. Not all outlets are properly grounded. If you are not sure that your outlet is properly grounded, have it checked by a qualified electrician.

WARNING

If not properly grounded, this power tool could cause electrical shock, particularly when used in damp locations.

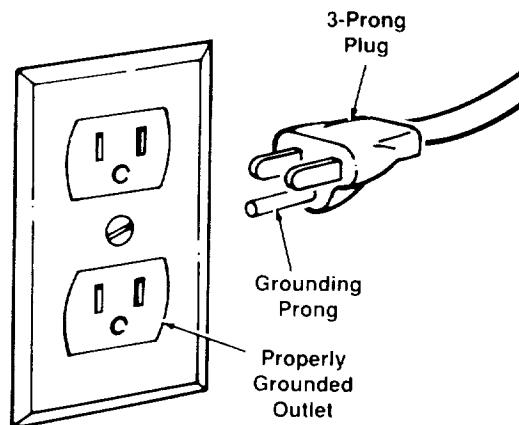
WARNING

If electrical shock occurs, your reaction to shock could bring hands into contact with blade.

WARNING

To avoid electric shock or fire, immediately replace worn, cut, or damaged power cord.

The unit is wired for 120V and has a plug that looks like this:



The power tool is equipped with a 3-conductor cord and grounding type plug listed by Underwriters' Laboratories. The ground conductor has a green jacket and is attached to the tool housing at one end and to the ground prong in the attachment plug at the other end.

The plug requires a mating 3-conductor grounded type outlet as shown above. If you have an outlet that is of the 2-prong type, it is recommended that you have a qualified electrician replace it with a properly grounded 3-prong outlet.

Electrical Connections

WARNING

To maintain proper tool grounding, if outlet you are planning to use for this power tool is a 2-prong type do not remove or alter grounding prong in any manner.

An adapter is available for connecting the plug to 2-prong receptacles. The green grounding lead or grounding lug extending from the adapter must be connected to a permanent ground such as to a properly grounded outlet box.

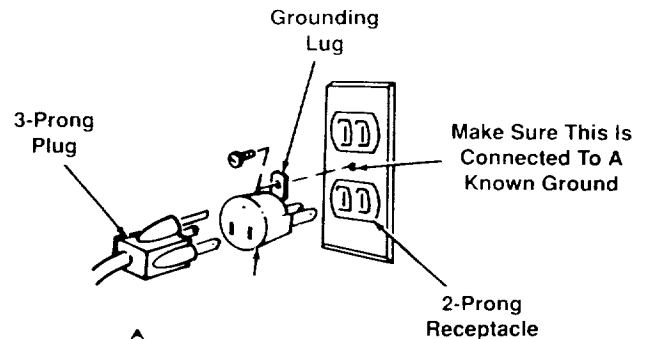
Extension Cords

The use of any extension cord will cause some loss of power. Determine the minimum wire size (American Wire Gauge No. (AWG #)) extension cord per table. Use only 3-wire extension cords with 3-prong grounding type plug and 3-pole receptacles which accept the tool's plug.

Motor Protection & Reset Button

The motor protector opens the circuit and stops the motor when the motor temperature exceeds a safe level, the motor is overloaded, or a low voltage condition exists.

When the protector activates, immediately turn saw off, remove yellow key and wait for motor to cool. Push red re-set button and listen/feel for click to indicate protector is re-set. If you do not hear/feel a click, motor is still too hot. Wait a while longer and repeat. (It may take over one hour for the motor to cool sufficiently for protector to reset.)



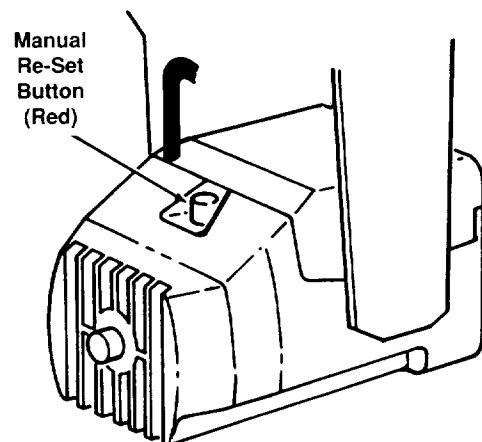
WARNING

Adapter illustrated is for use only if you already have a properly grounded 2-prong receptacle.

Wire Sizes Required (AWG #)

Cord Length	120V	240V
0-25 ft	No. 16	No. 16
26-50ft	No. 14	No. 16
51-100ft	No. 12	No. 14

Note: The smaller the gauge number, the heavier the cord. For circuits farther away from the electrical circuit box, wire size must be increased proportionately to deliver ample voltage to the motor.



Electrical Connections

Dual Voltage Motors

Models 113.196320 and 113.196420 ONLY!

To Change Motor Voltage to 240 A.C.

Under normal home workshop conditions, if full voltage is supplied to the motor, your saw will operate efficiently on 120V. If any of the following conditions exist, it will be advisable to have a qualified electrician reconnect the motor for 240V operation:

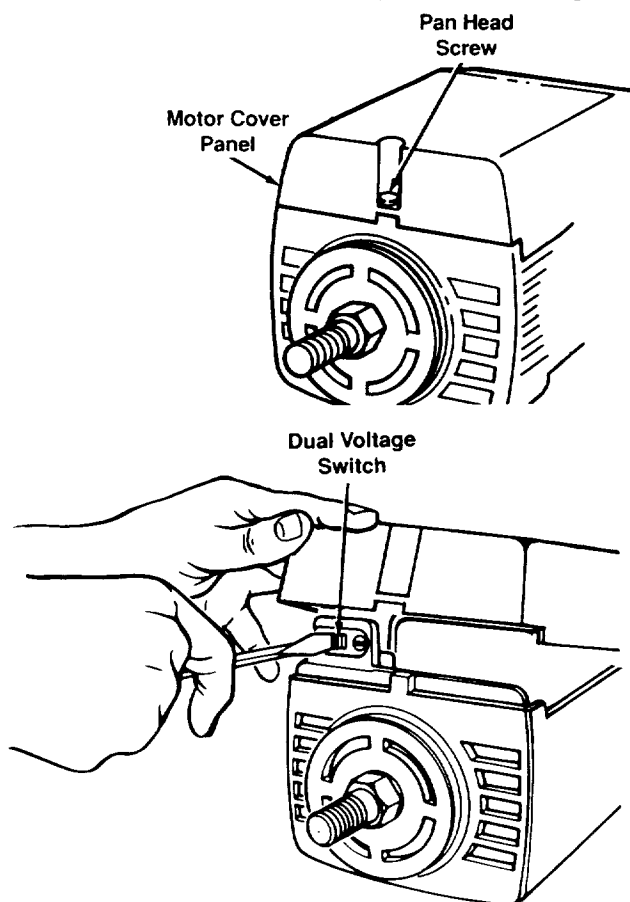
- heavy duty operation
- either undersized or overloaded branch circuit serves the saw
- power company cannot correct a low voltage situation.

The following procedure to change motor voltage should be performed only by a qualified electrician. **Note:** *Whenever changing the switch position from 120 to 240V, make certain that all necessary steps (including proper fusing of the branch circuit) are completed.*

1. Unplug saw.
2. Remove pan head screw from top of motor cover. Remove motor cover panel at blade end of motor.
3. Use small screwdriver to slide dual voltage switch to 240V position./
4. Re-install motor cover panel.
5. Replace 120V power cord plug with 240V, 15 amp, 3-prong plug.
6. Connect power cord white and black leads to two "hot" plug blades; connect power cord grounding wire to plug ground prong.
7. Plug cord into 240V, 15 amp, 3-blade receptacle. Make sure receptacle is connected to a 240V A.C. power supply through a 240V branch circuit having at least a 15 amp time delay fuse or circuit breaker. **Note:** *No adapter is available for this type plug.*

DANGER

To avoid electric shock, unplug saw before changing motor voltage.



Crosscutting

Crosscutting Defined

Crosscutting is cutting a workpiece to length. The workpiece is held firmly against the fence, and the blade is pulled through the workpiece to make the cut. Straight, bevel, miter, and compound cuts can be made.

Crosscutting Safety

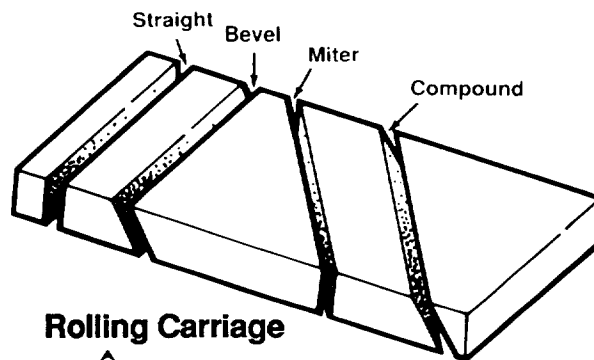
The hazards associated with crosscutting include: exposed blade teeth, rolling carriage, and thrown workpiece. This section explains these hazards and tells how to avoid them or reduce the risk of their happening. **Read this section before making any type of crosscut. Follow these steps every time you make a crosscut.**

Exposed Blade Teeth

WARNING

During crosscutting, blade teeth can be exposed. To reduce risk of having fingers, hand or arm cut off:

- ✓ Correctly install and use guard.
- ✓ Lower pawls or riving knife to clear fence or workpiece, whichever is higher, by 1/4". Lowered pawls or riving knife act as partial barrier to front of blade.
- ✓ Keep hands away from blade and out of blade path. Keep hand holding down workpiece at least 8" from blade.
- ✓ Blade can come off table edge beyond 30° left miter position. Use right miter position whenever possible.
- ✓ Do not cut freehand. You will not be able to control workpiece.
- ✓ If blade jams, turn off saw, remove yellow key, then free blade.



Rolling Carriage

WARNING

When saw is turned on, blade can suddenly come forward. To reduce risk of this happening:

- ✓ Keep one hand on saw handle when turning saw on.
- ✓ Adjust leveling feet to make sure radial arm slants slightly toward rear.

Thrown Workpiece

CAUTION

Workpiece could be picked up by spinning blade and thrown. You might be hit by thrown workpiece. To reduce risk of thrown workpiece:

- ✓ Make sure installed fence is at least half as high as the workpiece, and never less than 3/4".
- ✓ Start and finish cut with blade in rear-most position, behind fence.
- ✓ Firmly hold workpiece flat on table and up against fence. Cut only one workpiece at a time.
- ✓ Pull blade through workpiece only far enough to complete cut, and never more than half the diameter of blade.
- ✓ Do not touch or move workpieces until blade has stopped spinning.
- ✓ Use length stop only on end of workpiece which is held down.
- ✓ Use table extensions to support workpieces that extend beyond table.

Crosscutting

Crosscut Kerfs

A kerf or shallow cut is needed in the table and fence to serve as a path for the blade and to ensure that the blade cuts all the way through the workpiece. **A kerf is needed for each different cutting path.**

To make an approximately 1/16" deep kerf:

1. Prepare table:
 - put fence in front position
 - tighten table clamps
2. Prepare blade:
 - lock blade in crosscut position
 - lock radial arm at desired miter angle
 - lock motor at desired bevel angle*
 - unlock rip lock and push blade to rearmost position, behind fence
 - lower blade* to just clear table
 - lower pawls or riving knife to clear fence by 1/4".

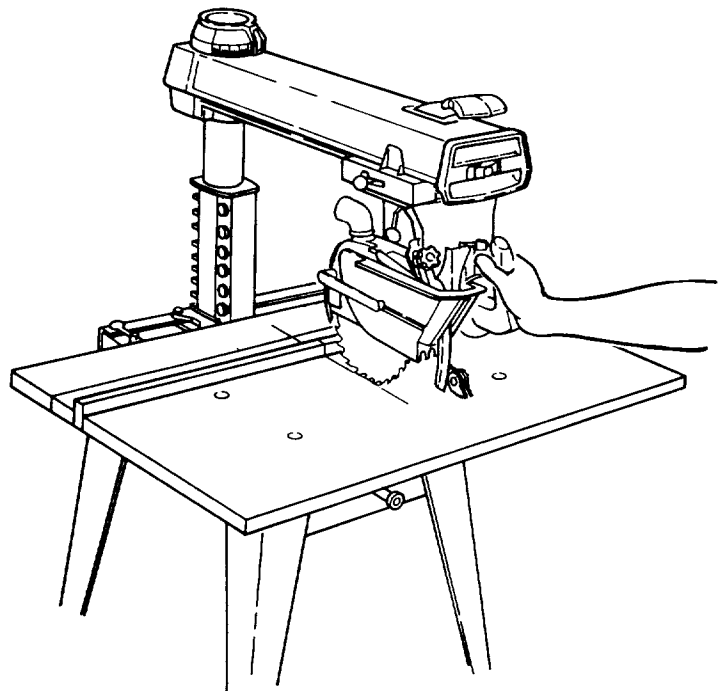
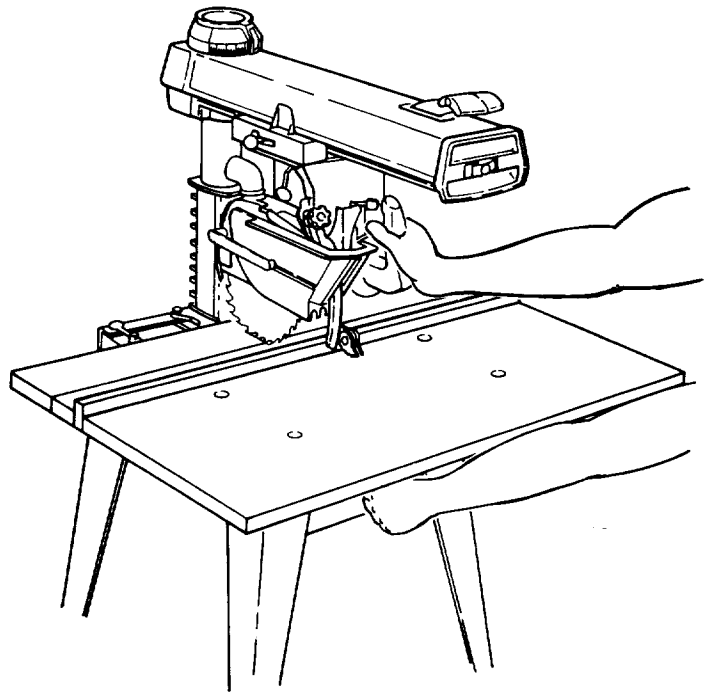
** raise clear plastic guard before changing bevel angle and when lowering beveled blade, otherwise it may jam into table.*

3. Grasp saw handle, then turn saw on. **Keep one hand on saw handle through step 6.**

4. Slowly lower blade until it touches table, then lower one more full turn of crank.

5. Squeeze handle trigger to raise clear plastic guard so it will clear fence. Pull blade through fence and across table as far as it will go.

6. Push blade to rearmost position, behind fence, and turn saw off. Keep hand on saw handle until blade stops spinning.



Crosscutting

Making Crosscuts

Follow these steps to make crosscuts.

1. Prepare table:

- put fence in front position
- tighten table clamps

2. Prepare blade:

- lock blade in crosscut position
- lock radial arm at desired miter angle
- lock motor at desired bevel angle*
- unlock rip lock and push blade to rearmost position, behind fence
- lower blade into kerf* but not touching kerf bottom (blade should move freely).

** raise clear plastic guard before changing bevel angle and when lowering beveled blade, otherwise it may jam into table.*

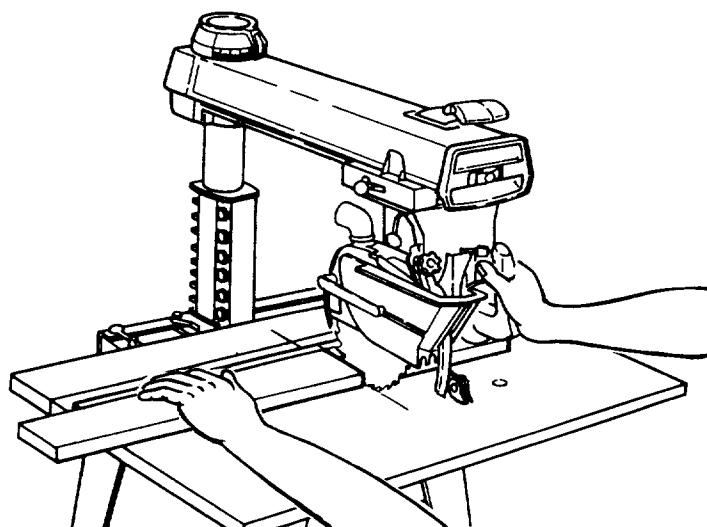
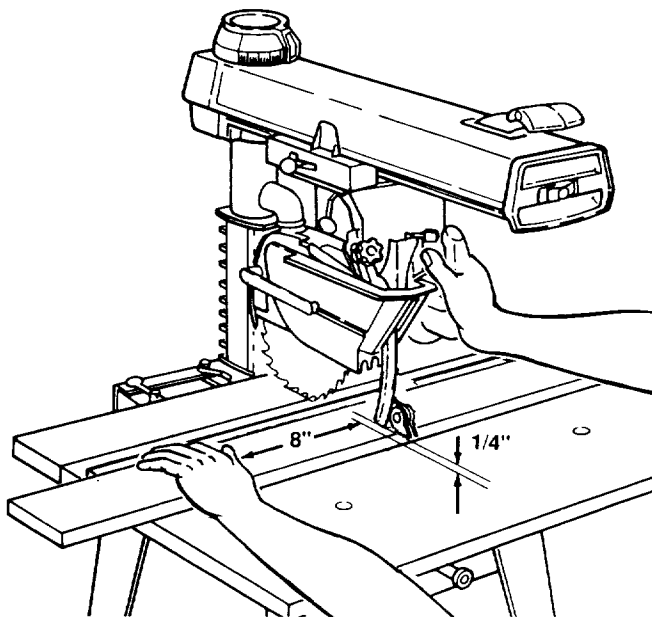
3. Position workpiece against fence, and lower pawls or riving knife to clear fence or workpiece, whichever is higher, by 1/4".

4. Grasp saw handle, then turn saw on. **Keep one hand on saw handle through step 7.**

5. Hold workpiece down and against fence. Keep hand at least 8" away from blade.

6. Squeeze handle trigger to raise clear plastic guard so it will clear fence and workpiece. Pull blade through workpiece but only far enough to complete cut, and never more than half the diameter of blade.

7. Push blade carriage to rearmost position, behind fence, and turn saw off. Keep hand on saw handle until blade stops spinning.



Crosscutting

Repetitive Crosscutting

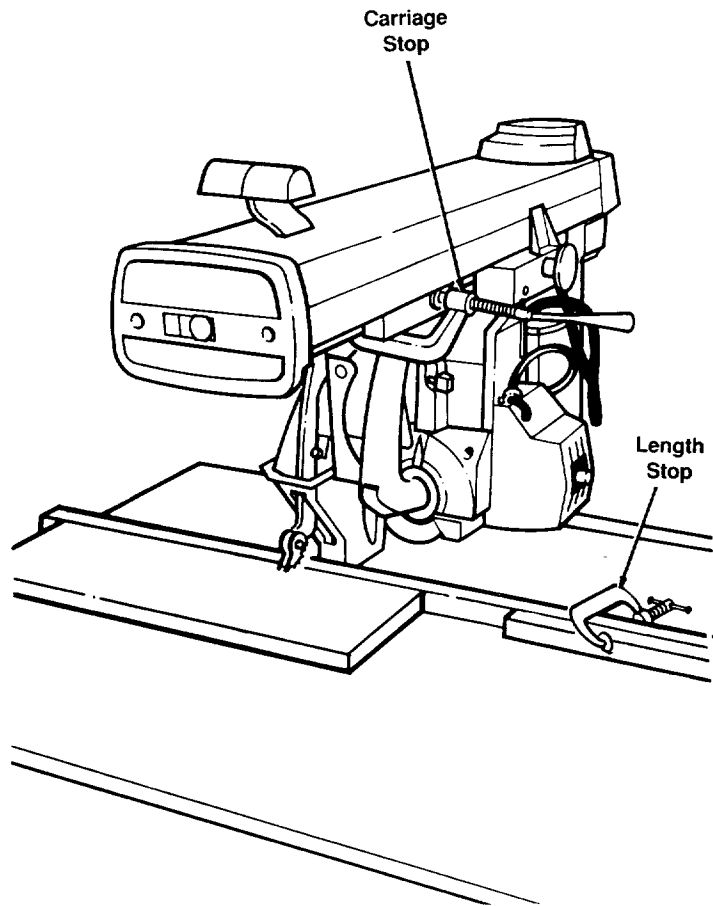
Repetitive crosscutting is the repeated and continuous cutting of many pieces of lumber to the same length. Carriage and length stops can help make this type of crosscutting more efficient.

A carriage stop defines the distance needed to pull the blade through to complete each cut. This will prevent pulling the blade through more than the recommended distance.

To make a carriage stop use 1x2 lumber:

- i) cut two pieces, each 2" long
- ii) clamp a piece on each side of radial arm, so blade carriage stops at distance needed to complete cut
- iii) check that clamps do not interfere with hand grip on saw handle.

A length stop defines the cut length and ensures that all pieces will be cut to the same size. Clamp a piece of 1x2 lumber on the fence to define the cut length. Use a **length stop only on the end of the workpiece which is held down.**



Crosscutting Hints

1. To extend life of table top, buy auxiliary table cover (see Accessories) or make one out of 1/4" plywood or fiberboard. Clamp or nail to original table top, section by section. If you use nails, nail in the four corners to make sure blade will not contact nails.
2. Make several fences, so each will have only a few kerfs (See Cutting Aides). Too many kerfs will weaken a fence.
3. Keep table clean of chips and sawdust.
4. Use sharp blades, and use the right blade for each job.
5. When making miter or bevel cuts, use extra force to hold workpiece down because it tends to move during these types of cuts.
6. When cutting hard woods, like oak, or making compound cuts, keep arm holding saw handle rigid and pull blade through slowly.
7. To keep cut line accurate, periodically check blade alignment.
8. Do not cut severely warped or crooked workpieces.

Ripping

Ripping Defined

Ripping is changing the width of a workpiece by cutting along its length. The workpiece is fed into the blade, which rotates in a fixed position, parallel to the fence and a set distance from the fence. A solid fence (no kerfs) serves as a guide for the workpiece. Place the fence in the front position for narrower workpieces, or in the rear position for wider ones.

In-Rip and Out-Rip Positions

In-rip and out-rip refer to blade position.

In-rip: the blade is toward the column, and the motor is toward the table front. In-rip is recommended because this position allows better visibility of the workpiece and your hands. Use in-rip when you set the blade 1/2 to 16" from the fence.

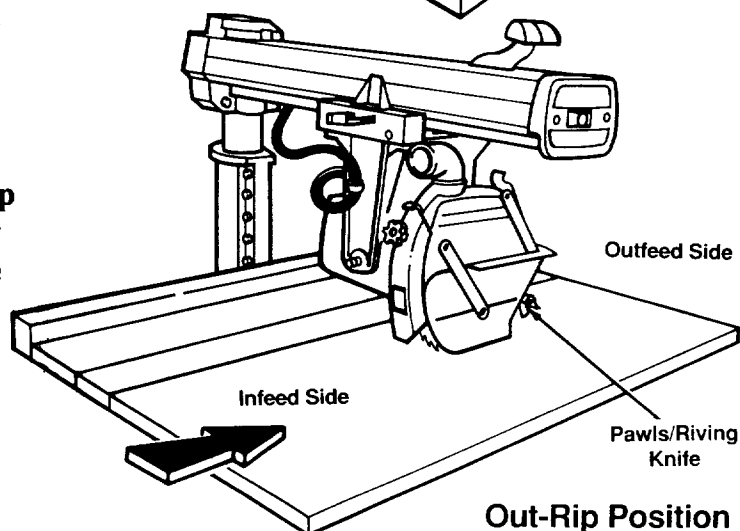
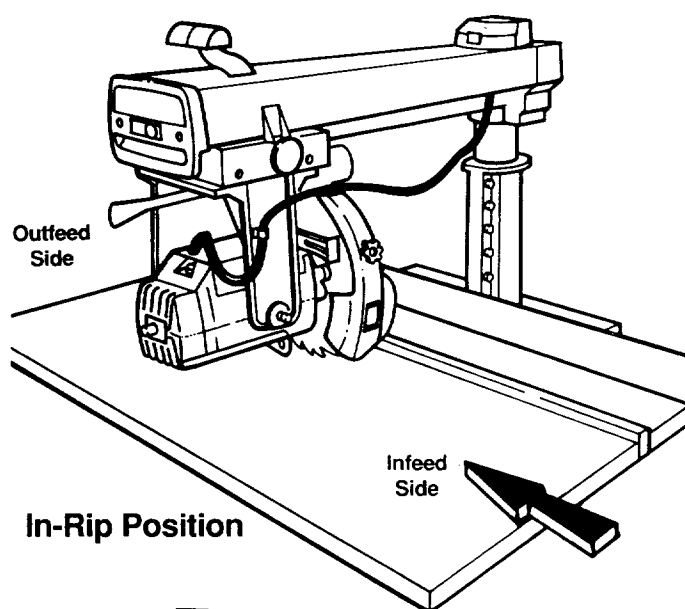
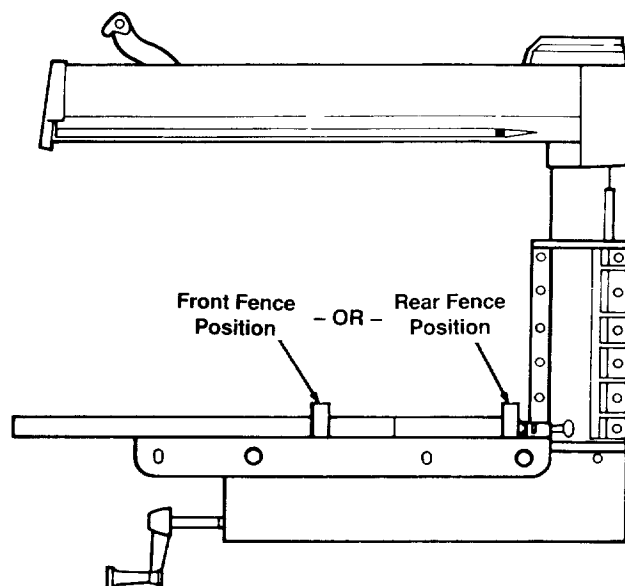
Out-rip: the blade is toward the table front, and the motor is toward the column. Use out-rip only when you set the blade 12" or more from the fence.

Infeed and Outfeed Directions

Infeed and outfeed refer to sides of the blade.

Infeed: the side of the blade where the guard hold down is. Always start a rip cut at the infeed side and push the workpiece through to the outfeed side.

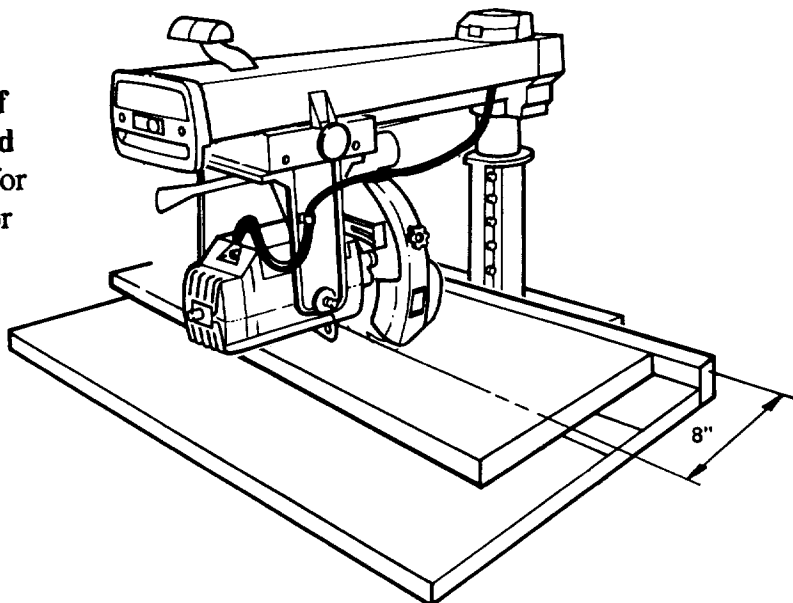
Outfeed: the side of the blade where the pawls and riving knife are. Never start a rip cut at the outfeed side. This is wrong way feed. Never put hands on the outfeed side of the blade when ripping because they can be pulled back into the spinning blade.



Ripping

Workpiece Positioning

Always set up so that the wider part of the workpiece is between the blade and fence. This gives you greater clearance for push sticks, and allows better stability for feeding the workpiece.



Example: To rip 2" off a 10" wide board, set blade in in-rip position 8" from rear fence.

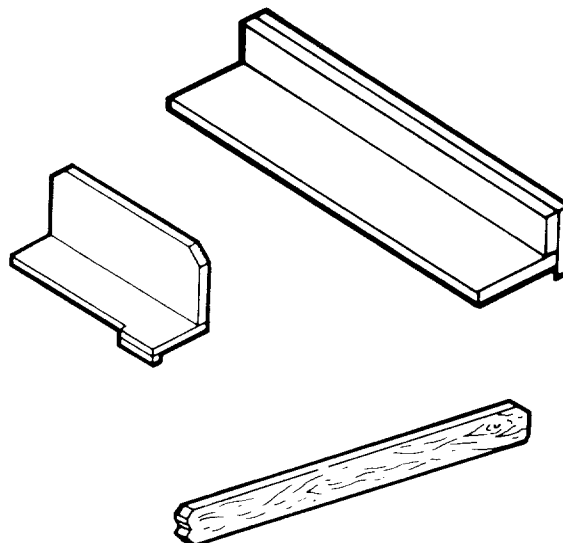
Push Sticks and Push Blocks

Use push sticks and push blocks instead of the hands to push the workpiece through to complete cuts. They help keep hands away from the blade. A push block is used with an auxiliary fence. (see Cutting Aides).

Use a push block and auxiliary fence when the blade is set 1/2" to 2" from the fence.

Use a push stick when the blade is set 2" or more from the fence.

Do not set the blade closer than 1/2" to the fence. The radial saw is the wrong tool for such a narrow cut. A band saw would be more appropriate for this type of cut.



Ripping Safety

The hazards associated with ripping include: outfeed zone hazard, kickback, and wrong way feed. This section explains these hazards and tells how to avoid them or reduce the risk of their happening.

Read this section before making any type of rip cut. Follow these steps every time you make a rip cut.

Outfeed Zone Hazard

DANGER

Rotational force of blade can pull hands and fingers back into blade. Touching, holding, or pulling on outfeed side of workpiece while blade is still spinning will result in fingers, hand or arm being cut off. To reduce risk of outfeed hazard:

- ✓ Set pawls and riving knife; they act as partial barrier to outfeed side.
- ✓ Start and finish cut from **infeed** side.
- ✓ Keep both hands on infeed side.
- ✓ Keep hands away from outfeed side.
- ✓ Push workpiece through to complete cut. Do not reach around to pull it.
- ✓ If blade jams, turn saw off, remove yellow key, then free blade.

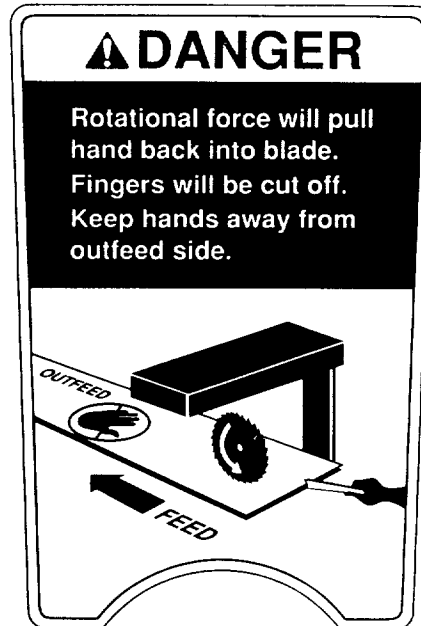
Kickback

Kickback is the uncontrolled propelling of the workpiece back toward the user.

WARNING

Kickback can happen when blade is pinched or bound by workpiece. Pinching or binding can happen when:

- pawls and riving knife are not used or not set correctly
- riving knife is not aligned with blade
- blade is not parallel to fence
- workpiece is twisted or warped and rocks on table top
- pressure is put on outfeed side of workpiece
- workpiece is released before being pushed past pawls
- user touches or tries to pull workpiece through outfeed side before blade has stopped spinning.



Ripping

To reduce risk of kickback:

- ✓ Set pawls and riving knife according to ripping set-up procedure. Correctly set riving knife is more likely to prevent workpiece from binding or pinching blade; correctly set pawls are more likely to grab into workpiece to stop or slow kickback if one happens.
- ✓ Check that riving knife is in line with blade (see Alignment: Riving Knife to Blade).
- ✓ Cut only straight workpieces so surface will lie flat on table and edge will stay tight against fence. If you must cut an irregular workpiece, attach a straight edge (see Cutting Aides).
- ✓ Push workpiece through from infeed to outfeed side until it is completely past pawls.
- ✓ Use featherboard (see Cutting Aides).
- ✓ Keep hands away from outfeed side.
- ✓ If blade jams, turn saw off, remove yellow key, then free blade.
- ✓ When cutting composition materials, or other materials with one smooth and one rough side, put rough side up so pawls will be more likely to grab.

Wrong Way Feed

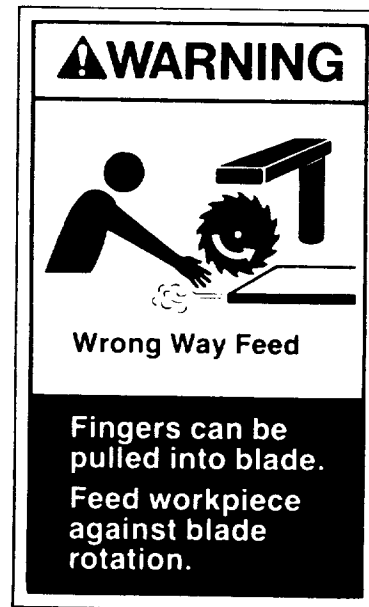
Wrong way feed is ripping by feeding the workpiece into the outfeed side of the blade.

WARNING

Rotational force of blade will pull workpiece through violently if workpiece is fed in same direction as blade rotates (wrong way feed). Hands and fingers could be pulled along with workpiece into spinning blade before you can let go or pull back. Fingers, hand or arm could be cut off. Propelled workpiece could hit bystander.

To eliminate risk of wrong way feed:

- ✓ Feed workpiece against blade rotation.
- ✓ Set pawls and riving knife; they act as partial barrier to outfeed side.

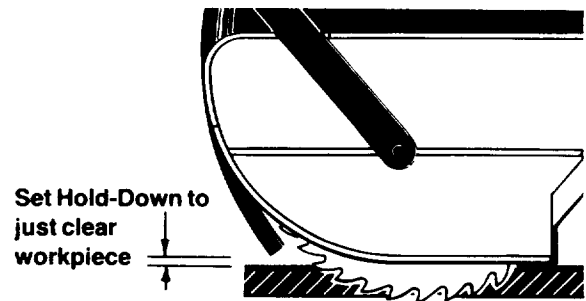


Hold Down Function

The hold down must be set correctly during ripping to act as barrier against the infeed side of the blade, to help keep the workpiece flat on the table, and to deflect workpiece chips. It must be lowered to just clear the workpiece.

The hold down must be re-set each time a different thickness workpiece is cut.

Follow the Ripping Set-Up Procedure to correctly set the hold down.



Pawls and Riving Knife Function

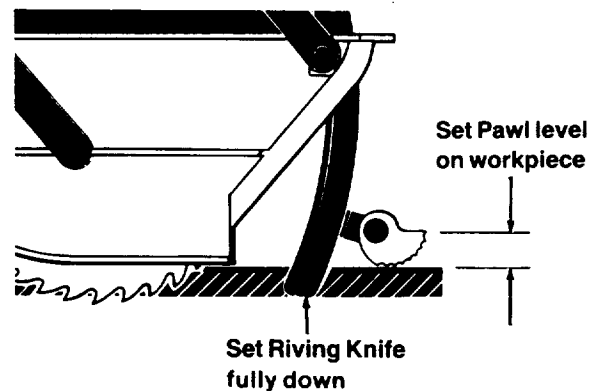
The pawls and riving knife must be set correctly during ripping to reduce the risk of kickback, to prevent wrong way feed, and to act as a barrier to the hazardous outfeed side of the blade.

The riving knife rests on the table. It keeps the workpiece kerf open. This reduces the chances that the cut workpiece will spring closed and pinch the blade. Pinching the blade is a cause of kickback.

The pawls rest level on the upper surface of the workpiece. During cutting they allow the workpiece to pass freely from the infeed to the outfeed side, but help stop the kickback motion from outfeed to infeed side by grabbing into the workpiece surface.

The pawls must be re-set each time a different thickness workpiece is cut.

Follow the Ripping Set-Up Procedure to correctly set the pawls and riving knife.



Ripping

Ripping Set-up Procedure

Follow these steps before ripping.

These steps must be repeated each time a different thickness workpiece is ripped. A kerf must be made for each different width cut. Also see the special notes for bevel set-up that follow this section.

1. Prepare table:

- insert solid (no kerfs) fence (Note: *Use auxiliary fence when blade is set 1/2 to 2" from fence* (See Cutting Aides))
- tighten table clamps.

2. Prepare blade:

- lock radial arm at 0° miter
- lock blade in in-rip position*
- lower blade to just clear table
- lock blade carriage desired distance from fence. **Note:** *Make sure wider part of workpiece will be between blade and fence.*

* use out-rip position for rips 12" or wider.

3. Make kerf:

- a) turn saw on
- b) lower blade about 1/16" into table
- c) turn saw off and remove yellow key.

4. Place workpiece parallel to and up against blade. **** Note:** *Workpiece will be between blade and table front.*

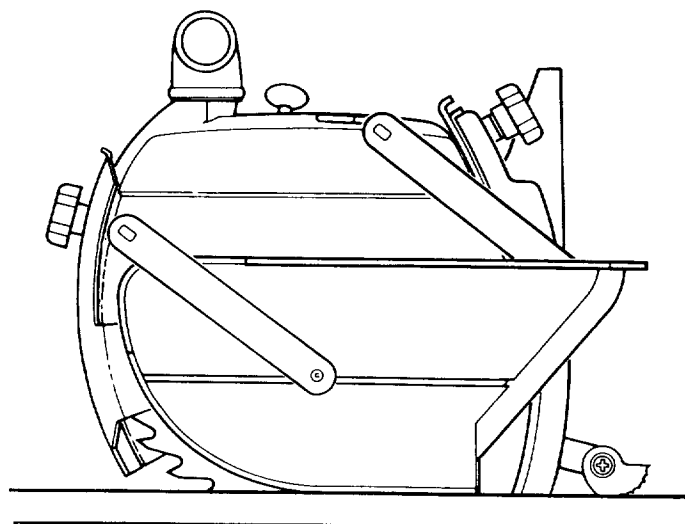
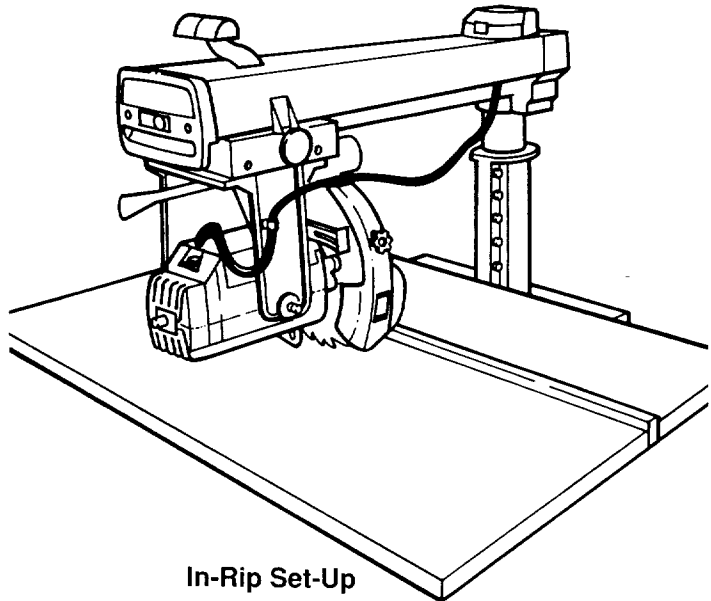
5. Lower hold down** to workpiece, then raise slightly so it just clears top surface of workpiece. Lock in place.

6. Lower riving knife to table. **Lower** pawls to workpiece surface. **** Move** workpiece toward outfeed side until one set of pawls rests level on workpiece surface. Lock in place.

** bevel set-up: see special notes, next page

⚠ WARNING

If workpiece is pushed along fence with kerfs, workpiece could get caught on kerf, pinch blade and cause kickback. Do not use cross-cutting fence for ripping.



8. Remove workpiece from table.
9. Ready push stick or push block.
10. Set up table extension(s) and support their outer ends. **Do not use another person to support workpieces because this can cause kickback and it exposes helper to potential hazards at outfeed side.**

Special Notes for Bevel Set-Up

⚠ CAUTION

Bevel ripping creates unique problems of visibility and feeding. Before cutting, check the set-up using both in-rip and out-rip. Use the position that gives the best combination of workpiece visibility and push stick clearance.

⚠ WARNING

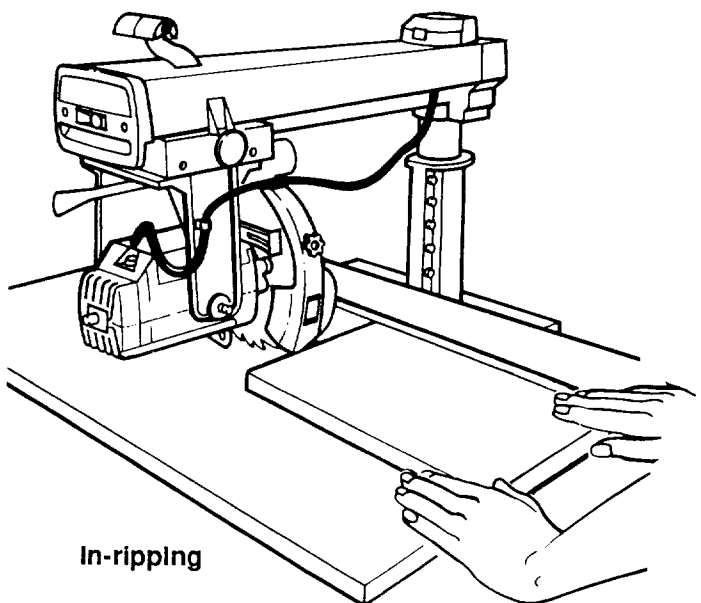
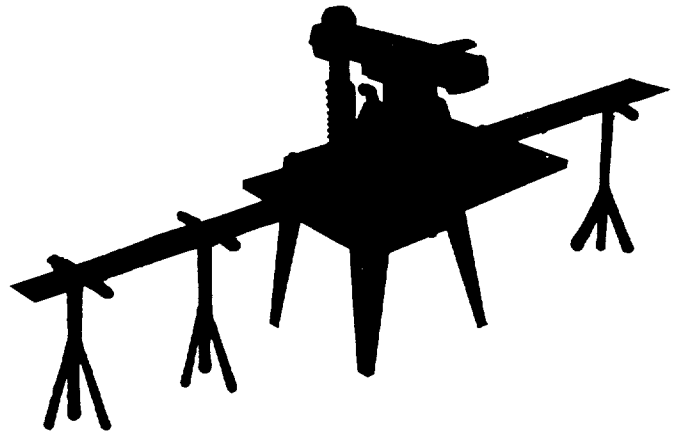
Bevel the edge that is not against the fence.

1. When setting bevel angle, raise radial arm to allow sufficient clearance for blade and guard to not jam in table.
2. When blade is beveled manually raise clear plastic guard before lowering blade to table or kerf, otherwise it may jam in the table.
3. To set hold down, place workpiece directly under guard nose, rather than parallel to blade.
4. To set pawls, place workpiece directly under set of pawls closer to table. This set of pawls will keep contact with workpiece surface.

Making Rip Cuts

Follow these steps to make in-rip cuts. For out-rip cuts, reverse hand functions; that is, put right hand on table and use left hand to support and push workpiece.

1. Follow ripping set-up procedure.



Ripping

2. Insert yellow key and turn saw on.
3. Stand at infeed side and out of line of workpiece, in case of kickback. **Start and finish cut from infeed side.**
4. Put workpiece on table, in front of hold down, and tight against fence. To hold workpiece in position, put left hand on table, at least 8" in front of hold down, and lightly press fingers against workpiece. Support workpiece with table extension or right hand.

CAUTION

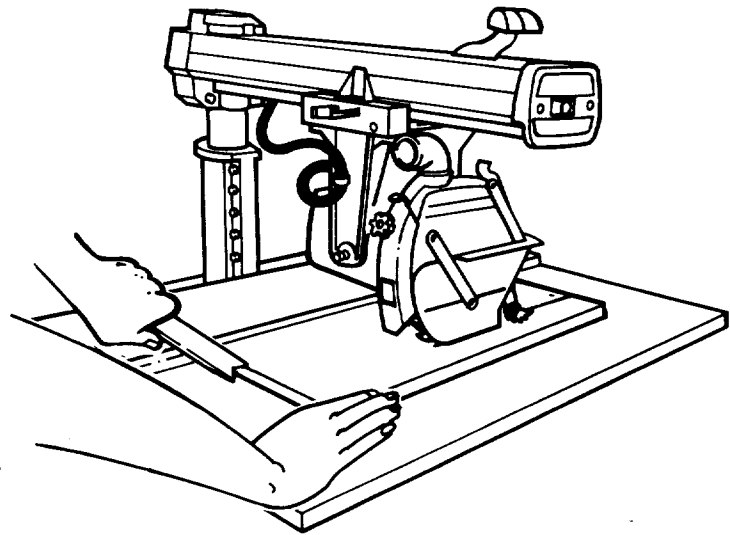
For large workpieces use a feather-board in place of your hand on the table. It gives better support. (See cutting aides)

5. With right hand, push workpiece under hold down and into blade. Keep left hand fixed on table, applying slight pressure to keep workpiece against fence.
 6. Use right hand to continue to apply feed pressure to part of workpiece close to fence. Keep hand at least 8" in front of hold down.
- Note:** *Most workpieces will automatically raise clear plastic guard as they pass from infeed to outfeed side. Unusually tall and narrow workpieces may not raise clear guard. When this happens, push guard tab to raise guard, then release tab when guard rests on top of workpiece surface.*

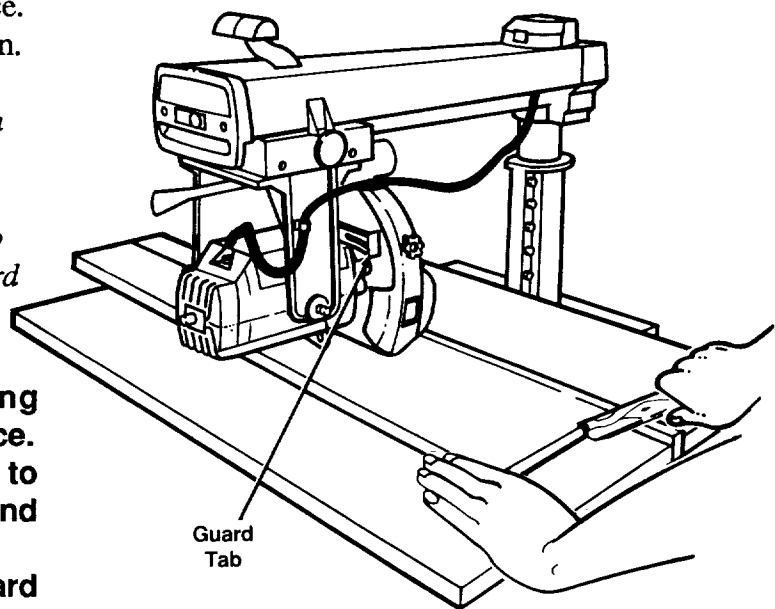
CAUTION

Pushing guard tab means using only one hand to control workpiece. While pushing tab, use extra care to guide workpiece and to keep hand at least 8" in front of hold down. Release tab as soon as clear guard rests on workpiece.

7. When end of workpiece gets to table, use push stick or block, instead of hand, on part of workpiece between blade and fence to push until workpiece is completely past pawls.
8. Turn saw off and wait for blade to stop spinning before touching workpiece.



Out-ripping



In-ripping

Dado Blades, Molding Heads

See Accessories for information on safety, installation and use of dado blades and molding heads.

Edging

Edging is the use of a dado blade or molding head in the horizontal position. It is an advanced technique that requires a molding head guard and a special fence. See Accessories for information on safety, installation and use of dado blades and molding heads for edging. See Cutting Aides for information on making the special fence.

Ripping Hints

1. To extend life of table top, buy an auxiliary table cover (see Accessories), or make one out of 1/4" plywood or fiberboard. Clamp or nail to original table top, section by section. If you use nails, nail in the four corners to make sure blade will not contact nails.
2. Keep table clean of chips and sawdust.
3. Use sharp blades.
4. Use the right blade for each job.
5. For workpiece with one smooth and one rough surface, such as paneling or finished fiberboard, cut with rough surface up so pawls will be more likely to grab in case of kickback.
6. To keep cut line accurate, periodically check blade alignment.
7. If you must cut an irregular workpiece, attach a straight edge (see Cutting Aides).

DANGER

Edging without a guard could bring hands and fingers too close to cutting tool.

Hands, fingers, and arm could be cut off.

- buy, install, and follow instructions for molding head guard
- use only dado or molding head for edging
- do not use blade because blade cannot be guarded when horizontal
- read and follow instructions in Accessories section of manual.

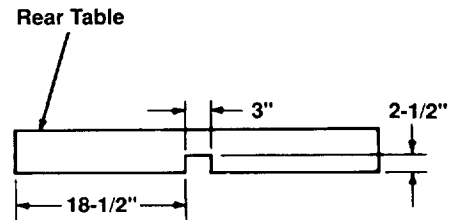
Cutting Aides

Molding/Sanding

Instructions for operating the Molding Head are contained in a booklet furnished with the Molding head.

For use of Molding Head Cutter or Drum Sander with saw arbor vertical, the rear table requires an opening (next to rear face of fence) for clearance. Cut this opening as shown.

Note: *Spacer table is too narrow for this opening. Be sure opening is cut in the rear table.*



For top-side rabbeting or molding in the in-rip position, relieve the fence by positioning the cutting tool at the desired location on the arm, locking the Carriage Lock Knob, and lowering the cutting tool slowly into the fence – remove only as much material from the fence as is necessary.

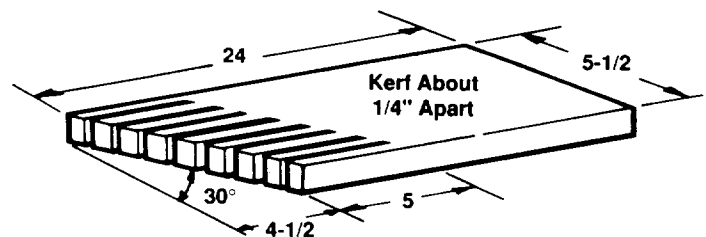
Note: *Initial edge cut will round angled edges of fence.*

Note: *When using drum sander, vacuum motor often to prevent sawdust/powder build-up, because powder interferes with motor ventilation and can clog starter switch.*

Featherboard

Use a featherboard on the infeed side during ripping to help keep the workpiece against the fence.

To make a featherboard, use knot-free 3/4" lumber 5-1/2" wide. Miter crosscut lumber at a 30° angle to 24". Rip to make 5" long cuts about 1/4" apart.

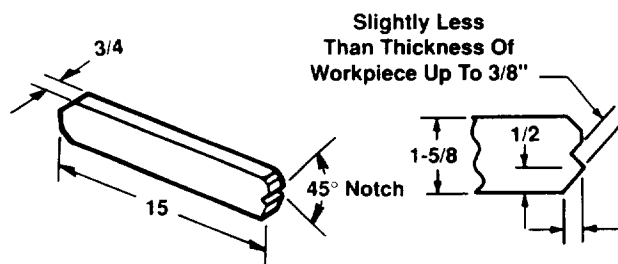


Cutting Aides

Cutting aides include push sticks, fences, auxiliary fences, push blocks, feather-boards, and straight edges.

Push Sticks

To make a push stick, use $\frac{3}{4}$ " knot-free lumber, or a standard 1x2. Cut to dimensions shown (inches).



Fences

Fences are required for all saw operations.

To make a fence, use $\frac{3}{4}$ " knot-free lumber cut to table length. Do not use particle board or other composite materials because they are not strong enough. **Note:** *Installed fence must be at least half as high as the workpiece, and never less than $\frac{3}{4}$ ". The fence can be as high or higher than the workpiece.*

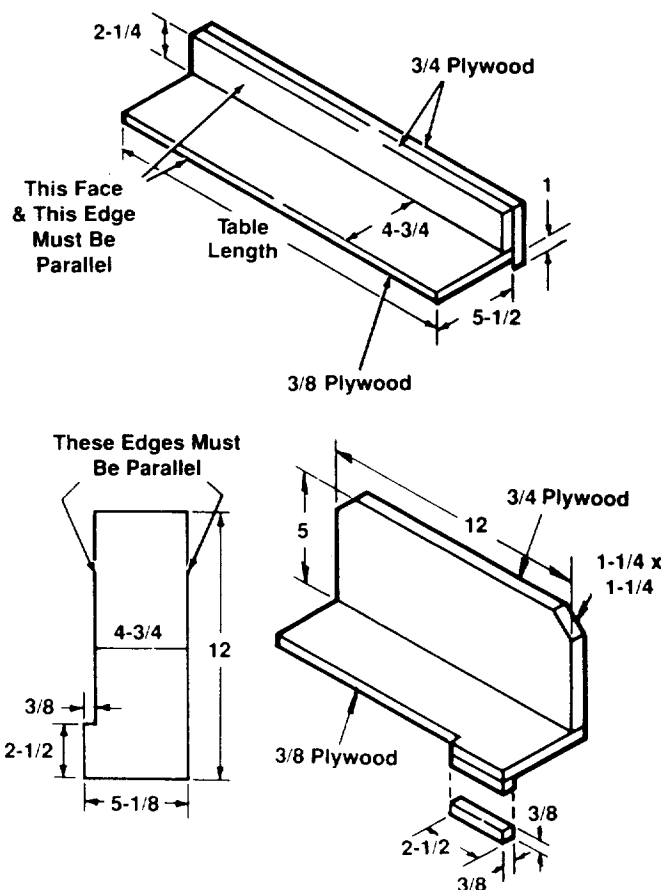
Auxiliary Fence and Push Block for Ripping

An auxiliary fence must be used when making very narrow rip cuts that don't allow enough room for a push stick without bringing it too close to the blade. An auxiliary fence must always be used with a push block.

To make an auxiliary fence, use one piece of $\frac{3}{8}$ " plywood and two pieces of $\frac{3}{4}$ " plywood. Cut to dimensions shown (inches). Glue pieces together, and reinforce with nails.

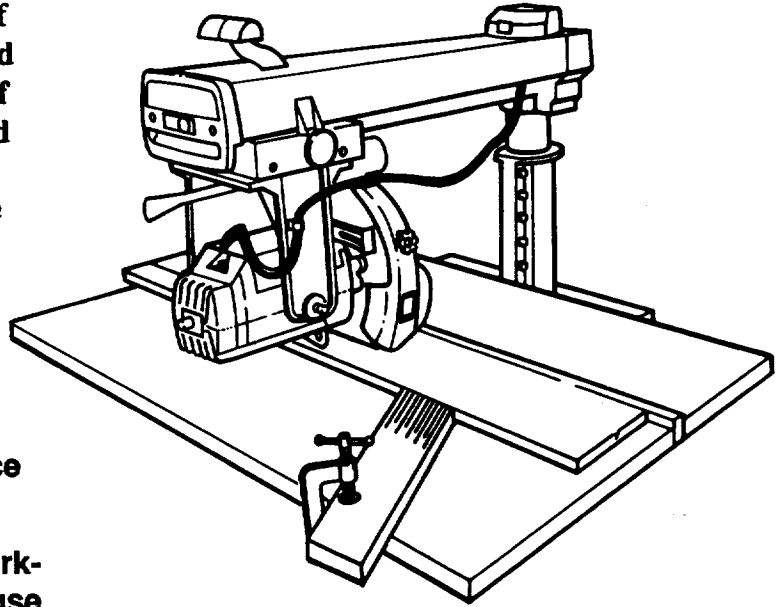
To make a push block, use one piece of $\frac{3}{4}$ " plywood and one piece of $\frac{3}{8}$ " plywood. Cut to dimensions shown (inches). Glue pieces together and reinforce with nails.

Lay the push block on top of the auxiliary fence to make sure their widths match exactly, and are each $4\frac{3}{4}$ ".



Cutting Aides

Clamp the featherboard to the front table, so that the angled edge of the featherboard is against the workpiece on the infeed side of the blade. **Do not clamp the featherboard against the cut off part (out-feed side) of the workpiece.** If clamped to the outfeed side, the featherboard can squeeze the kerf closed, put binding pressure on the blade, and cause kickback.



Straight Edge for Irregular Workpiece

WARNING

If you try to rip an irregular workpiece, it could bind blade and cause kickback.

If the workpiece you want to rip does not have a straight edge, attach a straight-edged board to the workpiece:

- a) place irregular side of workpiece against fence
- b) put straight-edged board on top of workpiece and against fence
- c) tack straight edged board to work piece.

Note: *Straight-edged board must not extend beyond leading end of workpiece and should cover workpiece width only enough to pass between blade and fence.*

Note: *Use fence at least as high as combined heights of workpiece and straight-edged board.*

Accessories Safety

1. Use only accessories listed in this section. Use of any other accessory or attachment might increase the risk of injury to you or others.
2. Read and follow instructions that come with accessory.
3. Do not install accessories on both ends of arbor shaft at same time.
4. Do not use twist drill bits longer than 7" because they can bend and break.
5. Use a spade type drill 1" or smaller in diameter for drilling only wood or plastic.
6. Do not use reduced shank drills.
7. Remove blade wrenches before turning saw on.

DANGER

Grinding wheels, abrasive or cut off wheels, or wire wheels can break explosively and throw pieces. You can be blinded or receive a life threatening puncture wound. Do not use grind wheels, abrasive or cut off wheels, or wire wheels.

WARNING

When using accessory shaft, exposed arbor shaft can pull in clothing, hair or jewelry as it rotates. Broken bones and severe cuts could occur.

Follow personal safety instructions. Locate arbor shaft under radial arm: lock blade carriage in out-rip position, then bevel motor to -90°.

Information for Dado

1. Put inside loose collar on arbor shaft first, then install dado. Tighten blade nut directly against outside surface of dado.
2. Saw arbor is designed for dado up to 13/16" wide. Use of wider dado could cause dado and blade nut to spin off. To make larger than 13/16" wide cut, take several passes with dado.
3. To avoid excessive load on motor when making a 13/16" wide cut, limit depth of cut to 1/8" in one pass.

Information for Edging

Edging is the use of a dado or molding head in the horizontal position. Edging requires the use of a molding head guard (see Accessories List)

1. Use molding head guard for edging with molding head and dado blade. Follow instructions that come with guard. Do not edge with a blade.

DANGER

Edging without a guard can bring hands and fingers too close to blade. Hands, fingers and arm could be cut off. Buy, install, and follow instructions for molding head guard.

WARNING

Blade cannot be guarded in horizontal position. Edge with guarded molding head or dado. Do not edge with blade.

2. Whenever possible, edge with arm locked at indexed 0° miter, so blade carriage is more likely to lock firmly.
3. Before edging, with saw unplugged and yellow key out, turn cutting tool by hand to make sure it does not strike guard or any other part of saw.

Accessories

Accessories for this Saw

These accessories are designed to fit this saw. Read and follow instructions that come with accessory.

Item.....	Catalog No.
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Auxiliary Table Cover.....	see catalog
----------------------------	-------------

Blades (10" with 5/8" hole).....	see catalog
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Dado Blades

Adjustable Dado

7"-24 tooth carbide.....	see catalog
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7"-32 tooth carbide.....	see catalog
--------------------------	-------------

7"-16 tooth carbide.....	see catalog
--------------------------	-------------

8"-48 tooth carbide.....	see catalog
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Satin Cut Dado

7"	see catalog
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8"	see catalog
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8" carbide.....	see catalog
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Standard Cut Dado

8"	see catalog
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Drill Chuck & Key.....	see catalog
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Dust Collector.....	9-29963
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Extension Table.....	see catalog
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Leg Set Caster.....	9-22221 or 9-22222
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Molding Heads

7" bits not included	see catalog
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7"-27 piece set	see catalog
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7"-15 piece set	see catalog
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Sanding Wheel -10"	see catalog
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Sanding Drum.....	9-25246
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Taper Jig	see catalog
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Guards

Molding Head Guard -8"	see catalog
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Accessory Lower Guard.....	9-29010 (supplied with saw)
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Books

Power Tool Know How Handbook	9-29117
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General Information

When new, the saw requires no lubrication. The saw has been partially aligned and all bearings are lubricated and sealed for life. In time, in order to keep the saw in good working order, it will be necessary to clean, lubricate and re-align.

WARNING

To avoid shock, burns, or lacerations from accidental start up of saw, turn power switch off and unplug saw before doing maintenance or servicing saw.

Cleaning

Periodically remove any heavy build-up of sawdust that may accumulate on the saw. The absorbing tendency of sawdust will draw lubricants away from the areas where they are needed. Wipe the carriage bearings and track surfaces with a dry or lightly oiled cloth.

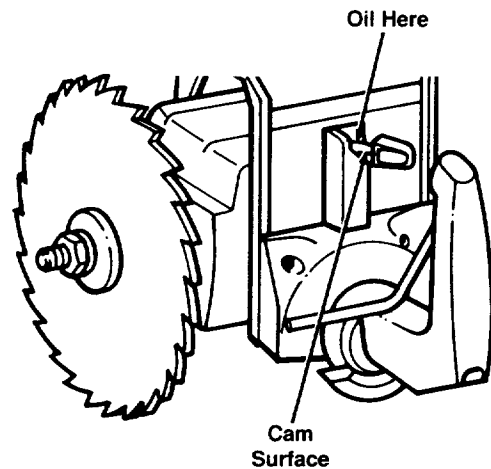
To avoid motor damage due to sawdust build-up, which interferes with normal motor ventilation, vacuum the motor often.

Lubrication

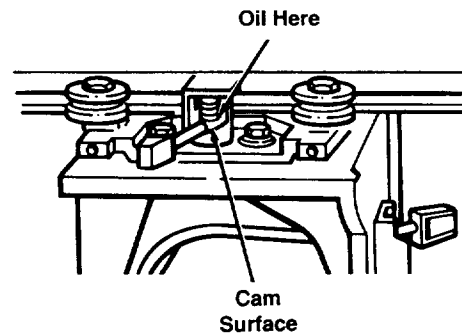
Do not lubricate motor bearings, carriage bearings, or the area between the miter lock and the column tube. Motor and carriage bearings are sealed and do not need added lubrication.

Areas that should be lubricated periodically are the bevel index pin, swivel index pin, and column tube.

You can lubricate other points if necessary, but only when sticking or binding occurs. Use a small amount of SAE No. 10W30 automotive engine oil. Excess oil attracts air-born dust and sawdust.



Bevel Index Pin



Swivel Index Pin

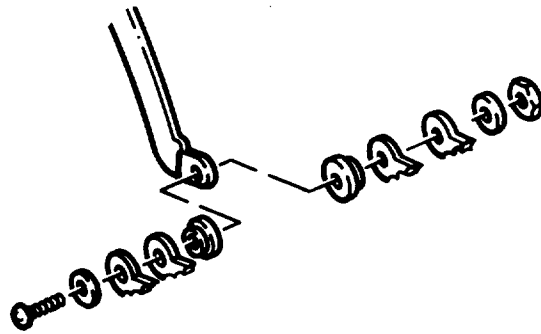
Apply a few drops of oil to top of pin and allow to flow down sides of pin. Move pin up and down in its housing to work the oil over side of pin.

Maintenance

Replacing Pawls

Make sure the teeth of the pawls are always sharp. If they become dull the pawls must be replaced:

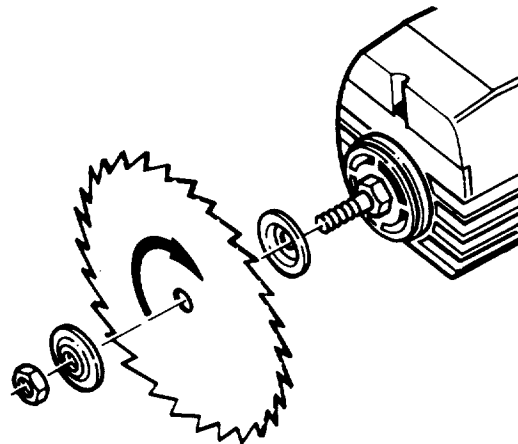
1. Use 7/16" wrench to remove hex nut. Remove old pawls.
2. Install new pawls. Place spacers exactly as shown.
3. Re-install hex nut.



Blade Changing

To change the saw blade:

1. Turn switch off, remove yellow key, and unplug saw.
2. Remove guard.
3. Use both blade wrenches in scissor action to loosen blade nut. **Note:** Arbor shaft has left-hand threads. Turn nut clockwise to loosen.
4. Remove nut, blade collar, and blade. Install new blade, making sure that arrow is on outside and points clockwise.
5. Re-install blade collar and nut. **Note:** *Do not overtighten nut because this can cause blade collar to warp and blade to wobble during cutting.*
6. Re-install guard.



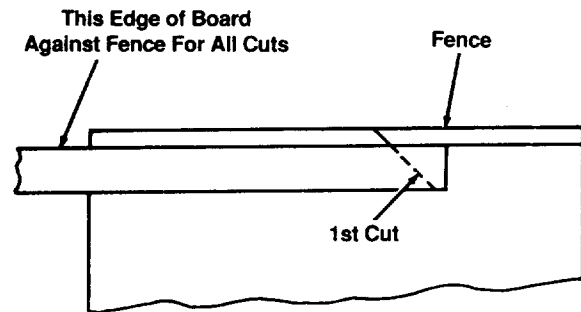
Troubleshooting

HAVE YOU FOLLOWED ALL STEPS OF THE ALIGNMENT PROCEDURE? IF YOU HAVE NOT FOLLOWED THEM IN THEIR PROPER SEQUENCE, YOU CANNOT EXPECT ACCURATE CUTTING RESULTS.

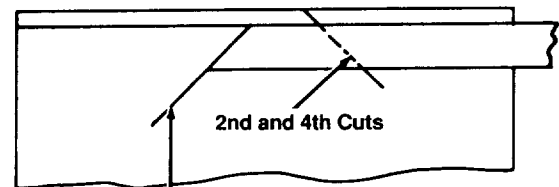
In addition to the proper alignment of your saw, you must also become familiar with the following practices in order to expect the best results.

1. Edge of workpiece which is placed against fence must be as straight as the long side of your framing square.
2. Workpiece must be as flat as the front table board on your saw.
3. There must be no sawdust or other wood chips between the fence and the front table board.
4. There must be no sawdust or other wood chips underneath workpiece or between workpiece and fence.
5. Workpiece must be held tightly against fence and down against the table...this is especially important when making angle cuts because the workpiece has a tendency to move.
6. Always use the correct sawblade for the job...Always keep it sharp.
7. When making a four sided frame:
 - a. The two side pieces must be exactly the same length.
 - b. The top and bottom pieces must be exactly the same length.
 - c. Always place the same edge of the workpiece against, the fence...turn the workpiece end for end for the successive cuts and mark a pencil line on the table for gauging the required length.

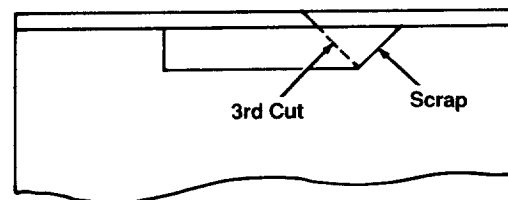
Deviation from any of the above practices will have an effect on the accuracy of the cuts that you make.



Turn Workpiece Over End For End...Keep Same Edge Against Fence When Making Successive Cuts.



Pencil Line For Gauging Required Length



Troubleshooting

Motor Problem	Possible Cause(s)	What to Do
Motor overheats or stalls	Overloaded power line	Reduce line load by removing other lights, appliances
	Feeding rate too fast	Slow down rate of feed
	Improper motor cooling	Vacuum sawdust from motor to allow normal air circulation
	Saw blade has heel	Check alignment
	Saw blade is dull	Sharpen blade
While motor is running, fuses blow	Motor Overloaded	Slow down rate of feed
	Need 15 amp circuit	Call your electrician
	Need 15 amp slow-blow fuse	Install correct fuses
	Low voltage	Check voltage. Normal loads can be safely handled at 10% above or below nameplate voltage; heavy loads need same voltage at motor terminal as on nameplate
Motor starts slowly or fails to come to full power	Incorrect gauge extension cord	Refer to table in Electrical Connections
	Overloaded power line	Reduce line load by removing other lights, appliances
	Undersize wires or circuit too long	Increase wire size or shorten length of wiring
Motor will not run	Protector circuit open	Push re-set button; listen and feel for click
	Low voltage	Check power line for correct voltage
	Sawdust build-up	Vacuum motor
	Bent or bound-up arbor shaft	Check that shaft turns freely by hand; if it doesn't, contact Sears
Fuses blow when motor is turned on	Internal damage	Take saw to Sears for service

Troubleshooting

Cutting Problem	Possible Cause(s)	What to Do
Inaccurate cut	Loose locks	Check miter, rip, bevel, and swivel locks. See Adjustments section
	Saw blade out of alignment	Check alignment
Crosscuts not accurate at indexed miter positions	Sawdust between workpiece and fence	Keep front table clean
	Fence not straight	Replace fence
	Swivel lock loose or not locked	Adjust swivel lock for wear
	Crosscut travel not square with fence	Square blade crosscut travel
	Carriage assembly loose on arm	Adjust carriage bearings, then realign saw
	Arm not indexing properly	Adjust miter lock for wear
	Looseness between column tube and column support	Adjust column support
Depth of crosscut varies from one side of workpiece to other	Table not parallel with radial arm	Adjust table supports
Saw cuts at slight bevel	Blade not square to table	Square blade to table for crosscutting and ripping
	Table not parallel to radial arm	Adjust table supports
	Bevel lock loose	Adjust bevel lock
	Work table not flat	Adjust or replace table
	Carriage bearings loose	Adjust carriage bearings, then realign saw
Workpiece kerf rough with tooth marks from blade	Blade not square to fence	Square blade to fence
	Using improper blade for desired finish cut	Use proper smooth-cutting blade
Blade tends to advance through workpiece too fast during crosscutting	Blade dull	Sharpen or replace blade
	User pulls blade through workpiece too fast	Pull blade slowly and steadily through workpiece

Troubleshooting

Cutting Problem

Workpiece strikes riving knife during ripping

Possible Cause(s)

Riving knife not in line with blade

What to Do

Align riving knife to blade

Workpiece binds, smokes, and motor slows or stops when ripping

Saw blade out of alignment

Re-align

Warped workpiece

Do not cut severely warped pieces

Feed rate too fast

Slow feed rate

Carriage assembly loose

Adjust carriage bearings, then realign saw

Fence not straight

Replace fence

Dull or incorrect blade

Sharpen or replace blade

Board pulls away from fence during ripping

Saw blade out of alignment

Re-align

May occur as normal result of applying feed pressure

Use featherboard on infeed side

Saw Problem

Radial arm moves when locked in a non-indexed miter position

Possible Cause(s)

Miter not locked firmly

What to Do

Adjust miter lock for wear

Motor moves when bevel lock is locked

Bevel not locked firmly

Adjust bevel lock for wear

Yoke moves when rip lock is locked

Rip lock not locked firmly

Adjust rip lock for wear

Blade carriage does not travel smoothly on arm

Dirty track

Clean and lubricate track

Carriage bearings set too tight

Adjust carriage bearings, then realign saw

Rip lock rubbing track

Loosen Rip Lock

Worn steel track

Replace track

Bad carriage bearing

Replace carriage bearing

Blade does not stop spinning within 15 seconds after saw is turned off

Blade nut loose

Tighten blade nut

Internal damage

Take saw back to Sears for service

Repair Parts

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420

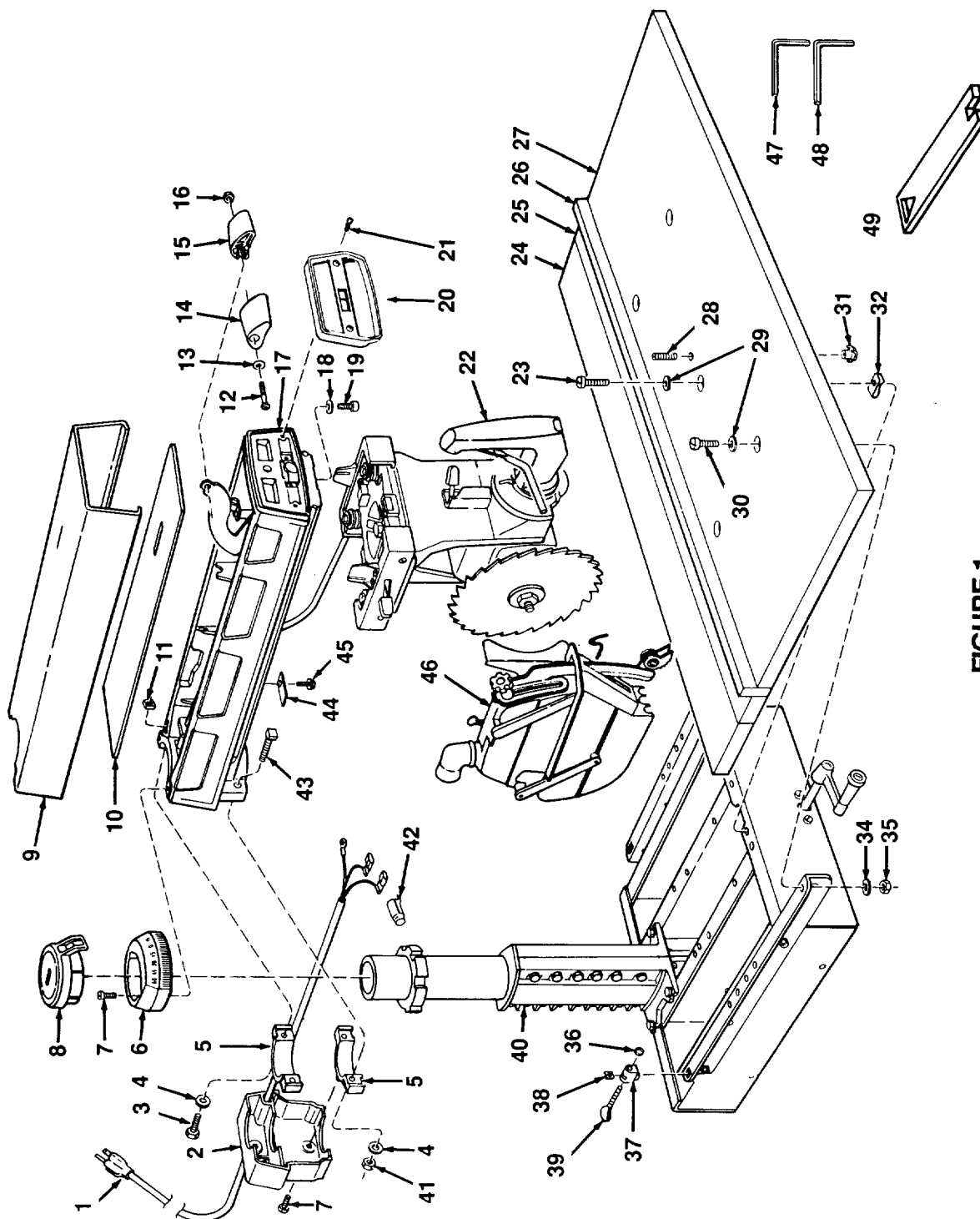


FIGURE 1

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420

Always order by Part Number - Not by Key Number

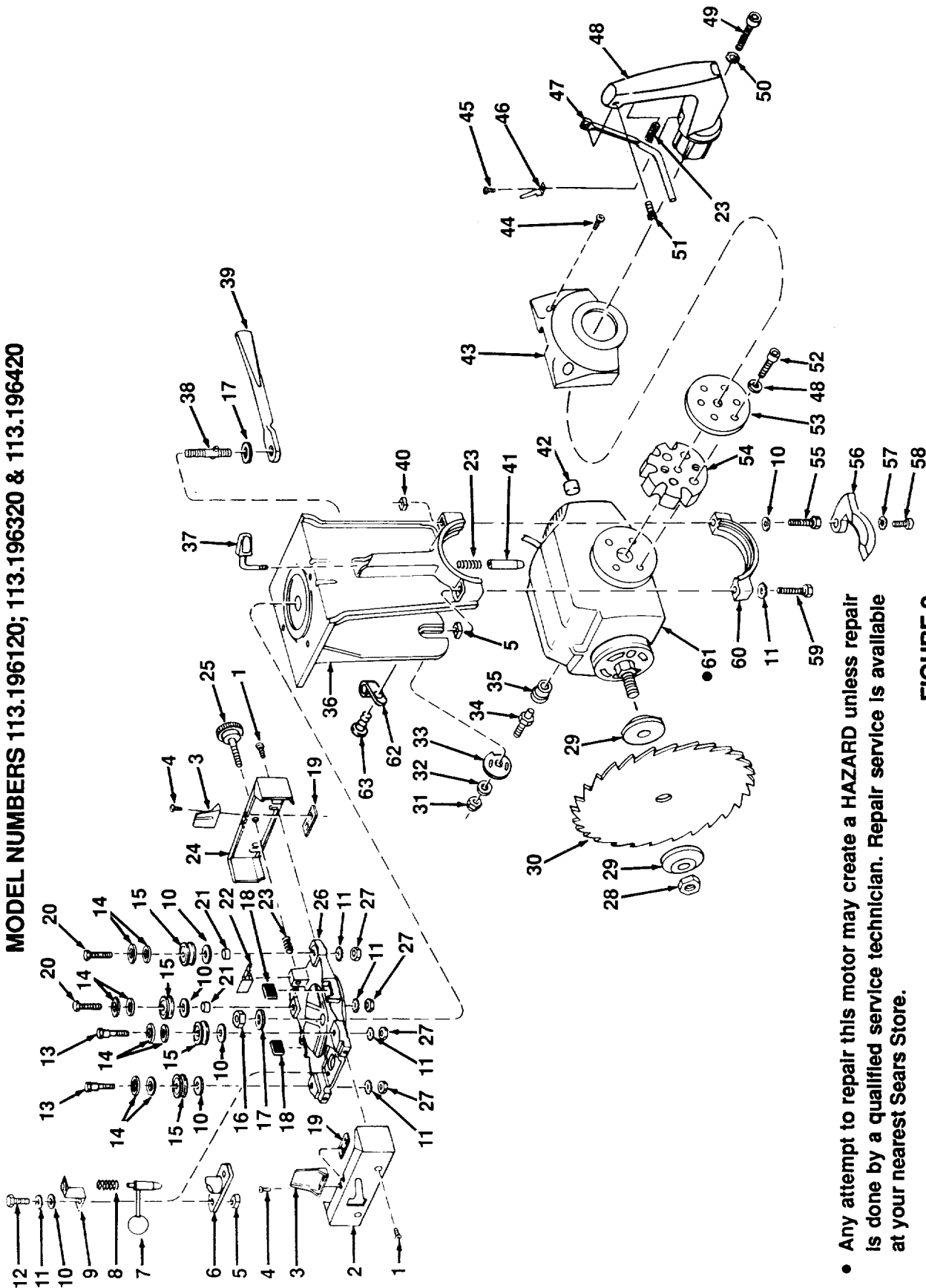
FIGURE 1

Key No	Part No.	Description	Key No	Part No.	Description
1	63518	Cord, with Plug	25	821368	Table, Spacer
2	75090	Cover, Rear Arm	26	63432	Fence, Rip
3	60339	Screw, Hex Hd Locking, 3/8-16 x 2-1/8 High Strength	27	821366	Table, Front
4	60353	Washer, .380 x 47/64 x 1/8	28	102711	Screw, Set SL. Cup 1/4-20 x 1
5	815649	Bearing, Arm	29	STD551012	* Washer, 17/64 x 5/8 x 1/32
6	63669	Scale, Miter	30	STD512510	* Screw, Pan Hd 1/4-20 x 1
7	STD601105	* Screw, Pan Rec. Hd 10-32 x 3/8	31	37384	Nut, Tee
8	63670	Indicator, Miter	32	37530	Nut, "U" Clip
9	821361	Trim Arm			
10	63686	Pad, Arm Trim	34	STD551125	* Lockwasher, 1/4
11	805494	Nut, Square 3/8-16	35	STD541025	Nut, Hex 1/4-20
12	436594	* Screw, Pan Rec. Hd 10-32 x 1-1/2	36	818161	Shoe, Table Clamp
13	STD551010	* Washer, 13/64 x 7/16 x 1/16	37	818166	Bracket, Clamp
14	63884	Knob, L.H. Lever Arm	38	120399	Nut, Square 5/16 - 18
15	63885	Knob, R.H. Lever Arm	39	818162	Screw, Clamp
16	STD541110	* Nut, Hex 10/32	40	-	Base Assembly, See Fig. 3
17	-	Arm Assembly, See Fig. 5	41	STD541437	* Nut, Lock 3/8-16
18	STD551131	* Lockwasher, 5/16	42	63467	Cap, Flag Terminal
19	9421620	Screw, Soc. Hd Cap 5/16-18 x 1/2	43	60342	Bolt, Sq. Hd 3/8-16 x 2-1/4
20	821473-3	Cap, Arm	44	63881	Clamp, Cord
21	60337	Screw, Type "T" Pan Hd 10/32 x 7/8	45	9420417	Screw, Type "T" Hex Washer Hd 1/4-20 x 5/8
22	-	Yoke Assembly, See Fig. 2	46	-	Guard Assembly, See Fig. 4
23	STD512520	* Screw, Pan Hd 1/4-20 x 1-3/4	47	63683	Wrench, Hex "L" 3/16
24	821367	Table, Rear	48	63682	Wrench, Hex "L" 1/4
			49	3540	Wrench
			-	SP55599	Owners Manual (Not Illustrated)

* Standard Hardware Item - May Be Purchased Locally.

Repair Parts

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420



• Any attempt to repair this motor may create a HAZARD unless repair is done by a qualified service technician. Repair service is available at your nearest Sears Store.

FIGURE 2

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420

FIGURE 2 - YOKE ASSEMBLY

Key No	Part No.	Description	Key No	Part No.	Description
1	STD601105	* Screw, Type "T" Pan Rec. Hd 10-32 x 1/2	35	63469	Bushing, Rubber Yoke
2	63661	Cover, L.H. Carriage	36	63642	Knob, Bevel Index
3	63786	Indicator, Rip	37	63648	Stud, Yoke Clamp
4	STD510605	* Screw, Pan Rec. Hd 6-32 x 1/2	38	63643	Handle, Yoke Lock
5	120399	Nut, Square 5/16-18	39	63644	Nut, Square L.H. 5/16-18
6	63657	Housing, Index Pin	40	60333	Pin, Index
7	63893	Pin Assembly, Index	41	63645	Cap, Shaft
8	63658	Spring, Index	42	30582	Trim, Yoke
9	63656	Bracket, Spring	43	63620	* Screw, Type "T" Pan Rec. Hd 10-32 x 7/8
10	STD551031	* Washer, 21/64 x 3/4 x 1/16	44	60337	* Screw, Type "T" Pan Rec. Hd 8/32 x 5/16
11	STD551231	* Lockwasher, 5/16, Ext. Tooth	45	STD600803	Indicator, Bevel Trigger
12	STD523107	* Screw, Hex Hd 5/16-18 x 3/4	46	63662	Handle, Yoke
13	63778	Screw, Eccentric	47	821354	* Lockwasher, 5/16
14	63782	Washer Assembly, Carriage Bearing	48	821342	Screw, Set 1/4 - 20 x 3/8
15	63777	Bearing, Carriage	49	9421628	Screw, Soc. Cap 5/16-18 x 2
16	STD541462	* Nut, Lock 5/8-11	50	STD551131	* Lockwasher, 5/16
17	STD551062	* Washer, .630 x 1.125 x .093	51	60288	Screw, Soc. Cap 5/16-18 x 1-5/8
18	30567	Bumper	52	9421627	Plate, Retainer
19	30530	Nut, Speed	53	63650	Ring, Index
20	60336	Bolt, Hex Hd 5/16-18 x 1-1/2	54	63649	Screw, Hex Hd L.H. 5/16-18 x 2
21	63779	High Strength Bearing, Sleeve	55	60335	Lever, Bevel Lock
22	63528	Shoe, Rip Lock	56	63647	* Lockwasher, Ext. Tooth No. 10
23	30521	Spring, Swivel Latch	57	STD551210	Screw, Hex Soc. Button Hd 10-32 x 5/8
24	63659	Cover, R.H. Carriage	58	806214	* Screw, Hex Hd 5/16-18 x 2
25	63660	Knob, Carriage Lock	59	STD523120	Cap, Yoke
26	63641	Carriage	60	63646	* Motor (Model 113.196420)
27	STD541231	* Nut Hex Jam 5/16-18	61	821506	Motor (Models 113.196120, 113.196320)
28	30495	Nut, Shaft	62	30613	Clamp, Cord
29	62498	Collar	63	STD600805	Screw, Pan TY "T" 8-32 x 1/2
30	9-32668	† Blade, Saw			
31	STD541411	* Nut, Lock 3/8-16			
32	STD551037	* Washer, .380 x 47/64 x 1/16			
33	63652	Cam, Motor			
34	63651	Stud, Motor			

* Standard Hardware Item - May Be Purchased Locally.

† Stock item - May be secured through the hardware departments of most Sears Retail Stores or Catalog Order

• Any attempt to repair this motor may create a HAZARD unless repair is done by a qualified service technician. Repair service is available at your nearest Sears Store.

Repair Parts

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420

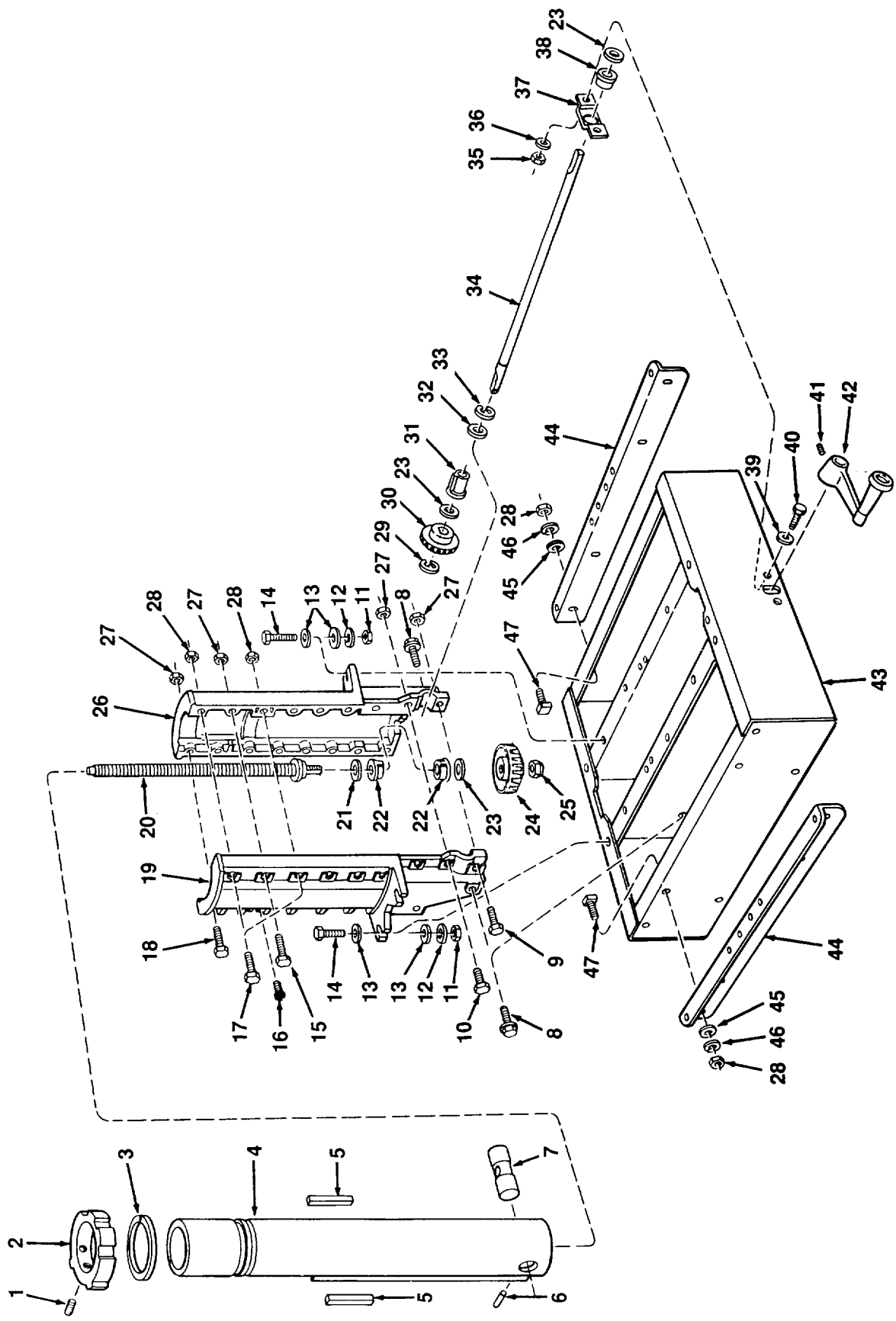


FIGURE 3

Repair Parts

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420

Always order by Part Number - Not by Key Number

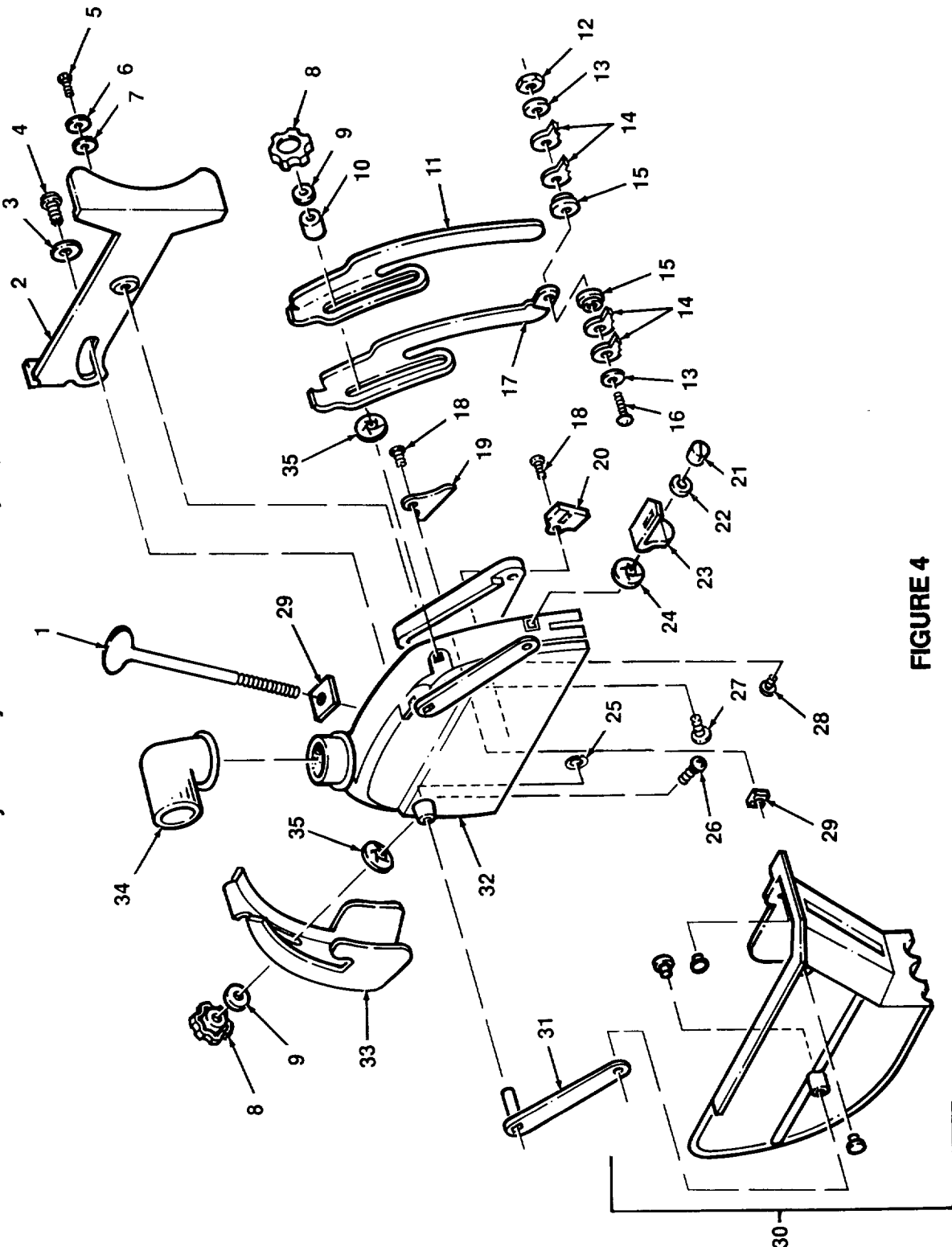


FIGURE 4

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420

Always order by Part Number - Not by Key Number

FIGURE 4 – GUARD

Key No	Part No.	Description	Key No	Part No.	Description
1	821217	Screw, Guard Clamp	19	820523	Clamp, Pawl
2	821313	Link, Pull	20	820526	Retainer
3	STD551012	* Washer, 17/64 x 5/8 x 1/16	21	820519	Nut, Slotted 1/4 - 20
4	815865	Screw, Hex Washer Hd Type "TT" 1/4 - 20 x 1/2	22	STD551225	* Lockwasher 1/4
5	STD601105	* Screw, Pan Hd Type "TT" 10-32 x 5	23	820530	Support, Knife
6	802392-47	Spacer #10 x .125	24	808822-1	Nut, Push 1/4
7	808447-6	Washer, Spring	25	805641-1	Ring, Retaining
8	820529	Knob, 5/16-18	26	STD533107	* Bolt, R.H. Short Neck 5/16 - 18 x 5/8
9	STD551031	* Washer 21/64 x 5/8 x 1/16	27	809019-4	Bolt, Rd Hd Short Neck 5/16 - 18 x 1-3/4
10	820521	Spacer	28	820532	Bolt
11	820515	Knife, Riving	29	821449	Nut, Square 5/16 - 18 Double Lead
12	STD541425	* Nut, Lock 1/4-20	30	821310	Guard, Lower
13	STD551025	* Washer 17/64 x 5/8 x 1/16	31	821311	Link
14	815815	Pawl, AKB	32	821312	Guard
15	820517	Bushing	33	821314	Hold Down
16	STD512510	* Screw, Pan Hd. 1/4-20 x 1	34	63258	Elbow, Dust
17	820512	Holder, AKB	35	60413	Nut, Push 5/16
18	820219-2	Screw, Pan Hd Type "TT" 1/4 - 20 x 1/2			

* Standard Hardware Item – May Be Purchased Locally.

Repair Parts

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120, 113.196320 & 113.196420

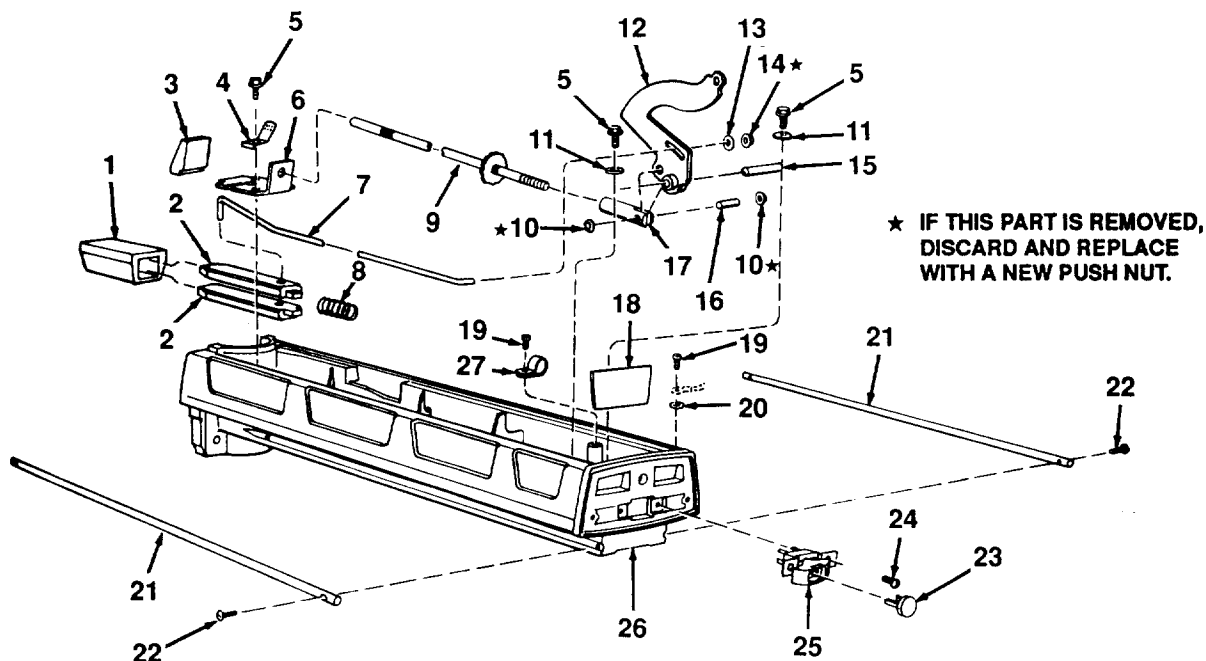


FIGURE 5 – ARM ASSEMBLY

Key No	Part No.	Description
1	63626	Housing, Pin
2	63629	Pin, Arm Index
3	63631	Pawl, Arm Lock
4	63628	Spring, Tension
5	9420417	* Screw, Type "T" Hex Washer Hd 1/4-20 x 5/8
6	63883	Guide
7	63632	Rod, Index
8	63630	Spring, Arm Lock
9	63633	Rod, Arm Lock
10	60240	★ Nut, Push 3/8
11	STD551031	Washer, 21/64 x 1 x 1/8
12	63872	Lever, Arm Lock
13	STD551012	* Washer, 17/64 x 5/8 x 1/32
14	60208	* Nut, Push 1/4
15	63638	Pin, Lever

Key No	Part No.	Description
16	63637	Pin
17	63636	Pin, Clevis
18	63773	Insulation
19	STD601103	* Screw, Type "T" Pan Hd 10-32 x 3/8
20	STD551210	* Lockwasher, Ext. Tooth N10
21	63639	Track
22	448337	Screw, Type "T" Rd. Hd 10-32 x 5/8
23	9-22255	† Key
24	STD600805	* Screw, Type "T" Pan Hd 8-32 x 1/2
25	63896	Switch, Locking (Includes Key No. 23)
26	63878	Arm, Radial
27	60440	Clamp, Cord

* Standard Hardware Item may be Purchased Locally.

★ If this part is removed, discard and replace with a new Push Nut.

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196120; 113.196320 & 113.196420

Always order by Part Number - Not by Key Number

FIGURE - 3 BASE ASSEMBLY

Key No	Part No.	Description	Key No	Part No.	Description
1	STD503705	* Screw, Soc. Set 3/8-16 x 1/2	23	60300	Washer, 1/2 x 7/8 x .010
2	63623	Latch, Arm	24	818164	(as required)
3	60330	Ring, Retaining 3"	25	STD541450	Gear, Bevel
4	63611	Tube	26	63619	* Nut, Lock 1/2-13
5	63610	Gib, Column Tube	27	STD541031	Support, R.H.
6	STD572510	* Pin, Roll 1/4 x 1	28	STD541431	* Nut, Hex 5/16-18
7	821346	Nut, Elevation	29	STD581037	* Nut, Lock 5/16-18
8	9416187	* Screw, Type "T" Hex Washer Hd. 5/16-18 x 3/4	30	818165	* Ring, Retaining 3/8
9	STD523110	* Screw, Hex Hd. 5/16-18 x 1	31	63617	Gear, Pinion
10	60078	* Screw, Hex Hd. 5/16-18 x 1/2	32	STD551050	Bearing, Elevating Shaft
11	STD541037	* Nut, Hex 3/8-16	33	STD581050	* Washer, .515 x .875 x .032
12	STD551137	* Lockwasher, 3/8	34	821333	* Ring, Retaining 1/2
13	60340	* Washer, .380 x 7/8 x 1/8	35	STD541025	Shaft, Elevating Crank
14	STD523712	* Screw, Hex Hd. 3/8-16 x 1-1/4	36	STD551125	* Nut, 1/4-20
15	186648	* Screw, Hex Hd. 5/16-18 x 1-7/8	37	63622	* Lockwasher 1/4
16	817398-1	Screw, Locking Cap 1/4-20 x 5/8	38	63435	Bracket, Bearing
17	60367	Bolt, Hex Hd. 5/16-18 x 1-7/8	39	STD551012	Bushing
18	60336	High Strength Bolt, Hex Hd. 5/16-18 x 1-1/2	40	STD522505	* Washer, 17/64 x 9/16 x 3/64
19	63609	High Strength Support, L.H.	41	STD502503	* Screw, Hex Hd. 1/4-20 x 1/2
20	821348	Shaft, Elevating	42	63434	* Screw, Soc. Set 1/4-20 x 3/8
21	63500	Washer, Thrust .502 x .927 x .031	43	63621	Crank, Elevating
22	63614	Bearing	44	818199	Base
			45	STD551031	Channel, Table Mounting
			46	STD551131	* Washer, 11/32 x 7/8 x 1/16
			47	109163	* Lockwasher, 5/16
					* Bolt, Square Hd 5/16-18 x 3/4

* Standard Hardware Item - May Be Purchased Locally.

Repair Parts

PARTS LIST FOR CRAFTSMAN 10" RADIAL SAW MODEL NUMBERS 113.196320 & 113.196420

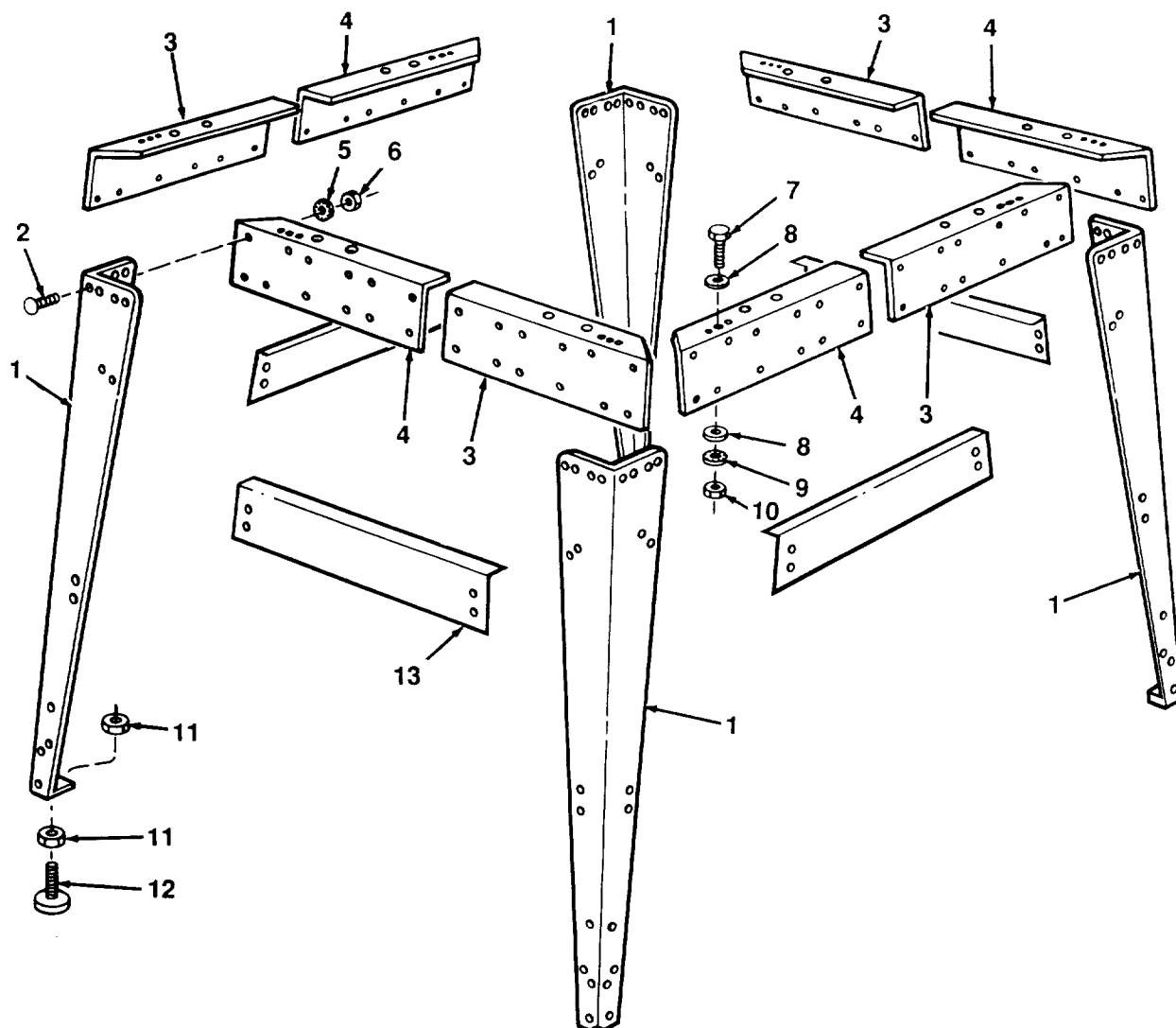


FIGURE 6 - LEG SET

Key No	Part No.	Description
1	821343	Leg
2	60314	Screw, Truss Hd. 1/4-20 X 5/8
3	63751	Stiffener, R.H.
4	63750	Stiffener, L.H.
5	STD551225	* Lockwasher, External 1/4
6	STD541025	* Nut, Hex 1/4-20
7	STD523106	* Screw, Hex Hd 5/16-18 x 5/8

Key No	Part No.	Description
8	STD551031	* Washer, 11/32 x 11/16 x 1/16
9	STD551131	* Lockwasher, External 5/16
10	STD541231	* Nut, Hex Jam 5/16-18
11	STD541037	* Nut, Hex 3/8-16
12	803835-1	Foot, Leveling
13	821360	Lower Stiffener (113.196420 Only)

* Standard Hardware Item may be Purchased Locally.

SEARS

owner's manual

SERVICE

MODEL NO.

113.196120

SAW ONLY

or

113.196320

SAW WITH LEGS

or

113.196420

CONTRACTOR'S SAW

10-INCH RADIAL SAW

Now that you have purchased your 10-Inch radial saw, should a need ever exist for repair parts or service, simply contact any Sears Service Center and most Sears, Roebuck and Co. stores. Be sure to provide all pertinent facts when you call or visit.

The model number of your 10-inch radial saw will be found on a label attached to your saw, at the front of the base.

HOW TO ORDER REPAIR PARTS

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

PART NUMBER

PART DESCRIPTION

MODEL NUMBER

NAME OF ITEM

113.196120

10-INCH RADIAL SAW

113.196320

113.196420

All parts listed may be ordered from any Sears Service Center and most Sears stores. If the parts you need are not stocked locally, your order will be electronically transmitted to a Sears Repair Parts Distribution Center for handling.

Sold by SEARS, ROEBUCK AND CO., Chicago, IL 60684 U.S.A.