

# FORREST

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**IMPORTANT: See Instructions for installing blade on bottom of page 3**

## GUIDELINES FOR CARBIDE-TIP SAWING ON TABLE SAWS AND RADIAL SAWS

### TABLE SAWS

The two main causes of BLADE BURNING on TABLE SAWS are;

- 1.) Bad alignment of blade with the MITER GAUGE SLOTS on each side.
- 2.) Bad alignment of blade with the FENCE CAUSING CROWDING OF WOOD AGAINST REAR SIDES of Tips.  
This causes TREMENDOUS HEAT, and BURN appears on the side of the wood.

Example...

If the blade is NOT ALIGNED WITH THE MITER SLOTS then...

TOP  
VIEW  
OF  
TABLE  
SAW

(see Fig. 2 for  
subsequent conditions)

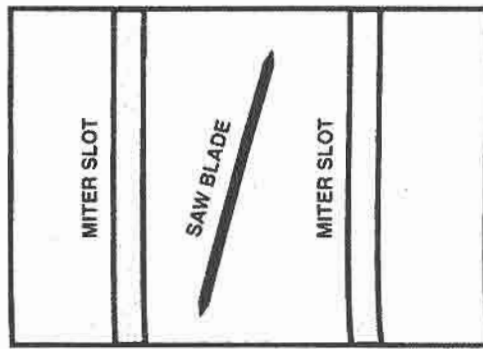


Fig. 1 INCORRECT (very common)

THE FENCE ALSO will be misaligned with the slots as you try to adjust the fence to a parallel position to a cocked-over blade.

TOP  
VIEW  
OF  
TABLE  
SAW

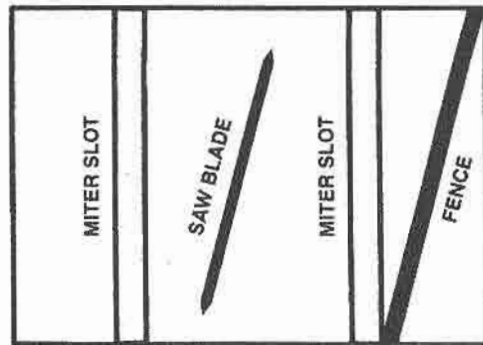


Fig. 2 INCORRECT

Most common misalignment of fence causes crowding of wood against rear of saw blade. This results in BURNING and chipping of top surfaces and DANGEROUS KICKBACK.

TOP  
VIEW  
OF  
TABLE  
SAW

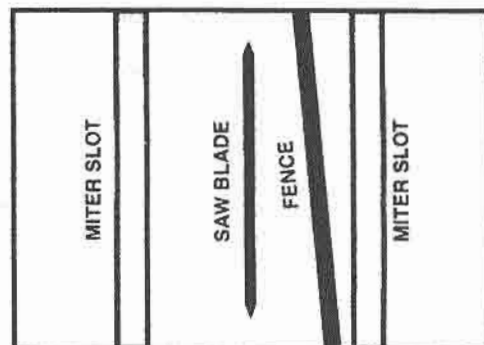


Fig. 3 INCORRECT (very common)

The blade **MUST FIRST** BE LINED UP PERFECTLY PARALLEL WITH THE SLOTS...

TOP VIEW OF TABLE SAW

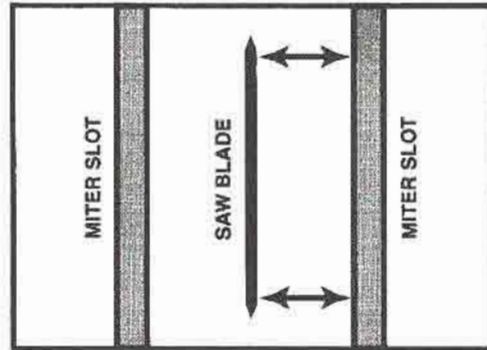


Fig. 4

**CORRECT**

Set blade equal distance to slot...see Summary below.

Then the FENCE MAY BE PROPERLY ADJUSTED DEAD PARALLEL TO THE BLADE BY SETTING THE FENCE EDGE PARALLEL TO THE SLOT EDGE directly over, but open about .005" (the thickness of an average sheet of paper) between the rear of the blade and the fence on an accurate fence.

For worn, sloppy or slightly bowed fences, open 1/64" to 1/32" in rear if needed to prevent burn on blade side toward fence. if fence is opened too much, burn will shift over to LEFT SIDE of blade.

TOP VIEW OF TABLE SAW

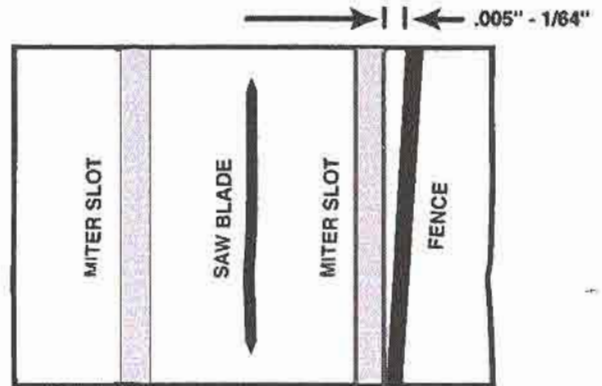


Fig. 5

**CORRECT**

### SUMMARY

#### TO PROPERLY ALIGN BLADE AND FENCE

- 1.) FIRST align blade parallel to the miter slots within .002" by the simple method of rubbing the square end of a wooden stick back and forth, touching the steel side of the raised up blade while clamping wood firmly with left hand against the miter gauge. *Of course, the saw machine is shut off during this operation.* Use machine adjustments and instruction book and swing blade back and forth until a light continuous touch or drag of wood against the blade side is obtained. Double check the process on the opposite side of the blade, then LOCK UP ADJUSTMENTS and occasionally recheck the blade for slippage.
- 2.) THEN set the fence parallel above the length of the right slot edge, but opened in rear .005 to 1/64" as needed to assure no burn on right side of blade caused by fence crowding.

TOP VIEW OF TABLE SAW

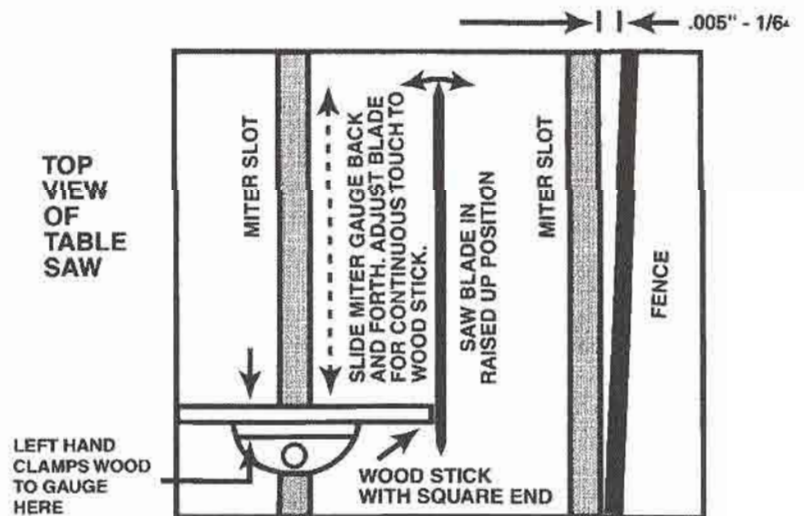


Fig. 6

**BLADE, SLOTS & FENCE ARE CORRECT**

## TABLE SAWS (con't)

### BURNING CAUSES AND CURES

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- 1.) **Kick Back:** Major cause is a pinching and crowding fence.  
Cure: See Figures 3,4 and 5 for BLADE & FENCE ALIGNMENT. THE FORREST WOODWORKER SMOOTH CUT series of blades with parallel side grind MINIMIZES TIP SIDES CATCHING AND THROWING WOOD BACK.
- 2.) **Sawdust thrown in eyes:** Often comes from the fence being too loose or too tight. This crowds wood against the rear side of the teeth, forcing a cut on the up rotation on the left or right side of the blade.  
Cure: Adjust fence as above. The use of safety goggles or face shields is strongly recommended.
- 3.) **A third major cause of burning:** RUNNING THE BLADE TOO LOW (especially on hard woods.)  
Cure: WITH SAFETY GUARD in place, you may safely RAISE THE SAW BLADE 1" TO 2" above the surface of the wood and FEED FASTER. This produces 300° - 500° COOLER CUTS, LONGER LIFE, AND STOPS SCORCHING. This is most effective on hard wood such as cherry and hard maple. On SOFT WOODS the blade may be kept LOW with no scorching occurring.  
  
There are some very scorchy hardwoods such as cherry, maples and some oaks...be sure to use the HIGH BLADE/FAST FEED technique on these.
- 4.) **Slow feed or stopping** is especially bad. The blade rubbing at its 100 mph rim speed rapidly heats and scorches the wood surface. To prevent this keep moving!
- 5.) **Too many teeth on blade when ripping** causes slow feed and excess side friction. . . we suggest 24T - 40T for ripping. . . 60T - 80T for cross cut.
- 6.) **"Rocking"** of uneven wood bottom and side surfaces against table surface and/or fence:  
Cure: Joint the wood flat on bottom or one side to allow straight feed.
- 7.) **"Rocking"** of wood from table level down into a depression where THROAT PLATE INSERT IS BELOW TABLE LEVEL  
Cure: Carefully level entire throat plate with table surface using a straight edge with a light source behind it.
- 8.) **Poor sharpening where:**
  - A.) Tops or cutting edges are microfractured from dry grinding, coarse or medium-grit grinding, or too fast a grinding pass with vibration. Result - Burning!
  - B.) Top corners of teeth are chipped away for above reasons, and cause heat and pressure when plowing thru against the wood sides. Result - Burning!
  - C.) Dull sides occur because insufficient or rough grinding on the face did not remove enough stock to restore side edge sharpness or left ragged side edges. Result - Burning!

### SPLINTERING CAUSES AND CURES

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- Ripping:** Edge splintering is usually not found on ripping with the grain.  
Cure: Try a slower feed or use more teeth or a reduced face hook. You might also try lowering the blade. Check for a possible high tip on sides or top.
- Cross-cut:** On cross-cut it is more common to experience splintering along the bottom edge and up the final vertical surface. If splintering occurs on the top side, usually raising the blade 1/4" or so will stop it.  
Cure: To help bottom splintering, lower the blade on a table saw and feed more slowly. Also, use a blade with more teeth and/or higher Alternate Top Bevels (ATB) instead of a square tooth or Triple Chip Grind (TCG - square and chamfered style).

#### BLADE SHARPENING:

Dull or poorly sharpened blades with raggedy edges and micro-chipped points also causes much splintering. Send the wood sample of the poor cut with the blade for a free microscope check to FORREST MANUFACTURING CO., 457 River Rd., Clifton, New Jersey 07014 and for usual 3-5 day reasonably priced sharpening on FORREST and on all makes of carbide-tipped circular saw blades.

### INSTALLING BLADE ON SAW ARBOR

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- 1.) In addition to instructions below, read saw machine owner's manual.
- 2.) Make sure machine is turned off and power is disconnected.
- 3.) Clean all mating surfaces (mounting collars, blade, stiffener disk if any). Remove any oil, sawdust, and burrs in steel, otherwise blade may wobble. Remove all plastic coating on teeth.
- 4.) Mount sawblade on arbor against inside collar first, then mount stiffener plate (if any), outside collar and nut. Hand tighten nut.
- 5.) If your machine does not have a means of locking the arbor while tightening the nut, use a folded rag to grasp the blade. Then tighten the nut with the wrench to the recommended torque. DO NOT USE a piece of wood chocked into the teeth. This can bend or break teeth.
- 6.) ALWAYS WEAR EYE PROTECTION ! Also use the blade guards provided with your machine. In addition to dust and scraps thrown at the operator by the spinning blade, the carbide tips can be broken off (by kick-backs, cutting hidden nails, etc.) and thrown at high speed, causing serious injury.

Many of the same basic principles listed for the TABLE saw can be applied also to the RADIAL saw. Some special considerations are:

**Problem:** A BURNING crosscut on a Pull cutting stroke.

Usually the BURN is on the LEFT side of the blade or the RIGHT side, NOT ON BOTH SIDES. This indicates the blade is not set dead parallel to the overhead rails, but is cocked on one side slightly, causing the blade to "heel" or double cut at the rear of the blade on its UPWARD rotation on one side which causes the burn.

**Cure:** Gradually adjust the rear of the saw blade away from the burned side until the burning ceases. (See instructions for your machine for fine adjustments on the yoke).

If the BURN occurs on BOTH SIDES, on hardwood for example, try dropping the blade 1/4" to 3/8" thru the bottom of the wood and feed definitely faster. This cools the cut because of a shorter arc of contact on the wood and reduces power requirements and "jump in" overfeed tendency.

**CAUTION - DANGER!!!** If the operator on HIS OWN DECISION AND AT HIS OWN RISK (holding the wood down with his left hand, determines he wishes to try to copy some of the European Radial saws which cut on the PUSH STROKE away from the operator, he will realize two benefits:

- 1.) By varying the amount of blade protrusion thru the bottom of the wood 1/4" to 1/2" he will reduce heat and always get a PERFECT NON-SPLINTERED BOTTOM EDGE.
- 2.) There will be absolutely NO DANGEROUS "JUMP IN" tendency of the blade overfeeding itself and climbing into the work as there is on the PULL CUT method.

**—DANGERS—**However two provisions are ABSOLUTELY NECESSARY!!!

- 1.) With his left hand he must HOLD THE WOOD DOWN on the table and against the fence because the blade cutting on the UPWARD ROTATION as it is PUSHED THRU will tend to LIFT AND THROW THE WOOD, unless it is held down with moderate pressure.
- 2.) He must also keep the fingers of the left OUT OF THE PATH OF THE TRAVELING SAW (whether on PUSH CUT OR PULL CUT). Thoughtful use of safety equipment is hereby encouraged.

**NOTES:** If the operator momentarily forgets either of these two vital provisions, a serious accident could result!!! FOR THE RECORD THEREFORE, FORREST cannot recommend any operator to use this European "PUSH CUT" method unless the machine is designed to cut in this manner.

On Radial or Chop saws, High Alternate Top Bevel (ATB) blades give much better control of bottom splintering than a square top or TCG Triple chip Grind Blades.

## **SAWLIFE**

- 1.) Use blades with harder C-4 carbide as normally they retain sharp edges longer.
2. Get an inexpensive 10 to 20 power flash scope if possible (from FORREST or elsewhere) and scope and verify the quality of your cutting edges from your local sharpener.
- 3.) Raise the saw blade higher on Table saw and feed faster to minimize the arc of contact. This decreases abrasion and heat and the number of rotations required to cut the piece, especially on ripping plywoods with gluelines and particle board.
- 4.) The best sharpening is usually done in two steps:
  - a.) About .003" ground off the face (this sharpens the side cutting edges) with 270 or 320 grit (or finer) diamond wheels.
  - b.) About .010" ground off top to create a perfect edge and perfect corner point.
- 5.) Ultra-fine 400 or 600 grit diamond, flood coolant, and slow grinding should be used in the topping operation to create a perfect edge which lasts longer and reduces the number and frequency of sharpenings required.
- 6.) 10 to 15 sharpenings are usually possible with the average FORREST carbide-tipped blade.
- 7.) Flakeboard and formicas can be cut but will dull the blade much faster than soft woods or hard woods. When possible, use a cheaper saw or a dull blade for occasional flake/formica and keep the sharper blades for the pure wood cutting. If cutting mostly flake/formicas and thin melamines contact FORREST or your distributor for recommendations
- 8.) DO NOT CUT INTO NAILS OR STEEL. Avoid having saws touching each other on the wall or laying on a steel tabletop where fine chipping of carbide points can instantly occur. Use thin cardboard as separators.