

planer before it's running at full speed. As the stock is feeding through the planer, watch and listen carefully for several problems:

- Watch that the stock doesn't drift toward one side of the table, but always remains centered under the cutterhead.
- Watch that the stock continues to feed at a steady rate.
- Listen that the planer doesn't begin to slow or stop in the middle of a cut.
- Watch and listen that the stock doesn't chip, splinter, or tear out.

If the stock begins to drift toward one side of the table or the other, gently press against the infeed or outfeed end of the stock to straighten it as the stock is being cut. **Warning:** Never put your hands under the in feed or outfeed shield! If you can't straighten the stock or if the stock jams in the planer, turn off and unplug the machine and let it come to a complete stop. Lower the table and remove the stock. Remove any wood chips or sawdust that might be blocking the path. Then repeat the pass.

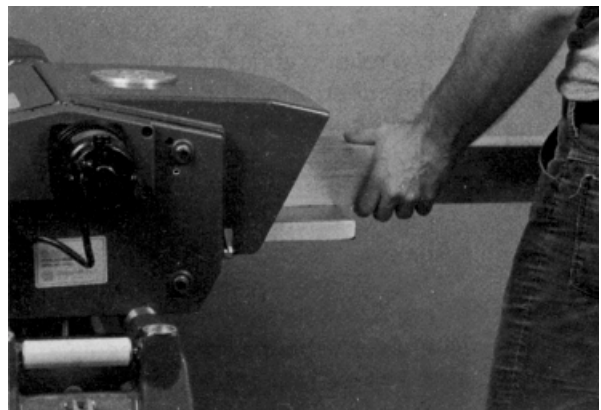
If the cutterhead slows or the wood chips and splinters, quickly adjust the feed rate to SLOW, if this doesn't correct the problem, immediately turn off and unplug the machine. Let the planer come to a complete stop; then lower the table, remove the stock, and inspect both the planer and the stock to see what could be causing the problem. It might be any one or a combination of several different causes:

- The depth of cut may be set too deep.
- The planer may be cutting against the wood grain.
- The stock may have wild, figured grain or dense, hard knots.
- The knives may be worn and dull.

If the problem is that the cutterhead slows, reduce the depth of cut or decrease the cutterhead speed. If the wood is chipping, reduce the depth of cut or increase the cutterhead speed. Also try turning the board end-for-end if the wood seems to be tearing along the grain. If the cause of the problem is figured wood grain or knots, you may have to take very light cuts at a very slow feed rate.

If the wood seems to hesitate or stick as you feed it, but neither the cutterhead nor the feed motor slows down, the rollers need to be cleaned or the table needs to be waxed--or both. Clean the rollers with a damp cloth and apply paste wax to the table. Dry off the rollers and buff the table carefully. Locate the cause of the problem and correct it; then repeat the pass, watching and listening carefully to see that the problem does not reappear. If an unusual vibration develops or if you hear excessive chipping and splintering, immediately turn off the planer. Do not operate the machine until you have located and corrected the problem.

As the stock emerges from the planer, move to the outfeed side of the machine, keeping your body to the right of the outfeed opening. Support the stock as it is fed out, but don't pull it any faster than the rollers want to feed it (Figure 21-6). Once the outfeed roller lets go of the stock, remove it from the planer.



**Figure 21-6.** Support the stock as it comes off the outfeed table. Don't pull the stock any faster than the rollers want to feed it.

Inspect the board for any chipped or torn spots. If there are no problems, readjust the depth of cut and feed the board into the planer for another pass. Make repeat passes until you have reduced the board to the desired thickness.

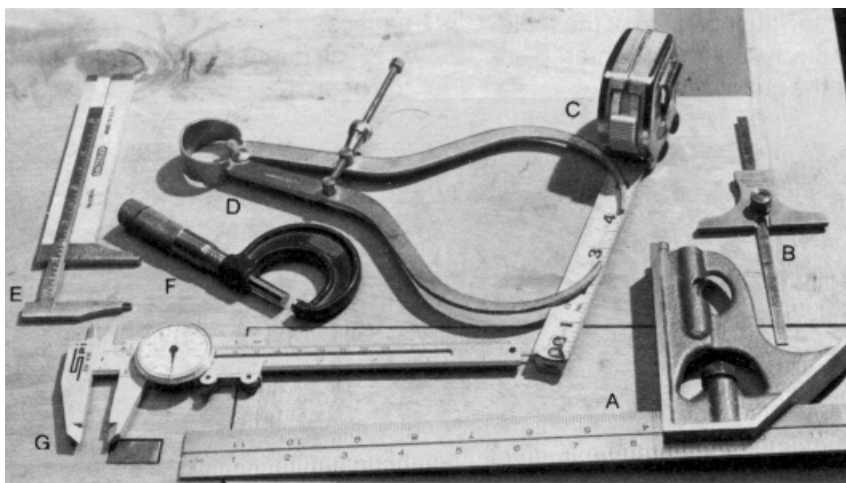
### HELPFUL PLANING TIPS

Getting a good, smooth surface begins by making sure the knives are sharp and properly adjusted, the depth of cut isn't too deep, and that the machine is running at the proper speed and feed rate. Here are a few additional tips to help you get the best results:

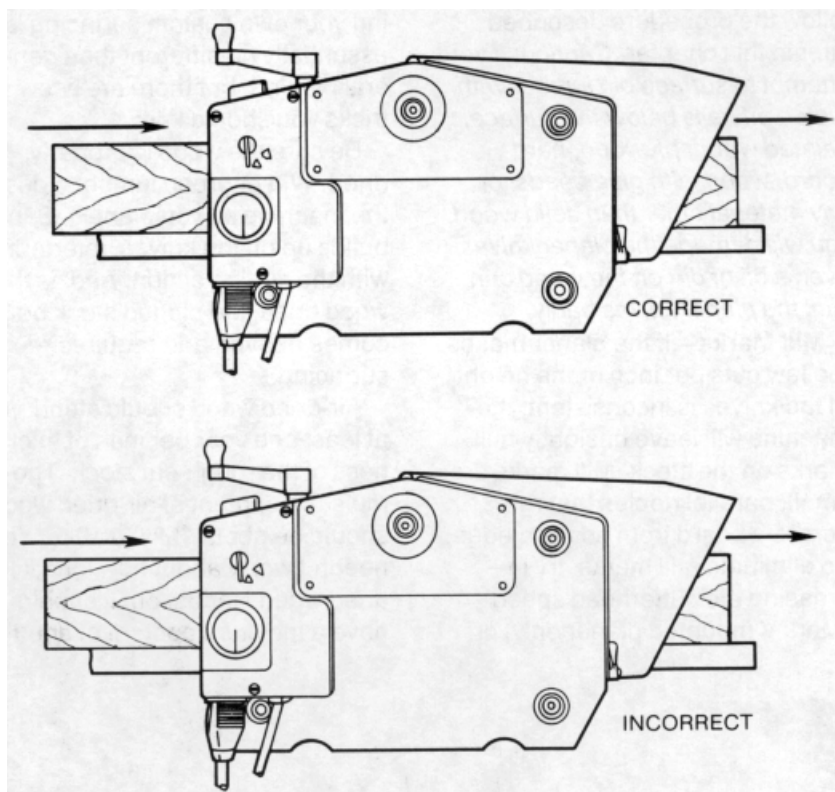
**Accuracy**--When you're planing stock to a desired thickness, you'll probably want to measure the thickness many times as the stock approaches the final dimension. Several measuring tools will work well--a combination square, depth gauge, tape measure, outside calipers, vernier calipers, micrometer, or dial calipers (Figure 21-7). If you want a tool that is easy to use and accurate, choose the dial calipers.

**Wood Grain Direction**--Always feed the stock so that the knives are cutting in the same direction as the wood grain (Figure 21-8). If you cut against the grain, the wood may chip out or even be torn apart in the planer (Figure 21-9).

The grain direction is usually easy to determine by the look and feel of the workpiece. Looks can be deceiving, though, especially with close-grained woods. If the stock starts to knock or kick back against the infeed roller or you hear wood chipping out, quickly turn the feed rate down to **SLOW**. If this doesn't help, immediately turn off the planer. When the machine comes to a complete stop, lower the table and remove the stock from the planer. Turn the board end-for-end and try the pass again.



**Figure 21-7.** When you're planing stock to a desired thickness, you need a tool to measure the thickness. Shown here are a combination square (A), depth gauge (B), tape measure (C), outside calipers (D), vernier calipers (E), micrometer (F), and dial calipers (G). All of them will work well when measuring thickness, but dial calipers are perhaps the handiest.



**Figure 21-8.** Check your stock before you feed it into the planer. The knives should cut with the grain direction.

If the stock starts to knock or kick back against the infeed roller or you hear wood chipping out, quickly turn the feed rate down to **SLOW**. If this doesn't help, immediately turn off the planer. When the machine comes to a complete stop, lower the table and remove the stock from the planer. Turn the board end-for-end and try the pass again.

**Knots and Trouble Spots--** Wood with knots, wild grain, or extensive figuring is always difficult to surface and requires extra care. Check that any knots in a board are solid. **Warning:** Never plane stock with loose or cracked knots. Feed the work very slowly and take light cuts (1/128" to 1/64"). Be especially cautious of kickbacks and stop cutting immediately if the stock will not feed smoothly.

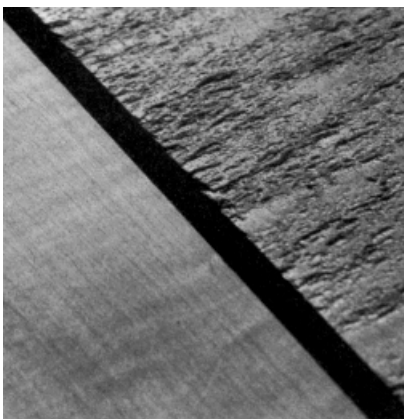
**Sniping--**If you let the stock droop when it's being fed into or coming out of the planer, the knives may cut a large snipe at the beginning or the end of the board (Figure 21-10). A small snipe (less than 0.005" deep) is normal. But if the snipes are deep, be more careful as to how you support the stock. Keep it parallel to and flat on the table at all times.

Less often sniping may be caused by weak roller pressure. If the planer continues to cut a pronounced snipe no matter how you feed the stock, check the roller springs, following the procedure in the Planer Owners Manual.

**Ridges--**Damaged or nicked knives leave long ridges on the surface of the planed stock, running the entire length of the board (Figure 21-11). These ridges detract from the finished surface of the wood and may interfere with the accuracy of your woodworking. The only way to restore the knives so they won't leave these long ridges is to have them reground.

To avoid damaging the planer knives, inspect each board before you plane it. Be sure there are no nails, staples, tacks, dirt, paint, or similar materials on or in the wood. If you must surface glued-up stock, follow the procedure described later in this chapter. **Caution:** If you attempt to surface old lumber with rusted off nails below the surface, painted wood, plywood, hard-board, wood with glue beads, or any material other than solid wood, you will damage the planer knives. Even a bit of dirt on the wood can nick the planer knives badly.

**Mill Marks--**If the planer makes too few cuts per inch or the height of the knives is inconsistent, the machine will leave unsightly mill marks on the stock. Mill marks are small, parallel ripples that run across a board from edge-to-edge. To eliminate mill marks, try increasing the cutterhead speed (Mark V mounted planer only) or decreasing the feed rate. If the mill marks persist, check the knife positions.



**Figure 21-9.** If you feed the wood against the grain, you may get a rough, chipped out surface as shown on the right. Feed the wood with the grain to insure a smooth surface as shown on the left.



**Figure 21-10.** It's normal for the planer to cut a small snipe (less than 0.005" deep) in the end of a board as shown on the right. But if you let a board droop when it's fed into or coming out of the planer, the knives may cut a pronounced snipe in one end as shown on the left. Keep the board parallel to the flat on the table at all times.