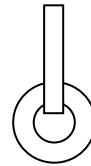


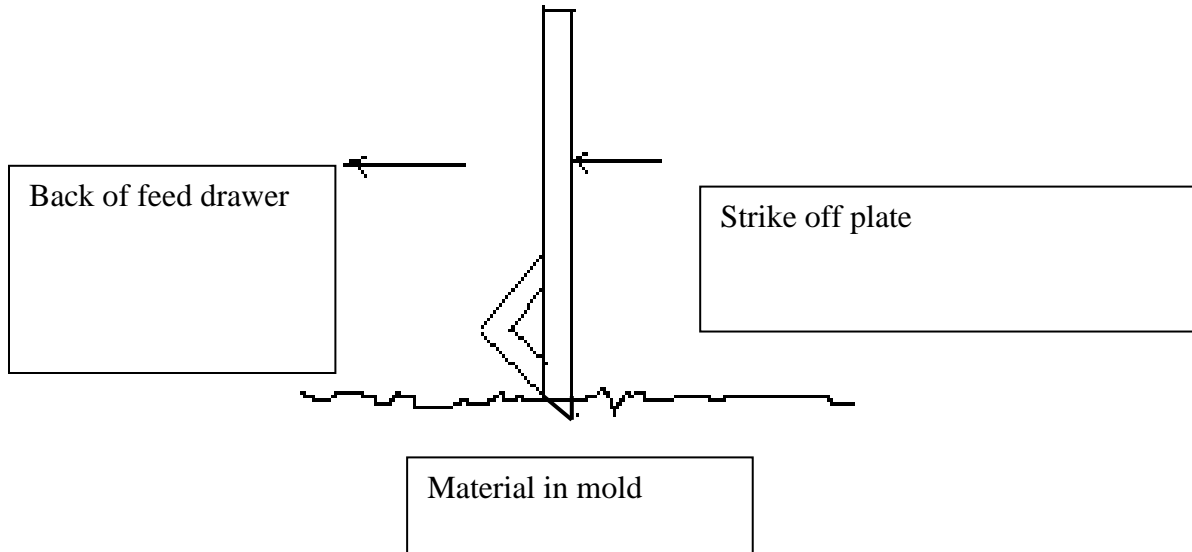
SLAB or PAVER PRODUCTION ON **A COLUMBIA 16/1600 MACHINE**

When making slab or paver production on a Columbia Machine some areas to look at are; the mold tends to over fill very easily, if the mold is not evenly filled front to back and or side to side. Several things can be done to prevent this from happening.

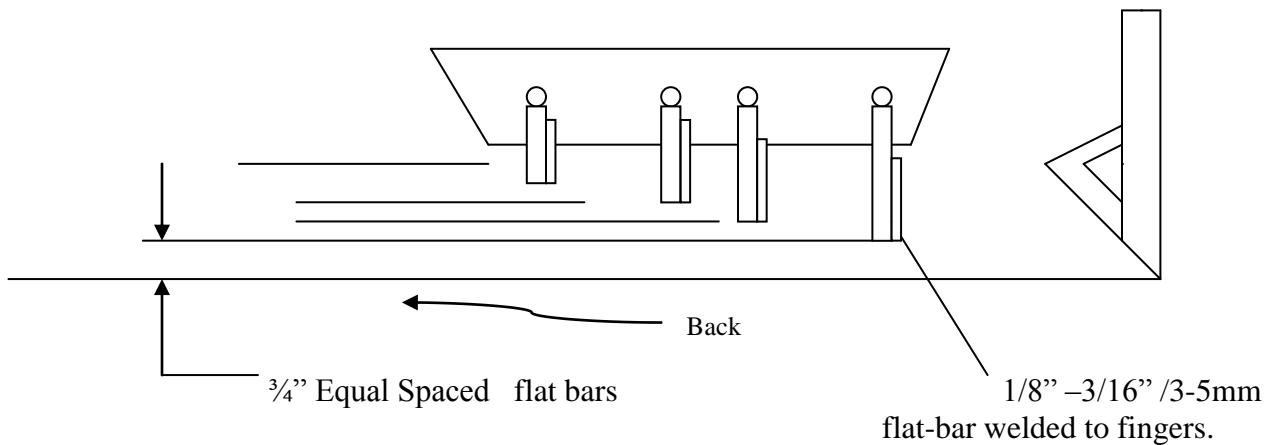
1. Do everything possible to insure even filling side to side:
 - a. Install tee's in the airlines between the front and rear sets of air bags on pallet table. This will make the air hoses the same length side to side.
 - b. Install tee's in the airlines between the air bags on the compression beam air bags, to ensure equal air hose length from the air source.
 - c. Convert to the aluminum pallet table with steel bolt-down top.
 - d. Adjust the baffle on the material hopper to its smallest opening.
 - e. Lower the strike off to just above the mold 1/8" or 3mm max, or the thickness of a 1" dia. flat washer or 25mm.
 - f. If one side still wants to fill more than the other, then slant the strike off by putting two washers height on the low side and one washer thickness on the high side.
 - g. Alter the strike off plate by welding a 1-1/4 inch angle to the backside and grinding a bevel on the bottom of the plate, to match. This will trawl the material into the mold and prevent scraping it out of the mold. Also, a pipe can be welded to the bottom of the strike-off plate.



(see sketch on next page)



- h. Weld 1/8" – 3/16" / 3-5mm thick flat bar in staggered heights to the fingers of the agitator. These will act as secondary strike of bars and help the final strike off making a more even pass by limiting the amount of material to strike off.



2. Machine adjustments should include the following:
 - a. Close down the mud hopper opening to limit the material flow into the feed drawer.
 - b. Speed up the feed drawer going forward to help throw material to the front of the mold.
 - c. Adjust the pallet table with .030"/8mm gap between the bolt and bushing with the air on and the vibrator in the up (top dead center) position. This is a tight pallet table setting.
 - d. Slow the feed drawer down going back to prevent tearing material out of the front of the mold on the return stroke.
 - e. Set the vibrator to run in double start mode. The vibrator will vibrate for a set amount of time for the fill operation and then stop for strike off (feed drawer back). The vibrator should start again just before the shoes contact the material in the mold. Slow the vibrator to 1000 to 1500 RPM.
 - f. Delay the vibrator start so the feed drawer is nearly fully forward over the mold. This lets the material drop into the mold. Just burp the vibrator a short time for "fill" 1-1.5 sec.
 - g. Do not run the modified agitator; set the delay time high so it never starts up.
 - h. The air setting in the air bags on the table should be set to a fairly high setting (approx. 40-50 PSI) to again limit the amount of pallet "Buzz" and fill. If fill is more in the back than in the front then lower the air setting in the front. Air setting differential from front to back should not be more than 20 psi.
 - i. The air setting in the head air bags may vary. To set the air start by backing the air off until the head starts to bounce then adjust up until the head stops bouncing and becomes firm. (Approx. 60 – 70 PSI). Do not have the air pressure too high to prevent material consolidation via the vibrator. (lower is better than higher) Some even lower 10 – 15 PSI
 - j. Set the machine to run in the "Timed Release Mode" (Slump Mode) or have timer 38 (Height stop latch) set at zero. Once the filling is evened out and is consistent the heights of the slabs will be very consistent. Screw the height stops down so they never touch. This allows the shoes to always have pressure on the top of the slab and will prevent top cracking and slab dishing.
 - k. If height stops are used the light indicators must come on at the same time and release time should be set at .01 sec. or the lowest possible but not zero. The problem to avoid is; when the head stopped by the height stop pin on one side of the machine and continue to vibrate. This again is what caused top cracking and dishing of the slab.

Note: The main density adjustment in this cycle is the fill vibrator time. This time should be 1.0 – 1.5 sec. optimum, if too long, then over filling and too high a product and if too short, less fill and too short a product. The feed drawer dwell is not varied as with block density adjustment.

Note: One other thing you may experiment with depending on the type of material is that some slab and paver product runs better and fill more evenly if a short feed drawer oscillation is used. This creates a break plane between the material in the mold and the material left behind the strike off. Use this only if improvements in filling are observed. Mold over-height should be 12-20% for 40mm, 45mm or 48mm product.