KNOWLEDGE BASE

Article Type: **Instructions**

Pneumatic Controls, Air Settings, Hydraulic adjustments on; Models 22HF, 16HF & 1600 machines

Description:

Instruction sheet on how to make proper pneumatic air adjustments
Pallet Table, Compression Beam, Clutch-Brake. Rotary Valve adjustment, Compression Beam Stop settings, Hydraulic Valve adjustments, and cylinder adjustments.

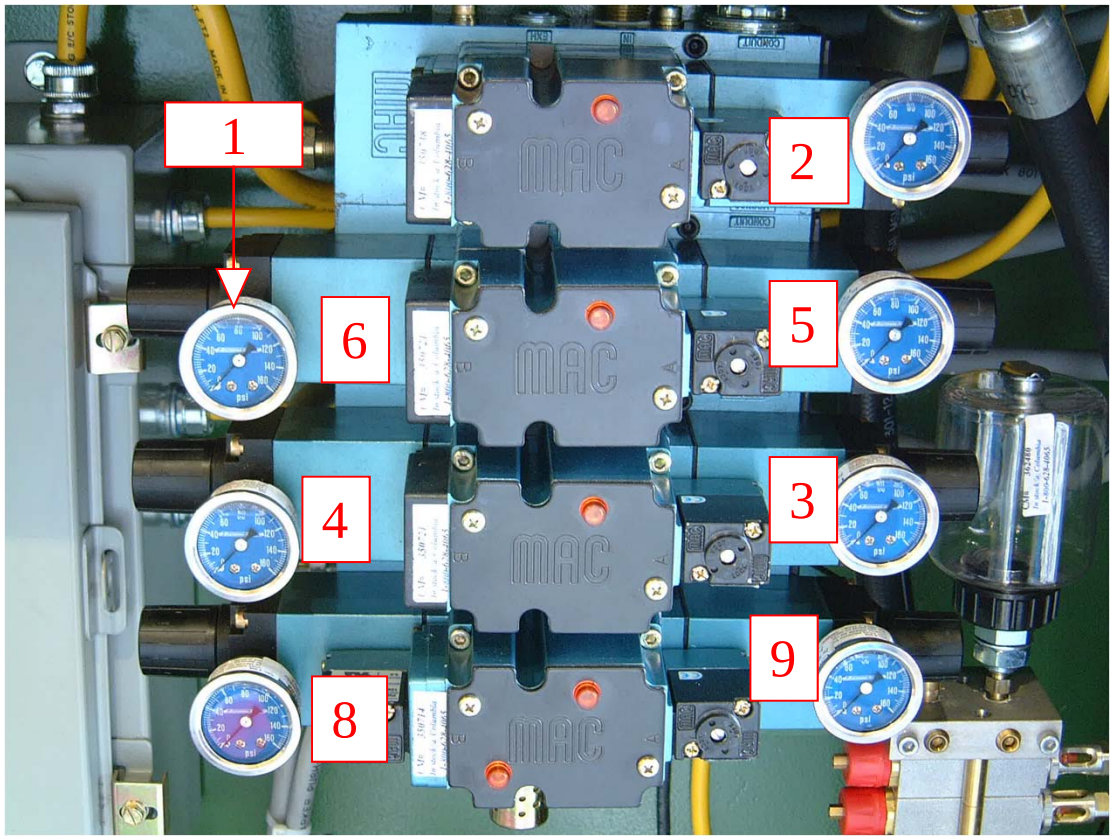
WARNING

Never work on, clean or service this unit, control panel or any machine or open or remove any protective cover, guard, grate, door, or maintenance panel until the power or energy sources has been turned off, locked out / tagged out, and all moving parts have come to a complete stop and or blocked to prevent movement. Machinery is dangerous – avoid personal injury and or death by following manufacture, Local, and OHSA safety procedures. Contact Columbia Machine for safety decals, guards, horns and beacons.

Air Settings

Block Machine settings are very important

- 1. PRESSURE GAUGE
- 2. COMPRESSION BEAM REGULATOR
- 3. FRONT LOW PRESSURE REGULATOR
- 4. FRONT HIGH PRESSURE REGULATOR
- 5. REAR LOW PRESSURE REGULATOR
- 6. REAR HIGH PRESSURE REGULATOR
- 8. CLUTCH PRESSURE REGULATOR
- 9. BRAKE PRESSURE REGULATOR



Air Settings

Recommended Block Machine settings

Pneumatic Adjustments

After start-up, adjustment of pneumatic control settings may be required to compensate for differences in material. To ensure the best quality block production, the following is offered as an aid to be applied in relation to an inspection of the block.

Pallet Table High Pressure: This pressure should be set just high enough to hold the pallet firmly against the mold during compression. In general, a pressure that is too low will be indicated by a feather edge at the bottom of the block. The front and rear pressures do not necessarily have to be the same.

Pallet Table Low Pressure. This pressure affects the proper filling of the mold and, consequently, block texture. In general, if block texture is loose or flaky, this pressure should be increased. The front and rear pressures do not necessarily have to be the same.

Compression Beam Pressure: Proper setting of this pressure establishes even block texture. If blocks have uneven texture or if cracks appear in the block web, decrease compression beam air pressure slightly.

Clutch Pressure: Proper setting of this pressure insures smooth operation and extended life of the clutch. Too low a pressure will cause slippage and excessive heat build up. Too high a pressure causes undue wear of clutch parts and possible damage to the motor.

Brake Pressure: This pressure affects braking action of the vibrator shaft. Too low a pressure causes slow stop time. Too high a pressure causes high stress on brake parts.

Air Settings

Recommended Block Machine settings

Pneumatic Controls —

Make the following preliminary pressure settings:

Pallet Table Front High - 85 psi

Pallet Table Rear High - 85 psi

Pallet Table Front Low- 40 psi

Pallet Table Rear Low- 40 psi

Compression Beam - 70 psi

Clutch - 40-50 psi

Brake - 40-50 psi

Air Settings

Recommended Block Machine settings

Pneumatic Controls —

- Adjustment for Compression Head Air May Vary Depending On Product
- Settings should be 10-15 psi lower than High Table Air or just enough air to keep the head from bouncing during compression cycle

Air Settings

Recommended Block Machine settings

Pallet Table and Compression Beam air pressure settings may vary according to block configuration and mix design. Preliminary settings are given as nominal. Avoid excessive pressures which can intensify vibration in the block machine.

Place pallet table mode selector to MANUAL and make the following preliminary pressure settings:

Pallet Table Front Low - 40 psi

Pallet Table Rear Low - 40 psi

Air Settings

Recommended Block Machine settings

Pallet Table Adjustment

When a new mold is installed, the distance between the pallet table and mold must be adjusted to ensure proper pallet clearance. Two basic pallet table settings are suggested (see Figure 18).

1. Pavers or low height solids - Tight Pallet

Check that pallet table surface is clean and free of all objects.

Check that AUTO switch is in OFF position.

Depress PUMP START pushbutton and open main shut-off valve.

Close return line orifice valve.

Switch the following manual selector switches in the sequence noted:

COMPRESSION BEAM UP

STRIPPER BEAM UP

PALLET FEED BACK

Air Settings

Recommended Block Machine settings

Pallet Table Adjustment cont.

Exercise extreme caution while performing this adjustment with the pump unit on.

Turn eccentric to the top position (mold in its up position)

Place a clean pallet on the pallet table

Turn the air to the pallet table to auto position

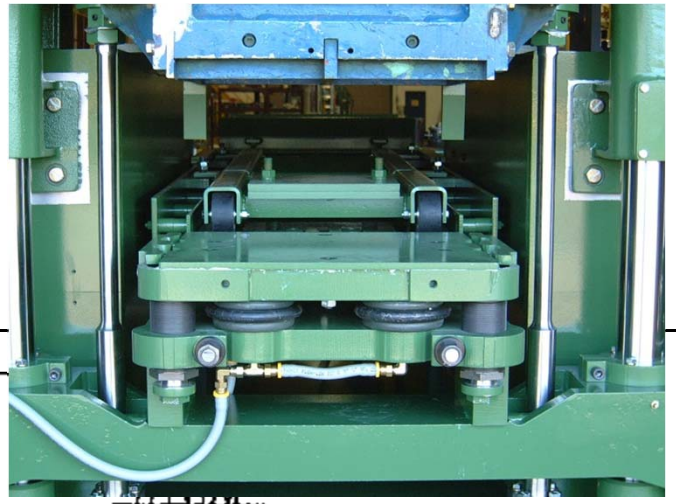
With proper spacers under the pallet table as determined by mold height, run the stripper beam to its up position.

The pallet should contact the mold and slightly depress air bags.

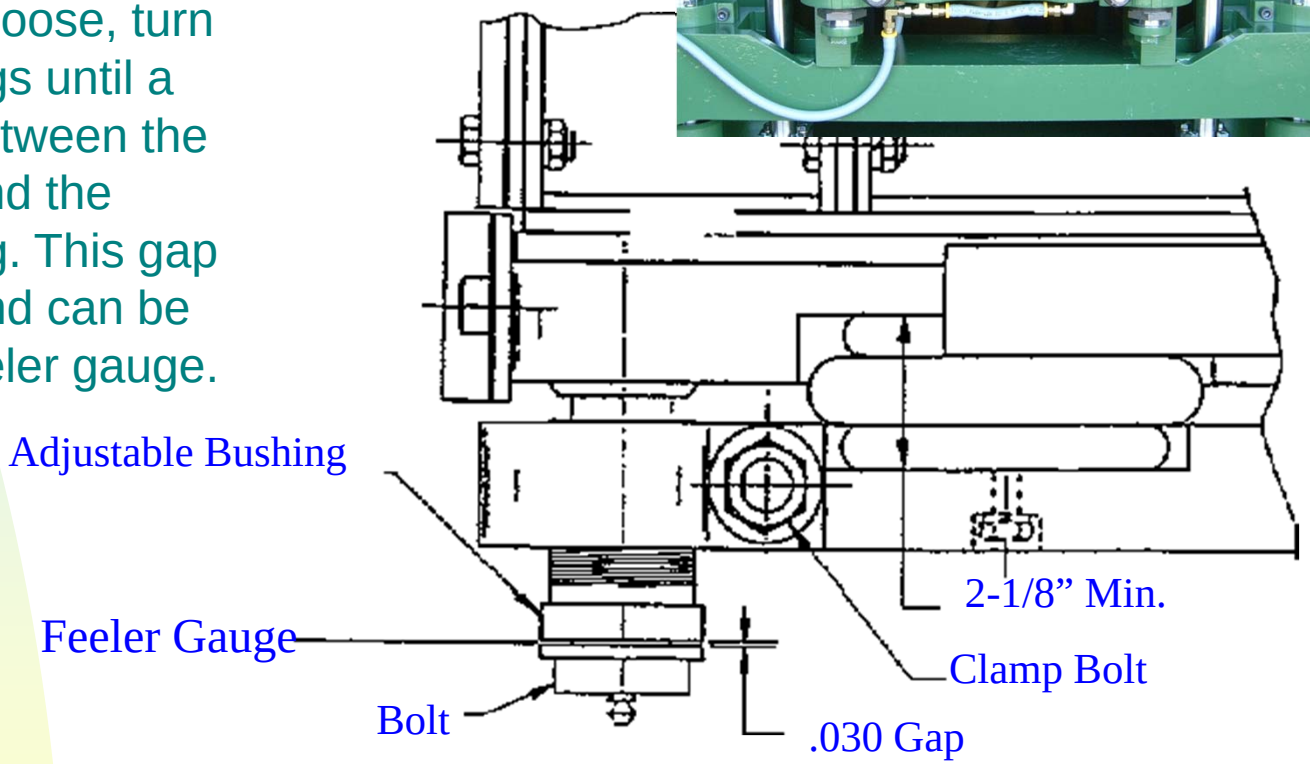
Table Settings

Recommended Block Machine settings

Pallet Table Adjustment cont.



•With clamp bolts loose, turn adjustable bushings until a gap is obtained between the head of the bolt and the adjustable bushing. This gap should be .030" and can be checked with a feeler gauge.



•Set all four bolts and bushings exactly the same

Table Settings

Recommended Block Machine settings

Pallet Table Adjustment cont.

When adjusting table height, do not collapse air bags to less than 2-1/8" high. A lesser height will cause damage to the air bag. If a lower height is required, remove spacers from under pallet table assembly.

Turn off air and tighten clamp bolts to 100 ft. lbs. Maximum Torque should never exceed 150 ft. lbs.

This is only recommended as an initial set up. There are various methods that may be used depending on your mix, air pressures and product to be made. Contact the Columbia Block Service Dept. for help in determining how your pallet table should be set.

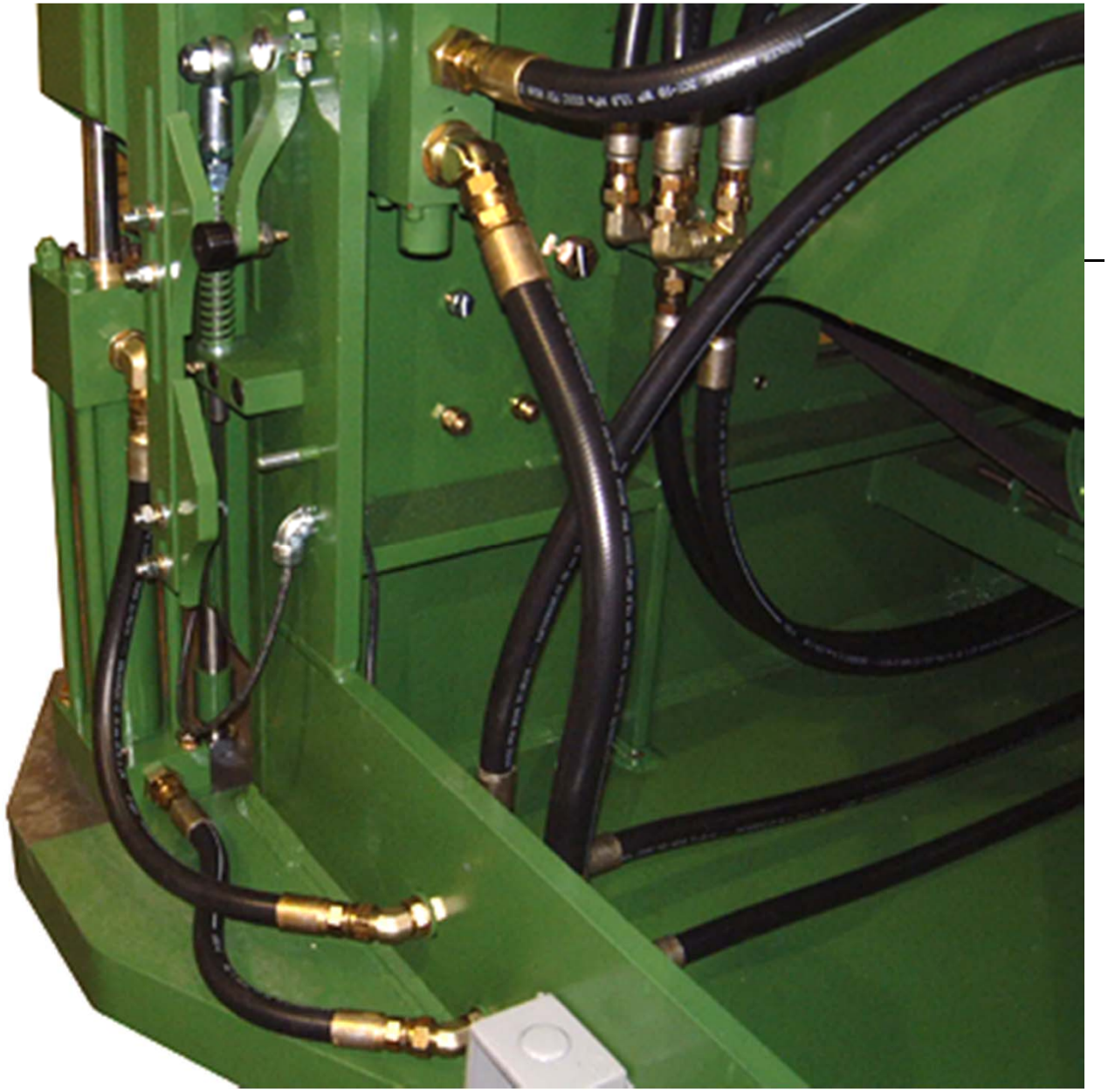
General Block - Loose Pallet

Follow the same procedure as above, except turn eccentric to the bottom position (mold in its down position).

Rotary Valve Settings

Recommended Block Machine settings

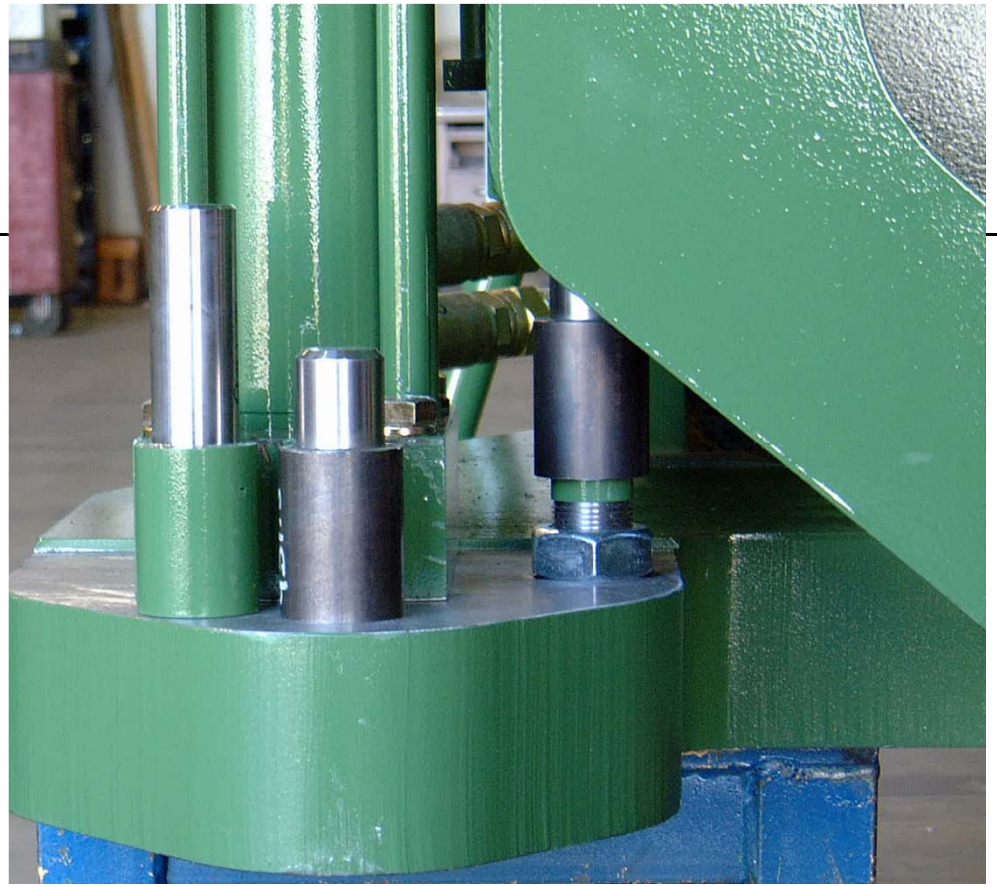
Other Machine Settings For Different Height Products



Main Beam Cushion Adjustment

Lower Height stops Settings

Recommended Block Machine settings



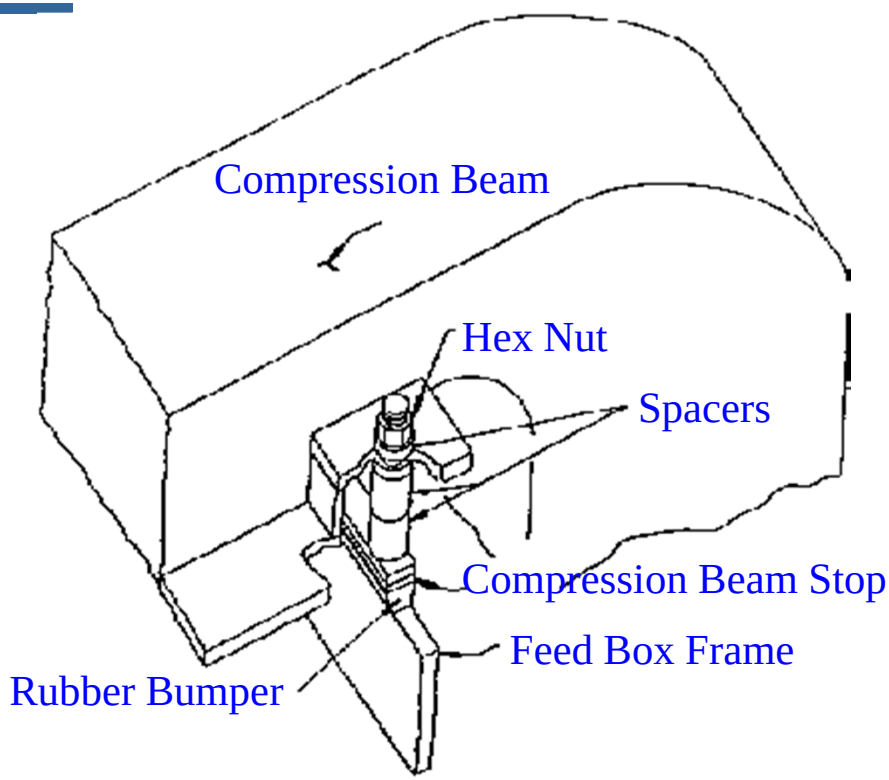
Other Machine Settings For Different Height Products

Compression beam spacer Settings

Other Machine Settings For Different Height Products

Recommended Block Machine settings

Compression beam down motion is controlled by compression beam stops. Appropriate spacers must be added or removed to allow the compression beam to lower to the point that the shoes extend to the bottom of the mold or 1/8" beyond. If changing to a shorter mold, spacers must be moved from top to bottom. If changing to a higher mold, spacers must be moved from bottom to top. The proper amount of spacers will allow the shoes to extend to the bottom of the mold or 1/8" beyond when the rubber bumper strikes the top of the feed box frame.



Compression Beam Stops

Valve Adjustment Settings

Recommended Block Machine settings

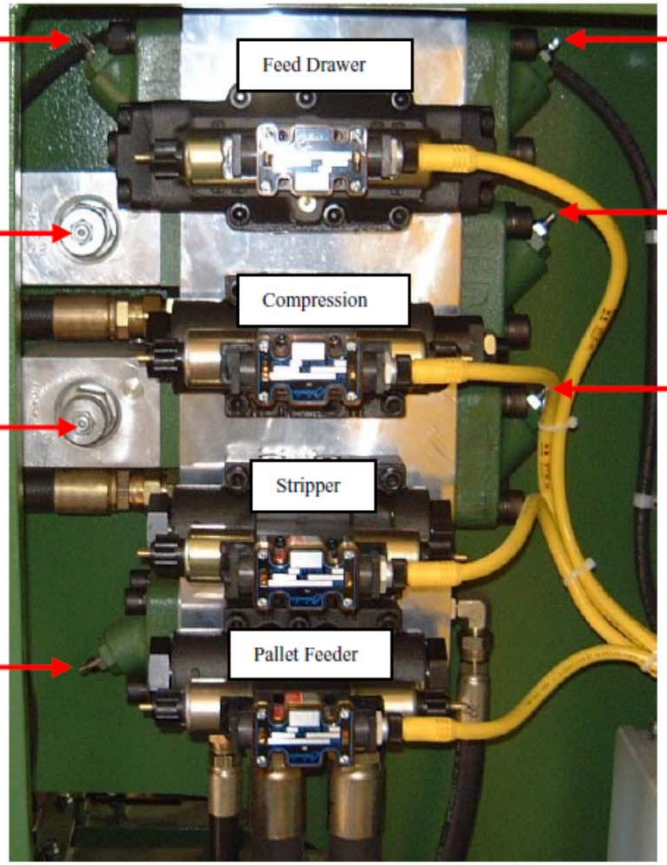
Valve Adjustments

Feed drawer forward flow control speed adjustment clockwise rotation/decreases speed counter clockwise rotation/increases speed.

Compression beam counterbalance valve adjustment clockwise rotation Increases drifting. Counterclockwise rotation until beam stops traveling down. To set load turn an additional ¾ to 1 full turn & tighten lock nut.

Stripper beam counterbalance valve adjustment clockwise rotation Increases drifting. Counterclockwise rotation until beam stops traveling down. To set load turn an additional ¾ to 1 full turn & tighten lock nut.

Pallet feeder flow control speed adjustment clockwise rotation/decreases speed counter clockwise rotation/increases speed.



Feed drawer back flow control speed adjustment clockwise rotation/decreases speed counter clockwise rotation/increases speed.

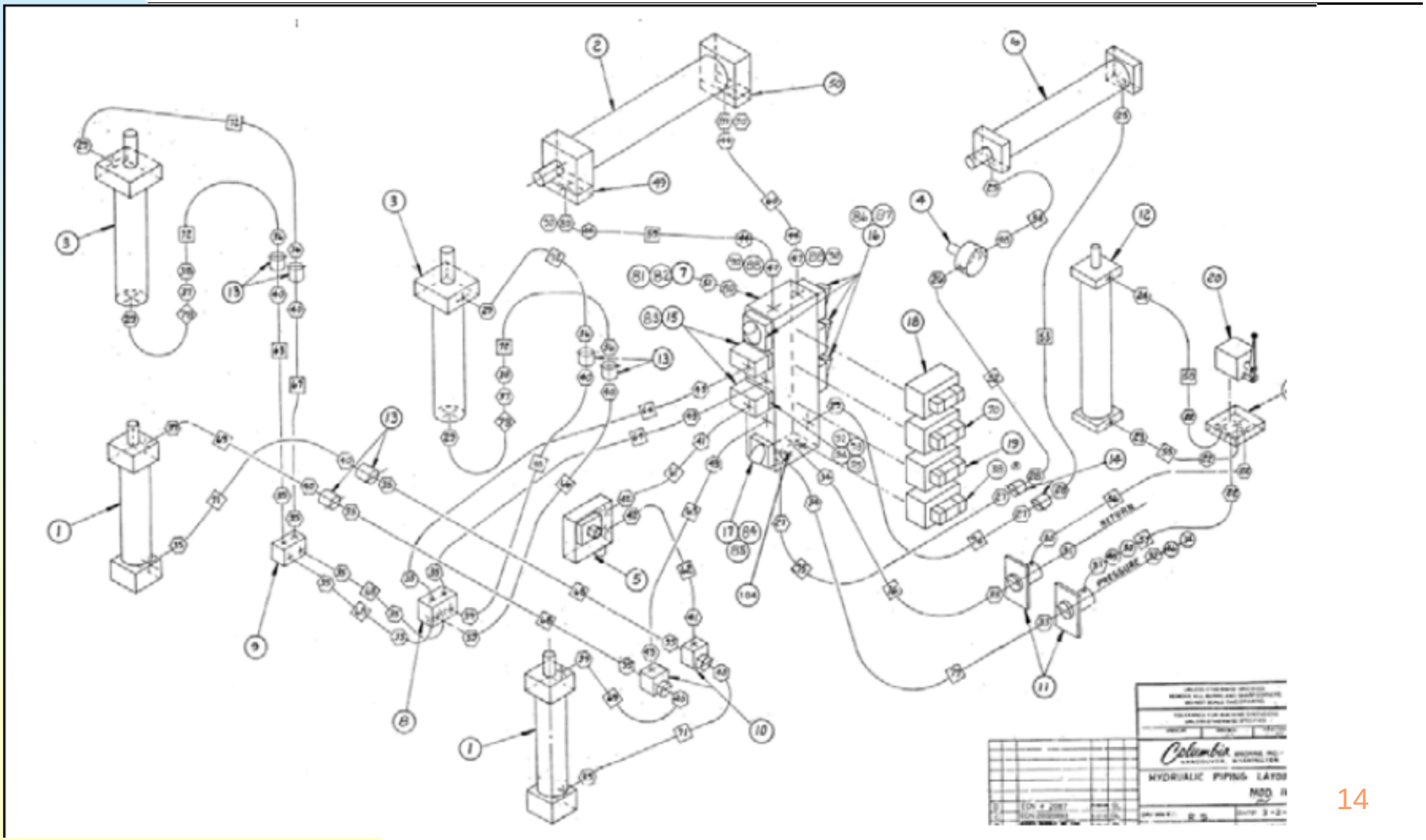
Compression beam down flow control speed adjustment clockwise rotation/decreases speed counter clockwise rotation/increases speed.

Stripper beam down flow control speed adjustment clockwise rotation/decreases speed counter clockwise rotation/increases speed.

Valve adjustment Settings

Recommended Block Machine settings

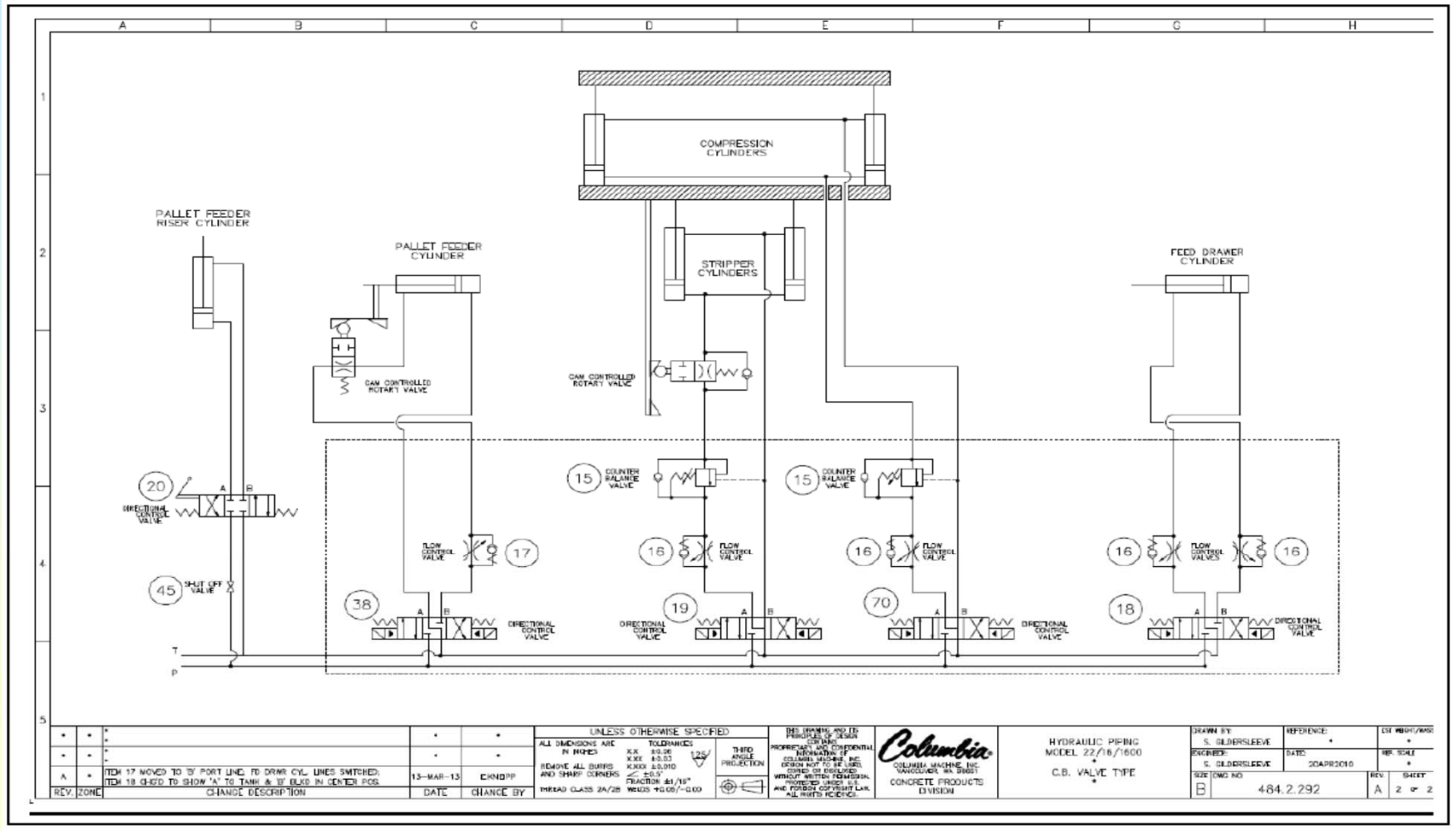
Valve Adjustment



Valve Adjustment Settings

Recommended Block Machine settings

Valve Adjustment



Compression cyl. Adjustment

Recommended Block Machine settings

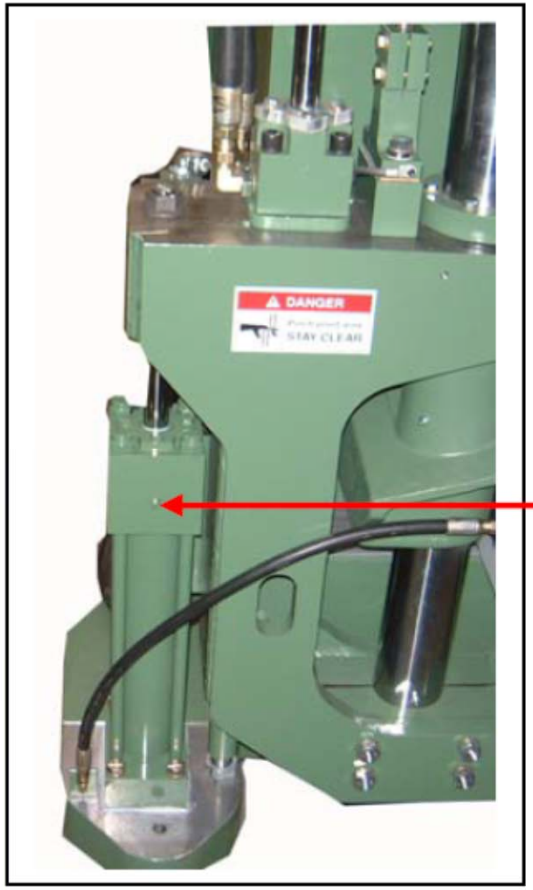
Cylinder Adjustment

Upon installation of new cylinders start with both the cushions turned fully in clockwise and backed out 1 ½ turns to start. If oil is cold you will need to make final adjustments after oil has warmed up. Start pump and run compression beam up and down several times if you believe you have air in the lines you may need to bleed the air from the cylinders before proceeding with cushion adjustments. As the beam travels to the up position watch to see if beam racks or one cylinder is slow to reach end of stroke at full extension. The side that is slow to reach the end of stroke usually is the one that will be adjusted to open up the cushion a little more. Using an Allen wrench in the adjustment screw back out counter clockwise to open the cushion up more but only turn out ¼ turn tighten down the locknut holding the screw so that it doesn't turn while locking the nut down. Again run the beam up and down several times watching to see if beam is level throughout travel up and down no racking. You may need to make similar adjustments a couple times to get the cylinders on both sides to extend the same reaching the end of stroke at the same time. If you notice the beam bounces or at end of stroke you may need to adjust both cushions in to tighten cushions so that you have a smooth end of stroke when the cylinders fully extend. If oil was not up to operating temperature minor cushion adjustments may need to be made.

Stripper cyl. Adjustment

Recommended Block Machine settings

Stripper Cushion Adjustment



Stripper cushion start by adjusting cushion screw in clockwise until it stops and back out counter clockwise 1/4 turn. If making adjustments with cold oil you may need to make final adjustments once oil warms up to operating pressure. Run beam up and down several times making sure at the end of full stroke you have good cushion and rod cushions don't hit hard at end of stroke.

Conclusion

With Quality Molds & Proper Machine Setups

Results Will Give You Quality Product