HEISLER
Industries, Inc
224 Passaic Ave
Fairfield, NJ
07004-3581
TEL: 973-227-6300
FAX: 973-227-7627
Heislerind.com

Technical Bulletin

Bulletin No	57	2018-01	Issued: 031918	Revised:	Page 1 of 4
Equipment	57,000 Series Palletizer				
Topic	**Consistent Pallet Load Setup**				

Issue

Many variables and settings can affect the tightness of the pallet load, and the centering of the load on the pallet.

This bulletin discusses proper criteria and setup, to ensure consistent pallet loading.

Variables and Settings to Consider

1. Main Air Regulator Setting

The main air regulator should be set at 90 PSI.

Note: All setups for ensuring consistent pallet loads, must be done after the regulator is set. Changing of the regulator setting may require re-adjustment of cylinder flow controls, or switches and timer variables.

The minimum size air line supplying the Air Service Unit (FRL), should be 3/4", with a plant pressure of 90 to 120 PSI.

NOTE: If the gauge on the main air regulator shows an air drop of greater than 20 -25 PSI, when the machine is in normal operation, this is an indication the machine is using air volume faster than it can be replenished. This means the machine is being starved for air volume, and may require installation of a surge tank, or different piping of the air supply to remedy the situation.
Excess air drop will cause inconsistent pallet loads and machine operation.

NOTE: Increasing the pressure setting of the main air regulator will only add a new problem. The air drop would then be even further below the regulator set point, and cause the sweep cylinder to pulsate and have variable speed on the forward stroke.

2. Pallet Centering on the pallet chains, under the transfer plate.

Centering of the pallet on the pallet chains is controlled by the pallet centralizer springs. These large spring steel leaf springs, usually attached to adjustable pallet guides on the pallet conveyor, must be healthy, and set to provide equal side pressure against the empty pallet. They nudge the pallet into the middle of the conveyor, as it is moving out from under the pallet hopper, and into position under the transfer plate, so that it has equal coverage on both pallet chains. They are fixed on older machines, and adjustable on newer ones.

3. Centering of the row on the transfer plate, and side-to-side on the pallet.

This relies on the following:

A. Stack Pusher Forward Speed

If the stack pusher forward speed is too fast, the stack will slide away variably from the stack pusher at the full-forward position.

NOTE: Changing the stack push forward speed will require re-setting of the full-forward switch(s) or load position variable(s).

B. Stack Pusher Forward Switch(s) or Timer Variable(s)

On older machines, the stack pusher is returned by one or more full-forward switches or sensors, depending on the product and pallet pattern selected.

On newer machines, there is only one full-forward sensor, and positions of the stack pusher return at full-forward, is determined by a "switch + time" setting. This is set by the "Stack Push Load Position Variable", depending on the product and pallet pattern selected, and is accessible in the HMI screen,

If the individual stack or row is determined to be too far over to one side on the pallet, the appropriate switch or sensor must be moved to actuate sooner, or the corresponding timer variable must be set to a lower value.

If the individual stack or row is determined to be not far enough over on the pallet, the appropriate switch or sensor must be moved to actuate later, or the corresponding timer variable must be set to a higher value.

C. Camming Bar Control **(If Equipped - Pail Palletizers Only)**

A stack camming bar mounted on the transfer plate causes the stacks to remain lined up as they are pushed out onto the transfer plate. This prevents stacks being out of position, which can cause tip-overs during sweeping.

NOTE: A stack camming bar can be added to any existing pail palletizer.

D. Stack Stabilizer Setup

When the sweep plate starts forward, the stack stabilizer must not clamp the top of the row being swept onto the pallet, until the sweep wall contacts all the stacks being swept.

At the sweep full forward position, the stack stabilizer must come off the top of the row that was just swept, before the sweep wall starts to return back. There is a 1 second Sweep Forward Delay, where the sweep stays at the full-forward position before returning.

On older machines, this is done with by tuning the flow controls on the stack stabilizer cylinders.

On recent machines, there are descend and recede timer variables for the stack stabilizer accessible in the HMI screen.

E. Transfer Plate Setup

Transfer plate height is set so there is a 1/16" to1/8" step down from the top surface of the skid plate, to the lead in top surface of the transfer plate, when the transfer plate is in the full-up position. The plate is then setup level from side-to-side. The adjustment is done with the clamp blocks on the threaded rods mounted in the transfer plate cylinders.

NOTE: The transfer plate upright that has the flat head cap screws attaching the transfer plate to it, must be pushed flush against the outboard plate on the frame. This must be done with the hex head cap screws, through the slotted holes in the transfer plate, loosened up. The upright on the slotted end of the transfer plate, then gets pushed flush to the inboard edges of the cover plates of the transfer plate gibs. The hex head screws then get tightened up.

This will ensure the proper centering of the transfer plate, so it can travel up and down freely, without binding.

The transfer plate uprights must be well greased to move freely.

F. Crowder Bar Control (If Equipped - Pail Palletizers Only)

Crowder bars, if equipped, are located above and slightly downstream of the transfer plate, on either side of the pallet conveyor. They are positioned to lightly rub or "crowd" the pallet load on either side to the proper position. This keeps the corner stacks from moving out of position, or too far outboard on the pallet sides, as the row sweeps onto the pallet.

4. Pallet Chain Speed

The pallet chain speed dictates the forward speed of the Sweep Cylinder.
The sweep cylinder forward speed must exactly match the pallet chain speed. **(See Item # 7.)**
The speed of the chain is fixed on palletizers equipped with air clutch/brakes, and is preset at the factory on later machines equipped with a Variable Frequency Drive (VFD) that operates the pallet chain motor.

5. Air Clutch/Brake Quick Exhaust Valves (If Equipped)

The air clutch/brake has 2 quick exhaust valves.

One is to exhaust the brake signal quickly, so the clutch signal can get a quick and crisp engage of the clutch.

The other is to exhaust the clutch signal quickly, so the brake signal can get a quick and crisp stop of the pallet chain.

NOTE: Quick Exhaust Valves should be changed no later than every 2 years. They should be changed every year, if the operating atmosphere contains high levels of solvents, oils, adhesives, abrasive powders, or dust & dirt.

NOTE: On later model palletizers, the pallet chain uses a VFD, and has no air clutch/brake.

6. Sweep Cylinder Cushion Settings

The cylinder cushions for full-back and full-forward must be set for "maximum cushion, without impeding a free stroke."

If the cushion screw is too loose, the cylinder will knock or bang at the end of stroke.

If the cushion screw is too tight, the cylinder will exhibit a "stutter-step" right at the end of the stroke, and at the beginning of the stroke.

A sweep cylinder full-back cushion that is too tight, will vary the start speed of the sweep cylinder forward stroke, causing variation.

A sweep cylinder full-forward cushion that is too tight, will cause the sweep to lag behind the pallet chain speed at the sweep full-forward position, causing variation.

The desired setting will yield a smooth and controlled deceleration with no knock, when entering the cushion at the end of the stroke, and will not exhibit a hesitation or stutter-step when leaving the cushion at the beginning of the stroke.

7. Sweep Cylinder Forward Speed

The sweep cylinder forward speed must exactly match the pallet chain speed.
The forward speed is set using the flow control on the rod end of the sweep cylinder.

8. Sweep Mid-Switch(s) or Timer Variables **(Crowding of the Load)**

The sweep cylinder's mid-switch(s) or timer variable, is what signals the pallet chain to turn on during the sweep.

Older machines have multiple mid-switches for different products and pallet patterns.

Later machines use one mid-switch + time.

The timer variables are accessible in the HMI screen.

If there is space between rows on the pallet, then the pallet conveyor chain turns on too early, and the appropriate mid-switch actuates too soon, or the value of the timer variable is too low.

The first row then moves away from the second row as it is swept onto the pallet.

The switch must be actuated later, or the timer variable increased, to allow the second row to just meet the first row, and then the pallet conveyor chain turns on.

If the second row hits the first row, and causes the first row product to slide across the pallet, or change position on the pallet, then the pallet conveyor chain turns on too late, and the appropriate mid-switch actuates too late, or the value of the timer variable is too high.

The switch must be actuated sooner, or the timer variable decreased, to allow the second row to just meet the first row, and then the pallet conveyor chain turns on.

9. Sweep Full-Back and Full-Forward Switches

The sweep full-forward and full back switches, must be set to actuate 1/16" to 1/8" before the end of stroke of the sweep cylinder.

This is necessary to ensure the position is not signaled too early, and that the switch is not set to close to the end of stroke, that it would be on the "blinky margin".

The stroke of the cylinder must not pass through the sensor and allow it turn back off.

10. Pallet Load Position Switch(s) or Timer Variables **(Centering of the Pallet Under the Load)**

The appropriate pallet load position switch, or timer variable, determines the stop point of the pallet when it moves into the loading position from the pallet hopper.

If the load is to close to, or hanging over the front of the pallet, then the load position switch needs to be actuated later, or the timer variable needs to be increased, to allow the pallet to run further into position before stopping the pallet conveyor chain .

If the load is to close to, or hanging off the back of the pallet, then the load position switch needs to be actuated sooner, or the timer variable needs to be decreased, to allow the pallet to stop earlier in position, by stopping the pallet conveyor chain earlier.

Proper periodic maintenance and verification of these settings will provide CONSITENT PALLET LOADS.

NOTE: See Operation Manual for Periodic Maintenance Schedule.