

**Operation and Maintenance Manual**  
**Alloyd Automatic Heat Seal Machine**  
**Model 8SC1216**



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## **Chapter 1: Operating Information**

**Introduction**

This part of the manual is written for the production operator of the machine. It is divided into several sections; each section is identified by a title in bold type. The sections are arranged in a logical order that will help you understand the proper operating procedure.

The topics discussed in this manual include:

- Safety
- Sequence of Operations
- Basic Components
- Controls
- Operating Procedure
- Operator Maintenance
- Troubleshooting

**Note:** In the normal operating mode, this machine generates less than 80 decibels of noise.

**Alloyd Model 8SC1216 Station Heat Seal Machine**

The Alloyd 8SC1216 heat seal machine offers four product load stations for multiple operators.

**Options:**

1. Two Optional Feeders for Cards or Blisters.
2. Dynamic Anvil (Powered Anvil Required for Carousel Tooling)
3. Transfer Eject

**Safety**

Your safety and the safety of those around you is dependent on the care and good judgement you exercise in the use of this equipment.

The safety information presented in this manual is not intended to replace safety codes, insurance requirements, or federal, state and local laws, rules and regulations.

Know the regulations and laws that apply to your area and be sure that your Alloyd packaging machine is properly equipped to meet such laws and regulations.

Before operating this machine, do this:

1. Read the Operating Information part of this manual, and all decals appearing on the machine.
2. Become familiar with all operating controls.
3. Be sure all guards and doors are in place and in good operating condition.
4. Inspect machine system for loose bolts and any damaged parts. Repair or replace as necessary.
5. Use common sense.

In addition, you should:

1. Be sure the electrical disconnect switch is in the OFF position before servicing any part of the machine.
2. Never by-pass any safety interlock on the machine.
3. Never alter the control's circuitry on the machine.
4. Never allow anyone without proper instructions to operate the machine.

**Safety Labels**

Some of the following safety symbols are used in this documentation and on the machine to call your attention to hazards.



Crush Hazard



Pressure Release Hazard



Hazardous Voltage



General Hazard



Lock Out Electrical Power



Hot Surface Hazard

**Temperature Controller**

Controls the temperature of the heater platen. Also provides alarm signal in case of thermocouple failure, or temperature out of range.

Following is a brief explanation of each key and display item. For more detailed information, refer to the vendor’s literature.

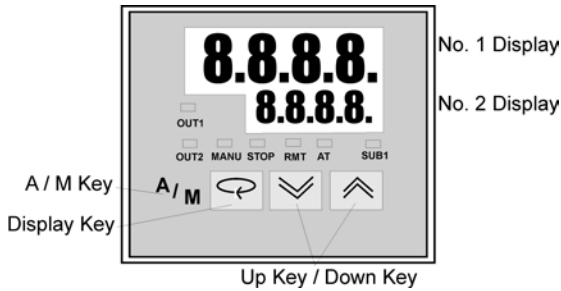


Figure 7. Temperature Controller

**A/M Key**

Press to select auto or manual operation.

**Display Key**

Press quickly (less than 1 second) to shift the display to the next parameter. When this key is pressed for 1 second or more, the menu screen will be displayed.

**Up Key / Down Key**

Press to increase or decrease the value on the No. 2 Display.

**Mode Selection**

Press the Display Key for 1 second to switch to modes other than the manual or protect Mode.

The temperature controller can be switch to the following modes:

Protect Mode	Limits use of the menu and A / M Key.
Manual Mode	Sets the controller to manual operation
Level 0 Mode	For normal operation –can change temperature set points.
Level 1 Mode	For adjusting primary control parameters – execute auto-tuning, set alarm values; set the control period; and set PID parameters.
Level 2 Mode	For adjusting secondary control parameters. Set parameters for limiting the manipulated variable and set point.
Setup Mode	For setting the basic specifications.
Expansion Mode	For setting expanded functions.
Option Mode	For setting option functions.
Calibration Mode	For calibrating inputs and transfer output.

Table 1. Temperature Controller Mode Table

To switch the parameters within a mode, use the Display Key. Press the Display Key for less than 1 second to move between parameters.

To access the Protect Mode, press and hold the A / M Key and the Display Key for more than 1 second.

To Return to the Main Display from the Protect Mode, press and hold the A / M key and the Display Key for more than 1 second.

To access the Manual Mode, press and hold the A / M Key for more than 1 second.

**Operator Touch Screen**

The operator’s touch screen is mounted on a pendant so it can be swung to either side of the turntable. The touch-screen provides to the following operating screens and functions including:

- Feeders on/off
- Vacuum Pumps on/off
- Auto/Manual Feeder Control
- Machine Speed
- Production Counter

**MACHINE STATUS Screen**

The MACHINE STATUS screen displays when you power up the machine.

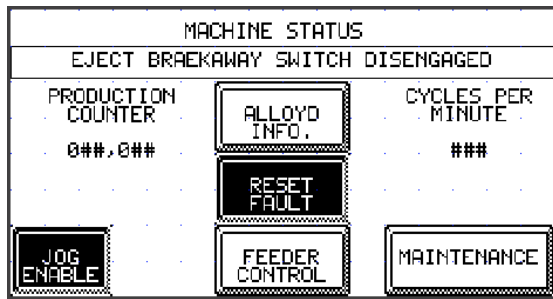


Figure 8. MACHINE STATUS Screen.

The second line from the top of the screen identifies a fault that is preventing the machine from operating. If there is no fault and the machine is operable, the message “NO FAULTS DETECTED” appears.

If a fault (open safety switch, vacuum loss, etc.) is preventing the machine from running, you must first clear the fault, then touch the RESET FAULT button on the screen.

**Alloyd Information Screen**

Touch the ALLOYD INFO button to call up the information screen. Press the EXIT button on the information screen to return to the MACHINE STATUS screen.



Figure 9. Alloyd Information Screen.

**RESET PRODUCTION COUNTER? Screen**

The MACHINE STATUS screen shows the number of cycles the machine has performed since the counter was last reset. To reset the counter, touch the title “PRODUCTION COUNTER” to call up the RESET PRODUCTION COUNTER? Screen. Touch YES or NO button as desired. Then touch the EXIT button to return to the MACHINE STATUS screen.

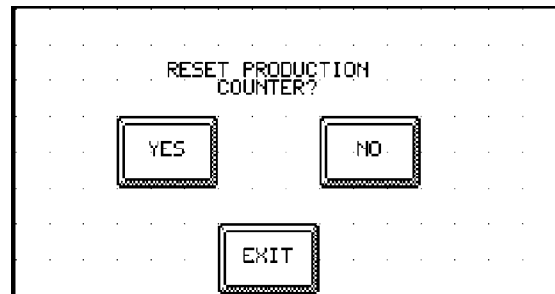


Figure 10. RESET PRODUCTION COUNTER? Screen.

**MACHINE SPEED Screen**

The MACHINE STATUS screen shows the machine speed under the title “CYCLES PER MINUTE” (CPM). Touch the title to call up the MACHINE SPEED screen.

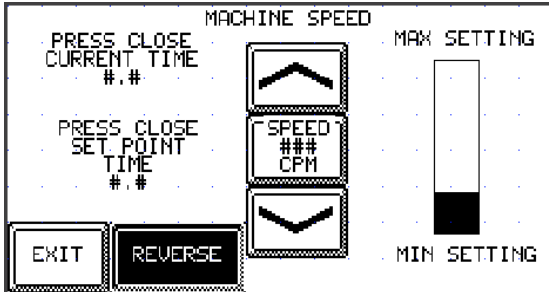


Figure 11. Machine Speed Screen.

To increase or decrease the speed, touch the up arrow or down arrow button. The barometer on the right side of the screen indicates the operating speed relative to the minimum and maximum settings.

**Heat Seal Time**

The MACHINE SPEED screen also provides the means to increase and decrease the PRESS CLOSE (heat seal) CURRENT TIME. Maximum setting is 9.9 seconds; actual seal time may also be limited by the CPM of the machine. The current actual heat seal time is displayed near the upper left corner of the screen.

**Numeric Data Entry Screen**

To change the press time, touch the text area: PRESS CLOSE SET POINT TIME. The numeric data entry screen appears.

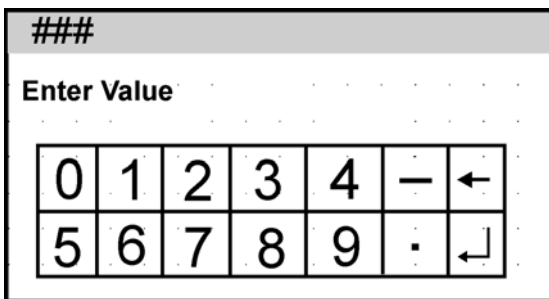


Figure 12. Numeric Data Entry Screen.

Key in the desired press time, and press the “enter” key. The MACHINE SPEED screen reappears. Press the EXIT button to return to the MACHINE STATUS screen.

**JOG ENABLE/JOG DISABLE**

On the MACHINE STATUS screen, touch the JOG ENABLE button to enable the jog function; touch the JOG DISABLE button to disable the function.

The JOG pushbuttons are typically used during setup to adjust the feeders. However, the jog function must be enabled before the pushbuttons will work.

**FEEDER CONTROL Screen**

On the MACHINE STATUS screen, touch the FEEDER CONTROL button to call up the FEEDER CONTROL screen.

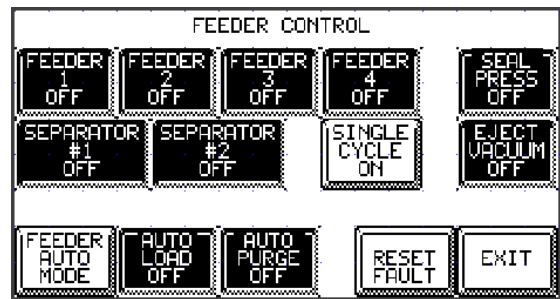


Figure 13. FEEDER CONTROL Screen – OFF

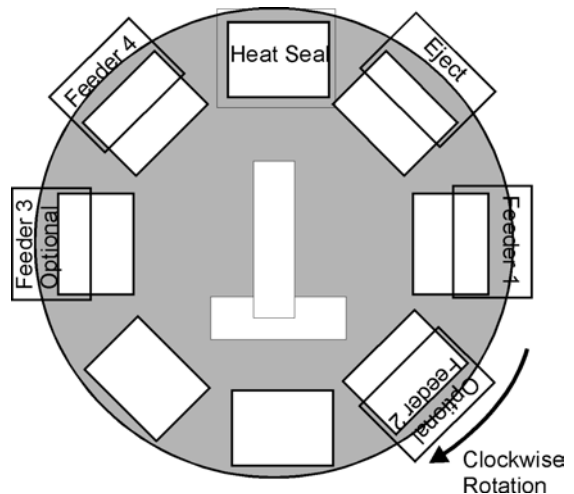


Figure 14. Feeder Identification

The FEEDER CONTROL Screen contains several buttons that simulate two position switches. They are:

### FEEDER X ON/OFF (X = 1, 2, 3, 4)

Enables/disables the feeder. See Figure 14. Air and vacuum must be ON for this mechanism to work.

### SEAL PRESS ON/OFF

Enables/disables the heat sea. Air must be ON for this mechanism to work. Do not switch ON until the first loaded tray enters the heat seal chamber.

### EJECT VACUUM ON/OFF

Enables/disables the eject function.

### SINGLE CYCLE ON/OFF

When this switch is ON, the machine will operate for only one cycle when the START button is pressed. When this switch is OFF, the machine will operate continuously (until manually stopped) when the START button is pushed.

### SEPARATOR #1 ON/OFF

### SEPARATOR #2 ON/OFF

Enable/disables the blister separators. The switch must be ON and the separator valves must be open for the separators to work.

**Note:** The screens are configured with buttons for all optional feeders. Only the buttons that are active will switch ON and OFF.

### FEEDER CONTROL AUTO/MANUAL

When in the auto mode, the auto load and auto purge functions are operable. When in the manual mode, each feeder must be started manually (by touching the button) in the proper sequence during machine start up and shut down.

### AUTO LOAD/AUTO PURGE

On the Machine Status screen, touch the AUTO LOAD button to start the auto load function. And, touch the AUTO PURGE button to start the auto purge function.

**Note:** Always begin auto load or auto purge from a cycle stop position.

The auto load function automatically starts the feeders and heat press in proper sequence during machine start up. The auto purge function automatically stops the feeders and heat press in proper sequence during machine shut down

The auto load function is operable only when the feeder control is in the auto mode.

### EXIT

Exits the screen to the MACHINE STATUS screen.

### MAINTENANCE Screen

The MAINTENANCE screen provides access to setup functions and requires an access code.

## Operating Procedures

The operating procedures include:

- Machine Start-up –Manual
- Machine Start-up – Auto Load
- Normal Operating Duties
- Loading Material
- Machine Shutdown – Manual
- Machine Shutdown – Auto Purge

### Machine Start-Up – Manual

The following instructions are for a machine that is completely shut down, and that you intend to start-up manually – i.e., *not* use Auto Load. To start a machine using Auto Load, see “Machine Start-Up – Auto Load.”

1. Turn the main air valve to the ON position.
2. Check the main air pressure gauge. Before proceeding, be sure the incoming air pressure is at the prescribed level for this machine.
3. On the electrical control panel, move the electrical disconnect switch to the ON position.
4. At the operator panel, button through to the MACHINE STATUS Screen. Then press FEEDER CONTROL. On the FEEDER CONTROL screen, touch SINGLE CYCLE to switch it to ON. Touch the FEEDER CONTROL button to switch to MANU.
5. Load material into the blister and card magazine.
6. If feeder 1 is used for blister, switch it ON at the FEEDER CONTROL screen.
7. Press the START pushbutton. The machine will advance one (1) CYCLE. Continue to press START and advance machine one (1) cycle at a time until the 1<sup>st</sup> tray with blisters stops just prior to the index into the card feed station (Position Four). Load product into all the blisters.
8. Switch feeder four (4) ON at the FEEDER CONTROL screen, and press the START button. The 1<sup>st</sup> tray with blisters and product will index into the card feed station where cards will be placed automatically.
9. Turn on SEAL PRESS.
10. Press the CYCLE STOP button. Switch FEEDER 3 ON at the FEEDER CONTROL screen, and press the START button.
11. Turn on the EJECT VACUUM.
12. Press the START pushbutton. The sealed packages will index to the eject station where they will be automatically off loaded.
13. To operate the machine automatically, touch the SINGLE CYCLE button to switch to OFF in the FEEDER CONTROL Screen and touch the FEEDER CONTROL MANU to switch it to AUTO.



**Machine Start-Up – Auto Load**

The following instructions are for a machine that is completely shut down, and that you intend to start-up with Auto Load. To start a machine manually, see “Machine Start-Up – Manual.”

1. Turn the main air valve to the ON position.
2. Check the main air pressure gauge. Before proceeding, be sure the incoming air pressure is at the prescribed level for this machine.
3. On the electrical control panel, move the Electrical Disconnect switch to the ON position.
4. On the touch screen, button though to Machine Status screen. Press FEEDER CONTROL button to access the Feeder Control screen, switch the FEEDER CONTROL button to AUTO.
5. On the FEEDER CONTROL screen, switch the FEEDER X buttons ON for the feeders required for the operation. Switch the EJECT VACUUM button to ON. Switch the SEAL PRESS to ON.
6. On the Feeder Control screen, press the EXIT button to return to the Machine Status screen.
7. On the Machine Status screen, switch the AUTO LOAD/AUTO PURGE button (lower left corner) to AUTO LOAD.
8. Press the START pushbutton to start the turntable.

**Normal Operating Duties**

The operator’s primary duties are

- keeping a supply of blisters in the blister magazine
- loading product into the blister(s)
- keeping a supply of cards in the card magazine

This machine will accommodate several production operators. It may be advantageous to assign several operators when more than one product is to be loaded into each blister; or when running several blisters in each nesting tray.

You can set the speed of the turntable (Machine Speed) to accommodate the operator(s). If necessary, the operator can stop the turntable by pressing the CYCLE STOP button. Stopping the turntable in this manner does not affect the heat seal process.

In addition to these primary duties, the operator should regularly check the operating gauges to be sure vacuum and air pressure are maintained at required levels.

**Loading Material**

1. At the operator touch screen in the FEED CONTROL screen, touch the SINGLE CYCLE button to switch to ON.
2. Press the START pushbutton so that the blister plugs are up in the blister magazine to keep the blisters from falling through.
3. Slip the blisters into the blister magazine open side facing down – fill the magazine not to exceed 3 inches from the top.
4. Place the cards into the card magazine back side up. Fill the magazine.

**Machine Shutdown -- Manual**

The following instructions are for a machine that is presently in the normal operating condition, and that you intend to shut down manually – i.e., *not* use Auto-Purge. If you intend to shut down using Auto-Purge, see “Machine Shutdown – Auto Purge.”

1. CYCLE STOP the machine.
2. On the FEEDER CONTROL screen of the Operator Touch Screen, switch the blister feeder (FEEDER X ON) to OFF. Press START.
3. Allow the turntable to index to the station just before the card feed station, then press the CYCLE STOP button.
4. On the FEEDER CONTROL screen of the operator touch screen, switch the card feeder (FEEDER X ON) to OFF. Press the START button.
5. Allow the turntable to index one station (the last package has been sealed in the heat seal chamber), then press the CYCLE STOP button.
6. Press the SEAL PRESS button to the OFF position; then press the START button.
7. Allow the turntable to index one station (the last package is ejected) then press the CYCLE STOP button.
8. Switch the EJECT VACUUM to the OFF position.
9. On the electrical control box, move the electrical disconnect switch to the OFF position.
10. Move the machine air supply valve to the OFF position.

**Machine Shutdown – Auto-Purge**

The following instructions are for a machine that is presently in the normal operating condition, and that you intend to shut down using Auto-Purge. If you intend to shut down manually, see “Machine Shutdown –Manual.”

1. CYCLE STOP the machine.
2. On the MACHINE STATUS screen, touch the AUTO-LOAD/AUTO-PURGE button to show AUTO-PURGE. The blister feeder will stop loading blisters into the nesting trays.
3. The vacuum to each feeder will automatically stop after the last loaded tray has passed under it. After the last loaded tray has been ejected, the rotary table will stop rotating.
4. On the electrical control panel, move the electrical disconnect switch to the OFF position.
5. Move the machine intake air valve to the OFF position.

**Troubleshooting****Breakaway Linkage**

To prevent damage to major machine components, a breakaway linkage is installed between the drive cranks and all feeder/eject stations. See Figure 15.

The breakaway is a linkage consisting of a slotted plate that is engaged by a tabbed plate. Spring-loaded bolts hold the slot and tab plates together. When pressure caused by a station jam or other interruption exceeds the designed pressure of the springs, the plates separate, and trips a safety switch mounted on the breakaway.

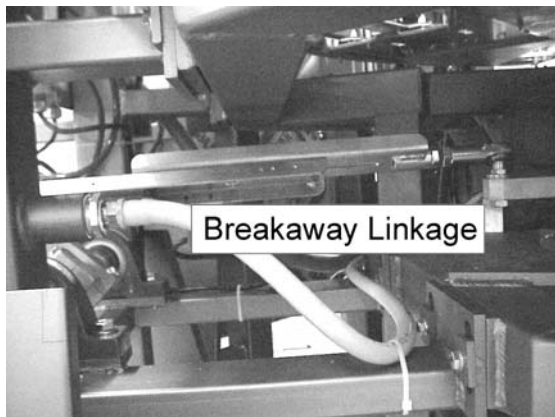


Figure 15. Breakaway Linkage

Clear the cause of the machine interruption and reset the breakaway linkage by manually rotating the corresponding feeder/eject mechanism until the linkage plates pop into place.

## Troubleshooting Tables

<b>Electrical</b>		
<b>Warning!</b> Turn electrical disconnect switch OFF before checking electrical connections. Have operators stand away before attempting to re-start it!		
<b>Problem</b>	<b>Cause</b>	<b>Solutions</b>
Machine won't start	No power to machine	Check power to machine.
	Safety circuit broken	Check safety circuit break points.
	Circuit breaker/Fuses tripped	Reset breaker/Replace fuses. Check fault display line in Machine Status Touch Screen.
	EMERGENCY STOP depressed	Release EMERGENCY STOP.
	Insufficient air pressure	Check air pressure system.
	Overload turntable clutch is tripped	Reset turntable overload clutch.

Table 2. Electrical Troubleshooting Table

<b>Blister Feed</b>		
<b>Note:</b> Alloyd manufactured blisters are custom designed for Alloyd tooling. Blisters from other sources may not feed efficiently.		
<b>Problem</b>	<b>Cause</b>	<b>Solutions</b>
Plug assembly won't pull blisters from magazine	Insufficient vacuum	Turn vacuum on. Verify vacuum cam timing.  Check for leaks on vacuum shaft and hoses, or missing vacuum plug caps.
	Misalignment of blister	Check magazine height to plug assembly. Adjust as needed.  Check left to right plug assembly; adjust as needed.  Check rubber gasket for wear  Check components of plug assembly for wear or defects.  Check blisters and plugs for fit.
Blisters stick in magazine	Blister separator malfunction	Adjust air flow at blister separator control valve.  Clean separator valve.
	Blisters don't destack properly	Manually run air bath along blister stack to loosen.
	Wrong size blisters	Replace blisters.
Blisters won't drop in trays	Vacuum not shutting off at proper time	Check vacuum system starting at plugs for leaks and proper air flow.  Clean valve.
	Blister blow-off	Adjust air pressure at blister blow-off regulator.
	Static electricity holding blisters or causing jump back	Eliminate static from blister stack.

Table 3. Blister Feed Troubleshooting Table

<b>Card Feed</b>		
Suction Assembly won't pick up cards	Misalignment of assembly with magazine	Adjust assembly up or down.  Adjust suction cup assemblies left or right.
	Insufficient vacuum	Turn vacuum on.  Verify vacuum cam timing.  Locate and plug leaks.  Adjust suction cups to avoid die cuts and perforations on cards.
	Cards are warped or wrong size	Replace cards.
Cards won't pull from magazine	Too many cards in stack	Remove some cards.
More than one card pulls from magazine	Suction in wrong place	Adjust cups so suction is ½" from bottom of card.
Cards drop too late	Suction shut-off mis-timed	Adjust timing at card feed vacuum cam.

Table 4. Card Feed Troubleshooting Table

<b>Eject</b>		
Won't lift product from tray	Insufficient vacuum	Turn vacuum on.
	Suction cups misaligned	Adjust cups to avoid die cuts and perforations on cards.  Adjust so cups are over heaviest part of package.
	Cups not making contact with cards	Loosen and lower suction cup assembly.
	Products too heavy	Add more suction assemblies to each cavity.
	Blister too big -- sticks in nesting tray cavity	Replace blisters.
Cards drop back into machine	Vacuum shutting off too soon or too late	Adjust timing at eject vacuum cam.

Table 5. Eject Troubleshooting Table

<b>Heat Seal</b>		
<p><b>Note:</b> The quality of seal depends on the appropriate balance of temperature, pressure and dwell time. If any one is out of balance with the others, it can affect the appearance of the seal. For example, if the appearance of the seal is the most important consideration, it may be necessary to lower all three factors. If productivity is most important, high temperature and pressure may be required to compensate for faster cycle speed.</p> <p>Some trial and error may be required to achieve the appearance and productivity criteria for the product being packaged.</p>		
<b>Problem</b>	<b>Cause</b>	<b>Solutions</b>
Seal misaligned	Heat plate misaligned	Align plate using Alloyd heat plate alignment fixture.
No seal	Package seal hot	Check seal when cool.
	Heat platen temperature too low	Adjust temperature.
	Heat seal pressure too low	Adjust pressure.
	Cycle speed too fast	Reduce speed to increase dwell time.
	Printed card not coated properly	Replace cards.
	Nesting tray rubber gasket is worn	Replace gasket.
Back of card burned	Plate temperature too high	Adjust temperature.
	Plate pressure too high	Adjust pressure.
	Cycle speed too slow	Adjust speed to decrease dwell time.
	Printed card not coated properly	Replace cards.
Embossing effect on cards	Plate pressure too high	Adjust pressure.

Table 6. Heat Seal Troubleshooting Table

Breakaway Linkage		
Problem	Cause	Solutions
Linkage breaks out	Product jam on the bottom or top of a feeder assembly	Clear product jam. Reset fault.
Linkage continues to break – usually with the assembly in the down position	Wrong configuration of tooling	Replace with correct tooling configuration.
	Feeder arms out of sync	Synchronize blister and card feed assemblies.
	Plugs are too heavy for standard machine operation	Adjust magazine an/or plug assembly for clearance.
	Breakaway spring tension to light	Adjust tension in linkage.

Table 7. Breakaway Linkage Troubleshooting Table

### Operator Maintenance

Every day during machine warm-up, the following maintenance items should be performed.

1. Verify that all guards are in place and check all safety interlocks.
2. Inspect vacuum cups. Replace if worn or cracked.
3. Inspect air hoses. Replace hoses as required.
4. Inspect heat seal tooling, Teflon cover, nylon locating pins and silicone rubber. Replace as needed.
5. Clean inside of machine and all moving components. Remove all foreign matter and card dust.
6. Check turntable support rollers, rod end bearings, heat and anvil cylinder guide rods, pivot and stub shafts, split bearings, and flange bearings for lubricant. Lubricate or inform maintenance as required.
7. Check rod ends for looseness.
8. Drain moisture from air manifold and air line filter bowls. Check lubricator oil levels.



**Fault Messages**

The MACHINE STATUS screen of the touch screen may indicate a variety of fault messages. These might include:

**JOG MODE ENABLED**

The JOG button on the Machine Status Screen is ENABLED. Touch the button to DISABLE.

**GUARD DOOR / SAFETY CIRCUIT TRIPPED**

Close all doors, wands, and safety bars or check for broken circuit.

**SINGLE CYCLE MODE ENABLED**

The SINGLE CYCLE button on the Feeder Control Screen is ON. Touch the button to switch it to OFF.

**VACUUM PUMP #1 FAULT**

Vacuum pump #1 thermal overload has tripped on high current. Call maintenance.

**CYCLE STOP BUTTON PRESSED**

The CYCLE STOP operator pushbutton has been pressed.

**A/C VARIABLE CONTROL FAULT**

The machine speed circuitry is not functioning. Disconnect and then connect the main power to reset the controls. Call maintenance.

**TURNTABLE CLUTCH TRIPPED**

A jam or other interruption of the rotary table has tripped the clutch. Reset the clutch by pulling forwards on the rotary table until you hear the clutch reset.

**TURNTABLE SAFETY #1/#2**

The safety light beam under the guards on the front of the machine has been broken.

**FEEDER X BRAEKAWAY SWITCH  
DISENGAGED**

The eject breakaway switch has been opened for feeder X by a slipped breakaway. Reset the breakaway linkage.

**MAIN AIR LOW PRESSURE**

The incoming air pressure is below that required for automatic running of the machine. Check the air supply.

**EMERGENCY STOP PRESSED**

The EMERGENCY STOP operator pushbutton has been depressed. After clearing the problem, pull the EMERGENCY STOP pushbutton out to release.

**ENCODER WATCHDOG FAULT**

The encoder is not transmitting rotational data to the PLC. This indicates that the machine is not turning in response to PLC commands.

**VACUUM LOSS EJECT BYPASS ENABLED**

The VAC LOSS EJECT button on the VACUUM CONTROL screen has been switched to ON. Call authorized maintenance personnel to access the MAINTENANCE SCREEN, select the Vacuum Control screen, and touch the VAC LOSS EJECT button to switch it to OFF.

**VACUUM LOSS #4 BYPASS ENABLED**

The VACUUM LOSS #4 button on the Vacuum Control screen has been switched to ON. Call authorized maintenance personnel to access the MAINTENANCE SCREEN, select the Vacuum Control screen, and touch the VACUUM LOSS #4 button to switch it to OFF.

**VACUUM LOSS #3 BYPASS ENABLED**

The VACUUM LOSS #3 button on the Vacuum Control screen has been switched to ON. Call authorized maintenance personnel to access the MAINTENANCE SCREEN, select the Vacuum Control screen, and touch the VACUUM LOSS #3 button to switch it to OFF.

**VACUUM LOSS #2 BYPASS ENABLED**

The VACUUM LOSS #2 button on the Vacuum Control screen has been switched to ON. Call authorized maintenance personnel to access the MAINTENANCE SCREEN, select the Vacuum Control screen, and touch the VACUUM LOSS #2 button to switch it to OFF.

**VACUUM LOSS #1 BYPASS ENABLED**

The VACUUM LOSS #1 button on the Vacuum Control screen has been switched to ON. Call authorized maintenance personnel to access the MAINTENANCE SCREEN, select the Vacuum Control screen, and touch the VACUUM LOSS #1 button to switch it to OFF.

**TEMPERATURE ALARM**

The heat plate temperature is high or low of the set points in the temperature controller.

**FEEDERS IN MANUAL LOADING MODE**

The FEEDER CONTROL button is displaying MAN (Manual).

**EJECT DEFEAT ENABLED**

The EJECT DEFEAT button on the Vacuum Control screen has been switched to ON. Call authorized maintenance personnel to access the MAINTENANCE SCREEN, select the Vacuum Control screen, and touch the EJECT DEFEAT button to switch it to OFF.

**CHANGE TO AUTO IN FEEDER CONTROL**

The operator is starting the auto load sequence when the FEEDER CONTROL button is displaying MAN (Manual). In the Feeder Control screen, touch the FEEDER CONTROL button to switch the display to AUTO.

**PURGE COMPLETE**

The Auto Purge has been completed.

**AUTO PURGING**

The machine is performing the auto purging shut down procedure.

**AUTO LOADING**

The machine is performing the automatic loading procedure.

**HEAT SEAL GUARD DOOR OPEN**

The heat seal guard door is open. Close the door.

**VACUUM LOSS EJECT**

There is a vacuum loss identified in the eject assembly.

**VACUUM LOSS #1**

There is a vacuum loss identified in the number 1 feeder position assembly.

**VACUUM LOSS #4**

There is a vacuum loss identified in the number 4 feeder position assembly.

**VACUUM LOSS #3**

There is a vacuum loss identified in the number 3 feeder position assembly.

**VACUUM LOSS #2**

There is a vacuum loss identified in the number 4 feeder position assembly.

**MACHINE SPEED**

The machine is running at insufficient speed to complete the operation.

**Notes:**

## **Chapter 2: Maintenance Information**

## Machine Description

The Alloyd Model 8SC1216 is a performance proven blister packaging machine that *automatically*:

- places blisters into a nesting tray
- moves the tray to the open station(s) where the operator(s) manually load product into the blisters
- places die cut, adhesive coated cards on the blisters
- applies heat and pressure to seal the cards and blisters
- Discharges product from the machine

This machine will accommodate one, two or three production operators. It may be advantageous to assign two or three operators when several products are to be loaded into a blister or when running several blisters in each nesting tray. You can set the speed of the turntable to accommodate the operator(s).

If necessary, the operator can stop the turntable by pressing the CYCLE STOP button. Stopping the turntable in this manner does not affect the heat seal process.

The automatic features of this machine limit the operator's duties to loading product into blisters, and maintaining a supply of blisters and cards in the machine's automatic feeding equipment.

### Air Supply Valve

The air connection must be made through the ball valve atop the machine at the right rear corner (as viewed from front). The valve is ON when the valve handle is vertical; the valve is OFF when the valve handle is horizontal.

### Electrical Disconnect Switch

Electrical power must be connected through the electrical disconnect switch on the electrical control box at the rear of the machine. The ON and OFF positions are clearly marked on the switch plate.

## Installation

This machine may be picked up from the rear with a 6,000 lb. capacity fork lift. When installed, it should be located to provide adequate clearance for free mobility of personnel and stock. See Figure 16.

Level the machine using the turntable as the leveling surface. Use shims to make sure that all the feet carry some of the load.

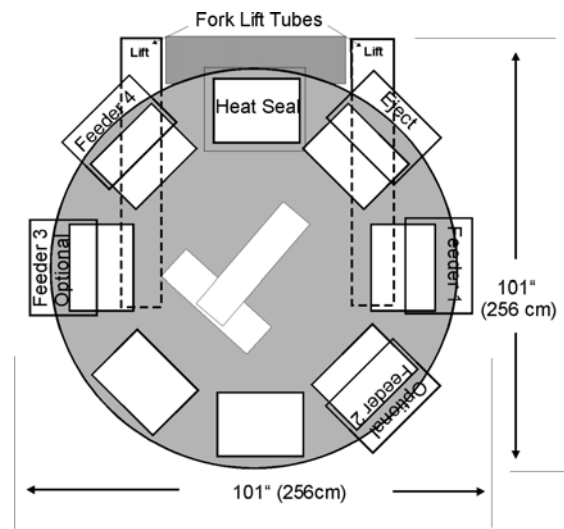


Figure 16. Machine Floor Plan

**Service Requirements**

Your plant facility must provide electrical power and compressed air to operate this machine.

**Electrical Requirements**

Your plant facility must provide electrical power to operate this machine.

The Model 8SC1216 machine may be wired for one of several electrical power sources:

208 Volt	3-phase	60 Hz	TBD AMP
230 Volt	3-phase	60 Hz	TBD AMP
480 Volt	3-phase	60 Hz	TBD AMP

Table 8. Table of Power Sources

The main circuit power cord is 10 gauge, 4 conductor. When installed, the turntable must rotate clockwise (as viewed from top). If it does not, reverse two leads where the power cord connects to the main circuit.

**Compressed Air**

Air intake is through a 3/4" NPT shut off valve located at the top right rear of the machine. We recommend a compressed air supply of 85 to 100 PSI (6895 to 8618 mbar) and 3/4" air line from the source.

The machine (8" air cylinder bore) consumes 37.00 SCFM when operating at 20 cycles per minute and 100 PSI.

It is equipped with a series of water traps, pressure regulators and lubricators. Set the pressure regulator gauge for 90 PSI of air flow.

A pressure switch in the main control box monitors the air pressure, and will shut down the machine if it falls below 30 PSI (2068 mbar). This is the minimum pressure required to return the heater platen to its home position and avoid a jam.

**Checks at Start Up**

Camco Drive	Check oil level in sight glass. The oil level should be in the center of the sight glass.
FRL (Filter Regulator and Lubricator)	Check oil level in lubricator sight glass. It should be near the top of the sight glass.
Electrical Control Box	Open the electrical control box and look for loose wires or debris.
Operator Control Pendant	Open the operator control pendant and look for loose wires or debris.

Table 9. Table of Checks at Start-up

**Dry Cycle Operation Check**

We recommend a dry cycle operation following installation, and each time the machine is returned to use after a lengthy shut down period. Dry cycle check steps are outlined below. For more detailed explanation of switches, indicators and gauges, see Machine Start-up and Machine Shut Down in Chapter 1: Operating Information.

1. Open the air supply valve. The heat press should retract.
2. Turn the electrical disconnect switch ON.
3. Set the temperature controller to its lowest setting.
4. On the FEEDER CONTROL screen, touch the SINGLE CYCLE button to show ON.
5. Press the START button. The machine will cycle one station.

6. Touch the SINGLE CYCLE button to OFF, and press the START button. The machine will cycle automatically.
7. After two cycles, set the CYCLE STOP button to ON. The machine should complete the cycle and stop.
8. Press the START button. While the machine cycles, check the safety switches:
  - Push the turntable safety gates. Restart
  - Open the card feed access door. Close and restart.
  - Open the back access doors. Close and restart.
  - Open the upper eject access guard. Close and restart.
  - Push the EMERGENCY STOP button.
9. Restart the machine. Turn ON the blister feed vacuum and listen for the vacuum leak. The gauge should drop below 10 inHg, and you should hear a shot of air from the blister blowoff with each cycle.
10. Turn OFF the blister feed vacuum and turn on the card feed vacuum. Listen for the vacuum leak and check the gauge. It should fall below 10" (25.4 cm).
11. Turn OFF the card feed vacuum and turn on the heat seal. The head should go down and up once for each cycle.
12. Check the cycle counter for proper operation. The heat seal must operate correctly in order for the counter to work.
13. Press the CYCLE STOP pushbutton.

### Tooling

Tools are those components designed or configured specifically for this machine and the packages being run. In the order of recommended installation, tooling for this machine includes:

- Heat Plate
- Nesting Trays & Support Channel/Blocks
- Blister Plug Racks
- Blister Magazine
- Card Feed Suction Rack
- Card Magazine
- Eject Suction Rack
- Discharge Slide

The Alloyd Model 8SC1216 comes with one of two types of tooling:

**Standard**  
Or  
**Quick Change**

**Install the Quick Change Eject Suction Rack****Step 1**

Orient the Quick Change eject suction rack to the eject assembly arm and installation frame so that the serial number is out in the pickup position.

**Step 2**

Slide the Quick Change eject tooling over the alignment pins and turn the "Quick Acting" fasteners  $\frac{1}{4}$  turn to secure.

**Step 3**

Plug the nylon plugs on the end of the vacuum lines into the vacuum bar in the eject assembly.

**Note:** The two end vacuum line plugs on the vacuum bar are self-locking.

**Install the Quick Change Discharge Slide****Step 1**

With the Power OFF, Orient the slide with the Teflon side up over the alignment pins on the installation bar or frame.

**Step 2**

Turn the "Quick Acting" fasteners  $\frac{1}{4}$  turn to secure.

**Step 3**

Close the eject door and all other safety doors and wands.

**Step 4**

On the FEEDER CONTROL touch screen, Turn the vacuum pump ON. Flip the EJECT switch to ON.

**Step 5**

Jog the machine. The cups should pick up the product package, and drop the cards on the discharge slide.

**Fine Tuning**

After you have installed the tooling, you should run the machine through several cycles to check and make final adjustments. We recommend you use the single cycle setting to do this.

**Single Cycle Running****Step 1**

Using the JOG function, advance the blister plugs to their uppermost point in the blister magazine. This will prevent the blisters from falling through when you load the magazine.

**Step 2**

Place blisters in the magazine, open side down. Be sure they are not sticking together. If necessary, direct a blast of air at them along the side of stack.

**Step 3**

Place the cards in the card magazine. The face of the card (side to be sealed to blister) should be upward.

**Step 4**

Touch the SINGLE CYCLE OFF button on the FEEDER CONTROL screen to ON.

**Step 5**

Touch the MACHINE SPEED arrow down button on the MACHINE SPEED screen to adjust the machine to its lowest speed.

**Step 6**

Set the air pressure to 80 PSI (5516 mbar). You will adjust it later to achieve optimum sealing.

**Step 7**

Set the blister blowoff regulator at 60 PSI. You can adjust it later.

**Step 8**

Close all doors to activate the electrical circuits.

**Step 9**

Open the blister separator valve slightly.



**Step 10**

Touch the FEEDER X (1) button for the blister feeder to switch it to ON. Touch the SEPARATOR #1 button to turn it ON.

**Step 11**

Press the START button and watch the blister feed operation. The blister plug rack will pull the blister, place it in the nesting tray, and stop. If it does not, see the Troubleshooting section of this manual.

**Step 13**

When the blister feed operation is working properly, repeat this step until the first trays are filled.

**Step 14**

Load product into the blisters in each tray.

**Step 15**

Touch the FEEDER X (4) button for the card feeder to switch it to ON.

**Step 16**

Press the START button and watch the card feed operation. The suction cups will pull the card, place it on the blister, and stop. If they do not, see the Troubleshooting section of this manual.

**Step 17**

When the card feed operation is working properly, Touch the SEAL PRESS button to switch it to ON.

**Step 18**

When you installed the heat plate, you set the temperature to the recommended sealing temperature for the package. Therefore, it should be ready for operation now.

Press the START button. The heat plate will descend, seal, and retract.

**Step 19**

Allow the package seal to cool. Then check the package for seal alignment. Determine the needed adjustment, if any, and adjust the heat plate:

Wearing protective gloves, loosen the two hex bolts on top of the heater platen. Adjust the plate as needed, and re-tighten the bolts. Repeat as necessary.

**WARNING!**

The heater platen operates at temperatures up to 550° F. Severe burns can result from careless handling.

Always wear heat resistant gloves and protective clothing when working with heating elements.

**WARNING!**

The heat seal process develops extreme pressure force. Crushing injuries can occur.

If alignment will not correct, see the troubleshooting table in Chapter 1: Operating Information.

**Step 19**

At the FEEDER CONTROL screen, touch the EJECT VACUUM OFF button to turn it to ON. Press the START button. The turntable will index from the heat seal station to the eject station and the eject assembly will pick the packages out of the nesting trays and deposit them on the eject slide.

**Trial Running in Automatic Mode**

To check the machine in automatic mode at production speed, do this:

**Step 1**

Touch the SINGLE CYCLE to switch it OFF.

**Step 2**

Press the START button to begin automatic cycling. Load product at the operator load stations.

**Step 3**

Check blister feed and card feed operation to be sure they are dropping properly at production speed. Adjust as necessary.

**Step 4**

Check seal quality. Unacceptable variations could include:

- Card discoloration from too much heat
- Card indentation or bending from too much pressure
- Incomplete or no seal from too little heat and/or too little pressure

## Sealing Guidelines

This machine combines the following parameters to operate its various functions. Each parameter is adjustable which allows you to set them for maximum production and quality.

- Temperature
- Cycle Speed
- Air Pressure
- Vacuum

### Temperature

Heater Platen temperature is controlled by a dedicated, digital controller located on the operator control panel. See Chapter 1: Operating Information.

### Cycle Speed

The speed of the machine affects the dwell time of the heat plate on the blister flange and card during the heat seal. The quality of the seal can be affected by changing the PRESS CLOSE SET POINT TIME in the MACHINE SPEED screen of the operator's touch screen. See Chapter 1: Operating Information.

### Air Pressure

This machine requires compressed air to operate these systems:

- Heat Press
- Blister Separator
- Blister Blow-off

The air supply must be at least 80 to 100 PSI.

Air comes into the machine reservoir through a  $\frac{3}{4}$ " NPT shutoff valve. Each of the three systems is connected directly to the reservoir.

A switch in the main control panel is also connected to the reservoir, and continuously monitors the air pressure; it will shut down the machine if the pressure falls below 30 PSIG (2068 mbar).

### Heat Press

Air is fed to the heat seal air cylinder, and its control valve, through a filter, regulator, lubricator assembly (FRL) mounted along the frame rail that serves as the air manifold.

**Note:** Some air cylinders do not require added lubrication. Therefore, only a filter and regulator are required.

### Blister Separator

The blister separator valve and regulator is mounted to the side of the blister magazine. It is fed regulated compressed air through a shutoff valve and "Quick-Connect" coupling. See Figure 28.

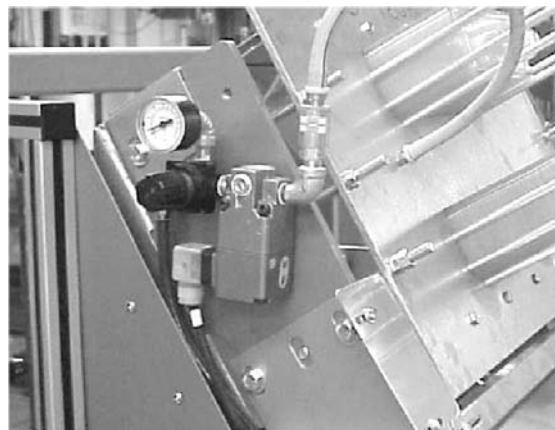


Figure 26. Blister Separator

**Blister Blowoff**

When placing a blister in a nesting tray, the blister plug releases the blister by simultaneously cutting off the vacuum supply to the plug and introducing a regulated stream of compressed air through the plug to “blow-off” the blister.

A separate blowoff valve, regulator, and pressure gauge provides the blowoff air pressure. A frame rail acting as an air pressure manifold supplies the air pressure to the blowoff valve. The blister feeder air manifold is supplied with air pressure from the main air supply manifold located on the heat seal press.

**Vacuum**

This machine requires vacuum to operate these functions:

- Blister Load
- Card Load
- Package Eject

**Blister Load**

When getting a blister from the magazine, the blister plug rack holds the blister by vacuum. A blister vacuum control valve provides compressed air to a venturi vacuum pump that creates the vacuum. The vacuum is plumbed to the vacuum shaft in the blister linkage and then to the blister plugs.

Each feeder and the eject have their own venturi vacuum pumps. They are located on the frame module that supports the feeder/eject station. Each vacuum pump has an air valve to supply air pressure to the venturi vacuum pump. See Figure 27.

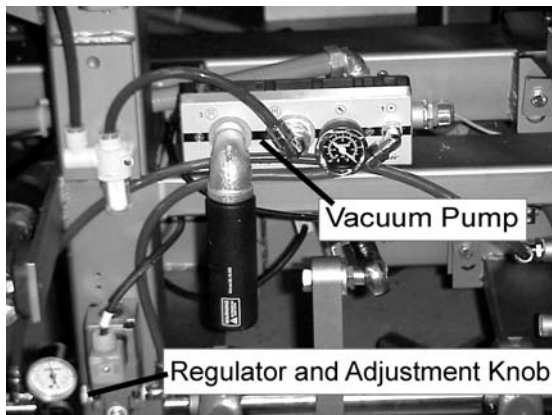


Figure 27. Vacuum Pump

You can adjust the amount of air intake to the venturi vacuum pump with the corresponding control knob on the regulator located near the pump.

**Note:** The venturi vacuum pumps are designed to create optimum vacuum levels with an air supply of 87 PSI. Deviating from this prescribed value will have a detrimental effect on vacuum levels.

The valve is supplied from a manifold which, in turn, is supplied by the main air supply manifold. The valve is operated by a solenoid whose timing is controlled by the PLC.

**Card Load**

Vacuum suction cups of the card feed tooling holds the cards as the linkage transfers the cards from the card magazine to the nesting tray.

The venturi vacuum pump is plumbed to the card feed vacuum shaft. A valve supplies air pressure to the vacuum pump.

The valve is supplied from a manifold which, in turn, is supplied by the main air supply manifold. The valve is operated by a solenoid whose timing is controlled by the PLC.

**Package Eject**

Eject suction cup rack holds the sealed package as the eject linkage transfers the sealed package from the nesting tray to the discharge slide.

The venturi vacuum pump is plumbed to the eject vacuum shaft. A valve supplies air pressure to the vacuum pump. A manifold supplies air pressure to the valve. The main air supply manifold supplies air pressure to the card feed manifold.