CAUTION

READ THIS MANUAL PRIOR TO START-UP. SERIOUS PERSONAL INJURY AND MACHINE DAMAGE CAN RESULT WITHOUT CLEAR UNDERSTANDING OF SET-UP, START-UP CHECKS, AND OPERATING PROCEDURES.

WARNING

IN INSTALLATION AND USE OF THIS PRODUCT, COMPLY WITH THE NATIONAL ELECTRICAL CODE; FEDERAL, STATE, AND LOCAL CODES; AND ALL APPLICABLE SAFETY CODES. IN ADDITION, TURN OFF POWER AND TAKE OTHER NECESSARY PRECAUTIONS TO PREVENT PERSONAL INJURY AND EQUIPMENT DAMAGE.

NOTE

Engineering changes may have been made after publication date. Any departure from this manual should be checked with Automated Packaging Systems, Inc.

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CAUTION

THE OPERATION OF THIS MACHINE WHEN ANY GUARD OR COVER IS REMOVED IS A MISUSE OF THIS MACHINE AND THEREBY PRESENTS A PERSONNEL HAZARD.

CAUTION

Protect Yourself—

Do not operate this machine with any guards or covers removed or open.

THE RIGHT TIME FOR SAFETY IS ALL THE TIME!

CAUTION

Protect Yourself—

Do not operate this machine with any guards or covers removed or open.

CAUTION: TO AVOID INJURY, THESE ADJUSTMENTS ARE TO BE PERFORMED ONLY BY QUALIFIED MAINTENANCE MECHANICS AND AT THEIR OWN RISK.

ASR550 DESLEEVER

SECTION 1

INSTALLATION PROCEDURES

1—1 Power Hook-Up

CAUTION: ALL CONNECTIONS SHOULD BE DONE BY A QUALIFIED ELECTRICIAN.

The ASR550 Desleever is available in one of two power ratings—380 Volts 50 Hz, or 460 Volts 60 Hz. Either type requires a 3-phase, grounded power source. The correct voltage and frequency for your unit is stamped on the serial plate, located inside the front doors.

The factory power line to the unit must include a circuit breaker able to accommodate a 15-amp continuous operating current.

Bring #8AWG or larger power lines into the rear control box through a watertight fitting. For best water protection, avoid bringing wires in through the top of the box. Connect the power lines to the three top terminals of the main disconnect at the top center of the control panel. Attach a suitable ground wire to the ground terminal block located to the right of the main disconnect.

Before placing the machine in service, check the vacuum motor for proper rotation direction. The vanes in the pump must turn in the direction indicated by the arrow on the housing. If the pump rotates in the wrong direction, disconnect incoming power from the machine, and exchange any two of the three incoming wires. (DO NOT CHANGE ANY WIRING INSIDE THE MACHINE.) Reconnect power, and verify rotation direction.

1—2 Panel Removal and Installation

All panels are designed for easy removal and installation. Doors on the upper part of the unit have lift-off hinges. To remove them, open the doors and lift up. To install the doors, align both hinge pins with the lower halves of the hinges. Slide the door down until fully inserted.

Lower panels are locked in place by ¼-turn fasteners located at the bottom centers of the panels. To remove, turn the fastener ¼-turn counterclockwise. Lift the panel up until it is free. To replace a panel, align the notches on the inside lip of the panel with the supports on the frame. Lower the panel into place. Lock the panel in place by turning the fastener ¼-turn clockwise.

CAUTION: ALL DOORS, PANELS, AND GUARDS ARE FITTED WITH INTERLOCKS THAT PREVENT OPERATION OF THE MACHINE WHEN OPEN. DO NOT ATTEMPT TO DEFEAT THESE INTERLOCKS. OPERATE THE MACHINE ONLY WITH ALL DOORS CLOSED AND

GUARDS IN PLACE.

1—3 Air Hook-Up
The air inlet is located at the top left rear of the machine. Connect it to a 1-inch NPT factory air line able to provide 100 SCFM @ 60 psi, filtered to 5 microns.

1—4 Water Hook-Up
The water inlet is located at the top left rear of the machine. Connect it to a ½-inch NPT water line able to supply 150 liter/hr.

The water supply must be cleaned, filtered, and de-ionized to meet the following specifications:

Maximum particle size	1.0 micron absolute
Total dissolved solids (TDS)	<50.0 ppm
pH	6.8-7.5
Specific conductivity	>20,000 Ω-cm.

1—7 Specifications
Height
Main Unit
Electrical Control Center

Width
Main Unit
Electrical Control Center

Depth
Main Unit
Electrical Control Center

Air Pressure	60 psi (410 KPa)
Air Consumption	100 SCFM (3 m^3/min)
Water Pressure	
Water Consumption	40 gal/hr (150 liter/hr)
Ambient Temperature Operating Range	65°F to 105°F (20°C to 40°C)

Electrical
See (Para. 1—1)

NOTE: For lubrication see (Para. 6—1)

1—8 Level Adjustment
A qualified maintenance person should adjust the four leveling feet provided on the unit so the machine sits level without rocking on the floor. Once the machine is level, tighten the jam nut on each foot.

ASR550 DESLEEVER

SECTION 2

SETUP AND ADJUSTMENTS

2—1 Description

The ASR550 Desleever is designed to remove glueless polyethylene (LDPE) sleeve labels from refillable bottles made of PET, HDPE, PC, PVC or similar plastics or glass. The machine uses water-jet cutters, calibrated to cut through the soft label material without damaging the harder bottle material. Each of the 10 stations has its own water-jet cutter.

Bottles are fed into the desleever by a rotary screw and star wheel mechanism. Once in the machine, the bottle is clamped into position from above. A water-jet moves from top to bottom of the label, cutting a slit. A burst of air peels the label off the bottle, where it is sucked out of the machine by a vacuum collection system. The bottle exits from the opposite side of the machine from which it entered, by way of another rotary screw.

The machine is available with either a right-hand or left-hand infeed, as viewed from the front of the machine. Both versions are identical except that directions are reversed.

The machine can remove labels at speeds up to 550 bottles per minute. It can be adjusted to work with bottles from 8 to 14 inches (20 to 35 cm) high and from 2 to 5 inches (5 to 12.5 cm) in diameter. The maximum label height is 7 inches.

2—2 Safety Precautions

CAUTION: THE WATER-JET SPRAY IS INTENSE ENOUGH TO CUT THROUGH SKIN AND MUSCLE TISSUE. KEEP ALL PARTS OF YOUR BODY AWAY FROM THE JET AT ANY TIME THAT IT IS ABLE TO SPRAY. STAY CLEAR OF THE NOZZLE IF IT IS NOT AT THE BOTTOM OF ITS STROKE, EVEN IF THE MACHINE IS NOT OPERATING.

CAUTION: ALL DOORS, PANELS, AND GUARDS ARE FITTED WITH INTERLOCKS THAT PREVENT OPERATION OF THE MACHINE WHEN OPEN. DO NOT ATTEMPT TO DEFEAT THESE INTERLOCKS. OPERATE THE MACHINE ONLY WITH ALL DOORS CLOSED AND GUARDS IN PLACE.

CAUTION: TURN OFF AIR AND WATER SUPPLIES BEFORE MAKING ADJUSTMENTS TO THE CAROUSEL AND WATER JET CUTTERS.

2—3 Carousel Rotation

The main carousel may be rotated by hand for positioning during setup. Force may be applied at any suitable point, such as a gripper roller.

CAUTION: BEWARE OF PINCH POINTS WHEN ROTATING THE CAROUSEL BY HAND. WATCH FINGERS, AND KEEP THEM CLEAR OF ANY CLOSE SPACES.

2—4 Setting Bottle Height

The bottle hold-down assemblies are pre-calibrated to provide the proper clamping force when set to the correct height.

A. Place a bottle under one of the hold-down stations.
B. Turn the bottle hold-down adjustment screw until the gripper rests on the bottle's clamp point. (Fig. 2—1)
C. Adjust it downward an additional 5/16 inch (0.8 cm).
D. Tighten the lock screw to hold the adjustment screw in place.

To adjust height of the bottle release cam:

A. Loosen the four adjustable hand levers.
B. Move the cam up or down so that the gripper is raised 3/16 inch (0.5 cm) above the bottle's clamp point. (Fig. 2—2)
C. Re-tighten the adjustable hand levers securely.

NOTE: TO PREVENT DAMAGE TO THE GRIPPER ROLLERS, MAKE SURE THE ROLLERS DO NOT HIT THE EDGE OF THE BOTTLE RELEASE CAM AS THE CAROUSEL TURNS.

2—5 Setting Cutting Stroke Height

The water jet should begin its cutting stroke approximately 1½ inches above the top of the label. This distance is needed to allow the water stream to develop fully before it reaches the label.

A. Pull the water jet cutter nozzle up until it touches the rubber bumper. (Fig. 2—3)
B. Loosen the screws on the bumper stop.
C. Adjust it up or down so that it will stop the nozzle approximately 1½ inches (4 cm) above the top of the label.
D. Re-tighten the screws securely.
E. Repeat this procedure for each of the 10 stations.

2—6 Setting Bottle Diameter

The water jet nozzle will work at distances from 1/2 to 7/8 inches from the outside of the bottle. If necessary, the water jet can be moved in or out to accommodate other bottle diameters.

A limit screw behind each cutting unit acts as a barrier that controls the position of the unit when installed. It is necessary to remove the cutting unit to adjust the screw's position.

A. Remove the cutting unit—see (Para. 6—3).
B. Adjust the limit screw (Fig. 2—4) so that the cutting unit will rest against it with the nozzle about ½-inch from the outside of the bottle when re-

installed.

C. Re-install the cutting unit and station plate.
D. Repeat this procedure for each of the 10 stations.

2—7 Setting Star Wheel Timing

Infeed Star Wheel:

A. Rotate the carousel until one of the bottle gripper rollers is midway up the ramp on the infeed side of the release cam.
B. Loosen the torque limiter (Fig. 2—5) on the infeed star wheel until the wheel turns freely.
C. Turn the wheel so that the bottle will be centered in the gripper at this point.
D. Re-tighten the torque limiter.

Outfeed Star Wheel:

A. Rotate the carousel so that one of the bottle gripper rollers is midway down the ramp on the outfeed side of the release cam.
B. Loosen the torque limiter (Fig. 2—5) on the outfeed star wheel until the wheel turns freely.
C. Turn the wheel so that the bottle will be centered in the notch at this point.
D. Re-tighten the torque limiter sleeve.

Adjust the feed screw timing (Para. 2—8) and bottle guide rail positions (Para. 2—9) after setting star wheel timing.

2—8 Setting Feed Screw Timing

Infeed screw:

A. Make sure star wheel timing is correct (Para. 2—7).
B. Rotate the carousel until a notch on the infeed star wheel is facing straight out.
C. Loosen torque limiter on the lower sprocket of the feed screw drive mechanism (Fig. 2—6) until the infeed screw turns freely.
D. Turn the infeed screw by hand until the screw channel aligns with the notch in the star wheel.
E. Insert a bottle in this space.
F. Turn the screw until it touches the bottle. Then back the screw off about 1/32 inch (0.8 mm) so that the screw does not touch the bottle.
G. Re-tighten the torque limiter securely.

Outfeed screw:

A. Make sure star wheel timing is correct (Para. 2—7).
B. Rotate the carousel until a notch on the outfeed star wheel is facing straight out.
C. Remove retaining cap from outer end of the outfeed screw.
D. Slide screw to the side to expose spline coupler gear. Remove the gear.
E. Slide screw back into the spline coupler housing.

F. Insert a bottle in the star wheel notch.
G. Turn the screw until it touches the bottle. Then back the screw off about 1/32 inch (0.8 mm) so that the screw does not touch the bottle.
H. On the spline coupler housing, mark the position of the feed screw keyway. (Fig. 2—7)
I. Remove the feed screw.
J. Align the keyway in the spline coupler gear with the mark on the spline coupler housing.
K. Insert the spline coupler gear in the housing. Make sure it is fully seated within the housing.
L. Slide the locking key into the feed screw keyway.
M. Align the keyways in the feed screw and the spline coupler gear. Insert the screw into the housing.
N. Reinstall the feed screw retaining cap.

Feed screw height and horizontal position:
The mounting base of the feed screw drive assembly has four slotted mounting holes. (Fig. 2—6)

A. Loosening the bolts in the vertical slots allows the feed screw to be moved up or down.
B. Adjust the feed screw height so that it is below the bottle's center of gravity.
C. Re-tighten the bolts securely.
D. Loosening the bolts in the horizontal slots allows the feed screw to be moved in or out.
E. Adjust the feed screw position so that there is a 1/8 to 1/16-inch clearance between the feed screw and the bottle.
F. Re-tighten the bolts securely.

Adjust the guide rails (Para. 2—9).

2—9 Setting Bottle Guide Rails

A. Make sure the infeed and outfeed screws and starwheels have been set for proper timing—see (Para. 2—7) and (Para. 2—8).
B. Move the bottle guides so that they are above and below the label. Most bottles have shoulders above and below the label. Set the guides so that they touch these shoulders rather than the label.
C. Allow a clearance of 1/16 to 1/8 inch between the guides and the bottle.
D. Rotate the machine manually or using the forward jog buttons (see (Para. 2—2)) with bottles in place to make sure there is no interference when the bottle passes from the feed screw to the star wheel and from the star wheel to the carousel.

2—10 Adjusting Vacuum Collector Location

The mounting base of the vacuum collector head has four slotted mounting holes. (Fig. 2—8)

A. Loosening the bolts in the vertical slots allows the vacuum collector head to be moved up or down.
B. Adjust the height so that the bottom of the vacuum collector opening is about 1 inch below the bottom of the label.
C. Re-tighten the bolts securely.
D. Loosening the bolts in the horizontal slots allows the vacuum collector head to be moved in or out.
E. Adjust the position of the head so that there is a ½-inch clearance from the bottle.
F. Re-tighten the bolts securely.

2—11 Bottle Detectors

Mount the infeed and outfeed bottle detectors in convenient locations on the conveyors. Recommended distances are approximately 10 to 20 ft from the machine.

SECTION 3

LOCAL OPERATION

3—1 Control Locations

The main control switch is on the control panel at the back of the machine. To turn power on, move the handle from the "Off" position to the "On" position.

The machine is controlled from the operator console at the front of the machine. In addition, two sets of auxiliary controls are located at the rear of each side. The auxiliary controls include pushbutton switches for On/Off, Jog Forward, Jog Reverse, and Emergency Stop. Emergency stop switches are also located on both sides of the front doors. (See Fig. 3—1)

Note: The ASR550 desleever can also be controlled by either analog or digital remote controllers. This option allows a central system to synchronize the machine with other machinery on the line. See Section 4 for information about remote operation.

3—2 Warning Lamp and Sound Alarm

CAUTION: THE OPERATOR MUST MOVE CLEAR OF MACHINE PARTS THAT WILL BEGIN MOVING ANYTIME THE WARNING LAMP AND SOUND ALARM ACTIVATE!

The warning Lamp with Sound Alarm located on top of the unit will signal the following situations:

— Yellow lamp and sound alarm remain on continuously for 1 second before the unit begins to rotate.

— Yellow lamp pulsates if unit is waiting for bottles or if doors or guards are open.

— Blue lamp remains on if an error condition is detected by the controller. (See Section 5.)

3—3 Initial Start-Up

A. Turn on power to the main control panel on back of the machine. This should turn on the lights inside the machine. The display on the operator console should show the message

AUTOLABEL ASR550 DESLEEVER…OFF MODE
DEPRESS GREEN POWER ON BUTTON TO START
EMERGENCY STOP CORRECT & PRESS ESTOP RESET TO CONTINUE

B. Press the green POWER ON button. The display should now read

C. Make sure all EMERGENCY STOP buttons have been released. (Rotate buttons in counterclockwise direction to release.) Press the ESTOP RESET button on the operator console. The display should now read

AUTOLABEL ASR550 DESLEEVER IDLE MODE VER *x.xx*

D. Set the LOCAL/REMOTE selector switch on the operator console to "LOCAL."

3—4 Time delays

Purpose:

The ASR550 desleever has two sensors that detect the presence of bottles on the line. The infeed sensor detects when the infeed conveyor is empty, and stops the machine until more bottles arrive. The outfeed sensor detects when the outfeed conveyor is full, and stops the machine until bottles start moving again.

If the machine reacted instantly to these sensors, it would stop anytime a gap occurred between bottles in the infeed conveyor, or if bottles were not moving fast enough in the outfeed conveyor. To prevent these nuisance shutdowns, time delays are built in. These delays tell the machine how long to ignore a trouble signal before acting on it.

Reset delays tell the machine how long to wait before attempting to restart after it stops because of a feed sensor signal.

To set the time delays:

A. Press the *Set Delays* key on the operator console. The display should show the message

SET DELAYS IN SECONDS PRESS ">"

B. Press the right arrow key. The display should read

OUTFEED STOP DELAY *xx.x*
OUTFEED STOP RESET *xx.x*

C. Press the *Clear* key.

D. Use the number keys to input the desired stop delay, in seconds.

E. Press the *Enter* key.

F. Press the right arrow key to advance to the stop reset field. Repeat steps C through E to set this field.

G. Press the right arrow key to display infeed delays. Repeat steps C through F to set these fields.

H. To finish, press any other key (such as *Display Count* or *Set Speed*).

3—5 Speed

Speed can be set at any time before or during machine operation.

A. Press the *Set Speed* key on the operator console. The display will show the message

---

SET MACHINE SPEED
nnn BPM

B. Press the *Clear* key.
C. Use the number keys to input the desired speed, in bottles per minute (BPM).
D. Press the *Enter* key.
E. To set speeds for "Jog Forward" and "Jog Reverse," press and hold the *Jog Forward* or *Jog Reverse* key while following the steps above.
F. To finish, press any other key (such as *Display Count*).

3—6 Startup

To start operation:

A. Close all doors
B. Make sure guards are in place on the infeed and outfeed.
C. Make sure the infeed coneyor is full and the outfeed conveyor is empty.
D. Set the *Local/Remote* selector switch to "Local".
E. Press *Start/Stop* key on operator console or button on machine frame.

3—7 Stopping

To stop operation, press a *Start/Stop* key or button. If you need to empty the machine, press the *Unload* key followed by *Start/Stop*. The *Unload* key causes the machine to ignore the infeed sensor and the remote run signal. When all bottles are out of the machine, press a *Start/Stop* key or button to stop the machine. To cancel "Unload" before running, press the *Unload* key again.

For an emergency stop, depress any of the red switches labeled *Emergency Stop* on the machine or the operator console.

Note: The *Start/Stop* key should always be used to stop the machine for any NON-emergency stop.

3—8 Re-Starting After Emergency Stop

If the machine has been stopped by pressing an *Emergency Stop* button (display reads "Emergency Stop...Correct & Press Estop Reset to Continue").

A. Make sure the condition causing the emergency has been corrected.
B. Release all *Emergency Stop* buttons. (Rotate clockwise until button pops out.)
C. Press the *EStop Reset* button on the operator console.
D. Re-start by following the steps in (Para. 3—6).

3—9 Displaying Bottle Count

Pressing the *Display Count* key when the machine is idle causes the display to show

the message

```
AUTOLABEL ASR-550 DESLEEVER
IDLE MODE  PRESS ">" FOR FULL COUNT
```

Press the right arrow key to see the bottle count. The count display is divided into three fields.

```
COUNT (LOW) yyyy  X  1000 + zzz
COUNT (HIGH) xxxxx  X  10 MILLION
```

The first line shows the digits from 0 to 9,999,999. *YYYY* represents the first four digits, and *ZZZ* represents the last three. On the third line, *XXXX* represents numbers in the 10 millions.

When the machine is running, the first message does not appear. The count is displayed immediately after the *Display Count* key is pressed.

SECTION 4

REMOTE OPERATION

In addition to local operation, the ASR550 desleever can be controlled by either an analog or a digital remote controller. This option allows a central system to synchronize the machine with other machinery on the line.

Before beginning remote operation, the local operator console must be set up to receive remote signals.

4—1 Warning Lamp and Sound Alarm

CAUTION: THE OPERATOR MUST MOVE CLEAR OF MACHINE PARTS THAT WILL BEGIN MOVING ANYTIME THE WARNING LAMP AND SOUND ALARM ACTIVATE!

The warning Lamp with Sound Alarm located on top of the unit will signal the following situations:

— Yellow lamp and sound alarm remain on continuously for 1 second before the unit begins to rotate.

— Yellow lamp pulsates if unit is waiting for bottles or if doors or guards are open.

— Blue lamp remains on if an error condition is detected by the controller. (See Section 5.)

4—2 Preliminary Setup

Turn on the machine and bring it to a ready state by following the procedures in (Para. 3—1 and 3—3). Set the LOCAL/REMOTE selector switch on the operator console to "REMOTE."

Set delays by following the procedures in (Para. 3—4).

4—3 Programming Remote Mode and Speeds

Either digital or analog control can be used. You must tell the machine which type of control you plan to use.

To set the mode (digital or analog):

A. Press the *Remote Speed* key. The display will read either

SET REMOTE BPM->DIGITAL=1, ANALOG=0=> 0 if it is in analog mode, or
ANALOG SPEED
SET REMOTE BPM->DIGITAL=1, ANALOG=0=>1
SLOWEST->*aaa bbb ccc ddd* ->FASTEST

if it is in digital mode.

B. Press the *Toggle* key to switch the digit on the far right of the first line between "0" for analog and "1" for digital.

To set speeds:

ANALOG CONTROLLER

It is not necessary to set speed for an analog controller. The speed is proportional to the voltage or current of the input signal from the controller. The signal can range from 0 to 10 VDC, 0 to 20 ma, or 4 to 20 ma for 0 to 550 BPM, depending on the options selected when the machine was purchased.

DIGITAL CONTROLLER

Digital control can select any one of four preset operating speeds. These speeds must be set at the local operator console. Speeds should be input in order from slowest to fastest:

A. Select digital mode as described above.
B. From the same menu, press the right arrow key. The cursor will move to the first number (*AAA*) on the second line.
C. Press the *Clear* key. Use the keypad to input the slowest speed.
D. Press the *Enter* key.
E. Press the right arrow key to move the cursor to the next number.
F. Repeat steps C and D to input the remaining three speeds in increasing order.
F. To finish, press any other key (such as *Display Count).*

Remote Digital Input		Machine Speed Selected
B_1	B_0	
Off	Off	AAA
Off	On	BBB
On	Off	CCC
On	On	DDD

4—4 Ready State

To put the machine in the ready state for remote operation:

A. Close all doors
B. Make sure guards are in place on the infeed and outfeed.
C. Make sure the infeed coneyor is full and the outfeed conveyor is empty.
D. Set the *Local/Remote* selector switch to "Remote".

K. Press *Start/Stop* key on operator console or on machine frame.

The machine will start if the remote run signal is on and a remote speed command is present. If either signal is not present, the machine will display the message

MACHINE WAITING FOR RUN SIGNAL

NOTE: THE MACHINE WILL NOT OPERATE REMOTELY UNLESS IT IS FIRST PLACED IN THE READY STATE BY PRESSING THE *START/STOP* KEY.

4—5 Stopping

The machine will stop any time the remote run signal is not present. When the remote run signal is present, the *Start/Stop* control operates the same way as in local operation.

To stop operation locally, press the *Start/Stop* key. If you need to empty the machine, press the *Unload* key followed by *Start/Stop*. The *Unload* key causes the machine to ignore the infeed sensor and the remote run signal. When all bottles are out of the machine, press the *Start/Stop* key to stop the machine. To cancel "Unload" before running, press the *Unload* key again.

For an emergency stop, depress any of the red switches labeled *Emergency Stop* on the machine or the operator console.

Note: The *Start/Stop* key should always be used to stop the machine for any NON-emergency stop.

4—6 Re-Starting After Emergency Stop

If the machine has been stopped by pressing an *Emergency Stop* button (display reads "Emergency Stop...Correct & Press Estop Reset to Continue").

A. Make sure the condition causing the emergency has been corrected.
B. Release all *Emergency Stop* buttons. (Rotate clockwise until button pops out.)
C. Press the *EStop Reset* button on the operator console.
D. Re-start by following the steps in (Para. 4—4).

4—7 Changing Speeds

Only the remote controller can change speed during remote operation. To change speeds at the operator console when using a digital controller, stop the machine and follow the steps in (Para. 4—3) to change the preset speeds.

4—8 Displaying Bottle Count

See (Para. 3—9).

ASR550 DESLEEVER

SECTION 5

ERROR AND WARNING CONDITIONS

The ASR550 Desleever is equipped with warning lights and a warning horn. In addition, the operator console can display diagnostic messages.

Signal	Condition	Remedy
Horn sounds and yellow warning light flashes for about one second.	The machine is about to start operating from a stationary state. This happens whenever the machine is started with a *Start/Stop*, or *Jog* button, a signal is received from the remote controller, or the machine restarts after being stopped by the infeed or outfeed sensor.	Make sure body parts, clothing, and other obstacles are clear of the conveyors and any exposed moving parts. To prevent startup, press any *Emergency Stop* or *Start/Stop* button.
Yellow warning light flashes, no alarm.	A door or panel is open, or a guard has been removed.	Close all doors and replace guards.
	The machine has stopped because the infeed sensor has detected that the conveyor is empty.	Wait for more bottles to arrive, or load additional bottles into the conveyor.
	The machine has stopped because the outfeed sensor has detected that the conveyor is full.	Remove accumulated bottles or wait for the conveyor to clear.
Blue light flashes.	An error condition has occurred.	Alarm can be stopped by opening any door. Check the diagnostic message on the operator console

	display. Correct the condition and restart the machine.

Error Conditions

Message	**Remedy**
EMERGENCY STOP CORRECT & PRESS ESTOP RESET TO CONTINUE	Release all emergency stop buttons. (Rotate button clockwise to release.) Press the *EStop Reset* button on the operator console. If the emergency stop cannot be reset, make sure a signal is present at the remote emergency stop input. A jumper must be installed at the remote input if no remote signal is available. (See drawing No. 600000.SCH)
MACHINE WILL NOT START CLOSE ALL DOORS	Make sure doors are closed and interlocks fully engaged. Reinstall all panels and lock in place. Make sure infeed and outfeed guards are in place.
MACHINE STOPPED *<IDENTIFIER>* MOTOR OVERLOAD	Identify and correct the cause of the overload. Open the control box on the back of the machine. Locate the circuit breaker for the appropriate motor. Press the reset button on the circuit breaker.
MACHINE WAITING FOR RUN SIGNAL	The remote run signal or remote speed command is not present. These signals must be present whether the machine is in remote or local mode. If the machine is not controlled by a remote signal, make sure jumpers are installed at the remote run/stop and remote speed inputs. (See drawing No. 600000.SCH)
MACHINE STOPPED LOW LINE VOLTAGE	
Make sure the incoming line voltage matches the rating stamped on the serial plate inside the front doors.	Check the infeed sensor for proper operation. Make sure bottles are present in the infeed conveyor. Press

Restart the machine following the setup procedures in section 3.MACHINE WAITING FOR INFEED BOTTLE SUPPLY.	the *Unload* key to allow the machine to run when no more bottles are coming in. Increase the infeed delay time if the machine shuts down with normal bottle feed rates.
MACHINE WAITING FOR OUTFEED BOTTLES TO CLEAR	Check the outfeed sensor for proper operation. Make sure bottles are being conveyed away from the outfeed. Increase the outfeed delay time if the machine shuts down with normal conveyor operation.

ASR550 DESLEEVER

SECTION 6

MAINTENANCE AND REPAIR PROCEDURES

CAUTION: ALL DOORS, PANELS, AND GUARDS ARE FITTED WITH INTERLOCKS THAT PREVENT OPERATION OF THE MACHINE WHEN OPEN. DO NOT ATTEMPT TO DEFEAT THESE INTERLOCKS. OPERATE THE MACHINE ONLY WITH ALL DOORS CLOSED AND GUARDS IN PLACE.

6—1 Lubrication

A central lubrication system is used for all bearings. Grease fittings for all bearings are located in a single bank inside the lower front corner of the left side door. Lubricate all fittings after every 500 hours operation or any time the machine will be idle for more than 48 hours. Use ALMAGARD 3751 lubricant until grease cavities are full.

Periodically (about every three months) check the oil levels in the main drive and feed screw drive gearboxes. Remove the oil fill plug and verify that the oil level is even with the bottom of the hole. Add AGMA7 oil if necessary.

6—2 Moisture-Separator Filter Bowls

The air system is equipped with two moisture separator filter bowls. Moisture will automatically drain from these bowls. If a malfunction occurs, replace the defective component. (Fig. 6—1)

6—3 Replacing Cutting Units

CAUTION: THE WATER-JET SPRAY IS INTENSE ENOUGH TO CUT THROUGH SKIN AND MUSCLE TISSUE. KEEP ALL PARTS OF YOUR BODY AWAY FROM THE JET AT ANY TIME THAT IT IS ABLE TO SPRAY. STAY CLEAR OF THE NOZZLE IF IT IS NOT AT THE BOTTOM OF ITS STROKE, EVEN IF THE MACHINE IS NOT OPERATING.

CAUTION: TURN OFF AIR AND WATER SUPPLIES BEFORE MAKING ADJUSTMENTS TO THE CAROUSEL AND WATER JET CUTTERS.

The cutting unit and positioning cylinder are combined in a single assembly designed for quick replacement. (Fig. 6—2) To remove the assembly:

A. Turn off air and water.
B. Remove station plate by removing the two screws at the inside edge.
C. Remove both black air hoses from front of the cylinder body. Press red plastic ring toward the cylinder body to release the fitting. Pull outward on fitting to remove.
D. Loosen bolts on the clamps on either side of the cylinder mounting plate.
E. Pull the cylinder outward. Rest it on the lower directional valve body.

F. Remove the clear plastic water hose from the check valve at the bottom of the cylinder. Press the metal locking tab inward toward the center to release the fitting. Pull the fitting downward to remove.

To install a new cylinder:

A. Rest the cylinder body on the lower directional valve body.
B. Align water hose with fitting. Press in until fully inserted.
C. Slide the cylinder mounting plate under the two clamps until it rests against the limit screw.
D. Tighten the clamp bolts securely.
E. Align air hoses with fittings. Press in until fully inserted.
F. Replace station plate.

6-4 Rebuilding Water-Jet Intensifier Units

The water-jet intensifier is inside the rod and piston of the air cylinder. Use the supplied toolkit to disassemble and reassemble the unit. (Fig. 6—3)

Disassembly:

A. Support the cylinder upside down (with the check valve on top) in a vise. The check valve may be left on the assembly. (Fig. 6—4)
B. Insert a wooden block between the nozzle and the bumper stop to keep the air cylinder fully retracted.
C. Remove the spiral retaining ring from cap end insert. (Fig. 6—5)
D. Pull out the cap end insert and displacement tube. (Fig. 6—6)
E. Remove the seal-retaining screw with a hex key wrench. (Fig. 6—7)
F. Screw the bushing-removal tool into the two holes in the displacement tube guide bushing. Pull the bushing out of the cavity. (Fig. 6—8)
G. Attach the seal removal tool to a clean compressed air source. Insert the tool about halfway into the hole in the center of the seal. (Fig. 6—9)
H. Use a short burst of air to blow the seal out of the cavity. The seal will travel up the tube of the tool. (Fig. 6—10)
F. Remove the seal from the tool. Be careful not to lose the seal backing ring.
G. If replacing the displacement tube, slide the tube-removal wrench over the end of the tube and remove the fitting nut. Pull the tube out of the fitting body. Leave the fitting body in the cap end insert. (Fig. 6—11)

Re-assembly of the displacement tube:

NOTE: TO PREVENT LEAKS, MAKE SURE ALL MATING SURFACES IN THE FITTING ARE FREE FROM SCRATCHES AND DIRT. WORK IN A CLEAN ENVIRONMENT.

A. Slide a new double-compression-ring ferrule onto the displacement tube. The ferrule taper must face the non-tapered end of the tube. (Fig. 6—12)
B. Insert the non-tapered end of the displacement tube into the fitting body. Make sure that the tube is fully inserted and rests firmly on the shoulder of the fitting body.

C. Slide the fitting nut over the tube. Tighten the assembly hand-tight.
D. Use the tube-removal wrench to tighten the nut an additional 3/4 turn.
E. Verify that the tube is straight and centered in the cap end insert. The base of the tube must be centered within a 0.005-inch (0.13-mm) diameter. The free end of the tube must be centered within a 0.010-inch (0.25-mm) diameter.

Re-assembly of the intensifier:

NOTE: TO PREVENT LEAKS, MAKE SURE ALL MATING SURFACES ARE FREE FROM SCRATCHES AND DIRT. WORK IN A CLEAN ENVIRONMENT.

A. Use a working tube or the seal removal tool to install the seal and guide bushing.
B. Place first the displacement tube guide bushing, then the seal backing ring, over the tube. Spread Magnalube-G Teflon lubricant on the taper of the tube. Press a new seal onto the tube, making sure that the backing-ring recess faces the backing ring. (Fig. 6—13)
D. Lubricate the outside of the seal with Magnalube-G lubricant. Insert the tube into the cylinder cavity until the seal, backing ring, and bushing snap into place. Use your fingers to hold the bushing in place while pulling out the tube.
E. Install the seal-retaining screw over the bushing. Tighten it to a 20 ft-lb torque. (Note: The cutout in the seal-retaining screw must face the bushing.)
F. If necessary, install a new O-ring on the intensifier tube support. Lubricate the O-ring with Magnalube-G lubricant.
G. Spread Magnalube-G lubricant on the tapered end of the displacement tube. Insert the displacement tube all the way into the cavity until the cap end insert snaps into place.
H. Lock the support in place with the spiral retaining ring.

Air cylinders should be rebuilt according to the cylinder manufacturer's specifications, using a rebuild kit purchased from the manufacturer.

6—5 Water-Jet Troubleshooting

Symptom	**Probable cause**
Weak stream, cylinder moves slowly	Clogged water jet orifice
Weak stream, cylinder moves rapidly	Defective check valve
Weak stream, water mist shoots out of cylinder quick exhaust	Bad displacement tube seal
Weak stream in multiple cylinders, cylinders move rapidly	Water shut-off closed or pressure low

	Faulty solenoid valve Missing solenoid control signal

6—6 Water-Jet Orifice Replacement

A. Remove retaining nut surrounding orifice.
B. Slide orifice out of adapter in the retaining nut.
C. Slide a new orifice into the adapter.
D. Reinstall retaining nut. Tighten hand tight, then turn an additional 1 flat (30°).

NOTE: DO NOT OVERTIGHTEN RETAINING NUT.

6—7 Drive Belt Tensioning

Adjust the drive belt tension any time the belt is replaced.

A. Loosen the four locking nuts on the adjustment plate. (Fig. 6—14)
B. Tighten the draw nut until the spring is compressed to 4½ inches long.
C. Retighten the locking nuts.

6—8 Adjusting Cutting Stroke Timing

After cutting, a burst of air peels the label from the bottle. This must happen close to the vacuum collector head, so that suction from the head will remove the label from the workspace. Ideally, the label should peel off at the front of the vacuum collector head opening.

Timing for the cutting stroke is preset to work well at speeds of approximately 400 to 450 BPM. If labels peel off too far from the vacuum collector head at other speeds, it might be necessary to change the timing.

Timing is controlled by the timing cam at the bottom of the carousel. The cam is held in place by four bolts, which can go in any of 96 holes in the cam. To adjust timing, the cam must be rotated to the proper position:

A. Operate the machine at the highest speed you plan to run. Observe the bottle position where labels are blown off. Mark this position on the machine. (Fig. 6—15)
B. Measure the angle between this position and the front of the vacuum collector head opening.
C. Remove one of the cutting units. (Para. 6—3)
D. Rotate the carousel until the empty cutting-unit space is in front of one of the four bolts in the cam. Remove the bolt. (Fig. 6—16)
E. Repeat with the remaining three bolts.
F. Rotate the cam through the same angle as measured in step B.
G. Select the bolt holes that will mount the cam closest to the desired position.

H. Reinstall the four bolts in the cam.
I. Reinstall the cutting unit. (Para. 6—3).

☞Fig. 2—1☜

Gripper Height Adjustment Screw

Lock Screw

☞Fig. 2—2☜

Adjustable Hand Levers

Bottle Release Cam

Gripper Rollers (Must Clear Edge of Cam)

☞Fig. 2—3☜

Bumper

Lock Screws

☞Fig. 2—4☜

Cutting Unit

Limit Screw

☞Fig. 2—5☜

Star Wheel

Torque Limiter

Gripper Roller

Release Cam

Gripper

☞Fig. 2—6☜

Feed Screw Drive

Torque Limiter

Vertical Adjustment Screws

Horizontal Adjustment Screws

☞Fig. 2—7☜

Feed Screw

Spline Coupler Housing

Mark Keyway Position

Spline Coupler Gear

Keyway

Keyway

☞Fig. 2—8☜

Vertical Adjustment Screws

Horizontal Adjustment Screws

☞Fig. 3—1☜

Operator Console

Emergency Stop (5 places)

Start/Stop (2 places)

Jog Forward (2 places)

Jog Reverse (2 places)

Warning lamps

☞Fig. 6—1☜

Moisture Separator Filter Bowls

☞Fig. 6—2☜

Station Plate

Cutting Unit

Clamps

Mounting Plate

Air Hose Fittings

Fitting Release Ring

Water Hose Fitting

Locking Tab

☞Fig. 6—3☜

Bushing-Removal Tool

Seal Removal Tool

Tube-Removal Wrench

Working Tube

Magnalube-G Teflon lubricant

☞Fig. 6—4☜

Cutting Unit

Check Valve

Wooden Block

Air Cylinder Rod Fully Retracted

☞Fig. 6—5☜

Spiral Retaining Ring

☞Fig. 6—6☜

Cap End Insert

Displacement Tube

☞Fig. 6—7☜

Seal Retaining Screw

☞Fig. 6—8☜

Bushing Removal Tool

Displacement Tube Guide Bushing

☞Fig. 6—9☜

Seal Removal Tool

☞Fig. 6—10☜

Seal Removal Tool

Seal

Seal Backing Ring

☞Fig. 6—11☜

Fitting

Tube Removal Tool

Displacement Tube

Cap End Insert

☞Fig. 6—12☜

Ferrule

Compression Ring

Displacement Tube

Tapered End

Straight End

Fitting Body

Cap End Insert

☞Fig. 6—13☜

Working Tube

Displacement Tube Guide Bushing

Seal Backing Ring

Seal

Tapered End

☞Fig. 6—14☜

Tension Adjustment

Locking nuts

☞Fig. 6—15☜

Label removal point

Vacuum inlet

Measure rotation angle

☞Fig. 6—16☜

Opening (Cutting Unit Removed)

Cam

Bolt

Mounting Holes