

WARNING!

TAPE LEG OF TAPE HEAD MUST REMAIN IN THE 2" OR "LOW" POSITION. REFER TO FIGURE 5-6 ON PAGE 13 IN THE 3M OR COMBI TAPE HEAD MANUAL.

WARNING!

DO NOT USE SILICONE BASED GREASE OR SPRAY LUBRICANTS. DOING SO WILL CAUSE THE COMPOSITE BUSHINGS TO FAIL AND **VOID YOUR WARRANTY.** ONLY PETROLEUM LUBRICANTS ARE RECOMMENDED.

NOTICE!

PUTTING OIL IN YOUR OIL LESS VACUUM PUMP WILL **VOID YOUR WARRANTY.**

WARNING!

DO NOT ALTER OR DISMANTLE MACHINE PARTS. THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS TO THE EQUIPMENT PARTS AND ANY MODIFICATIONS TO MACHINE PARTS WILL VOID THE MANUFACTURER'S WARRANTY. WARRANTY DOES NOT COVER PARTS THAT HAVE BEEN INSTALLED IMPROPERLY, ABUSED, MISUSED, NEGLECTED, ACCORDING TO PLANNED MAINTENANCE PROCEDURES, SERVICED BY NON-COMBI EMPLOYEES, USED FOR PURPOSES OTHER THAN ORIGINALLY DESIGNED FOR, AND/OR DAMAGED DUE TO USING ACCESSORIES SUPPLIED BY COMPANY OTHER THAN COMBI PACKAGING SYSTEMS LLC.

WARNING!

If applicable, wash-down units must adhere to the following precautionary measures prior to cleaning to avoid possible electrical shock or water damage to components:

- 1 Remove tapehead(s)
- 2 Cover vacuum pumps
- 3 Cover touchscreens
- 4 Cover all motors and any electrical items that may not be labeled as a 'wash-down' item

Follow your company's Lockout/Tagout procedures before performing maintenance or adjustments to the equipment. Additional Lockout/Tagout procedures are located in the safety section of this manual.

COMBI PACKAGING SYSTEMS, LLC can not be responsible for damages caused by the lack adherence to the precautionary measures listed above.

E-SERIES ERGO PLANNED MAINTENANCE SCHEDULE

<p>! WARNING</p>	<p>FOLLOW YOUR COMPANY'S LOCKOUT / TAG OUT PROCEDURE BEFORE PERFORMING MAINTENANCE OR ADJUSTMENTS TO THE EQUIPMENT. ADDITIONAL LOCKOUT/TAGOUT PROCEDURES ARE LOCATED IN THE SAFETY SECTION OF THIS MANUAL.</p>
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DAILY

1. Check vacuum level with gauge daily or every 8-production hour cycle. (Should read 5-7 with no cases and 15-25 with cases).
2. The filter unit on the Filter Regulator should be checked and drained daily or as needed. The airline pressure on the Regulator should be set at 80 psi, with a minimum air supply line of 1/2" diameter. Drain filter as necessary.
3. Check Vacuum Cups for visible wear and tear. Cups must be replaced when cracked or worn
4. Check CAREFULLY knife blades. See Tape head manual for safety and maintenance.

40 PRODUCTION HOURS

1. A replaceable filter cartridge protects the Vacuum Pump. This should be inspected every 40-production hour cycle under normal conditions. Do not run system without a cartridge. This may damage the Vacuum Pump. To replace, refer to the pump filter replacement instructions located in this section of the manual.
2. Clean the conveyor chain (if applicable) with a mild cleaning solution every 40-productio hour cycle or as needed.
3. Inspect all airlines for cracks or kinks regularly.
4. Clean off Photo Eyes and Reflectors regularly. **WARNING! DO NOT CLEAN SENSORS UNLESS MACHINE IS "E-STOPPED"**.

E-SERIES ERGO PLANNED MAINTENANCE SCHEDULE

80 PRODUCTION HOURS

1. Lube all grease fittings and wipe clean and grease shafts every 80-production hour cycle. See drawing of grease fitting and shaft locations located on page 4 and 5 in this section.
2. Complete a visual inspection of each machine every 80-production hours looking for:
 - a. Broken or damaged parts. Repair or replace immediately or at first available opportunity depending on severity. Please note that not replacing these parts may lead to failures in other areas.
 - b. Cylinder operation. Make sure cylinders are not too fast and therefore operating too hard. Adjust flow controls as necessary and/or cushion on cylinders
 - c. Loose electrical connections in wiring, safety switches, photo eyes, proximity switches and main panel.
 - d. Safety doors and guarding adequately in place. If not, then repair, replace or secure immediately.
 - e. Inspect all airlines for cracks or kinks. Replace as necessary.
3. Check mufflers on main valve bank every 80 production hours. Replace if dirty. See photo and description located in this section of the manual.

160 PRODUCTION HOURS

1. Check for loose bolts every 160-production hours, and if found, apply Loctite thread adhesive and retighten. Main areas to look at:
 - a. Magazine case follower assembly.
 - b. Carriage plate assembly.
 - c. Bottom flap folding assembly.
 - d. Case hold down plate assembly.
2. Look for signs of wear on parts every 160-production hours. Replace as necessary.

E-SERIES ERGO TROUBLE SHOOTING GUIDE

WARNING! Only authorized personnel should be permitted to carry out adjustments, repairs or maintenance procedures.

SYMPTOMS	POSSIBLE ANSWERS	TO CORRECT
System will not power up.	<p>No power to system from source.</p> <p>Power failure in system.</p>	<p>-Check input power at source receptacle, breaker, fuse, cord, and conduit.</p> <p>-Turn on main disconnect.</p> <p>-Check power source inside enclosure;</p> <p>-Blown Fuse: replace with proper rated fuse.</p> <p>-Loose wiring: tighten at terminals and fuse posts.</p>
System powers up but will not operate.	<p>Air pressure is off or inadequate.</p> <p>“E-Stop” or “Door” Safety switch is defective.</p> <p>“Start” push button is defective.</p> <p>PLC Faulted</p>	<p>-Check air at source.</p> <p>-Check that Regulator is set to proper pressure (80 – 100 psi).</p> <p>-Verify that Main Air Valve is fully open</p> <p>-Verify operation of Soft Start Valve.</p> <p>-Verify operation of switches / wiring and Safety Relay.</p> <p>-Verify operation of switch / wiring and – Input to PLC.</p> <p>-See corresponding component literature.</p>

E-SERIES ERGOMAINTEANCE, TROUBLESHOOTING, & SAFETY

SYMPTOMS	POSSIBLE ANSWERS	TO CORRECT
System powers up but then shuts down.	<p>“Slider / Vacuum Plate Home” Photo Eye / Reflector is dirty miss-aligned, or defective.</p> <p>“Case Release” Photo Eye is blocked / dirty or defective.</p>	<p>-Re-align with Slider& Vacuum Plate in the fully retracted position, keeping in mind that the Photo Eye also needs to see the reflector when the Vacuum Plate is in the 1” extended “Index Position”</p> <p>-Verify operation of sensor / wiring and Input to PLC</p> <p>-Verify that Photo Eye is not blocked and lens is clean.</p> <p>-Verify operation of sensor / wiring. And Input to PLC</p>
“Vacuum Plate” will not extend.	<p>“Case Present Photo Eye” dirty or defective (symptom will include Squaring Arm and Flap Kicker energizing without a case).</p> <p>Defective Solenoid Valve or PLC Output</p> <p>“Vacuum Plate” Air Cylinder defective.</p> <p>“Vacuum Plate Assembly” on a mechanical bind.</p>	<p>-Clean Lens</p> <p>-Verify wiring / operation of sensor and Input to PLC</p> <p>-Verify operation of Valve and for the presence of voltage from Output to Valve.</p> <p>-Verify operation of Air Cylinder.</p> <p>- Verify freedom of movement and re-align bearing assembly and lubricate.</p>
“Vacuum Plate” extends but will not retract.	<p>“Vacuum Plate Extended Magnetic Read Switch” is miss-aligned or defective.</p> <p>Defective Solenoid Valve or PLC Output</p>	<p>-Verify alignment and operation of switch / wiring and Input to PLC.</p> <p>-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.</p>

E-SERIES ERGOMAINTEANCE, TROUBLESHOOTING, & SAFETY

SYMPTOMS	POSSIBLE ANSWERS	TO CORRECT
“Vacuum Plate” extends but will not retract. Cont.	<p>“Vacuum Plate” Air Cylinder is defective.</p> <p>“Vacuum Plate Assembly” on a mechanical bind.</p>	<p>-Verify operation of Air Cylinder.</p> <p>- Verify freedom of movement and re-align bearing assembly and lubricate.</p>
Vacuum Plate extends but will not extract a case from the magazine.	<p>Leak within the Vacuum circuit.</p> <p>Vacuum Generator is operating less than capacity (20Hg Minimum).</p> <p>Vacuum Generator is not operating.</p> <p>Cases are being held too tightly in the magazine.</p> <p>Note: Should your machine be equipped with a Becker Vacuum Pump please refer to page 12 in this section</p>	<p>-Inspect vacuum cups / hoses and fittings for signs of cracks or wear, replace if needed.</p> <p>-Remove and clean vacuum filter cartridge.</p> <p>-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.</p> <p>-Loosen Magazine sides and/or decrease the amount of pressure being applied by the Upper Case Opening Device.</p>
“Vacuum Plate” continues to extend with case already on Vacuum Cups.	“Case Present” Photo Eye is miss- aligned or defective.	-Verify alignment and operation of switch / wiring and Input to PLC.
“Squaring Arm” does not extend.	<p>“Squaring Arm” Solenoid Valve or PLC Output defective.</p> <p>“Squaring Arm” Air Cylinder defective.</p>	<p>-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.</p> <p>-Verify operation of Air Cylinder.</p>

E-SERIES ERGOMAINTEANCE, TROUBLESHOOTING, & SAFETY

SYMPTOMS	POSSIBLE ANSWERS	TO CORRECT
“Minor Flap Kicker” does not extend or retract.	“Minor Flap Kicker” Solenoid Valve or PLC Output is defective.	-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.
	“Minor Flap Kicker” Air Cylinder is defective.	-Verify operation of Air Cylinder.
“Pusher Bar” cylinder does not extend.	“Pusher Bar” Solenoid Valve or PLC Output is defective.	-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.
	“Pusher Bar” Air Cylinder is defective.	-Verify operation of Air Cylinder
“Pusher Bar” cylinder does not retract.	“Pusher Bar” Solenoid Valve or PLC Output is defective.	-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.
	“Pusher Bar” Air Cylinder is defective.	-Verify operation of Air Cylinder
“Slider Cylinder” will not extend.	“Call for Case” selector switch on panel set to “off”.	-Set switch to AUTO.
	“Discharge Backup Photo Eye” is blocked / misaligned / or defective.	-Verify that Photo Eye is not blocked / the lens & reflector are clean and that the Photo Eye sees the reflector.
	“Call For Case” selector switch is defective.	-Verify operation of switch / wiring and Input to PLC.
	“Slider” Solenoid Valve or PLC Output defective.	-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.
	“Slider” Air Cylinder defective.	-Verify operation of Air Cylinder.

E-SERIES ERGOMAINTEANCE, TROUBLESHOOTING, & SAFETY

SYMPTOMS	POSSIBLE ANSWERS	TO CORRECT
<p>“Slider Extends but does not release case at the plow area</p>	<p>“Vacuum Release Position” Photo Eye is miss-aligned or defective.</p> <p>“Vacuum” Solenoid Valve or PLC Output defective.</p> <p>“Blow Off “Solenoid Valve or PLC Output defective.</p>	<p>Verify alignment and operation of switch / wiring and Input to PLC.</p> <p>-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.</p> <p>-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.</p>
<p>“Vacuum Cups” do not retract away from case once “Blow Off” is activated.</p>	<p>“Vacuum Plate Index” Solenoid Valve or PLC Output defective.</p> <p>“Vacuum Plate Index” Air Cylinder defective.</p> <p>“Vacuum Plate Assembly” on a mechanical bind.</p>	<p>-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.</p> <p>-Verify operation of Air Cylinder.</p> <p>- Verify freedom of movement and re-align bearing assembly and lubricate.</p>
<p>“Slider Cylinder” will not retract.</p>	<p>“Slider Extended Magnetic Read Switch” is miss-aligned or defective.</p> <p>“Slider” Solenoid Valve or PLC Output defective.</p> <p>“Slider” Air Cylinder is defective.</p>	<p>-Verify alignment and operation of switch / wiring and Input to PLC.</p> <p>-Verify operation of Solenoid Valve and for the presence of voltage from Output to Valve.</p> <p>-Verify operation of the Air Cylinder.</p>

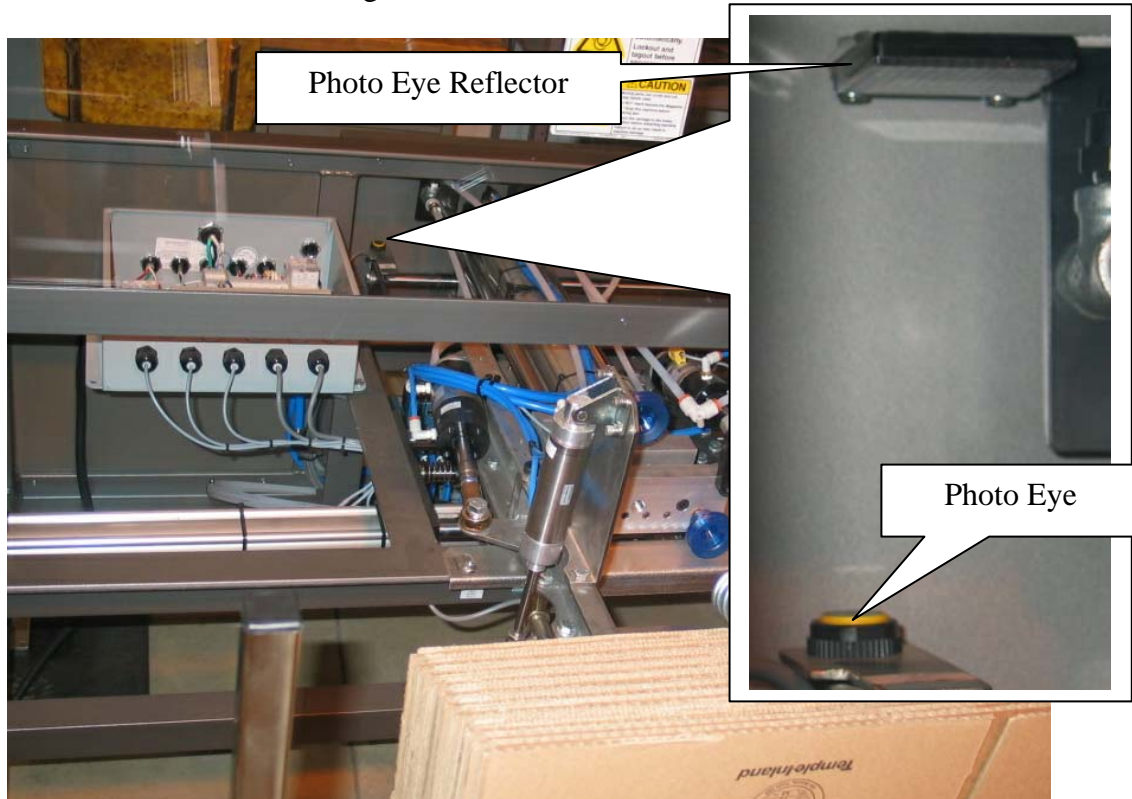
E-SERIES ERGOMAINTEANCE, TROUBLESHOOTING, & SAFETY

SYMPTOMS	POSSIBLE ANSWERS	TO CORRECT
System slows down below quoted speed after a period of time.	<p>“Mufflers” located on “Valve Bank” have become clogged and restrict air flow.</p> <p>“Compressed Air Source” not able to provide adequate flow to system</p>	<p>Remove mufflers and clean or replace.</p> <p>-Verify by watching pressure gauge at Main Air Valve looking for significant drop in pressure as machine operates.</p>
System shuts down in mid-cycle.	<p>“Slider” jam timers have timed out causing system shutdown.</p>	<p>-Observe Slider movement and increase air flow at the solenoid valve in the direction of movement where the machine is shutting down.</p>

NOTE: See the electrical schematic and operation program for additional information required for troubleshooting. Consult the factory for any electrical items needed for replacement or spare parts.

CASE ERECTOR TROUBLE SHOOTING

Problem: Slider is Jamming.



Cause: “Slider Home” photo eye not correctly lined up with reflector. As the slider/vacuum plate (with attached reflector) returns to the home position it should be read by the “Slider Home” photo eye. The cylinder is then activated to move out one inch to the 0 line. It is important that the “Slider Home” photo eye still catches the reflection (from the reflector) after the slider/ vacuum plate extends the one inch. If the cylinder is extending past the switch, the “Slider Home” photo eye may not be reading the reflector.

Solution: Remove any obstruction, clean the photo eye and reflector and reset by angling the photo eye and/or reflector to proper position where position they are aligned so photo eye catches reflection at home position and after slider extends one inch past home position.

BECKER VACUUM PLANNED MAINTENANCE AND FILTER REPLACEMENT INSTRUCTIONS

This only applies to machines with Becker Pump, as referenced on bill of material in manual.

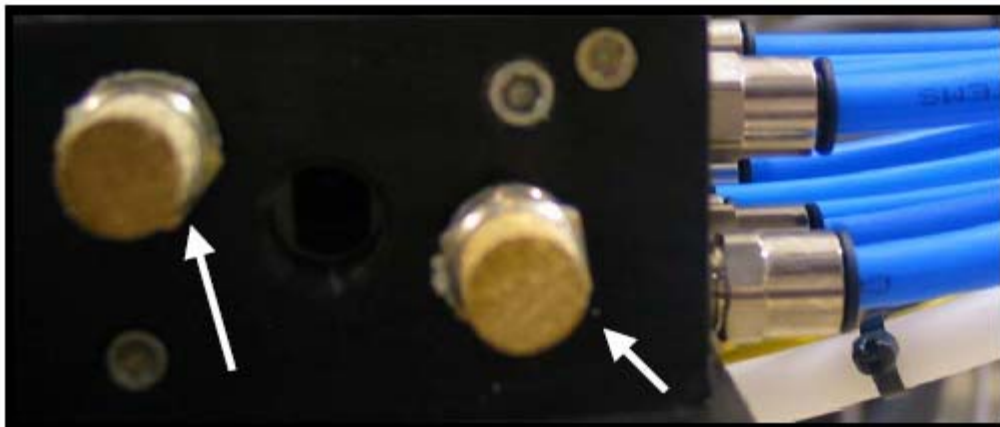
Preventative Maintenance Task: Becker Vacuum Pump Replacement Filter		
Equipment application:	All E-Series Case Erectors w / Becker Vacuum Pumps	Frequency: Monthly
Tools/materials needed:	1- 5 mm Allen key, Becker vacuum Filter (Part # PV0190004B)	Equipment/Safety requirements: Safety glasses, Gloves
Prerequisites:	Field training on Vacuum Filter Replacement, or follow visual and written instructions on Becker vacuum pump.	References: Refer to manual section 2, page 2. Reference step # 6.
Task Steps		
Problem:	Steps (What to do)	Suggestions
Becker Vacuum Pump Filter Replacement	<p>Identify the end of the pump where the filter is located, the same end as the ID & Specification tag. Opposite end as the motor.</p> <p>Remove exterior cover by removing the 2 Allen screws with the 5 mm Allen key.</p> <p>Remove the interior housing mounted below in the same manner.</p> <p>The intake filter is located on the lower left. Remove and replace with the new filter cartridge.</p> <p>Re-attach the interior housing with the 2 Allen screws that were removed.</p>	<p>Depress the E-stop, and Lockout equipment to be sure that machine is not started accidentally.</p> <p>Remember to wear safety glasses and gloves. Vacuum pump could be HOT.</p> <p>Keep the screws with the covers.</p> <p>When inserting the new filter be sure that it is correctly oriented.</p> <p>Install the new cartridge. The gasket seal must be intact.</p>

BECKER VACUUM PLANNED MAINTENANCE AND FILTER REPLACEMENT INSTRUCTIONS CONT.

<p>Continued</p>	<p>Re-attach exterior cover by aligning holes and inserting the 2 Allen screws that were removed.</p> <p>Remove lockout tag, and pull out E-stop to operate the machine.</p>	<p>With the new cartridge installed, make sure the gasket seal is intact. To avoid cross threading, the fasteners should be hand tightened.</p> <p>Check the vacuum gauge to ensure that there is proper vacuum with no leaks.</p>
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TROUBLESHOOTING

MUFFLES ON MAIN VALVE BANK



Located mufflers on main valve bank, (looks like brown cork from a distance). Check mufflers every 80 production hours. Replace if it becomes dirty. A dirty muffler can cause air to flow through at a slower rate.

COMBI PACKAGING EQUIPMENT SAFETY RECOMMENDATIONS

Equipment	Potential Hazards	Recommended Action Or Procedure
Case Erector	Injury to hands, arms and fingers. Paper cuts. Electrical shock.	<ul style="list-style-type: none"> • Never put hands in moving machinery. • Use proper procedure in clearing jams. • Watch pinch points at the counter weight for fibers. • Use caution at all times. • Equipment starts and stops automatically. • Keep hands clear of moving parts at all times. • Never “REACH” into machine when equipment is running. • Only operate equipment from front of machine (where operator panel is located). • When doing changeovers, be sure machine is “E”-Stopped and Locked-out. • If servicing electrical panel, be sure it is Locked-Out. • Never override Safety Photo Eyes and Reflectors.
Tape Sealer	Cut fingers and bruises. Note: This machine has very sharp blades!	<ul style="list-style-type: none"> • To clear jams or rethread, lift up sealer to release fiber. • Take extra caution around Taper Blades. • Never put fingers too close to sharp edges. • Keep hands clear of moving parts at all times. • Never override Safety Photo Eyes and Reflectors.

It is suggested that anyone who operates or works around packaging machinery be equipped with earplugs to prevent hearing loss. If equipment reaches decibel levels of 85 or more, it should be mandatory.



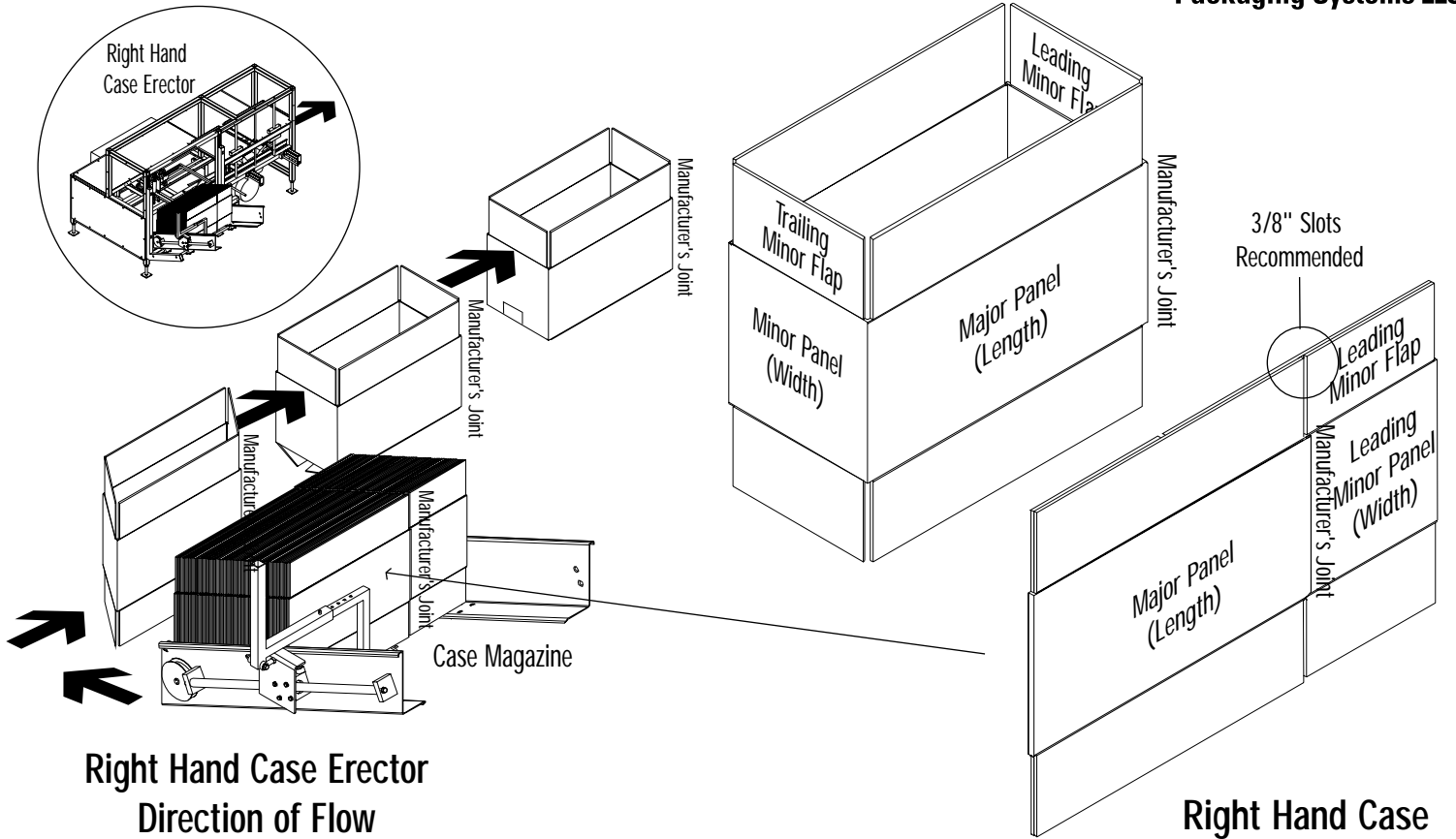
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“HELPFUL HINTS”
AND RECOMMENDED CORRUGATED
SPECIFICATIONS FOR CASE ERECTORS

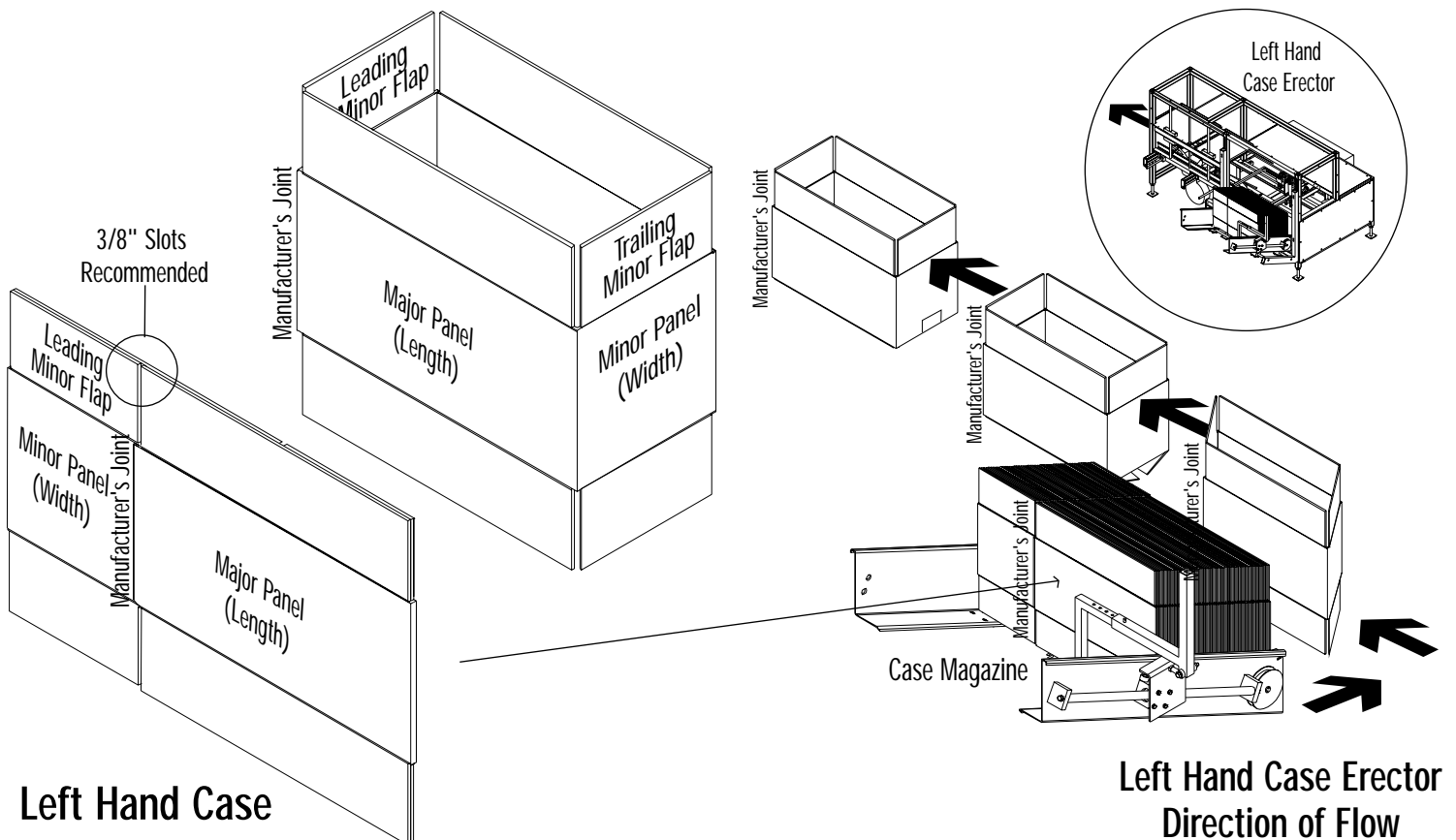
Whenever a process is automatic, some changes must be made for proper operation. Please immediately inform all of your corrugated suppliers that you will be using an automatic Case Erector and discuss these specifications with them. Also, please note on all your purchase orders that cases are for an Erector and must be manufactured to “machine” tolerances.

1. **IMPORTANT:** To determine proper case and machine orientation, refer to SIDE A. Note while facing into the case magazine, if the case travels to the right, it is a right hand erector, if it travels to the left, it is a left hand erector. Printing should be upright on the side panel (length) and the end panel (width). NOTE: Manufacturer’s Seal or Certificate is *always* on the bottom panel.
2. **GOOD SCORING A MUST:** Scoring should be male to female with female on the interior surface. Point to point or male to male scoring is acceptable for single wall corrugated if male to female is not readily available.
3. **DOUBLE WALL CASES:** Specify “Crushed Relief Scoring”. Corrugated over 200 pound test corrugate may require extra heavy score lines. Some manufacturers call this “Point to Point” or “Male to Male”.
4. **SLOT CLEARANCE:** Slots must line up especially at the manufacturer’s joint. The slots must be clean-cut and wide enough to allow closing of the minor flaps without interference from the major flaps. A mere slit or cut will not allow the machine to close the flaps. (3/8” wide slots are highly recommended.)
5. **EXCESS GLUE:** Cases with glued manufacturer’s joint must be free of excess glue and assembled square. Excess glue can prevent opening of the knockdown case.
6. **FLAP LENGTH:** The flap length is to be made shy cut or scant cut so that when major flaps are folded, there is a 1/8” space between them.
7. **WARPAGE:** –1/4” per foot is the maximum allowable warp when case is placed on flat surface. Bow is measured at center of case.
8. **STORAGE:** Store knockdown cases in clean, warm and dry location. “First In – First Out” inventory methods are recommended.



Right Hand Case Erector
Direction of Flow

Right Hand Case



Left Hand Case

Left Hand Case Erector
Direction of Flow

SEE CORRUGATED SPECIFICATIONS ON REVERSE SIDE

Lock Out / Tag Out Procedure

