



6.0 Troubleshooting

INTRODUCTION

Table 6-1 provides a logical sequence of tests that are designed to isolate problems with the Tray Box Former machines. This table includes a list of probable causes and remedies. Referring to Section 5.0 will aid in understanding the operation and functions of various components and systems of the Tray Box Former machines and help in diagnosing and repair of the machine.

SAFETY PROCEDURES

As with all machinery, injury can result if safety procedures are not adhered to. The following are some of the safety rules that should be incorporated into your plant safety program and put into practice by all of your maintenance and operating personnel:

1. Always lock out machine before doing maintenance or adjustments on equipment.
2. Never run the machine without the guards in place.
3. This machine is equipped with hot melt glue applicators, always wear protective equipment when working around hot melt units.
4. Always check machine for worn or loose parts and replace and tighten as needed before starting.
5. This machine operates on high voltage and only qualified electricians should work on electrical components.
6. Always be aware that this machine can start automatically when in the auto position and downstream control contact and/or time delay attachment is used.
7. Always wear proper clothing and protective equipment.
8. This machine should be operated by trained and qualified personnel only.

6.1 Troubleshooting Chart

See Next Page.

Tray Box Former



Table 6-1: Troubleshooting Chart

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
1. Machine stops suddenly.	A. Blanks jammed in hoppers. B. Weak spring tension on detent ball. C. Detent hole worn out in detent rod (0016000). D. Safety micro switch not holding in "Normally Open" position.	A. Clear jam and reset blank pick safety by pulling down on the blank pick pawls. B. Tighten spring plug. If this doesn't remedy the situation, add no more than one (1) 1/4 inch lock washers to the spring for additional tension. C. Replace rod. D. Bend tang welded to blank pick safety rod (0016100), toward micro switch until button is held in "Normally Open" position. CAUTION: When blank pick safety breaks turn switch to off position before resetting blank pick.
2. Blanks will not feed out of hopper.	A. Dull pick needles. B. Blanks too wide. C. Improper gate clearance. D. Warped blank. E. Pick pawls push blanks back in hopper when blank supply is low.	A. Replace needles. B. Adjust vertical guides to blank width plus 1/8 inch. If width varies check with corrugated supplier. C. Adjust hopper blades (See Figure 5-13). D. If warp is more than 1/4 inch per foot, break blank opposite of warp or replace blanks. E. Spring tension is too tight on pick pawl. With pawl in down position, remove spring tension bolt. To adjust spring tension, reinstall bolt by turning approximately 3 revolutions. This is a good starting point. Do not try to run less than 2 inches of blanks in hopper.
3. Adhesive Misprogramming.	A. Blanks too wide or too narrow. B. Blank pick cam has slipped. C. Feed roll drive chain is loose. D. Loose sprocket on feed roll shaft. E. Feed roll set screw loose. F. Idle roller not tight enough to feed roller. G. Program wheel loose on shaft. H. Print segments loose on program wheel. I. Blanks not feeding out of hoppers correctly.	A. Adjust vertical guide bars. (See Figure 5-5) B. Re-time cam. (See Figure 5-14) C. Tighten chain with chain idle take-up sprockets. D. Tighten sprocket. E. Tighten set screw. F. Adjust idle roller. (See Figure 5-15) G. Adjust and tighten set screws. H. Adjust and tighten set screws. I. Check all points of adjustment on the hoppers. (See Figure 5-12 & 5-13)



Tray Box Former

Table 6-1: Troubleshooting Chart (Continued)

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
4. Blanks will not feed straight down.	A. Vertical guide bars out of adjustment.	A. Adjust vertical guide bars. (See Figure 5-5) make sure mandrel is centered properly.
	B. Backup rollers too tight.	B. When adhesive pump backup rolls are used instead of program wheels it is possible to have one or both too tight. Readjust backup rolls until good teeth marks show on blank.
	C. Blank feed backup roller is not aligned.	C. Angle of roller may be changed by loosening the bolts holding the plates (0016400; See Figure 5-15), and rotating them until the roller lines up with feed roller.
5. Body Blanks hit box Forming Mandrel.	A. Blank pick timing too early.	A. Re-time cam (See Figure 5-14).
	B. Timing of blank feed too late.	B. Adjust blank guides on vertical guide bars as needed. If not enough to remedy problem, break blanks on score opposite of warp. In some cases special guides have to be designed.
6. Forming Mandrel hits Blank before Blank hits Bottom Stops.	A. Blank feed idle roller too loose.	A. Adjust roller (See Figure 5-15).
	B. Timing of blank feed too late.	B. Readjust blank pick cam (See Figure 5-14).
7. Minor Flaps are being torn off.	A. Blank guides positioned wrong.	A. Standard guides (0026100 R/L) should not be in area where the minor flaps fold out of vertical guide bars. reposition guides.
	B. Major flap scores are weaker than minor flap scores.	B. Add or adjust down existing top restraining finger if problem is at the top of compression. If problem is at bottom of compression, add or adjust restraining bottom stops toward rear of machine.
	C. Mandrel is not hitting center of blank.	C. Adjust blank vertical bar and adjust bottom stops. (See Figure 5-5). Check mandrel for adjustment and proper centering on transmission spreader bars.
	D. Inside flap plows not spaced correctly for caliper of blank.	D. Some very thin blanks require plows to be spaced out from top and bottom compression shoes (1/16 to 1/8 inch). Spacing added to inside of plow must be taken out from outside of plow.

Continued on the next page.

Tray Box Former



Table 6-1: Troubleshooting Chart (Continued)

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
8. Box has tear in bottom corners.	A. Restraining finger (0030902) holding too long. B. Mandrel too large for box. C. Bottom stops no adjusted correctly. D. Vertical guide bars not centered to mandrel.	A. Adjust (0030902) up on Bar 0020504 or 0020505. Bottom stops should be rotated toward front of machine. B. Check blank to mandrel fit and correct one or the other. (Check fit: remove mandrel from machine, set mandrel on blank, hand fold around mandrel; should be a smooth fit.) C. Readjust bottom stops centering scores to mandrel. D. Adjust vertical guide bars (See Figure 5-5).
9. Bottom of box has round corners.	A. Wrong mandrel size. B. Incorrect shims under mandrel guides. C. Top compression too tight. D. Side compression rolls too tight. E. Adhesive bond breaks on one corner. F. Mandrel stroke too short to push tray beyond box strippers. G. Box strippers not riding surface of teflon plates on mandrel. H. Blank scores not centered on mandrel. I. Variation in length of blank.	A. Change mandrel size or change corrugated. B. Replace with correct shims; 0021101, 0021102 or 0021103. C. Readjust (See Figure 5-8). D. Check blank thickness and readjust compression bars if necessary (See Figure 5-4). If blanks vary in thickness, set compression for thinnest blank. E. Glue too hot or too cold, check temperature. Incorrect compression, readjust per blank thickness. F. Readjust stroke (See Figure 5-9). G. Readjust box stripper (See Figure 5-10). H. Adjust bottom stops. (See Figure 5-5) I. Check with corrugator. Note: Lids 2" or shallower, teflon should be all the way to rear edge of mandrel plate: Reposition.
10. Inside flaps not even with top of box. (Continued on the next page.)	A. Corrugated material not scored and cut correctly. B. Mandrel stroke too short. C. Box stripper not touching teflon. D. Flap pushers not adjusted correctly.	A. Check with corrugator. B. Readjust stroke (See Figure 5-9) C. Readjust box stripper (See Figure 5-10). D. Jog machine so pusher cam roller is on high point of pusher cam. Measure from rear edge of mandrel to face of pusher pawl. This measurement should be the same as box depth.



Tray Box Former

Table 6-1: Troubleshooting Chart (Continued)

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
10. Inside flaps not even with top of box. (Continued)	E. Inside flaps hit on pusher pawls. F. Mandrel not centered. G. Vertical guide bars not centered. H. Misaligned bottom stops. I. Side compression not centered on mandrel. J. Top compression too loose or tight.	E. In some cases, the pawl will have to be cut on an angle so the flap will come off without catching on top of pawl. F. Readjust mandrel (See Figure 5-2) G. Readjust (See Figure 5-5). H. Readjust (See Figure 5-5). I. Readjust compression bars (See Figure 5-4). J. For too tight condition (See Figure 5-8), also for loose condition, but make sure the correct shims are under mandrel guides.
11. Mandrel does not stop at "Cycle Start" position.	A. Mandrel stop brake worn. B. Stop micro switch cam out of adjustment.	A. Machine "coasts" through the "Cycle Start" position. Adjust brake (See Figure 5-20). B. Adjust cam (See Figure 10-19).
12. Blank Pick Cam slips on shaft.	A. Cam set screw not secure. B. Blank safety con rod dry or rusty inside slide area. C. Blank safety set too tight.	A. Tighten and re-time the cam (See Figure 5-14). B. Clean and oil. C. The spring in the detent housing should be set only tight enough to insure picking a blank under normal conditions. Back off spring adjustment if necessary.
13. Tray Box falls apart after compression.	A. No glue. B. Improper clearance between program segments and pump drive gear. C. Glue too hot. D. Glue too cold. E. Improperly adjusted compression. F. Corrugated to thin.	A. Fill pot. Keep glue level over the half way point. B. Readjust to proper clearance (See Figure 5-16). C. Stringy look. Turn temperature down. D. Glue bead not spreading out in compression. Raise temperature. E. Readjust (See Figure 5-4). F. Check with corrugated supplier or readjust compression.

Continued on the next page.

Tray Box Former



Table 6-1: Troubleshooting Chart (Continued)

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
14. Adhesive will not feed. (Continued on the next page.)	A. No adhesive in pot.	A. Fill pot at least to half way mark.
	B. Improper clearance between program segments and pump drive gear.	B. Readjust to proper clearance (See Figure 5-16).
	C. Worn or broken teeth on drive gear.	C. Replace gear.
	D. Plugged applicator jet (0024500).	D. Use a paper clip or piano wire to clean the jets. (NOTE: The orifice diameter is 0.040). WARNING: Glue pumps and pots are extremely hot, use safety goggles, heat resistant gloves and protective clothing and take your time when performing any adjustments relating to the glue system.
	E. Volume control needle valve not adjusted correctly.	E. Using 1/16 inch allen wrench, adjust needle valve (clockwise) for more adhesive, and out (counter-clockwise) for less adhesive. Adhesive bead size should be approximately 3/32" wide. (Except on some wax boards which may need full flow.)
	F. Heating element burned out.	F. Replace element.
	G. Thermostat out of calibration.	G. Re-calibrate. Make sure glue is up to operating temperature before calibrating thermostat. (Give about 1/2 hour warm up time.) Using a surface probe pyrometer measure the temperature just above one of the glue jets (0024500). Remove thermostat knob. Using a small screwdriver, turn the screw inside knob shaft until light goes on. Then turn in opposite direction until the light goes off. Set both thermostats and recheck in an hour.
	H. Adhesive burned around drive wheel shaft. Pump wheel hard to turn.	H. Drain adhesive. Remove and cap from pump. Remove drive wheel from pump. Push out gear from pump housing being careful not to damage gear. Using #120 grit emery cloth polish gear shaft to bare metal. Using a "V" drill by hand, run through the shaft hole to remove burned adhesive. Lubricate with "Never Seize" or similar lubricant and reinstall. Make sure drive wheel set screw is in counter-bored hole in drive gear shaft, and is tight.



Tray Box Former

Table 6-1: Troubleshooting Chart (Continued)

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
14. Adhesive will not feed. (Continued)	I. Air in adhesive.	I. Skippy adhesive pattern or no adhesive on leading edge of body blank, also drooling from nozzles. Moisture in adhesive, air in adhesive or temperature too hot. Take special care not to get water in the pots when washing down machine. Change glue manufacturer if air is found. The PMS adhesive system is gravity fed gear drive and will not run adhesive containing air.
	J. Debris in adhesive system or burned adhesive.	J. Clean glue system in accordance with maintenance (Section F).
15. Thermostat light on, but melt pot fails to heat glue to operating temperature.	A. Loose wires.	A. Check for loose terminal connections or broken wires.
	B. Defective thermostat.	B. Replace.
	C. Defective heating element.	C. Check element with an ohmmeter or an open circuit. If defective, replace. Warm melt pot assembly to about 250 F. Loosen the two bolts holding the pump assembly to the melt pot. Remove the thermostat cover (0016602). Disconnect wires from heater element and pull it out, (0020300). Slide new heater in. Check voltage and wattage requirements on new heaters.
16. Adhesive constantly running from nozzles.	A. Air in system.	A. See Trouble Shooting Guide (Glue System). NO. 14-I.
	B. Foreign matter under ball check valve.	B. Follow cleaning instruction in maintenance Section F. If this fails, pump will have to be removed and disassembled. Pump body may be cleaned with a torch or oven. All charred adhesive must be burned off body. Reinstall ball check valve using a piece of 1/4" round steel approximately 6 inches long, lightly tap on ball. Reassemble. (Always use new check ball and spring.)
	C. Jelly in pot.	C. Adhesive has been heated too long for life span of glue. Mixing glue types cause this condition. Clean adhesive system.

Tray Box Former



THIS PAGE IS BLANK