

BF 400VK / 600VK

Kwik Change Bliss-Matic[®]

Operation, Maintenance, and Parts Manual



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**Thank you for choosing packaging equipment
from SWF Companies.**



The equipment you purchased will provide years of productive service, producing a high return on your investment. Your equipment was thoroughly tested for proper operation prior to shipment.

Before unpacking and installing your new equipment, please read this manual. It is your guide to safe installation, productive operation, and effective maintenance. We recommend you keep this manual available for future reference.

Be aware that our commitment to you does not end with your purchase. That is just the beginning. The safe and efficient operation of your SWF equipment is very important to us as a machine manufacturer.

Training and parts distribution are an integral part of our business. SWF service technicians spend months training in-plant, prior to servicing our worldwide installations. Their expertise on our equipment is as close as your telephone. Given sufficient notice, service technicians are available for dispatch to your installation. We also maintain an extensive inventory of spare parts. We typically can have the parts you need in your plant the next working day.

The entire family of SWF Companies, a Dover Diversified Company is committed to the success of your operation and thank you again. Feel free to call us anytime.

SWF Companies is committed to providing product manuals that meet the needs of its valued customers. We invite you to offer suggestions for continued improvement of this manual.

To contact SWF Companies, Inc. Parts and Service Local.....(559) 638-8484 Toll-Free.....(800) 344-8951 Fax.....(559) 638-7478	Published by: SWF Companies, Inc. 1949 E Manning Ave Reedley, CA 93654 April 2003
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Introduction

This manual is divided into the following major sections: Introduction, Safety, Sequence of Events, Controls, Operating Procedures, Maintenance, and Troubleshooting.

Manual Layout

The following manual layout complies with PMMI recommendations regarding packaging machinery documentation.

Introduction

The Introduction details the arrangement of this manual, as well as preliminary information regarding the intended audience of this manual.

Safety

The safety portion must be read by every person working on or near this equipment. The information contained within the safety section should also be periodically reviewed by supervisors, operators, and maintenance personnel.

Information included within the safety section covers all safety devices installed on the machine, general warnings and recommendations regarding operating procedures.

Sequence of Events

This section describes the sequence of events the machine follows to create the machine cycle's end product. The end product of each model varies and may be an erected case, tray, or bliss box, or may be a fully erected, loaded, and sealed case.

Controls

The controls for each model vary, but some basic controls remain the same for all packaging equipment produced by SWF Companies.

Operating Procedures

Standard operating procedures include start up after a shutdown, start up after a jam, shut down, clearing jams, and shutdown for maintenance. Each procedure varies slightly and must be followed for maximum machine performance.

Maintenance

Our maintenance procedures are broken down by component as well as by weekly, monthly, and yearly procedures. Follow all SWF maintenance procedures as well as OEM manufacturer procedures listed on the manufacturer's documentation received with your machine.

Troubleshooting

The troubleshooting guidelines list some basic problems that might occur with your machine and how to detect and correct the problem.

Intended Audience

This manual is intended for use by supervisors and operations with basic English reading skills and basic mechanical skills. Some parts and functions referred to in this manual require basic knowledge of the packaging industry and packaging terminology.

Safety

Machinery can be hazardous if safety precautions are not followed. This section deals with safety rules and practices that **MUST** be followed for safe operation of the machinery and to prevent accidents from occurring. All operators and maintenance personnel working on or near SWF Companies' machinery should be fully informed and correctly supervised concerning safe and correct machine operation.

All equipment manufactured by SWF Companies is safety tested before shipping from the plant. Records of machine safety tests are filed at the plant. Safety equipment on SWF machines is also tested in the customer's plant when a SWF Service Representative assists in starting up newly installed machinery.

Be sure all supervisors read and fully understand the contents of the operation portion of this manual, with particular attention to safety precautions. Verify anyone working on or around the machine has read and fully understands the safety precautions noted throughout this manual.

- The responsibility for safe machine operation is shared among the employer, supervisor, operator, attendant, and all maintenance personnel working with the machine. Read the instructions. Re-read them periodically.
- Continually evaluate accident prevention procedures. This means ALL potential hazards must be identified, and eliminated or safeguarded. Along with creating safe conditions, all employees should follow safe practices.
- If any questions ever arise regarding the safe operation or maintenance of this machine, immediately contact:


SWF Companies
 1949 E. Manning Ave
 P.O. Box 548
 Reedley, CA 93654-0548


Phone: 559-638-8484
 Fax: 559-638-7478



Equipment Safety

SWF machinery uses many safety devices designed to prevent injury to personnel who come in contact with the machine. All safety switches and devices should be checked daily to ensure that they operate properly. Any removal or alteration of these devices can result in serious injury.

Device	Description
	<p>Guarding includes sheet metal fixed guards or transparent polycarbonate plastic. Hinged or sliding guard doors are installed in areas requiring easy access.</p> <p>Doors with safety interlocks automatically stop the machine by disconnecting the electrical power and dropping air from the machine when the door opens.</p> <p>The electrical power and air pressure remain off until all guard doors are closed and the start-up sequence is followed.</p>
	<p>EMERGENCY STOP CONTROL or “E-STOP” is a lighted push/pull button installed on each operator control panel. The pulled-out (on) position allows for operation. The pushed-in (off) position of any e-stop button causes a complete machine shut-down by shutting off power and air to the machine.</p> <p>The dump valve releases air pressure, causing the air pressure switch to open and shut off the master control relay. The machine remains shut down until all emergency stop buttons are reset and the start-up sequence is performed.</p> <p>WARNING: Do not use the e-stops to prevent inadvertent starting of the machine. Always perform power and air lock out procedures on the main disconnect or designated auxiliary disconnect before reaching into the machine.</p>

Device	Description
	<p>The DISCONNECT SWITCH or CIRCUIT BREAKER mounts on the main electrical cabinet and shuts off electrical power to the machine. There may be additional remote disconnect switches mounted elsewhere on the machine.</p> <p>To open the electrical cabinet door, first move the disconnect switch to the off position.</p> <p>WARNING: Always use the lockout feature of the disconnect switch to ensure the electrical power remains off during any maintenance or repair work.</p> <p>Not all disconnect switches shut off all power. Some switches only shut-off power to a particular area or to certain components. Never assume any single disconnect switch shuts -off ALL power to the machine. Refer to the electrical schematics for specific information.</p>

Precautions and Warnings

Injury or loss of limbs may result if this machine is improperly operated or maintained. Please note the following precautions:

- ⓧ Never adjust, repair, clean, or clear a jam without turning the power off. To shut down the power, turn the disconnect switch to the off position and lock it in the off position.
- ⓧ Do not operate this machine without the guards in place.
- ⓧ Turn off the power before removing or opening any guards. Turning off the power means locking the power disconnect switch in the off position.
- ⓧ Hot surfaces! Severe burns result from the improper handling of the hot melt glue system. Wear proper clothing and high temperature gloves when cleaning or repairing the hot melt glue system.
- ⓧ Replace all broken or worn parts immediately. Check and tighten all bolts and screws.
- ⓧ High voltage electrical equipment – authorized personnel only.
- ⓧ Turn off the power when the machine is not in use.
- ⓧ This machine starts automatically in the ‘auto’ position when the downstream control contact and/or time delay attachment is used.
- ⓧ Always wear proper clothing during operation of heavy-duty machinery.

SWF Machinery endeavors to comply with OSHA standards. You, however, are the most important part of safe equipment operation. In order to provide for your safety, you should be knowledgeable and put into practice the following:

- ↶ Always know the purpose of the control buttons and selector switches before operating any equipment.
- ↶ Always test the emergency stop and a normal cycle stop buttons before operating this machine.
- ↶ Be familiar with the power off or disconnect procedure. This procedure includes turning off the power and locking the power disconnect switch in the off position.
- ↶ Always be aware of all moving parts and of the danger in putting hands or limbs in or around these areas.

⚠ Note the high operating temperatures required in operating the glue system. Always wear gloves, goggles, and protective clothing when servicing the glue systems.

Lockout Information

Never attempt to adjust, repair, clean, or remove cases in a jam condition without stopping, powering down, and locking the machine out.

Main Power Panel

To lock out the power:

1. Push the red emergency stop button.
2. Rotate the disconnect switch to the “Off-Lock” position.
3. Under the disconnect switch, locate and push up the lock slide.
4. Insert a lock into the exposed squared area.
5. Test all buttons and try moving the switch to make sure power cannot be applied.

Power Disconnect Switch

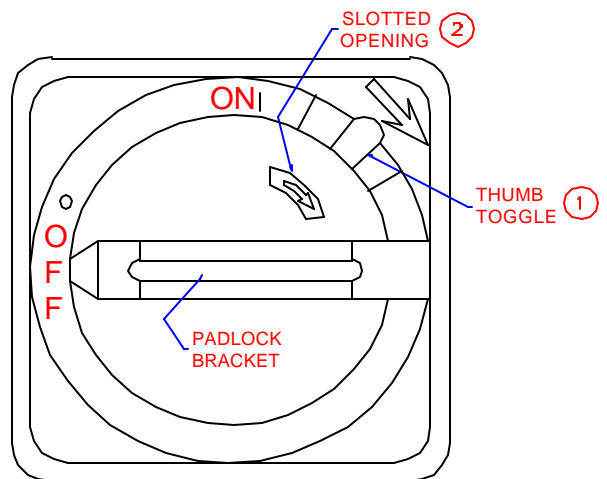
This switch must be in the ON position to operate the machine. Turn OFF when washing the machine or when making repairs or adjustments other than changeovers.

To open the control panel:

1. Twist the disconnect switch to the OFF position
2. Push down on the thumb switch (see figure 4, item 1) and slide the outer ring down
3. Pull open the door.

The power disconnect switch may be locked in the OFF position. To lockout the power, pull the black plastic bracket out from the handle and hook a padlock into the opening (in the off position only).

This prevents the power from being restored to the machine. For further instructions, refer to the documentation for the power lockout switch.



- ① OPENS DOOR WHILE DISCONNECT SWITCH IS IN THE OFF POSITION:
1) PUSH DOWN ON THUMB SWITCH
2) OPEN DOOR

Installation

The following are the typical machine installation steps.

Uncrating

Remove the machine from its crate. Check the packing list to verify all loose parts and attachments have been included. Tighten any screws, bolts, or fasteners loosened during shipment. Note any discrepancies on the carrier's Bill of Lading.

Placement

Loosen the front wheel brake screws and push the machine to the designated operating station. Once the machine is properly positioned, tighten all brake screws to secure the machine.

Electrical

Check the plant electrical system to verify the voltage and phase agree with the order specifications. Consult the wiring diagram to determine proper connections to the machine terminals. When starting the machine, check for proper rotation. If the machine rotation is incorrect, reverse the terminal connections of any two of the three power lines on a three phase system.

The electrical control box on the machine contains various circuits and provides for an enclosure of the primary disconnect. Secure this enclosure before starting up the machine.

The machine has been test run and approved at SWF Machinery. Supply the proper voltage and rotation of the main drive motor. Follow the operating procedures and safety recommendations listed in this manual.

Guards

Machine guards installed at the factory protect the operator from contact with drive units, nip points, and electrical circuitry. Front and rear guards have safety interlocks.

All guards for the lower transmission assembly and form plunge feed post must be securely in place before operating the machine. All guarding must **always** be in place while the machine is operating. Extreme caution should be taken while making adjustments or size changes with the guards off.

Sequence of Events

The sequence of operations lists all steps involved in the operational cycle of your machine. If you have not read the operating instructions, please read them before continuing.

Specifications

The following are some standard specifications for your machine.

Standard Container Sizes

	SWF 1D5AK (BF 400VK)		SWF 1D6AK (BF 600VK)	
	Max	Min	Max	Min
Length	32 1/2	9 1/4	44 1/2	9 1/4
Width	18	9	18	9
Depth	16	4	16	4

For sizes outside the limits, contact SWF Sales and Service department.

Machine Speed

12-35 boxes per minute for a standard 60-Hertz machine.

Speed range may be restricted by the size of box to be formed.

50-Hertz machine speeds operate at slower speeds.

Consult SWF Machinery for speeds required other than those listed above.

Machine Specifications

Operating weight	2600 pounds
Crated weight	2800 pounds
<u>Space required</u>	
Length (1D5AK and 1D6AK)	58"
Width (1D5AK)	125"
Width (1D6AK)	137"
Height	103" (Depends upon blank specifications.)

Electrical requirements

Standard:	230 Volt A.C	3 Phase	60 Hertz
Optional:	230 Volt A.C	1 Phase	60 Hertz
	208 / 480 / 600 Volt AC	3 Phase	60 Hertz
	380 / 415 Volt AC	3 Phase	50 Hertz (speeds will be slower)
Motors	1 hp	Enclosed, fan cooled	
	3/4 hp (optional)	Depends upon setup	
Main Power Cabinet			

Main Power Cabinet

NEMA 12 enclosure. Main power disconnect and fusing.

120 Volt AC control circuit.

SWF Glue System

Operating temperature 325° - 375° F.

SWF Companies

Capacity - 14 pounds per hour total.

Heaters - 5/8" Dia. cartridge - 230VAC, 1 phase

(Length and wattage dependent upon blank formed.)

(Check option parts list)

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General Machine Description

The SWF BF 400VK (1D5AK) and the BF 600VK (1D6AK) machines are similar in appearance and function. The BF 600VK (1D6AK) has a larger frame to accommodate larger boxes.

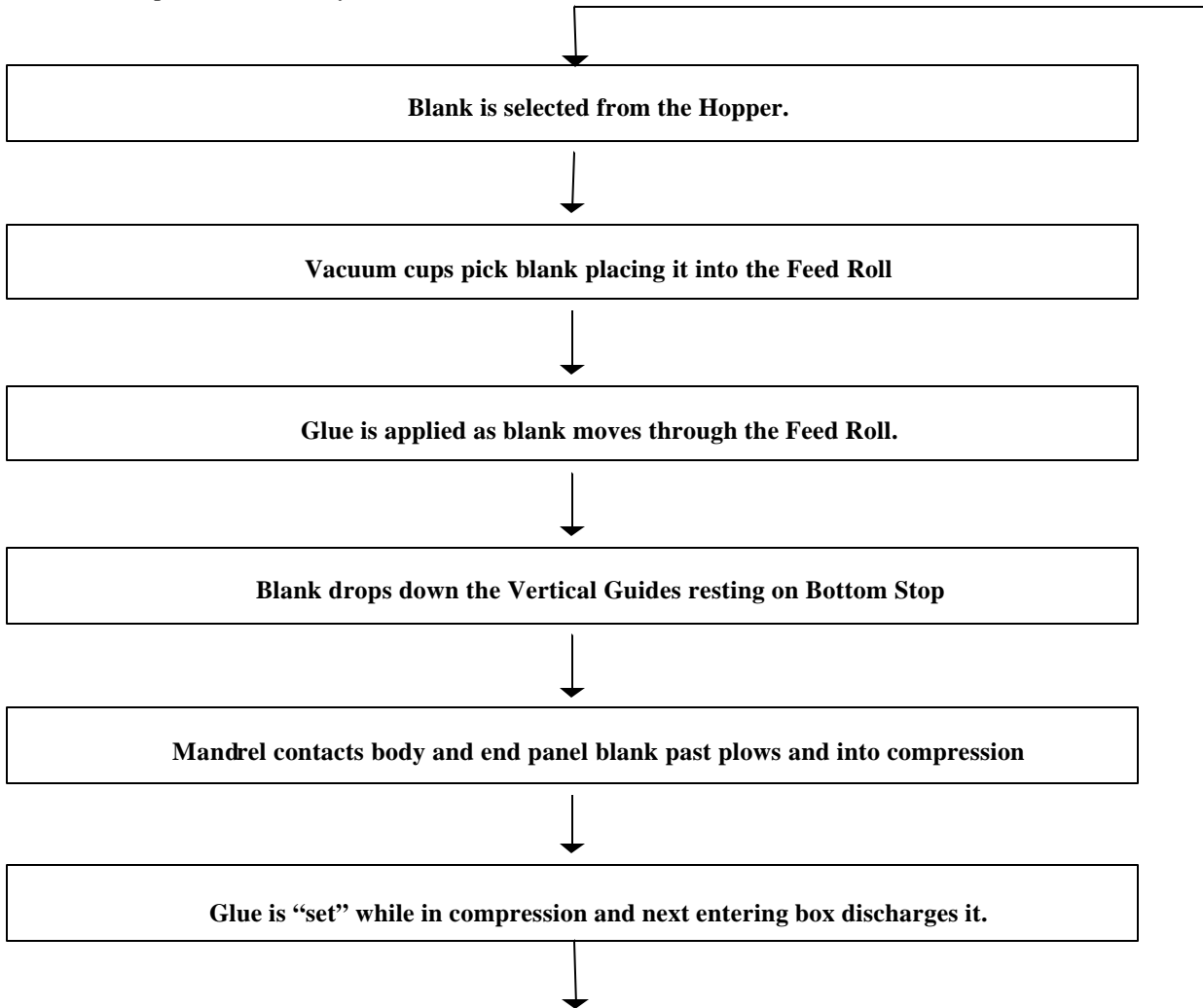
Machine Operation

The operator loads corrugated body blanks on the hopper arms and loads end panels onto the slanted end panel hopper guides on opposite sides of the forming mandrel. Once in operating mode, vacuum cups move horizontally into the vertical blank resting between the vertical guides. The vacuum cups select the blank, return and place the blank into a feed roll. The feed roll moves the blank downward.

As the case blank passes between the glue pump serrated wheel and the backup roller, the glue pump activates. A programmed glue bead is released onto the case blank.

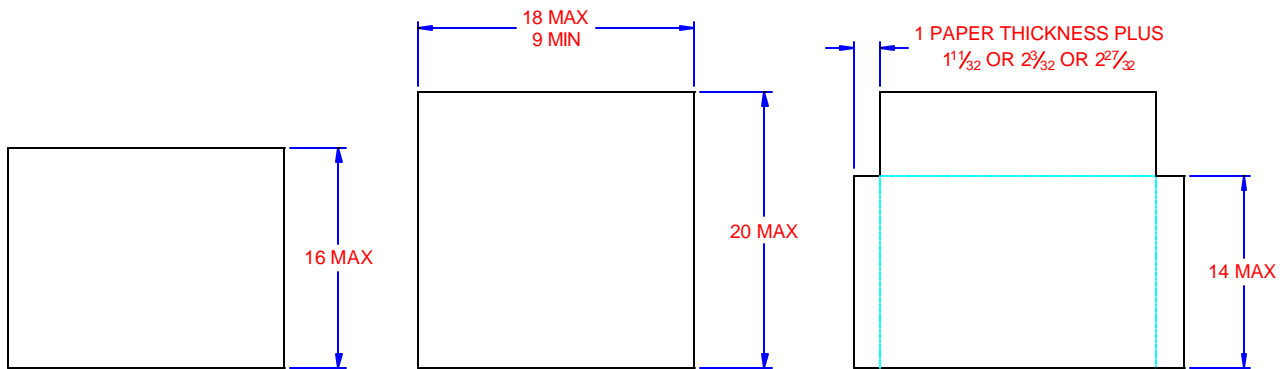
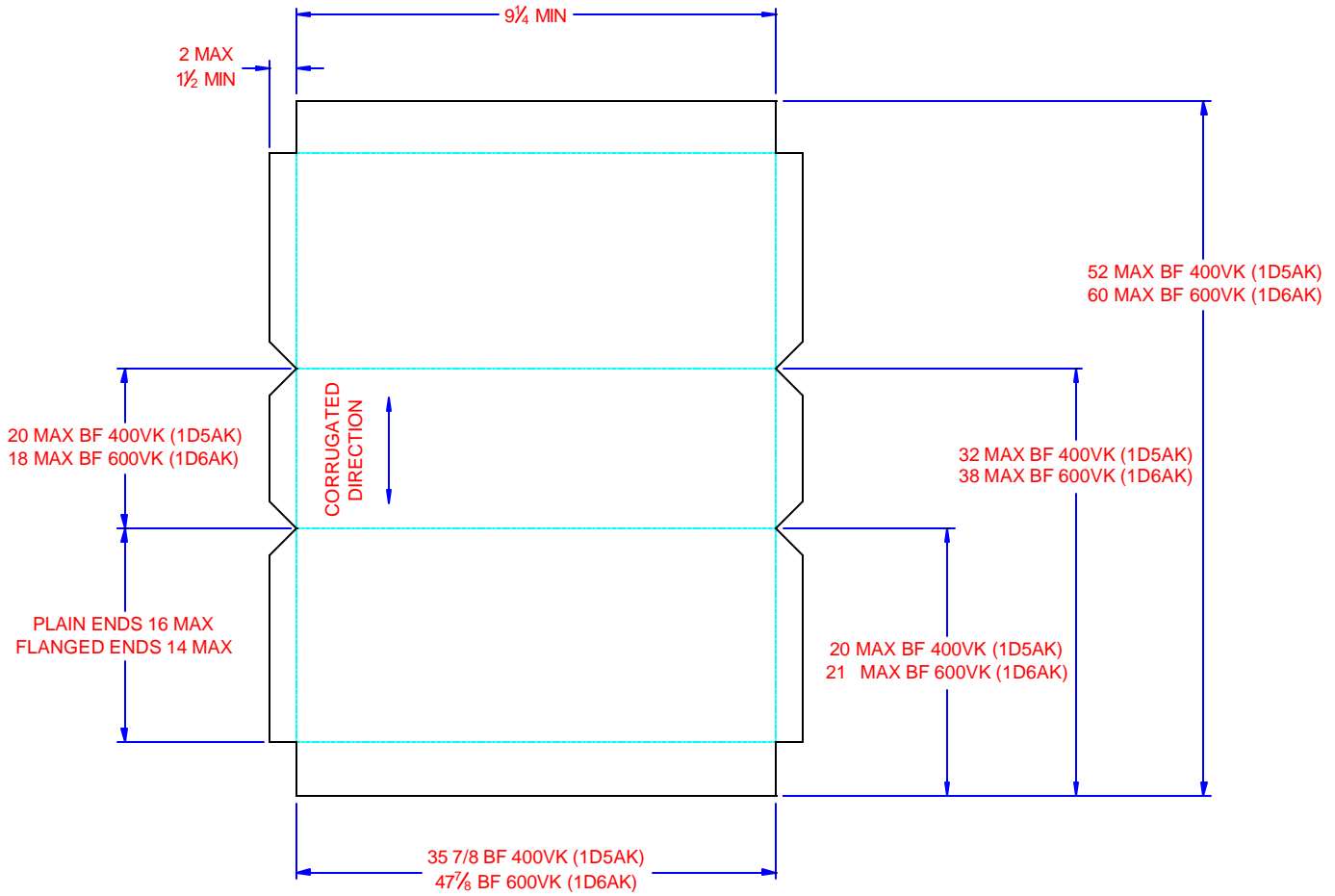
The case blank continues its vertical movement to rest on the bottom stop. The mandrel, moving forward on guide rails, passes and picks up the end panels. The mandrel contacts the base of the Bliss bank and places the end panels at the end of the box. The mandrel moves the case blank past forming shoes and into the compression station.

The compression plate closes on the formed blank, sealing the Bliss ends to the case blank. The formed box remains in the compression station until the forming cycle repeats for the next box. The formed box is pushed from the compression station by the next box.



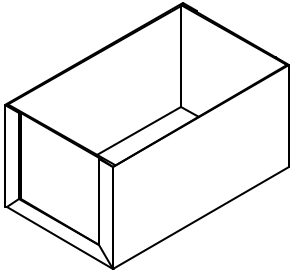
Blank Limitations: 1D5AK / 1D6AK

Note: Contact SWF for assistance on sizes not conforming to the dimensions listed below. SWF requests that you contact our Sales/Service department before ordering new size blanks.

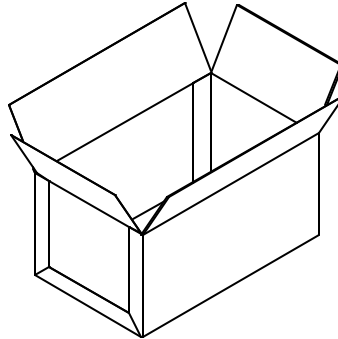


Examples of Box Styles

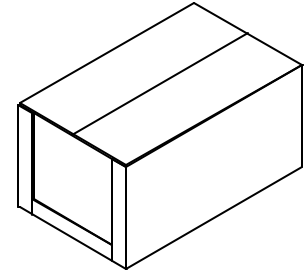
The following box styles may be formed on the BF 400VK (1D5AK) and BF 600VK (1D6AK) Blissmatics. Before ordering corrugated blanks to form your carton, check with the SWF Sales and Service Department for machine compatibility.



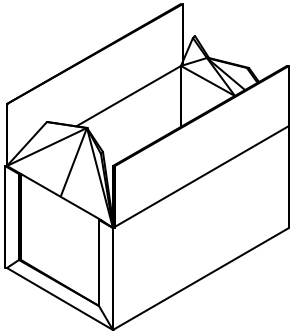
Bliss Tray



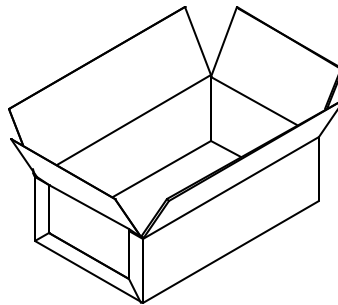
Bliss with Internal Flange



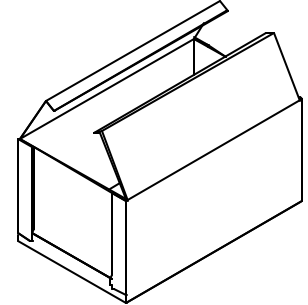
Rotary Run Bliss



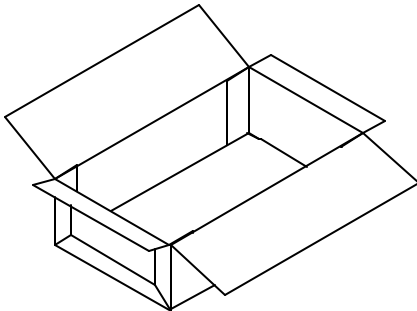
Bellow Top Bliss



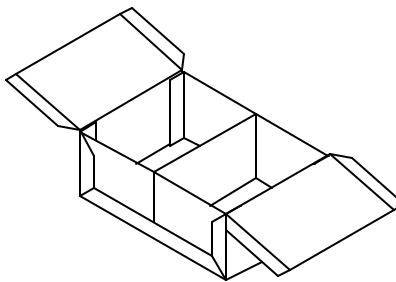
**Bliss with or without
Minor Flap**



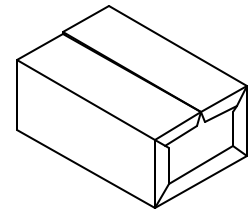
Solid Fiber Bliss



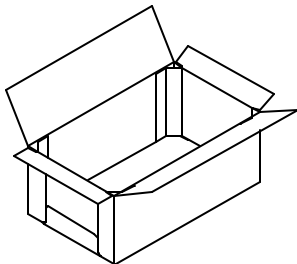
Bliss with Internal Flange



**H-Divider with Internal
Flange**

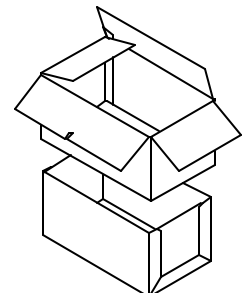


Side Flaps Seal



**Diagonal Corner
Bliss**

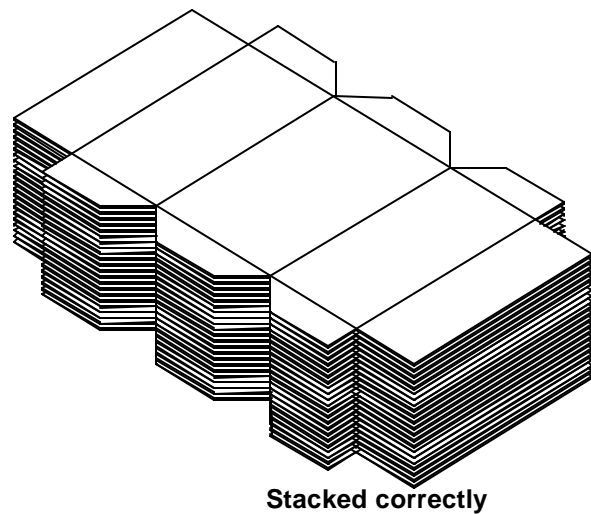
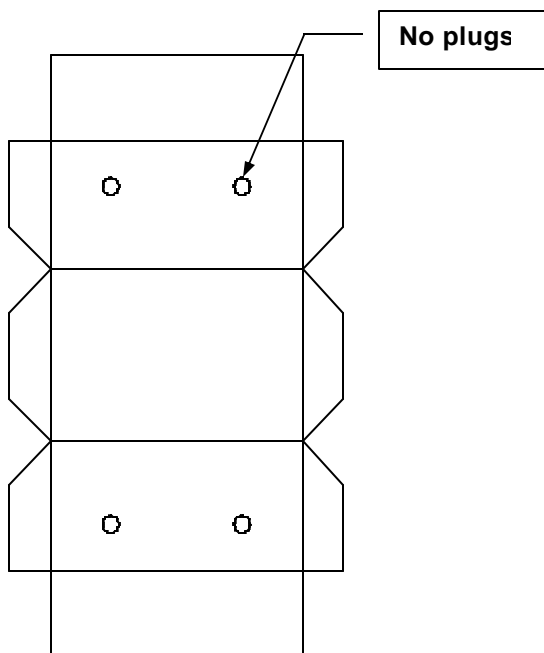
**Bliss with HSC
Cover**



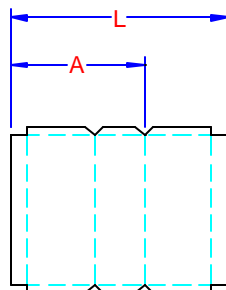
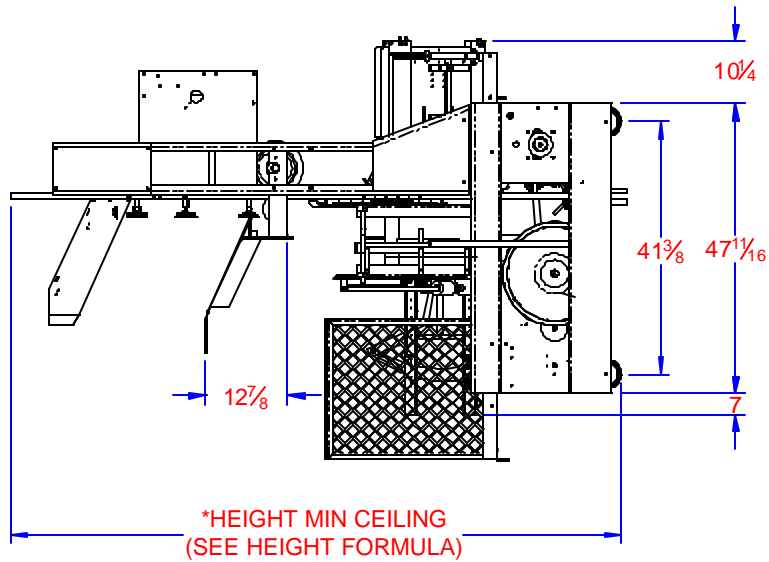
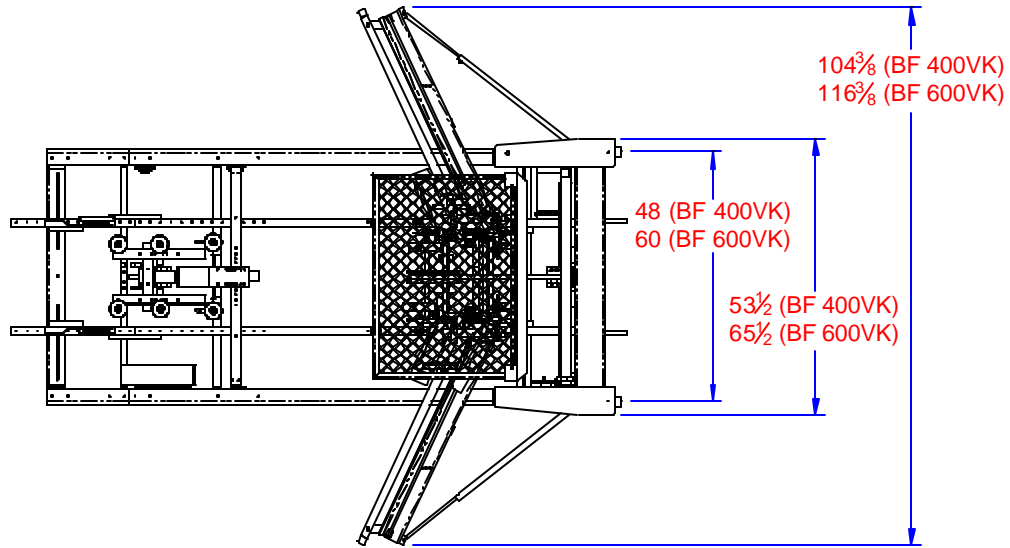
Bliss Corrugated Blanks

Damaged, warped, or blanks not following agreed upon specifications may not form or provide the stacking strength for which they were designed. To provide a satisfactory box, please check the following:

- Do the blank measurements agree with the original machine set-up specifications?
- Are the slots and vent holes clean and clear of chaff?
- Have the blanks been damaged in shipping or handling?
- Is the pallet the correct size to hold the material?
- Will the corrugate be stored in an area that is not subject to extreme temperatures?
- Will the storage location minimize exposure to dampness or humidity?
- Will the blanks be palletized in an interlocking pattern?



Dimensions



*HEIGHT = A+L+39"
HEIGHT FORMULA IS
NOMINAL. CHECK WITH
ENGINEERING FOR THE
EXACT DIMENSION

Controls

The following section details the most common control panel buttons used on your machine.



Emergency Stop

Press the emergency stop button to immediately stop the machine. The emergency stop button drops power and air from the machine.

Pull out on the emergency stop button to restore power to the machine. This does NOT start the machine.

Jog / Run

Place the machine in 'run' mode for normal operation and in 'jog' mode before jogging the machine. A machine in jog mode runs at a fraction of operating speed.

To jog the machine, position this switch in 'jog' mode. Use the FOR/REV switch to jog the machine in the forward or reverse directions.

Start

To start the machine, press and hold down the start button until the machine begins operation.

Hand / Off / Auto

Use 'hand' when running this machine as a stand-alone machine or as part of a line and no other machine controls its operation. Place this switch in 'auto' mode when a downstream or upstream machine controls the speed or operation of this machine.

Vacuum Off / On

Turn the vacuum system on before beginning operation. When the vacuum system is off, the vacuum cups cannot pick case blanks from the hopper.

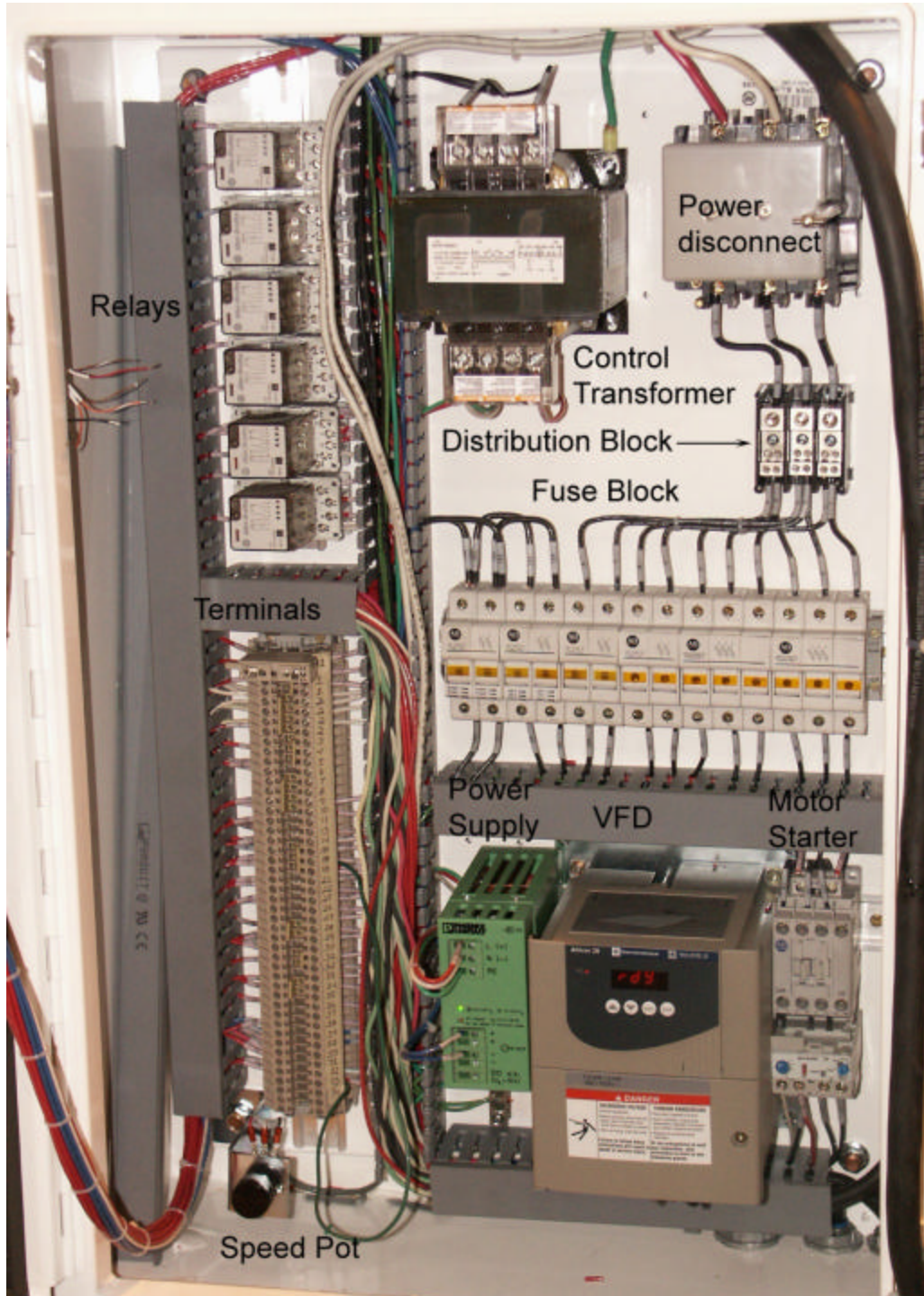
Forward / Off / Reverse

To jog the machine, place the machine in 'jog' mode. Using this spring-operated rotate and hold the swing in the forward or reverse direction to jog the machine.

This switch is only used to jog the machine. Under normal operating conditions, this switch returns to the center position.

Electrical Panel

This picture shows the configuration of the standard electrical panel. The addition of options may change the layout of this panel.

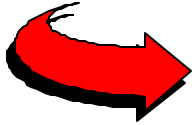


Operating Procedures

The following operating procedures include the startup and shutdown instructions, changeover guidelines, and a list of consumable usage to monitor the machine for.

Startup

Regular **lubrication and maintenance** is **critical** to machine performance and safe operation. Lubrication and maintenance procedures are recommended on a daily, weekly, and periodic basis. Before beginning production, verify the lubrication and maintenance procedures have been performed.



Before beginning operation, review the checklists for daily, weekly, and periodic lubrication and maintenance requirements. Perform all recommended procedures.

STEP “A” CHECKING THE MATERIAL

1. Check the blanks to be formed.
2. Blank material must be held to within 1/16” tolerance of the original specifications.
3. Do not attempt to run warped or worn material.
4. Blanks must not be exposed to adverse weather. (Humidity, rain, heat, fog etc.)

STEP “B” CHECKING ALIGNMENT:

1. Place a blank between the vertical guides (trees) and crank to the correct width.
2. With that same blank, set the vertical body hopper adjustment.
3. Rest a blank on the bottom stops and crank up or down to align the blank with the mandrel.
4. Set the vertical compression adjustment.
5. Fill the adhesive melt pots with glue. Cover the refill container immediately.
6. Set the melt pot temperature, both sides, to operating temperature.
7. The glue pots reach operating temperature in approximately 30 minutes.

WARNING: When performing service on the glue system, wear safety goggles, heat-resistant gloves and protective clothing to prevent injury and burns from hot material and hot parts.

STEP “C” LOADING THE HOPPERS:

1. Have the corrugated stack within easy reach for re-loading.
2. Grasp a handful of corrugated body blanks and place them on the hopper loading ramp.
3. Slide the blanks forward to align the hopper blades with the blank cutouts.
4. Gently slide the blanks down the loading ramp to a position where the lead blank is against the upper support knife.
5. Completely fill the hopper.
6. Do not press the blanks in the hoppers by hitting blanks with the hand.

STEP “D” APPLYING POWER

1. Turn the Dis connect lever on the main power panel to the “on” position. Note: This lever is the main source of disconnecting power to the formers when maintenance is required or jam-ups occur.
2. Set the melt pot thermostats to 325° - 375° Fahrenheit.

3. The adhesive manufacturer specifies the optimum operating temperature.
4. When the thermostat lights extinguish, the adhesive system is operational.
5. If necessary, purge the adhesive system of trapped air by manually turning each glue pump drive wheel with a scraper until the glue flow is even and does not contain air bubbles.

Reminder

Frequently check the melt pots to maintain the correct glue level. Never allow the adhesive level to drop below the halfway point on the melt pots.

6. Pull the RED knob out to the “START” position. Turn the vacuum switch “ON.”
7. Place the “JOG/RUN” selector to the “JOG” position and the “HAND/OFF/AUTO” to the “HAND” position.
8. BUMP the “START” button to set the internal relays.
9. Hold the spring-loaded FOR/REV switch to the FOR position to jog. Allow the machine to produce two or three trays. Verify all set-up procedures have been correctly performed.
10. While the former is in operation, check the adhesive stripes on the blank for proper length, location, and width. If necessary, adjust the blank feeding, compression, or glue flow or reprogram the adhesive segments.

STEP “E” PRODUCTION:

1. When starting the main production run, start the machine by setting the **Variable Frequency Drive**, lower left Power Panel, to the **slowest speed possible**. If equipped with a **Vari-speed control knob** (right front frame), set to the lowest speed.
2. During operation, check the formed cartons for correct glue stripe and bead length. The bond must tear the corrugated fabric when pulling the glued flaps from the case body.
3. When you are satisfied the cartons are bonded and formed to your complete satisfaction, turn the **Vari-Frequency potentiometer** or **Vari-speed control knob** to the desired production speed.

“IF” A JAM UP OCCURS DURING OPERATION

- a) Push the e-stop button and lockout the power disconnect lever.
 - b) Take your time to observe the most probable cause.
 - c) Is blank travel obstructed? Check for cause of problem.
 - d) Are the vertical guide settings correct (Blank width plus 1/8”)?
 - e) Are the blanks clean? No chaff or unstriped vent holes?
 - f) Are the gate openings clear of foreign material?
 - g) If the blank has been partially fed down, rotate the mandrel back to the “cycle start position.”
 - h) Make sure the emergency stop button is pushed and pull the blank free.
4. Reset the emergency stop and press the start button. If the jammed condition is cleared, continue and complete the run.
 5. Run complete.

Monitor

Machine operators must always monitor several conditions on all packaging machinery, including product or case jams, power problems, alarms, and the restocking of supplies such as case blanks and glue.

Jam clearing

Follow these steps to clear jams from the machine.

1. Push the e-stop button and lockout the power disconnect lever.
2. Take your time to observe the most probable cause.
3. Is blank travel obstructed? Check for cause of problem.
4. Are the vertical guide settings correct (Blank width plus 1/8”)?
5. Are the blanks clean? No chaff or unstriped vent holes?

6. Are the gate openings clear of foreign material?
7. If the blank has been partially fed down, rotate the mandrel back to the “cycle start position.”
8. Make sure the emergency stop button is pushed and pull the blank free.

Power Lockout

Always turn off and lock-out the main power disconnect on the electrical cabinet before proceeding with any electrical repairs. When the power must remain on to perform certain tests, use the following guidelines:

- Know what voltages are present before beginning any electrical work.
- NEVER allow any part of your body to touch the machine while testing voltages.
- NEVER work on a wet floor, a steel floor or other conductive surface. Cement is conductive due its ability to retain moisture. When working on a cement floor, stand on a rubber mat, plywood, or other non-conductive material.

Supply restock

Throughout the operating cycle of the machine, some consumable products must be watched. Maintain the level of case blanks in the hoppers or magazines.

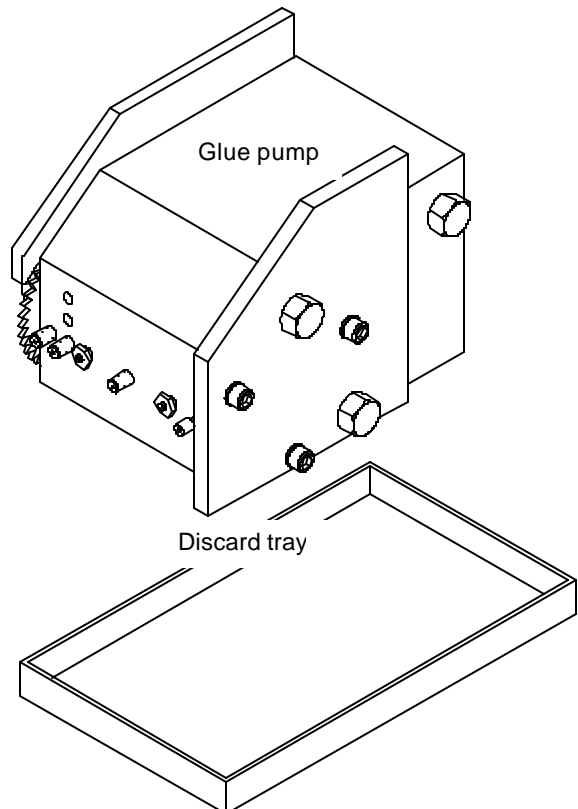
Verify all lubricators and grease lines have the appropriate amount of oil or grease. To determine the appropriate measures, refer to the maintenance section of this manual.

If your machine uses glue to seal the cases, monitor the glue levels according to the manufacturer’s recommendations.

Procedure for Changing the Adhesive – SWF Glue Pump

To change the glue, following these steps:

1. Turn on machine and allow the glue temperature to reach 325° F to 350° F.
2. Remove pump drip pan.
3. Place a small tray or pan under the melt pot and pump assembly.
4. Remove the socket head screw in the bottom of the glue pump body.
5. Let all of the molten adhesive drain from the system.
6. Add the new glue type into the melt pot.
7. Allow the new glue to force the old glue out. Look for a color change in the glue before inserting the drain plug. (Avoid mixing the two glues as much as possible as a chemical reaction can occur between certain types of glue).
8. When a full flow of new glue is observed, as noted by a color change, insert the drain plug.
9. Replace the screw in the glue pump drain.
10. Pump is now ready to run. However, if the pump has excessive drips from backpressure, bleed the air from the pump ports. The first two or three blanks purge the old remaining glue from the system.
11. Repeat the procedure with other pump.



Procedure for Changing the Adhesive – Nordson Units

When using a Nordson glue system, always refer to the Nordson documentation for all procedural recommendations, safety warnings, and maintenance information.

Resetting Overload Conditions

The machine stops when an overload condition occurs. Several assemblies on the packaging machine can overload. Follow the instructions below to reset the machine.

Air Cylinder Overload

To reset all air cylinders on the machine:

1. Press an emergency stop button on the machine. Never reach into the machine without pressing an emergency stop button. Follow the shutdown instructions before reaching into the machine.
2. Clear out any product or cartons jammed around the air cylinder area.
3. Reset the emergency stop button by pulling it out completely.
4. Press the reset button on the control panel. This prepares the machine for resuming operation.
5. If the error condition does not clear, check all reed switches on the associated air cylinders for proper operation. Verify the signals for retracted and extended positions are registering on the PLC.

Shutdown

STEP “F” SHUT DOWN

1. Turn the main power switch to the “**off**” position.
2. Verify the main power switch is in the “**off**” position and **locked out** while the machine is shut down to prevent inadvertent application of power.
3. Turn off the power to the adhesive melt heaters. Prolonged heating of the adhesive causes charring, resulting in serious damage to the system.
4. Lockout the machine.
5. Prevention of inadvertent start-up **is a must** when operation is complete or maintenance is performed. (Refer to **LOCKOUT** instructions)
6. Clean the machine and the surrounding area of drippage and dirt.
7. At the end of each production period, **with disconnect locked**, remove all adhesive drippings from the machine parts. Remove all debris (flawed trays, paper, scraps, etc.) from the area.

STEP “G” DAILY/WEEKLY MAINTENANCE

1. MAIN Power switch OFF? Disconnect locked out?
2. Has the immediate area been swept clean?
3. Use goggles and gloves when working on the adhesive system.
4. During maintenance have the guards been stored in a manner that protects the interlock system?
5. When maintenance is completed, are all the guards in place?

Kwik Change Adjustments

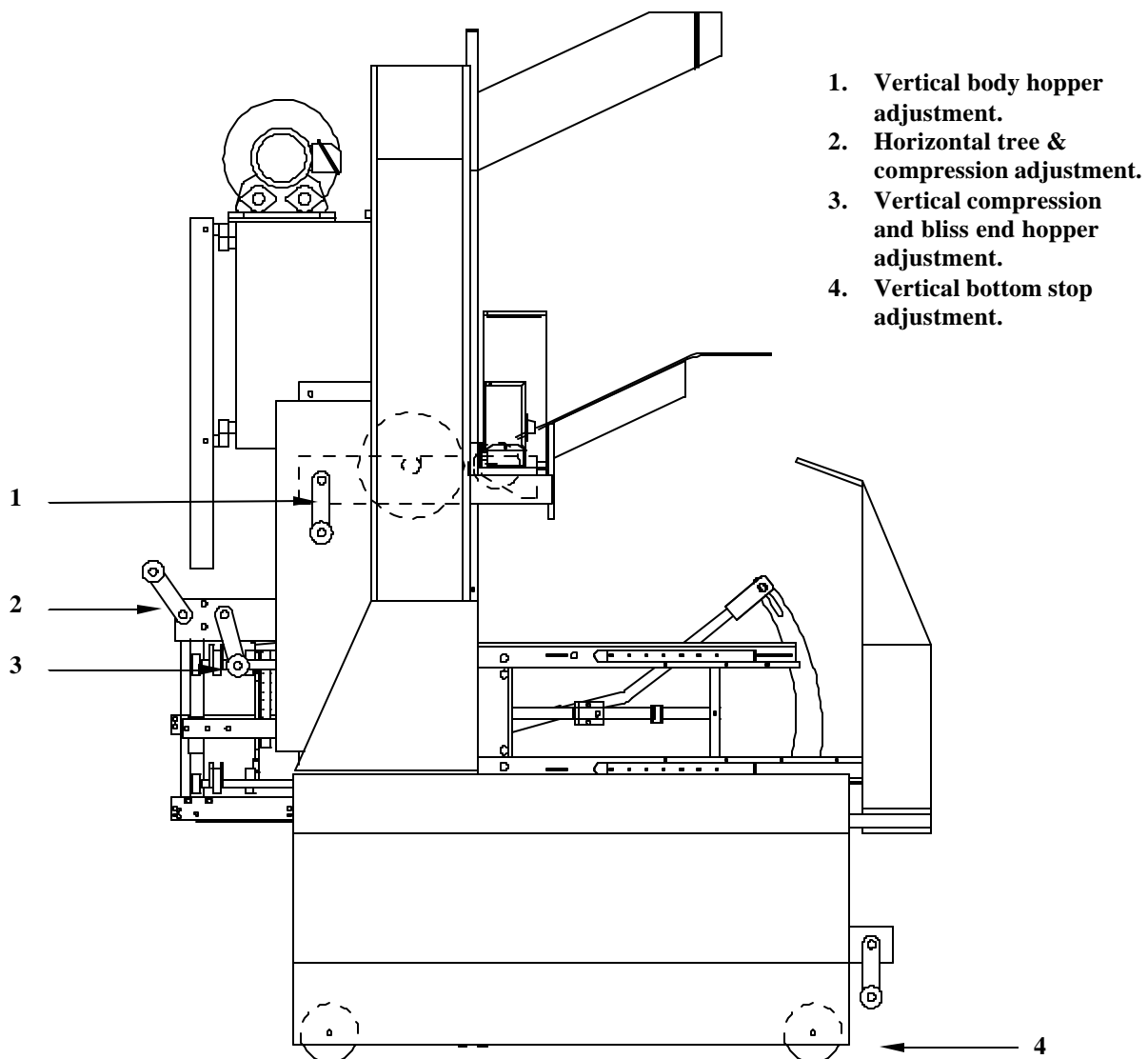
The BF 400VK (1D5AK) and BF 600VK (1D6AK) crank adjustments provide the means to rapidly change over to a different size blank or to supply correct bonding pressure.

Make all hopper adjustments with the selected size blanks resting in the hopper. Make changes to the hopper settings so the corrugated blanks travel the hopper system with minimal clearance and no obstruction. Hoppers adjust vertically and horizontally.

Compression may be cranked in or out, up or down, providing the versatility to change over to other carton sizes and lessening the machine's down time.

Make any changes to the bottom stop position with a corrugated blank resting on the bottom stops. This adjustability allows the operator to make minor adjustments to the blank. These adjustments are required to match mandrel to blank for forming.

Instructions on crank adjustments are detailed in the Set-up and Adjustment section of this manual.

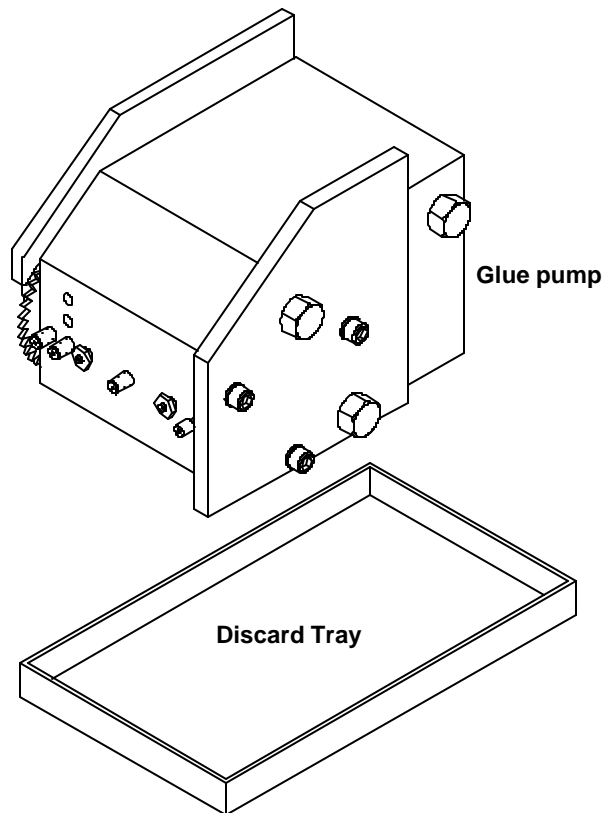


Adhesive Replacement

Changing the Adhesive – SWF Glue Pump

To change the glue, following these steps:

1. Turn on machine and allow the glue temperature to reach 325° F to 350° F.
2. Remove pump drip pan.
3. Place a small tray or pan under the melt pot and pump assembly.
4. Remove the socket head screw in the bottom of the glue pump body.
5. Let all of the molten adhesive drain from the system.
6. Add the new glue type into the melt pot.
7. Allow the new glue to force the old glue out. Look for a color change in the glue before inserting the drain plug. (Avoid mixing the two glues as much as possible as a chemical reaction can occur between certain types of glue).
8. When a full flow of new glue is observed, as noted by a color change, insert the drain plug.
9. Replace the screw in the glue pump drain.
10. Pump is now ready to run. However, if the pump has excessive drippage from backpressure, bleed the pump ports of air. The first two or three blanks purge the old remaining glue from the system.
11. Repeat the procedure with other pump.



Changing the Adhesive – Nordson Units

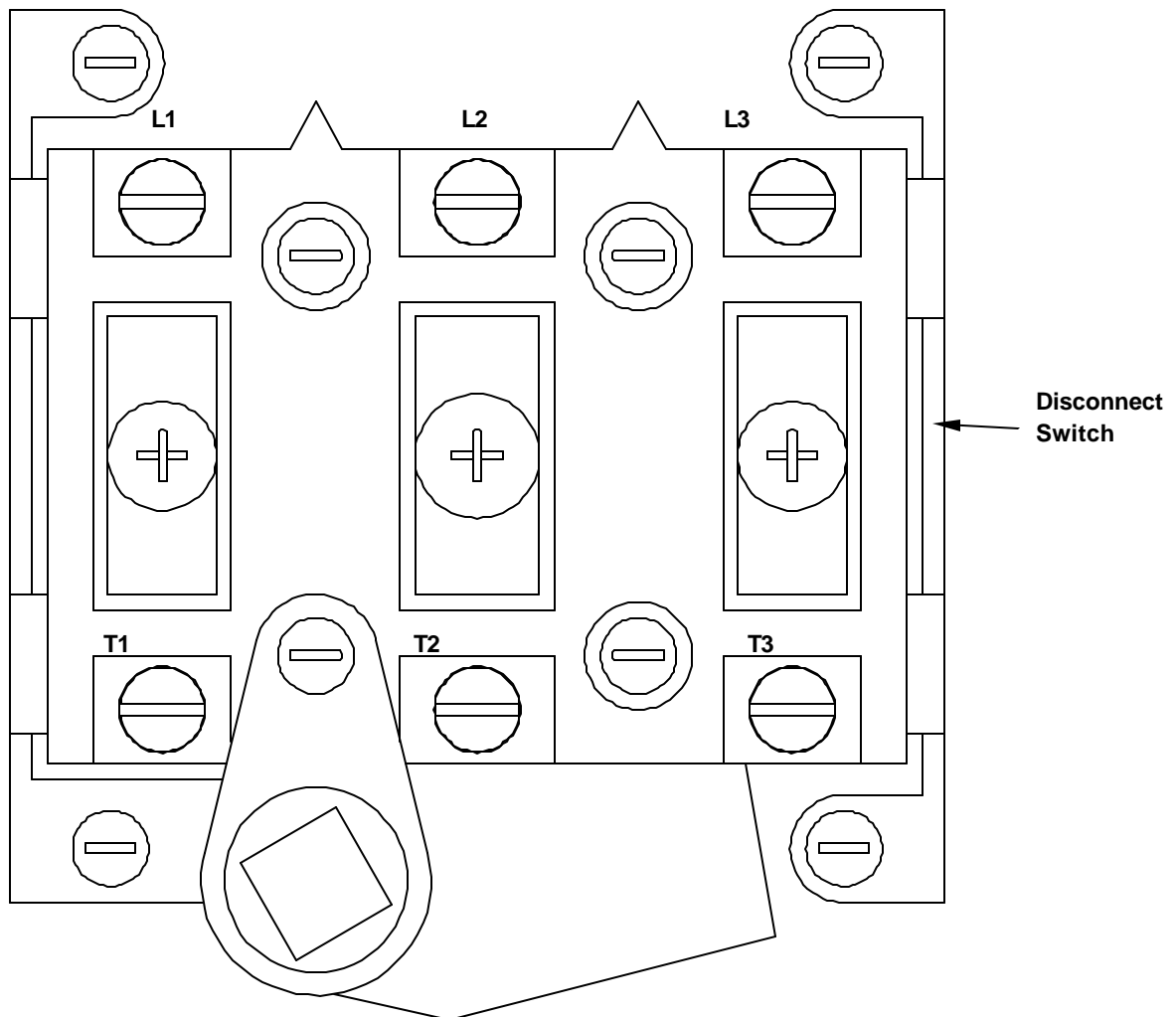
When using a Nordson glue system, always refer to the Nordson documentation for all procedural recommendations, safety warnings, and maintenance information.

Setup and Adjustment

The following section lists some of the main setup and adjustment procedures.

Connecting to Electrical Power:

1. Check for correct voltage and phasing prior to connecting the electrical power to the Blissomatics.
2. Check for rotation after the immediate machine area is clear of persons, by applying power.
3. Rotation direction can be determined by comparing machine rotation with arrows located on the machines Vacuum Feed mount plates.
4. If rotation is incorrect on a 3-phase machine, reverse wires T1 and T2 in the Main Power control box.
5. Single phase is preset at the factory.

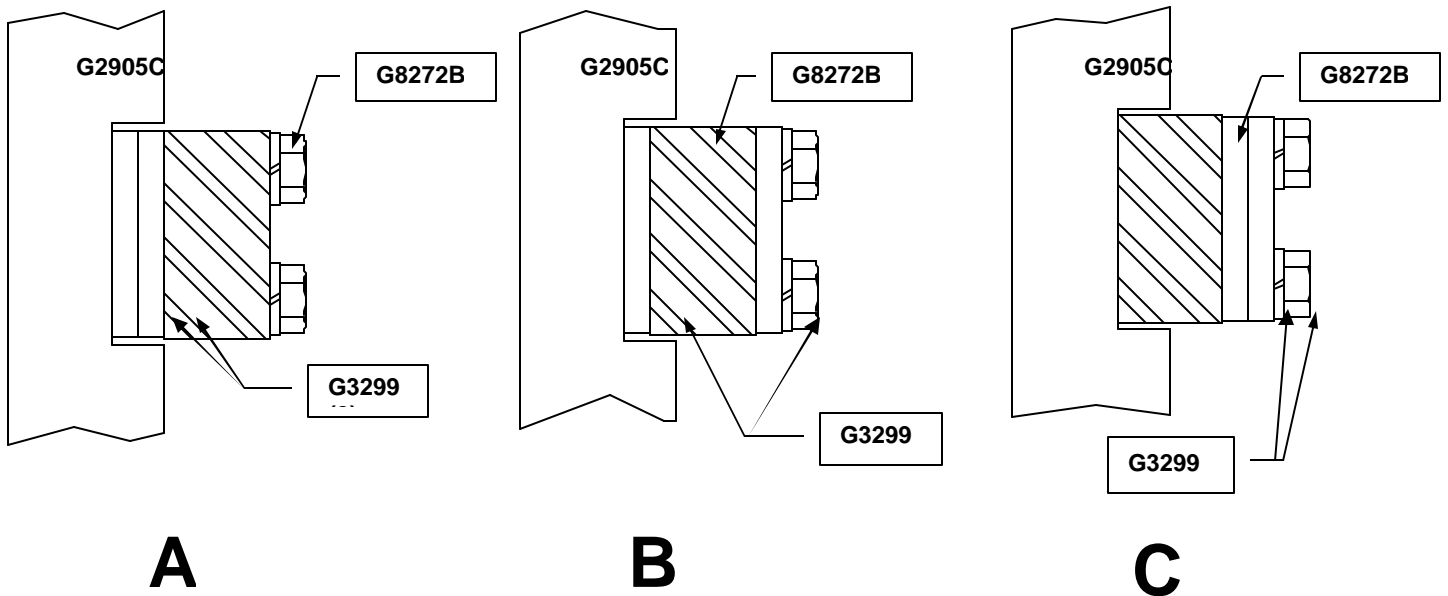


Vertical Guides to Horizontal Bar Spacing

The following spacer placement depends upon external flange width. Spacer G3299 is 1/4" thick and is used as such:

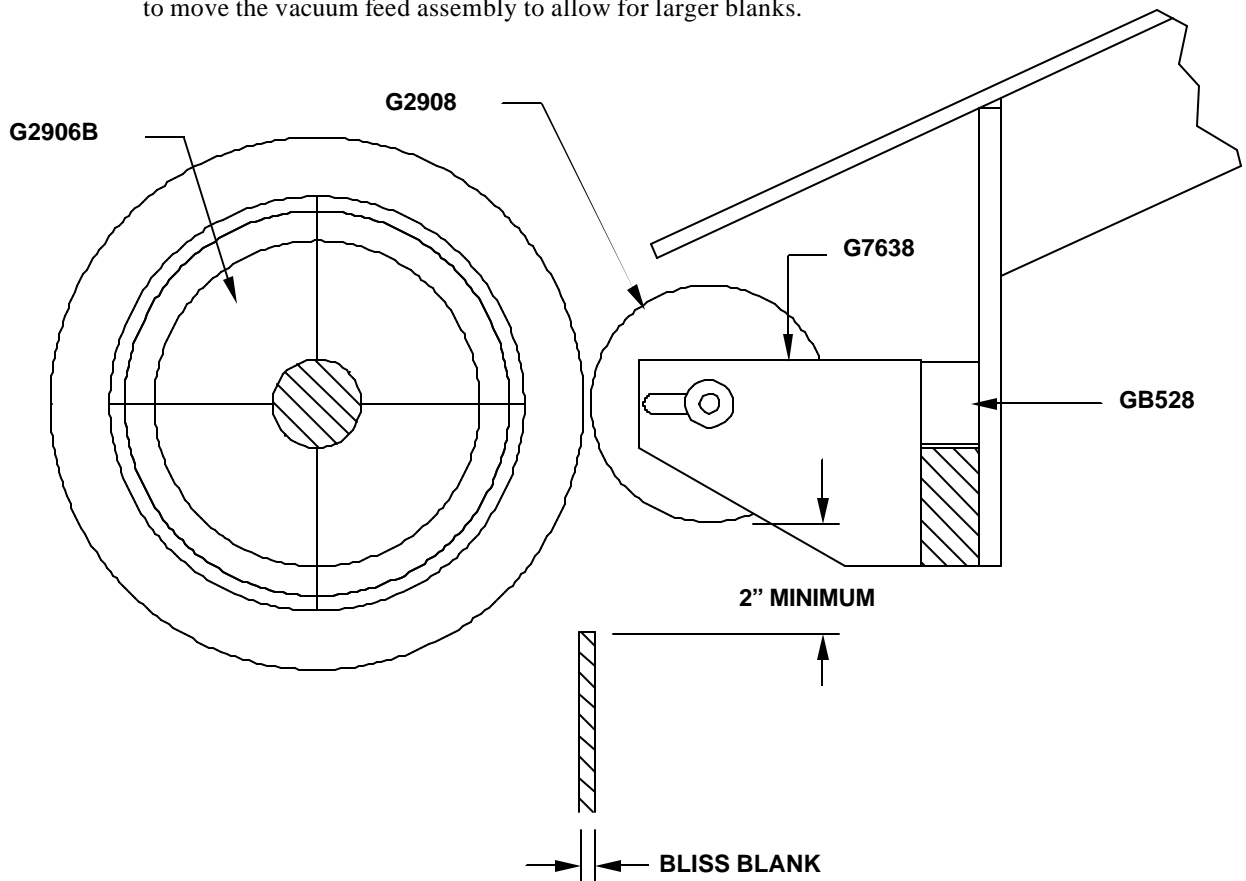
- Figure A for 1 1/2" flanges (flaps)
- Figure B for 1 3/4" flanges (flaps)
- Figure C for 2" flanges (flaps)

Note: Flanges over 2" require special machine parts. See the next page for the spacer placement. Stack the spacers on the outside of the bar when not in use. The spacer G3299 is 1/4-inch thick.

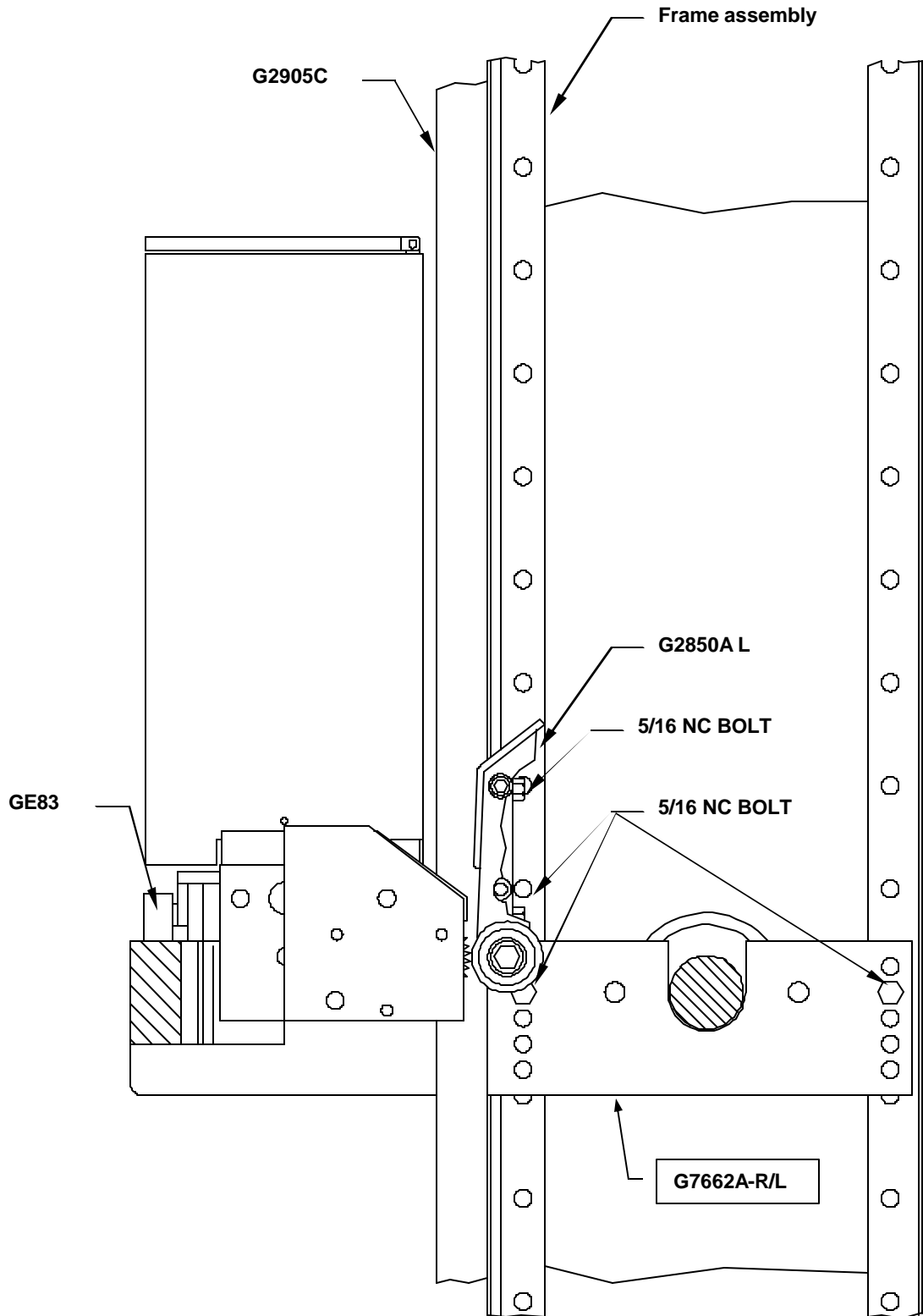


Feed Roll Assembly

1. Loosen the feed chain idle sprocket assembly until it freely slides on its mount.
2. Loosen the 5/16-inch bolts on the melt pot clamp G8246 R/L on the vertical guide bar G2905C.
3. Remove the support roller from the melt pot bracket under the idle roller mount bar.
4. Slide the melt pots up. Remove four bolts from the feed roll mount bar G7662A.
5. With the blank resting on the bottom stop, position the feed roll assembly to attain the 2" minimum measurement shown below.
6. Back up roller mount plate G2850A R/L must be loose to move the melt pots into position.
7. Slide the melt pots down until the support roller GE83 rests on the idle roller mount bar.
8. Reattach the glue pump support to the melt pot bracket. Tighten all the bolts and the chain idle sprocket assembly.
9. For multiple size forming, set the feed roll assembly height to the largest size. It may be necessary to move the vacuum feed assembly to allow for larger blanks.

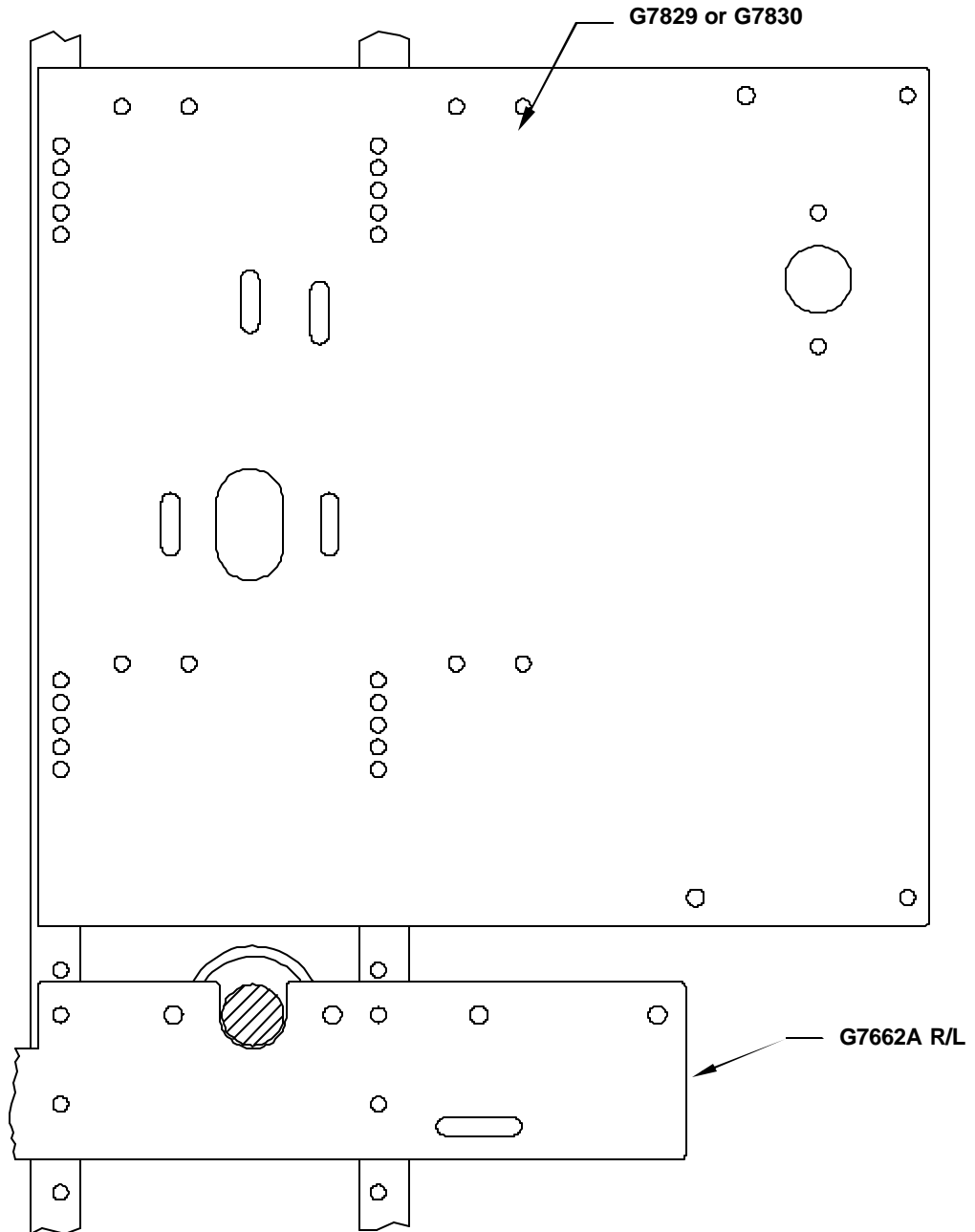


Feed Roll Assembly Height Adjustment



Vacuum Feed Mount Plates

1. Complete the feed roll assembly height adjustment before adjusting the vacuum feed mount plates.
2. Mount the vacuum plates G7829 & G7830 to the machine frame uprights.
3. Position the mount plates above the top of the feed wheel shaft mounting plates G7662A R/L.



Mandrel

End Pick Adjustment

Adjust the end picks before installing the Mandrel in the Blissmatic.

1. Adjust the bliss end panel to extend 1/32-inches beyond the Mandrel G2681 R/L
2. Verify the knife edge of the end picks are buried into the end panels.
3. There are three sizes of end picks combined with three sizes of support bars used to pick the flutes.

END PICK REQUIRED (VIEW A-A)

SUPPORT BAR REQUIRED

G2685A _____ for A, B and C flute end panels _____ G2888A

G2685B _____ for Double wall ends 1/4" thick _____ G2888B

G2685C _____ for Double wall ends 5/16" thick _____ G2888C

This adjustment ensures the end panel is driven to the bottom of the corrugated body wrap.

SPRING LOADED END PICKS

G7309A _____ Pawl; End Pick for 10" greater, B and C flute

G7309B _____ Pawl; End Pick for 8" to 10" deep B and C flute

G7309C _____ Pawl; End Pick for 10" or greater double wall

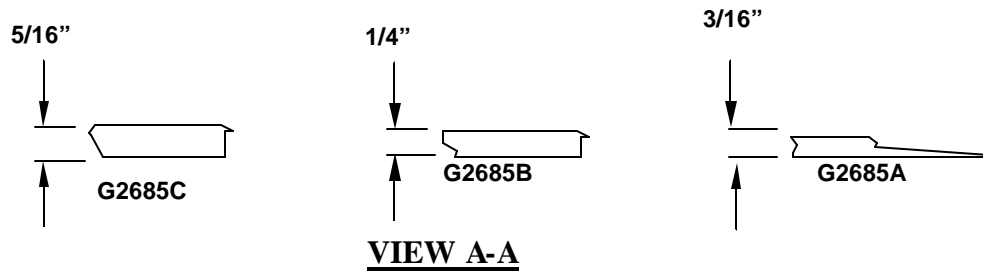
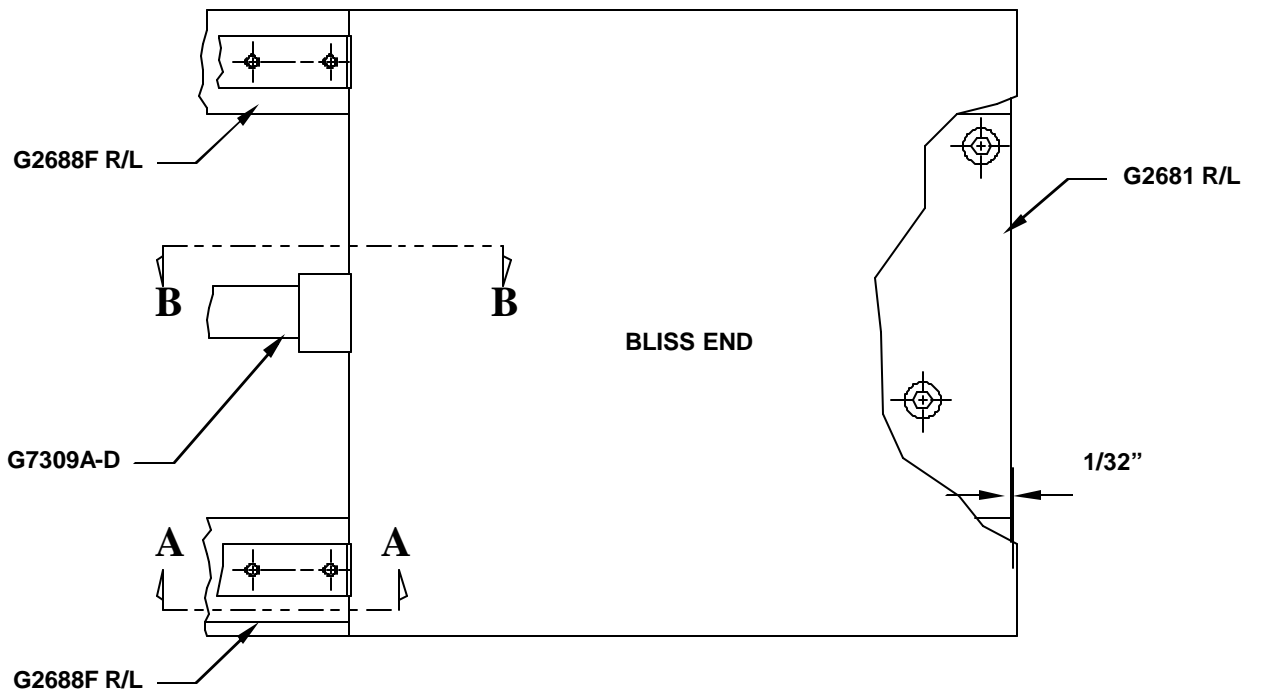
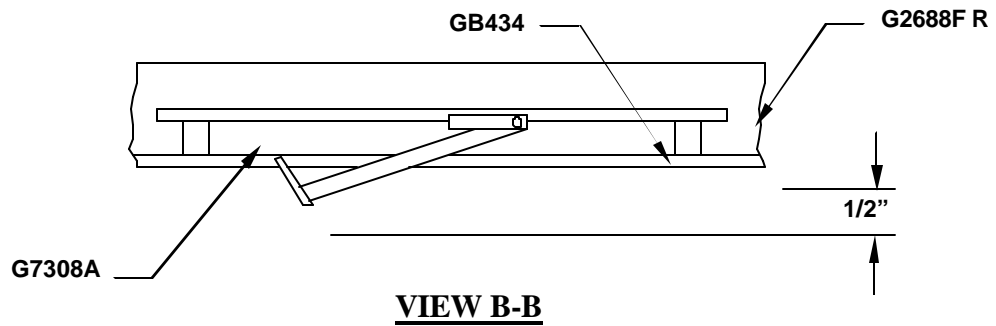
G7309D _____ Pawl; End Pick for 8" to 10" deep double wall

Adjust to the same dimensions as the G2685 end picks.

SPRING LOADED END PICK ADJUSTMENT (VIEW B-B)

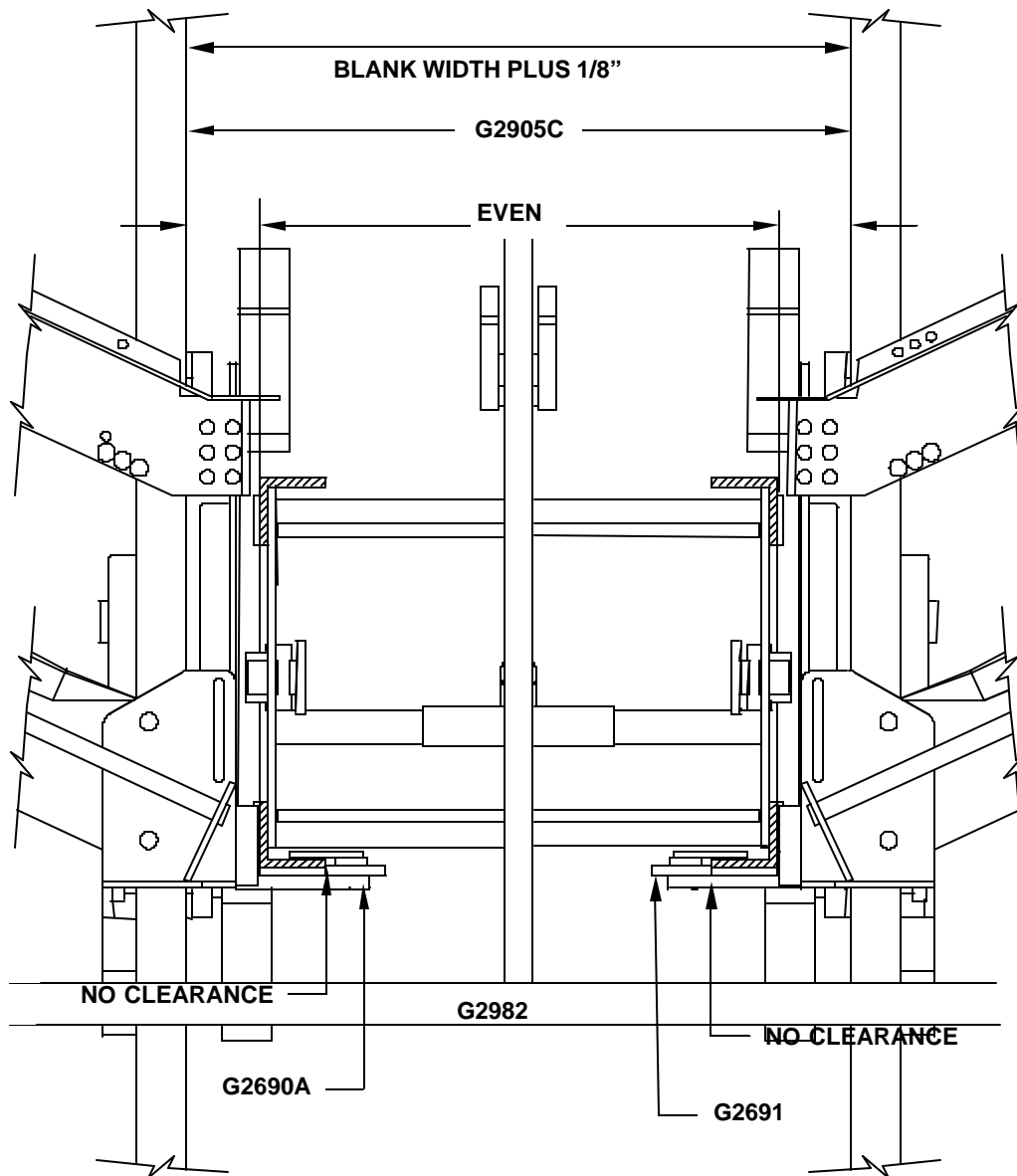
1. Space the spring loaded end pick mounting bar G7308A so the knife end of the pick is 1/2-inch from the mandrel rail G2688.
2. Add 1/16-inch washers to spacer GB434 until a 1/2-inch dimension is reached.
3. Adjust the spring loaded end pick G7309 (A to D) to the same dimensions as standard pick G2685 (A to C) with the bliss end panel flat against the mandrel rail.

Mandrel End Pick Adjustment



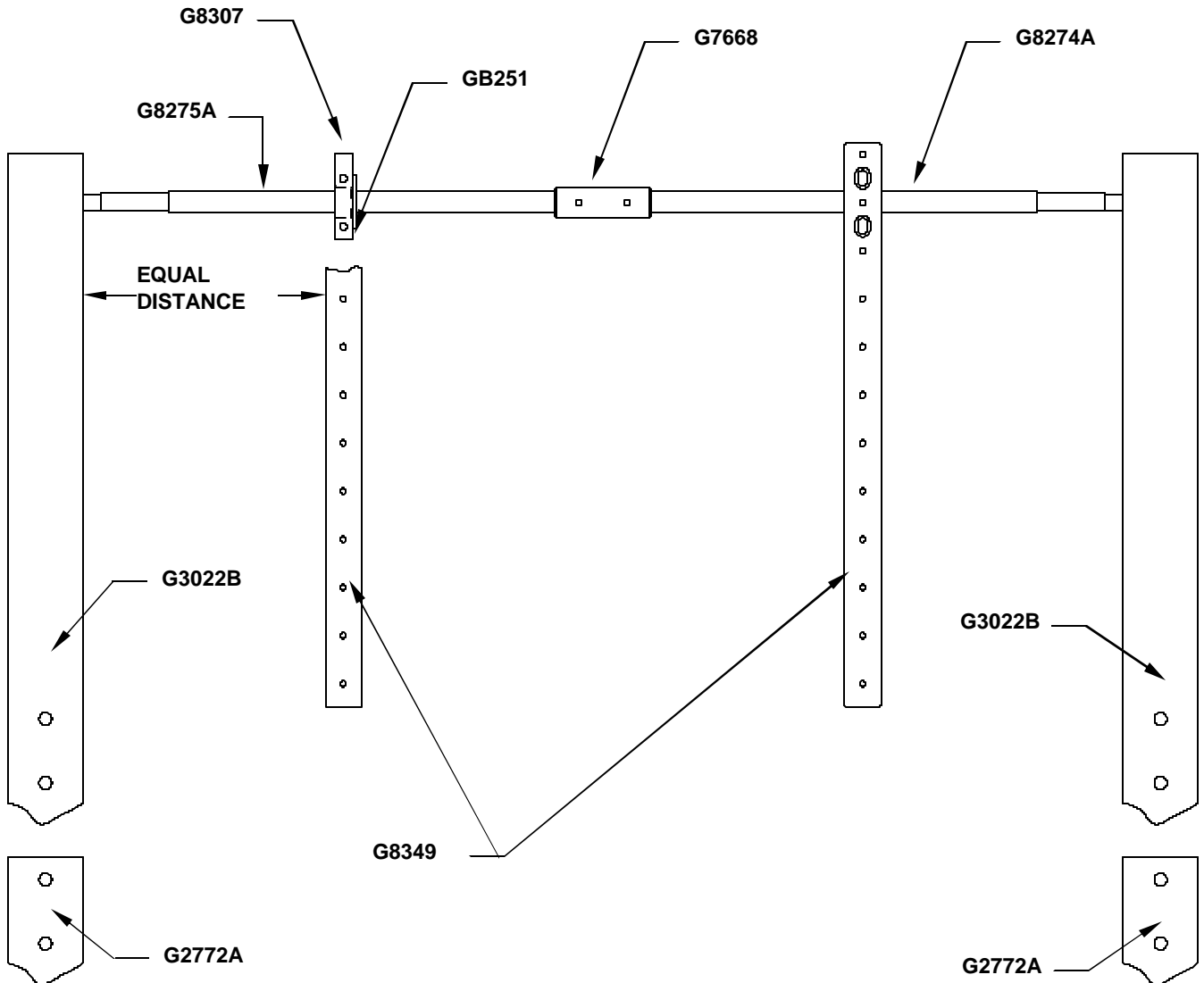
Mandrel Installation

1. Set the vertical guide bars from top to bottom at the measured blank width plus 1/8-inch.
2. Loosen (8) 1/4" x 1" flat head bolts in the rail guide caps.
3. Slide the mandrel through compression into the rail guides G2691.
4. Center the mandrel by adjusting the rail guides G2691 to **zero** clearance.
5. Measure the distance from the inner edge of the mandrel rails G2688F R/L to the inner edge of mandrel support plate G2690A R/L. The measurements should be the **same** on both sides.
6. Move to the front of the mandrel and measure from the edge of the vertical guide bars G2905C to the edge of the mandrel as shown. Measurement should be **equal on both sides**.



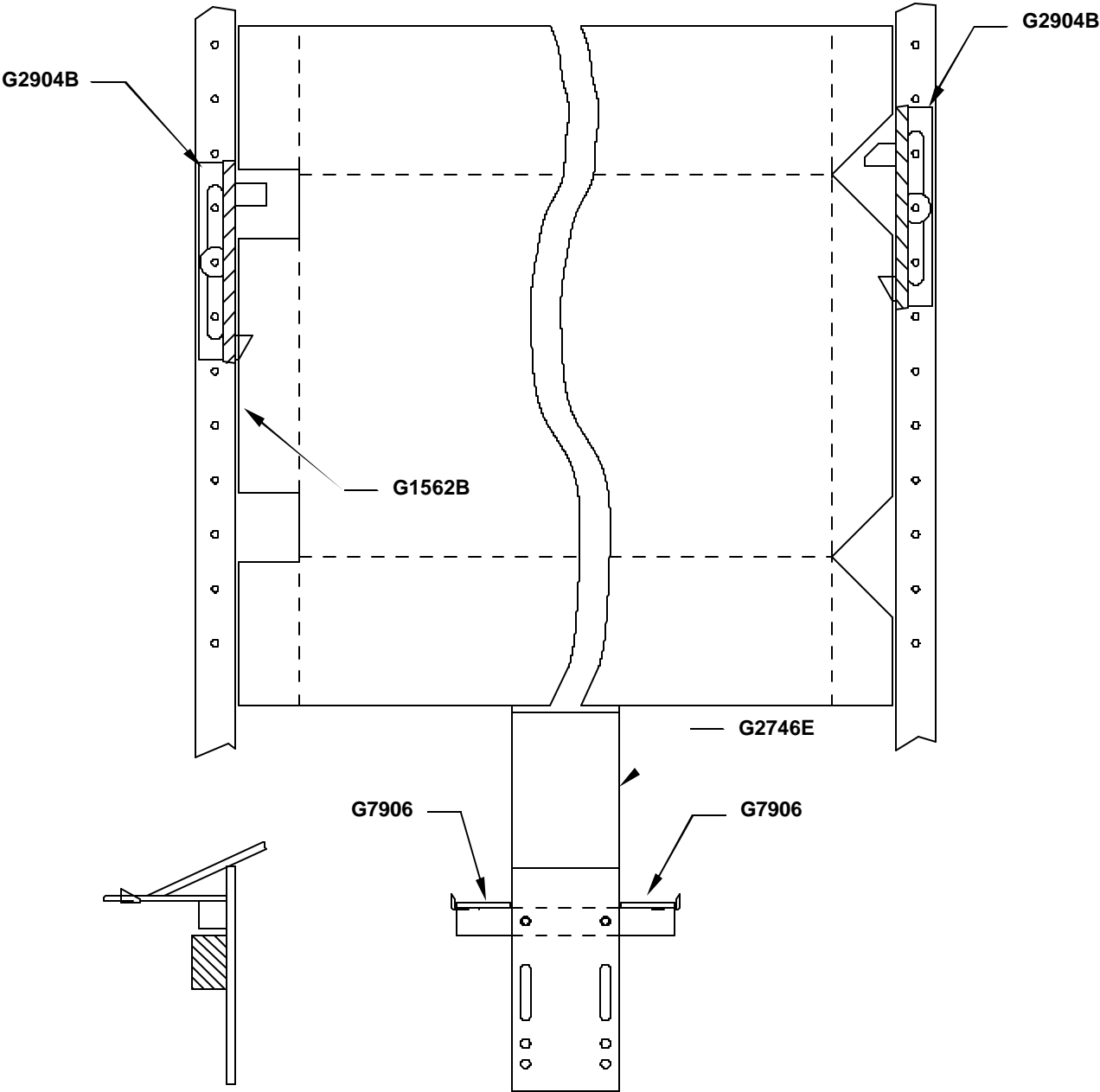
Vertical Guide Bar Adjustment

1. Adjust the vertical guide bar when spacers are removed or added between the vertical guide bars G2905C R/L and the main bliss mount bar G8272B.
2. Vertical guide bars must be adjusted back to parallel at the upper attaching point.
3. Remove the 5/16-inch bolt from the bracket top end support plate G8307 on each guide that retains the adjustment nut G8251.
4. Rotate these nuts to obtain an equal distance from the frame upright extensions G3022B.
5. Rotate these same nuts to bottom out in the bracket bores then reinstall the 5/16-inch bolts.



Blank Hopper Adjustment

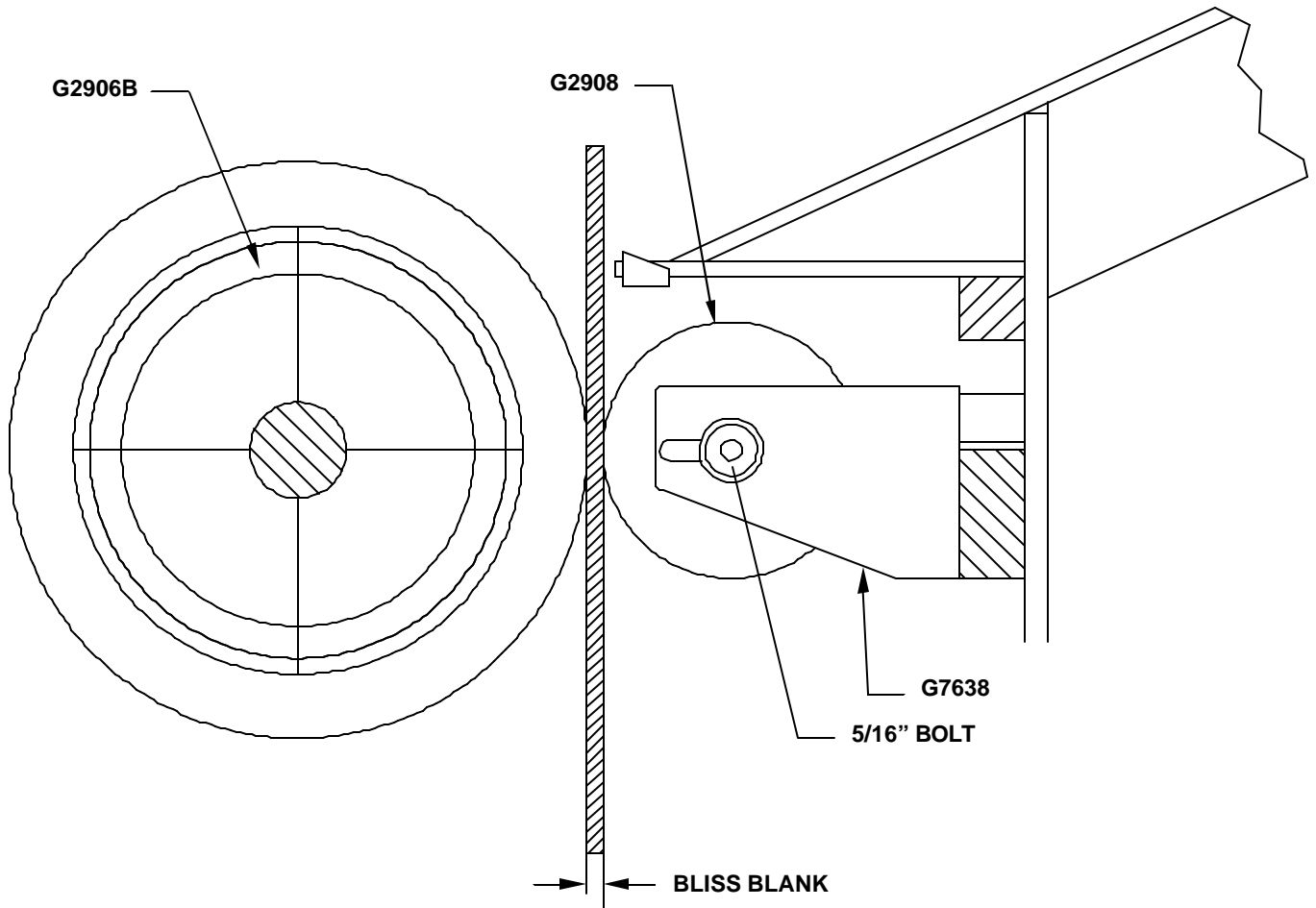
- 1. Set a blank on the loading ramp G2746E.
- 2. Adjust the hopper panels G2904B vertically until the support blade aligns with the top cut.
- 3. Slide some blanks down the hopper to the knife stops G1562B R/L. (Do not hand push.)
- 4. Adjust the blanks until they are perpendicular to the vertical guide bars.
- 5. At this point the bottom of the blanks must rest on the ramp G2746E and stop plates G7906.



Idle Roller Adjustment

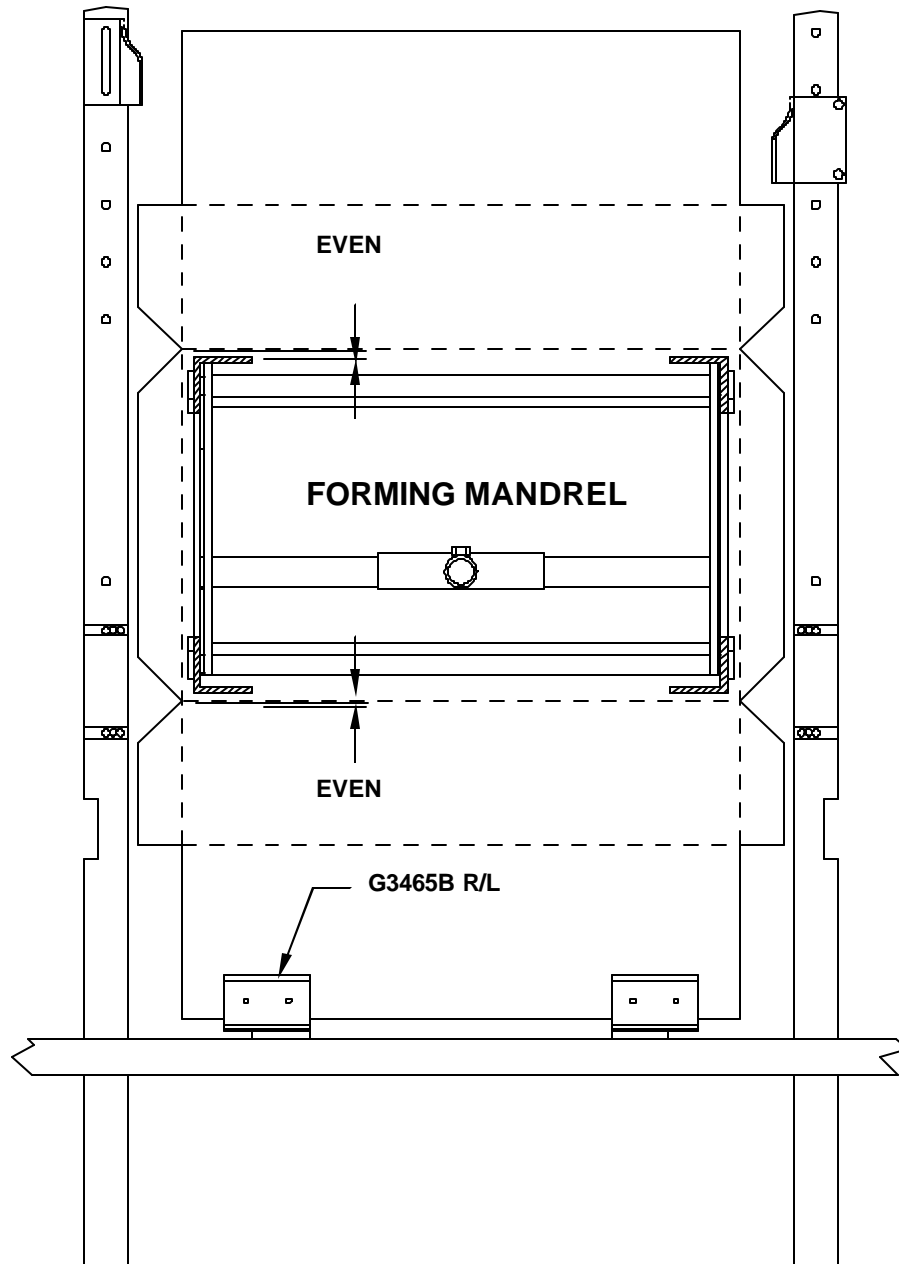
This adjustment will vary with the thickness of the blanks.

1. Loosen (2) 5/16-inch bolts retaining the idle roller G2908 to mount G7638.
2. Move the idle roll in towards the feed wheel G2906B until the pressure prevents slippage of the blank as it passes between these two wheels.



Bottom Stop Adjustment

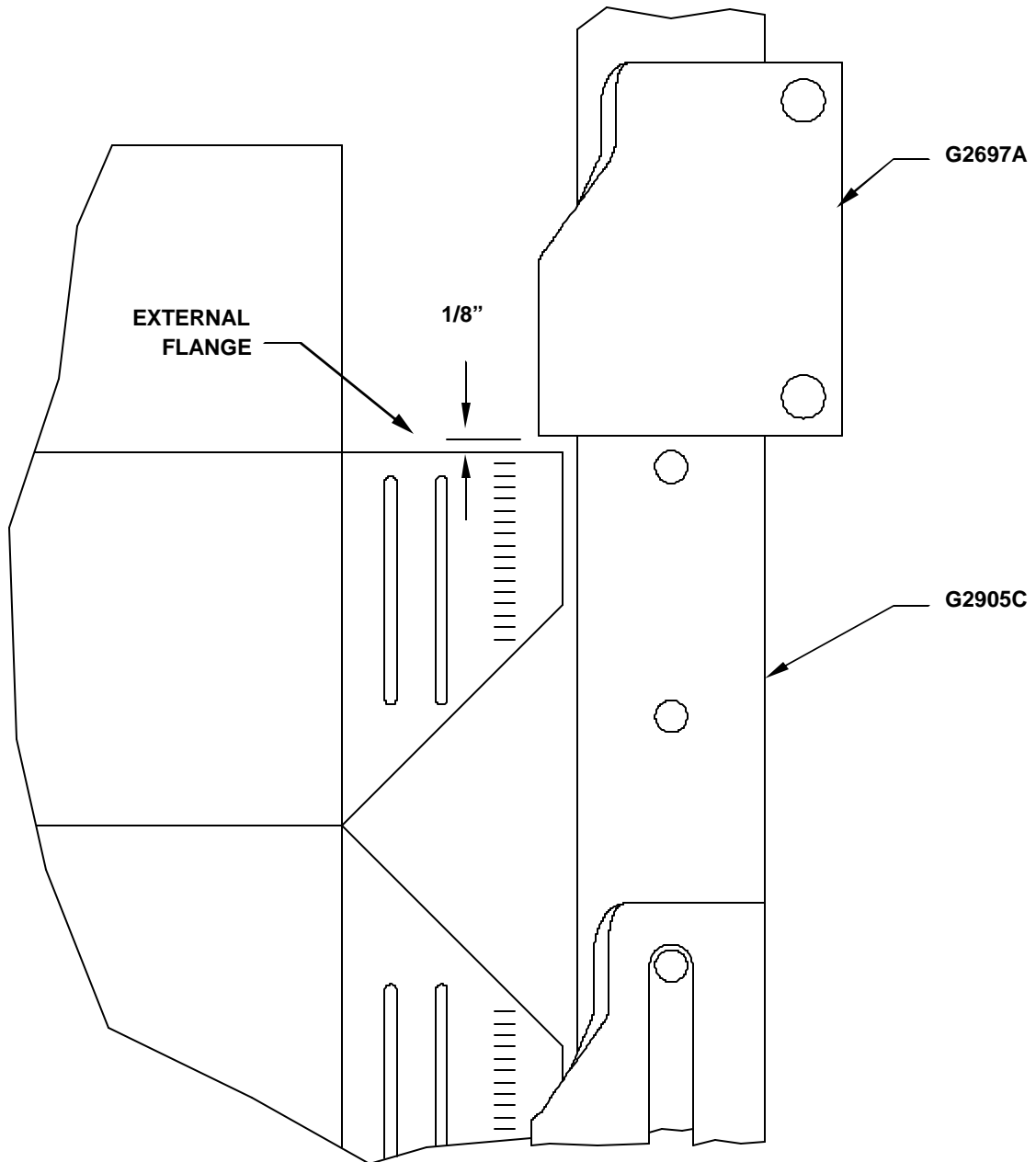
1. Position the mandrel at the end of the return stroke.
2. Place a body blank on the bottom stop G3465B R/L.
3. Crank the bottom stop vertically until the forming mandrel outer dimensions match the bottom scoring of the body blank, with even clearance top and bottom.



Rebound Stop Adjustment

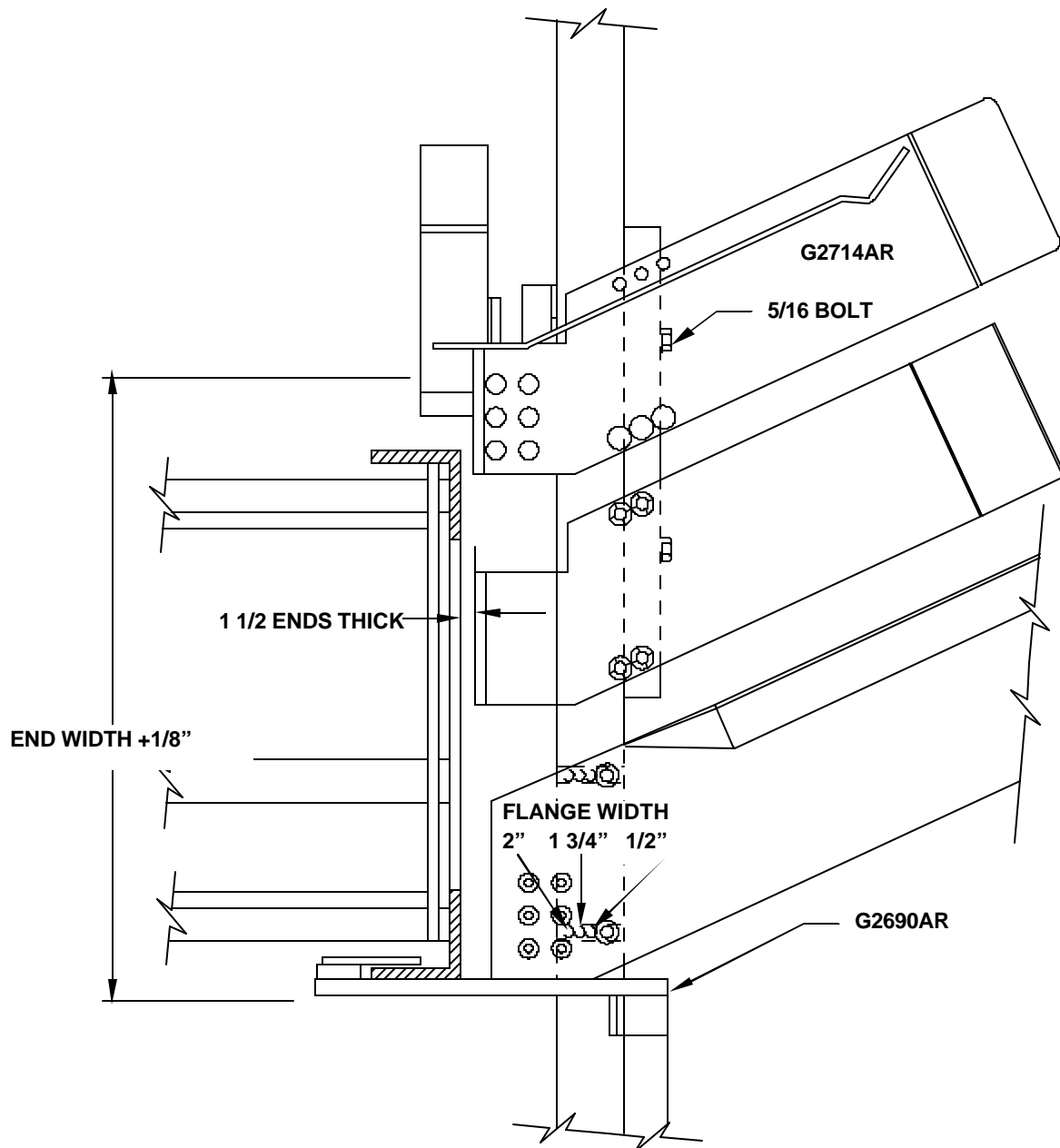
Rebound Stop G2697A is located on the right hand Vertical Guide Bar G2905C.

1. Loosen the 5/16-inch bolt on stop G2697A from the rear and position the rebound stop 1/8-inch above the external flange as shown.
2. Position the rebound stop as shown, as long as the external flange is not cut back. Retighten the loosened bolt.



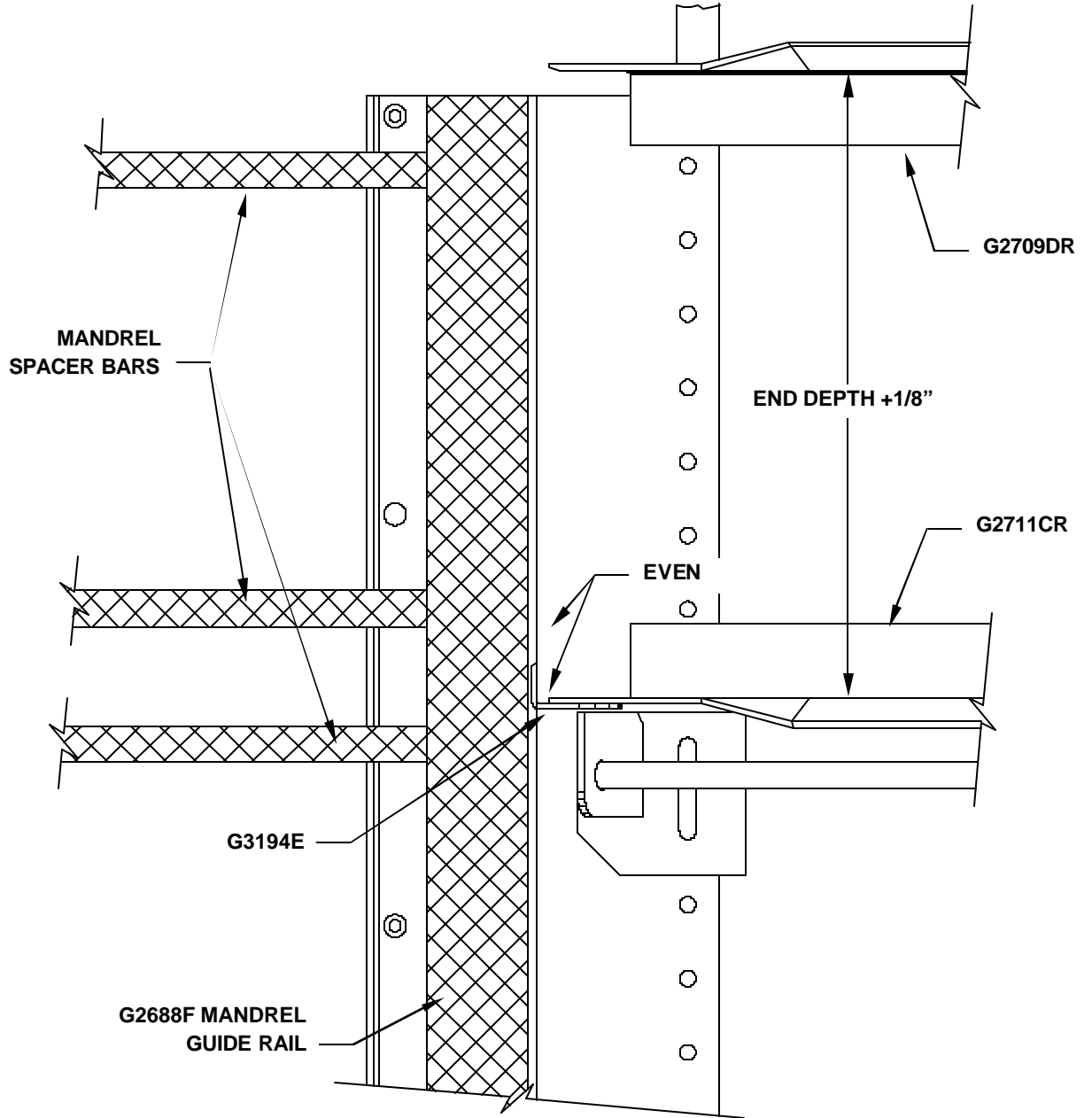
End Panel Hopper Adjustment

1. Adjust the box end guide G2714A R/L vertically by loosening (2) 5/16-inch bolts until the box end guide hopper blade and the mandrel support plate G2690A R/L are one end width plus 1/8-inch.
2. Using 1/8-inch and 1/4-inch shims, adjust the distance between the hopper end gate and the mandrel rail to a measurement of the thickness of 1 1/2-inch ends.
3. The bottom hopper mounts in the hole corresponding to the seal flange width.



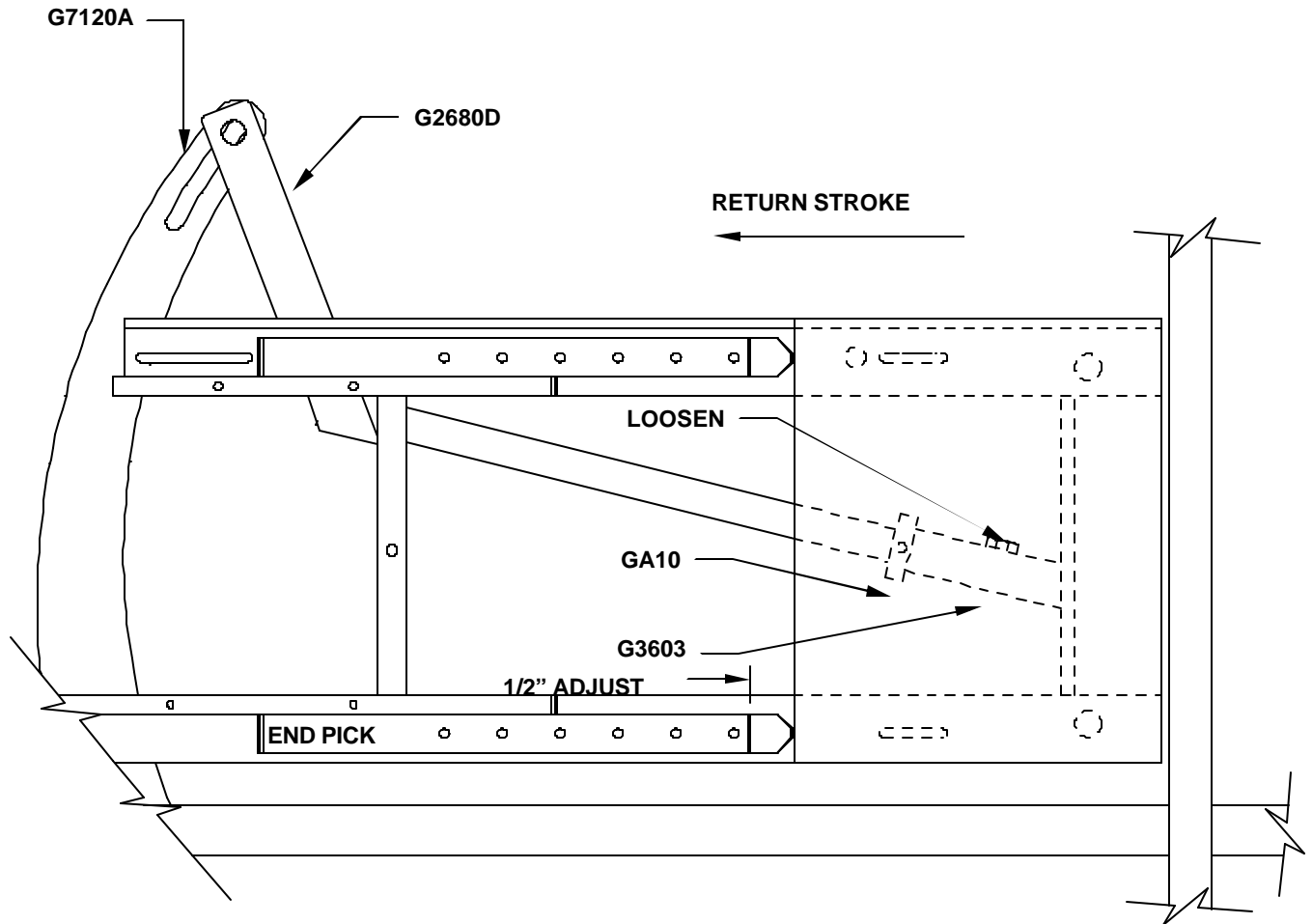
End Panel Hopper Stop Adjustment

1. Adjust the hopper stop tab G3194E R/L until it is even with the mandrel rail G2688F as shown.
2. Adjust the hopper rail mounting bracket attached to the hopper front rail G2711C R/L until reaching a distance between G2711C R/L and G2709D R/L of one end depth plus 1/8-inch.



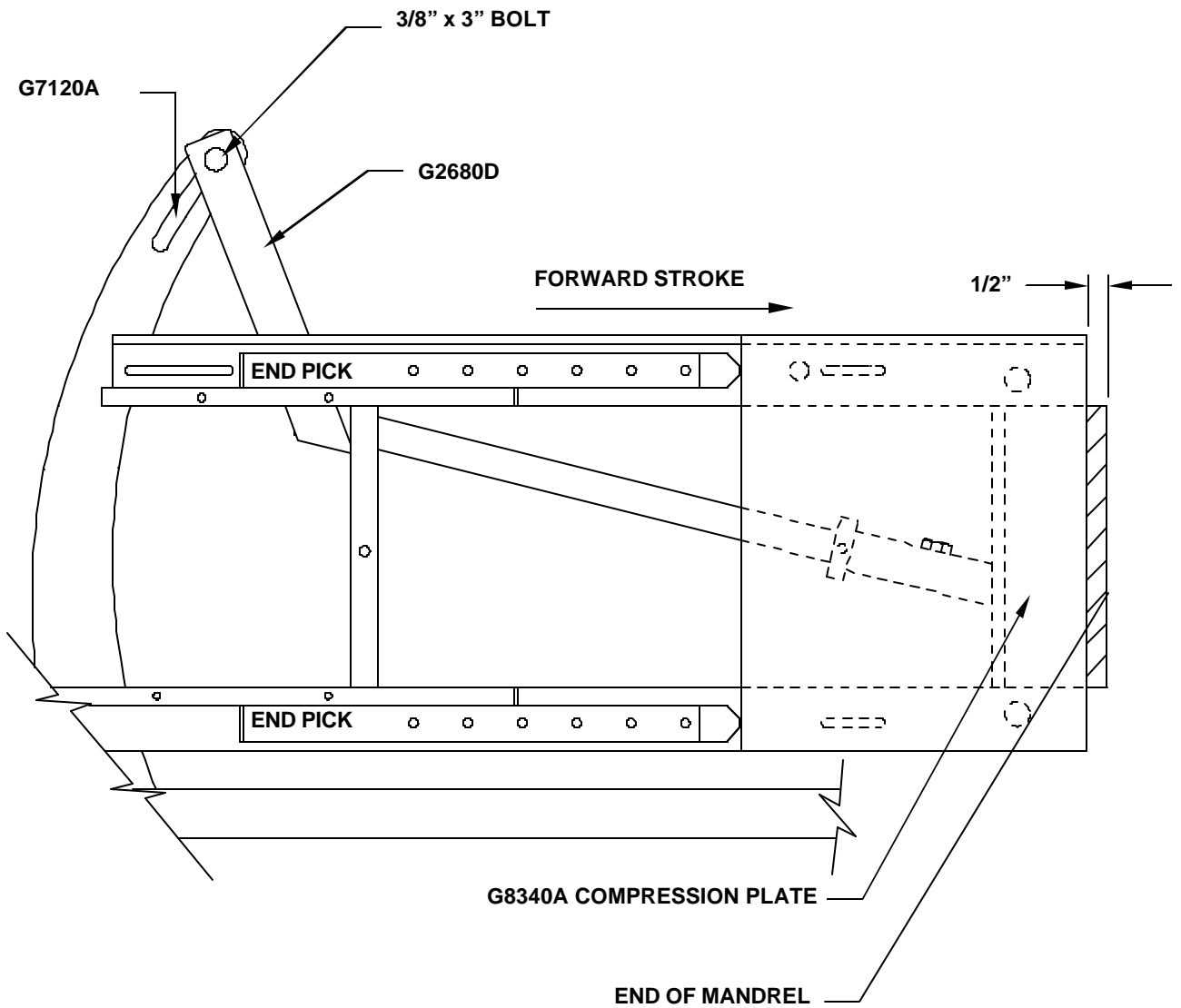
Mandrel Return Stroke Adjustment

1. With the mandrel at the end of the return stroke, loosen the set screw in G3603 and in the set collar GA10.
2. Adjust the mandrel to allow the end picks to clear the end panel by 1/2-inch as shown below.
3. Retighten the set screws when complete.



Mandrel Forward Stroke Adjustment

1. Feed the post arm G7120 at its most forward position into the compression section.
2. Loosen the 3/8" x 3" bolt in the feed post arm and move the connecting rod G2680D up/down in the slot until the mandrel end is 1/2-inch, but not more than 3/4-inch past the compression plate G8340A.
3. Tighten the 3/8" x 3" bolt when complete.



End Panel Stripper Adjustment

1. Strippers G7416A prevent the mandrel from pulling a carton from the compression on the return stroke.
2. Adjust the strippers 1/8-inch behind the carton as it is fully enclosed into compression section.
3. The stripper quantity and size depends upon the carton size.

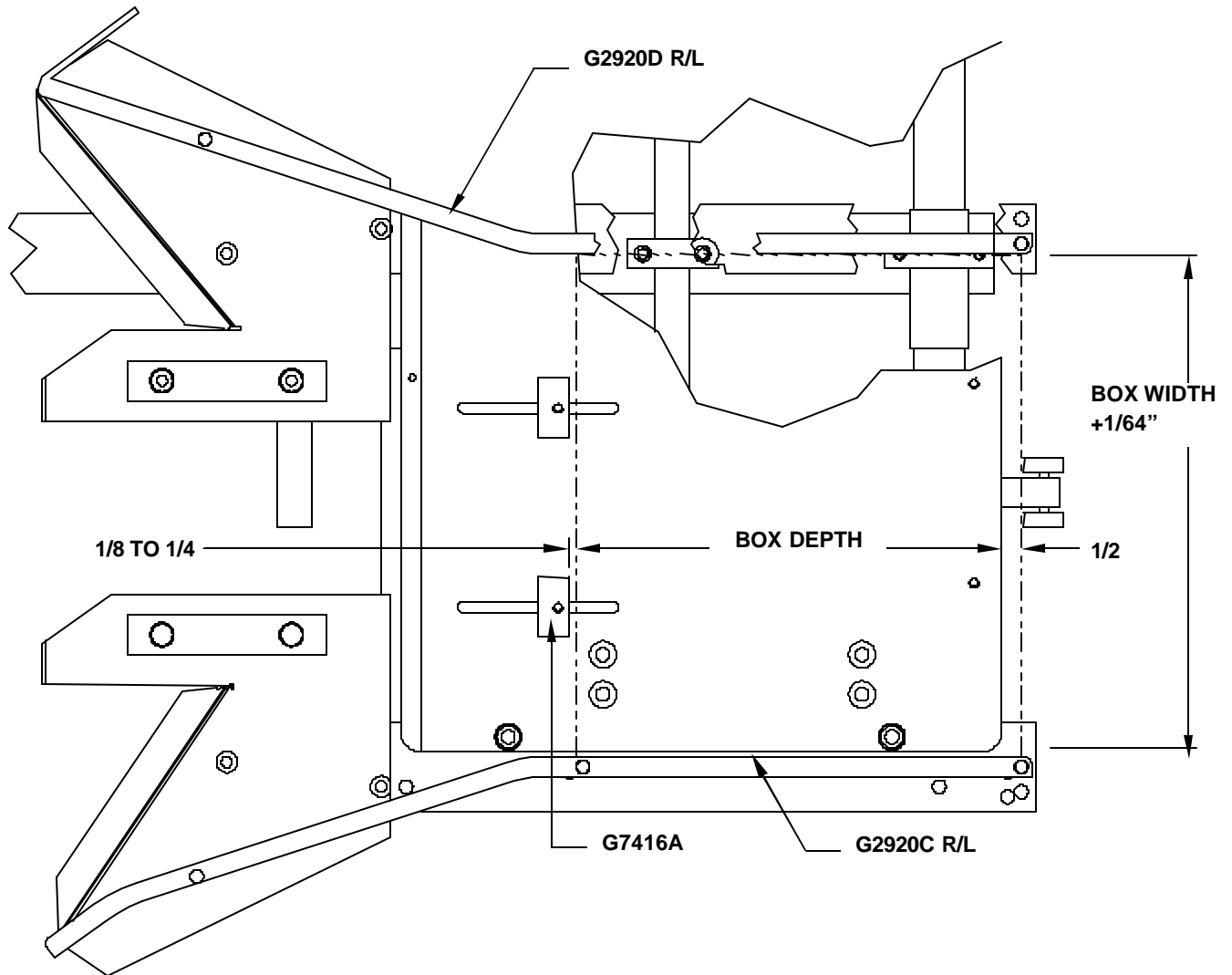
Stripper Sizes for End Panels

G7416A – 3/16" x 4" for "C" flute or "B", "C" double wall.

G7416C – 3/16" x 1 1/2" for "C" flute or "B", "C" double wall.

G7416D – 1/4" x 1 1/2" for Tri-wall.

G7416E – 5/16" x 1 1/2" for Tri-wall.

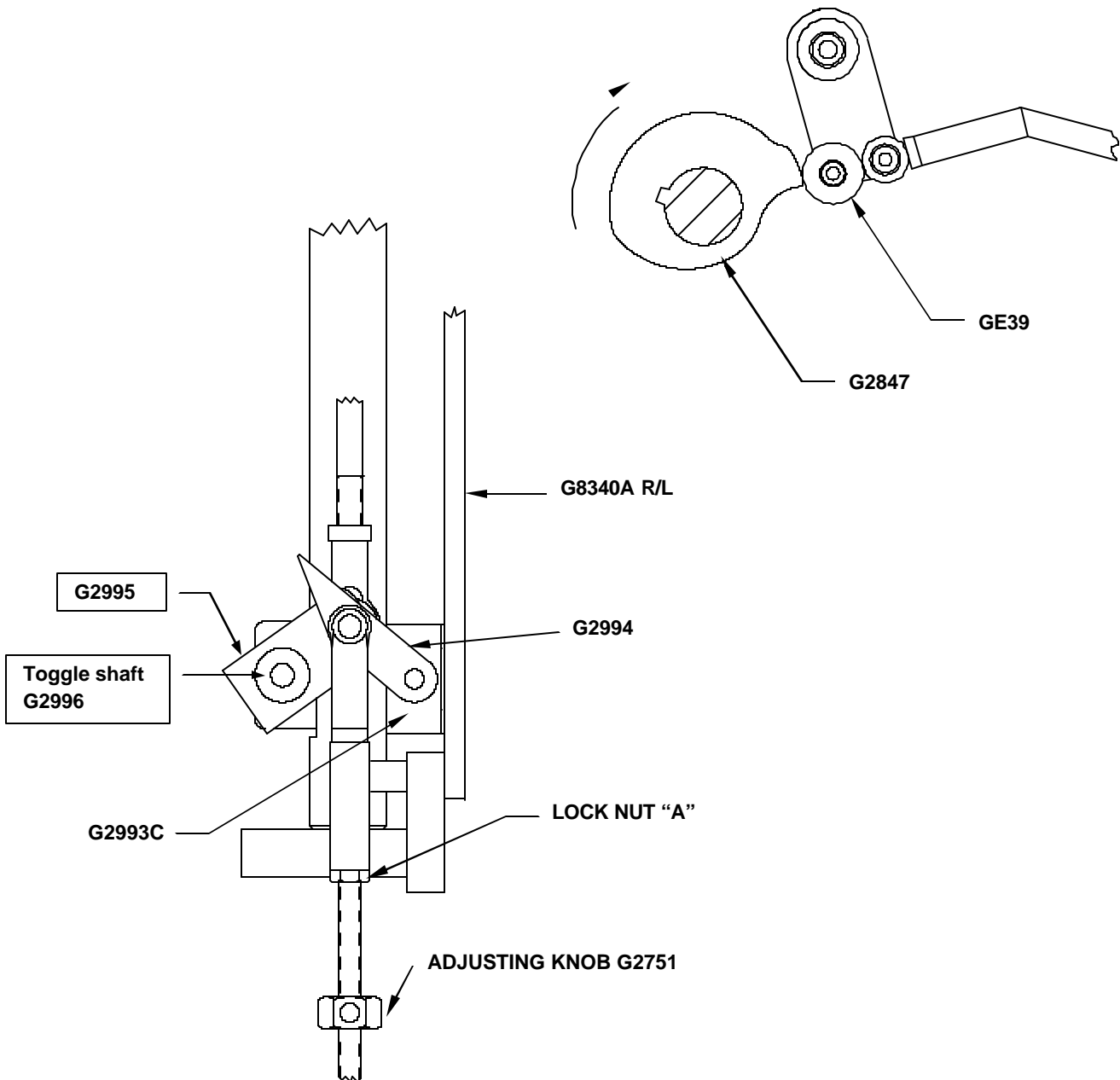


Compression Plate Linkage Adjustment

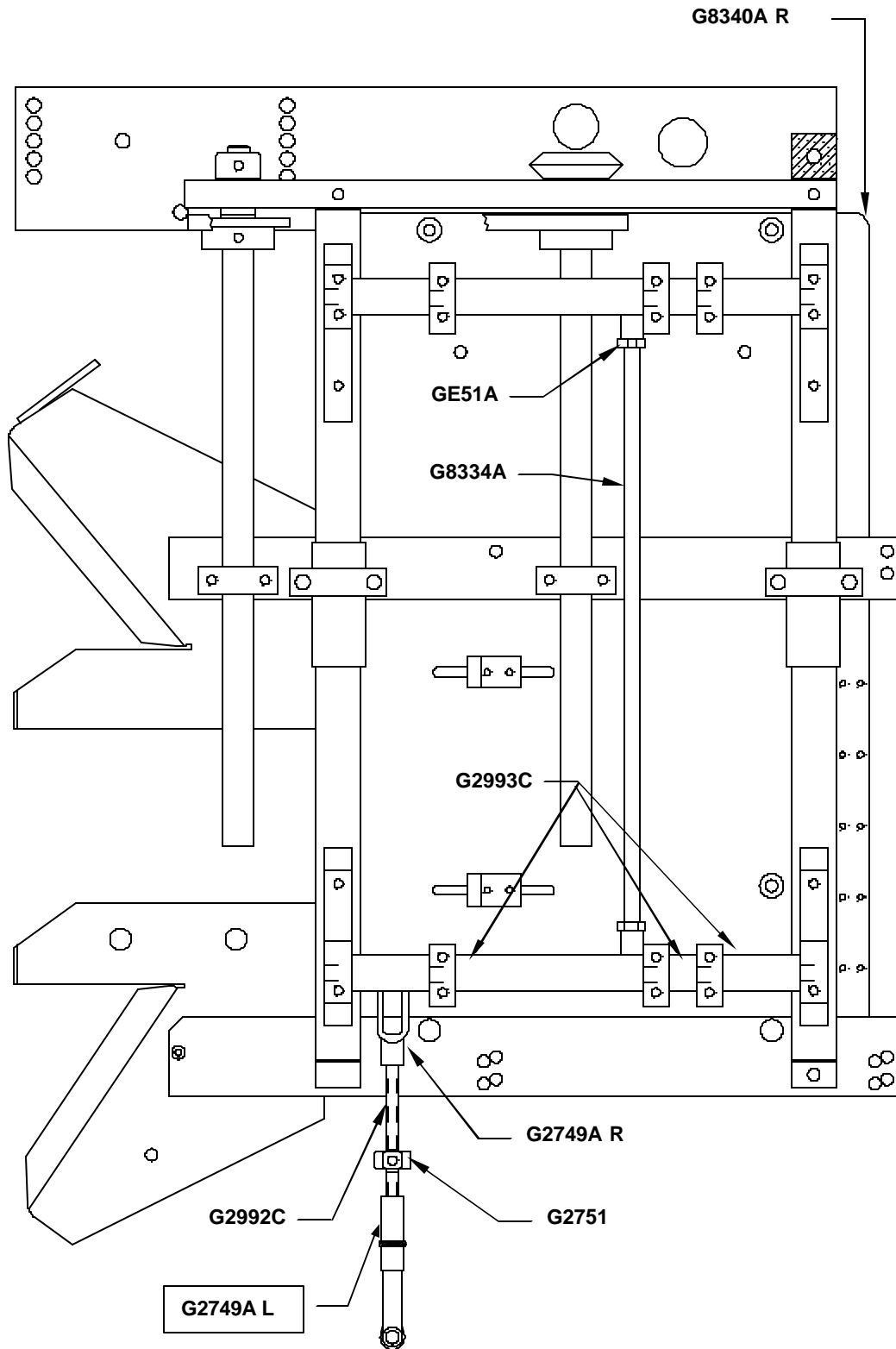
1. Set the cam roller GE39 on the high point of the cam G2847.
2. Loosen lock nut "A" and turn the adjustment knob G2751 to bring into contact the toggle shaft G2996 and the clamp link G2994 as shown below.
3. Adjust both sides, never one side only. If more compression is required, add shims between the plate G8340A R/L and the mount bar G2993C.

Note: If the carton pulls out with the mandrel or with heavy stripper indentation, see the troubleshooting section of this manual.

If problems persist, loosen lock nut "A" and turn the knob G2751 a ½ turn, both sides, providing a gap between G2993C and G2994. Repeat if necessary, but do not exceed two full turns.

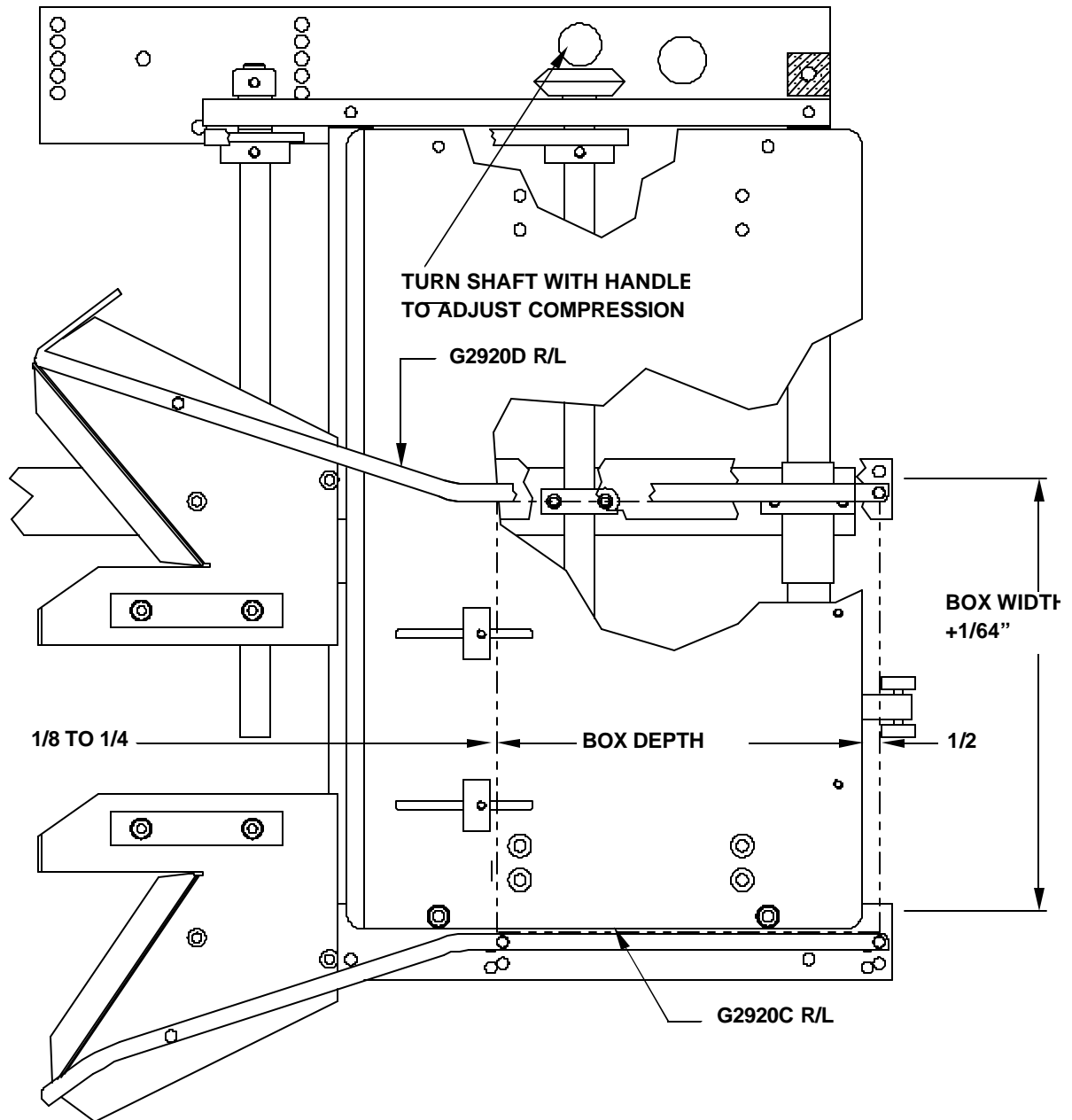


Compression Plate Linkage Adjustment



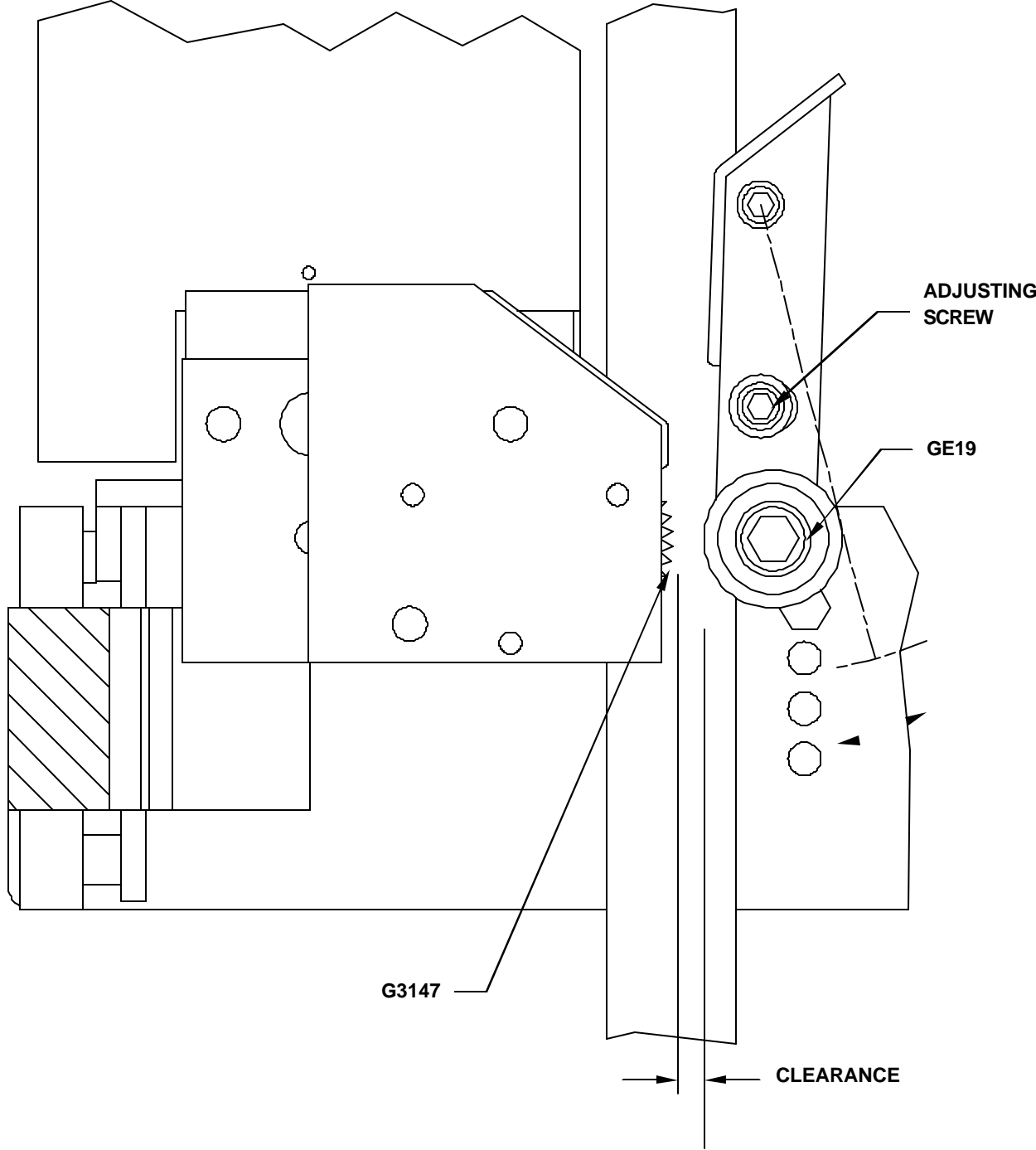
Top Compression Adjustment

1. Place a **complete, but unglued**, carton into the compression chamber.
2. Crank the compression vertically to obtain clearance of 1/64-inch between the compression shoes and the carton. In some cases, the rear edge of the compression is adjusted to 1/32-inch to allow better carton ejection.



Glue Pump to Back Up Roller Adjustment

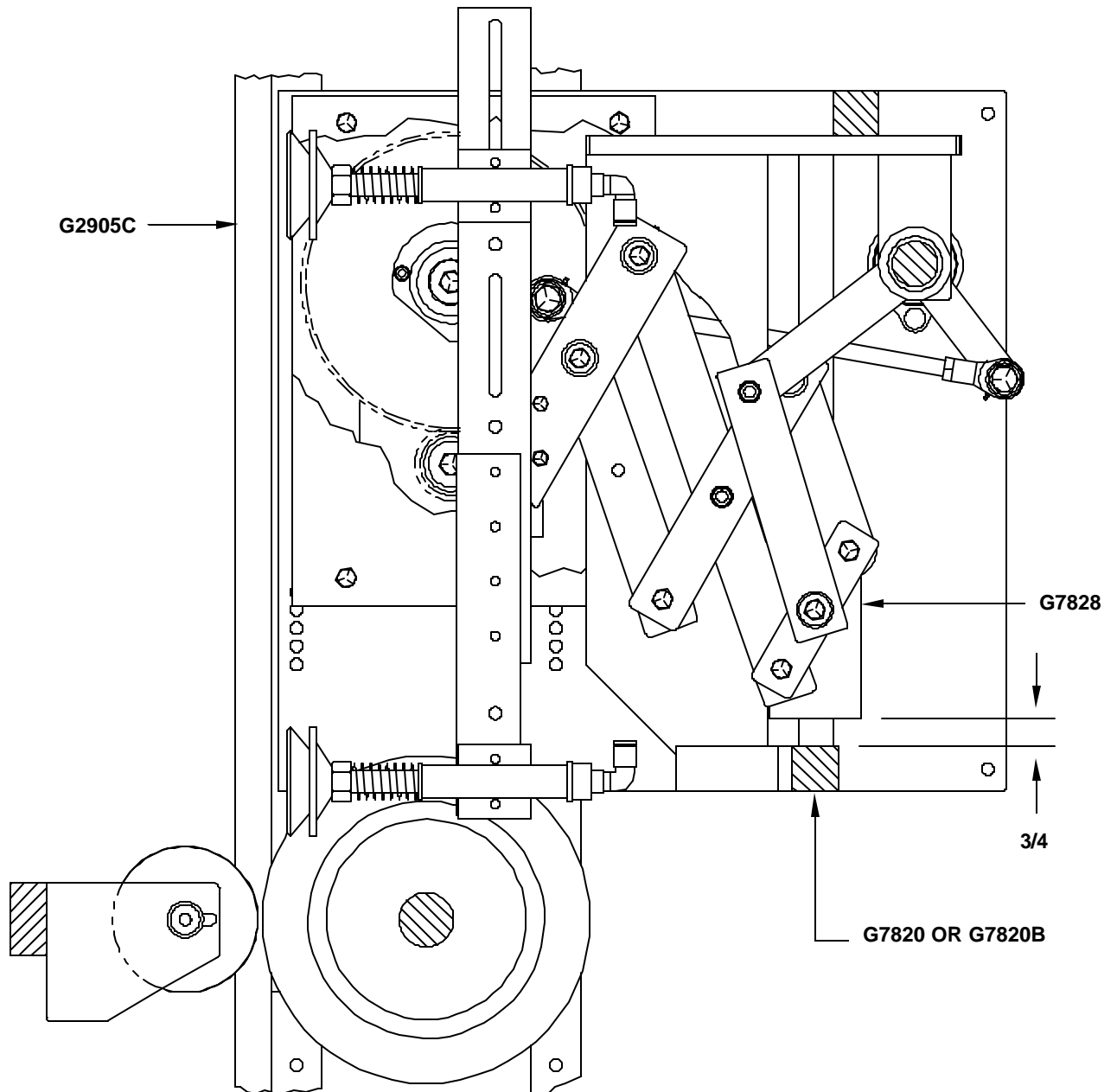
- 1. Loosen both top and bottom Allen cap screws as shown.
- 2. Adjust the back up roller GE19 close enough to the glue pump serrated wheel G3147 to leave visible teeth marks on the corrugated blank and turn the wheel as the blank passes between them.
- 3. If teeth marks are too shallow a “skipping” glue pattern results.



Vacuum Feed

Slide Bearing Block Adjustment

1. Disconnect the vacuum feed drive chain.
2. Jog the mandrel during the return stroke until the mandrel's front end is even with the front of the vertical guide bars G2905C. This is the **original start position** used during the timing adjustments.
3. The lowest point of travel for the slide bearing block G7828 should be $\frac{3}{4}$ -inch and measured between the bearing block and cam support bar G7820 (BF400VK / 1D5AK) or G7820B (BF600VK / 1D6AK). Rest the bearing block on a $\frac{3}{4}$ -inch spacer.



Vacuum Feed Timing Adjustment

1. Cycle the former to determine if the blanks should be fed earlier (mandrel closer to the beginning of the return stroke).
2. When timing direction has been determined, return to the **original start position** condition (see previous page for this condition).
3. Remove guard G7832A and the 3/8-inch bolt holding the pinion gear G3362. Remove pinion gear G3362.

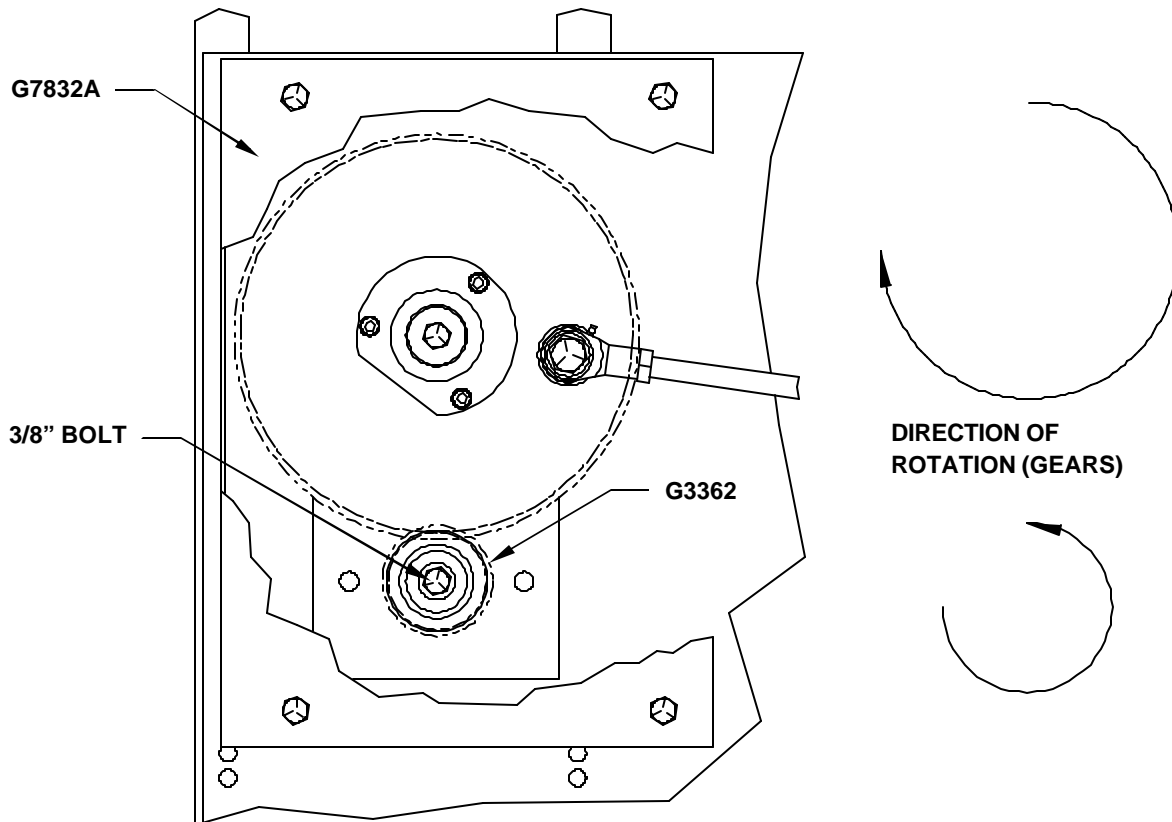
To feed blanks later (the mandrel closer to the **end** of return stroke)

1. Rotate the blank feed wheel in the normal rotational direction to let the blank pass the mandrel and rest on the bottom stop before mandrel contact.
2. Install the pinion gear and cycle the machine to check timing.

To feed blanks earlier (the mandrel closer to just the **beginning** of the return stroke)

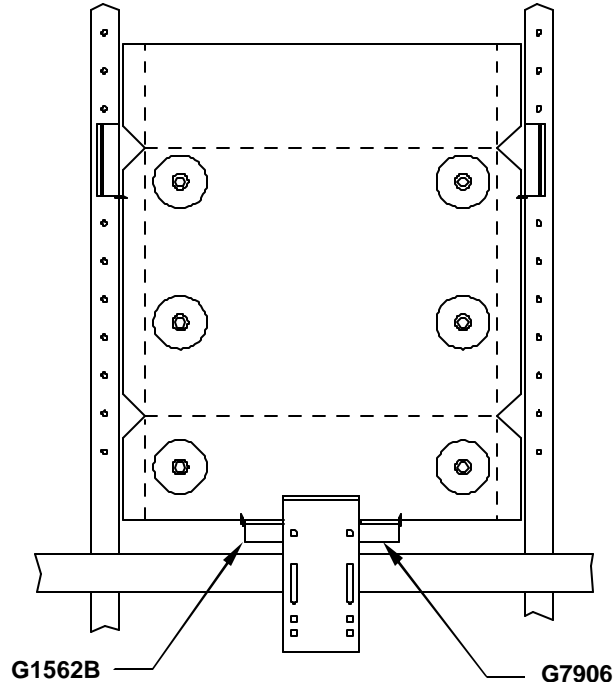
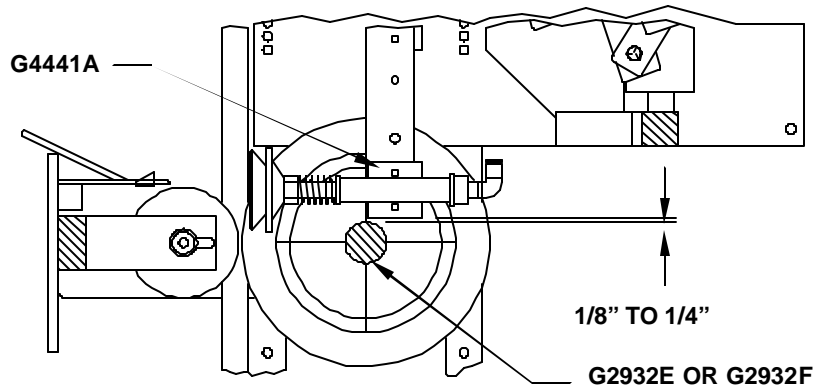
1. Remove the 3/8" bolt and pinion gear.
2. Rotate the blank feed wheel in the normal direction of rotation, allowing the blank to pass the mandrel and rest on the bottom stop before the mandrel starts to form the blank.
3. Reinstall the pinion gear and cycle the former to check timing. Reinstall cover guard G7832A.

Some blanks require more adjustment than others. Repeat these steps until obtaining the correct timing.



Vacuum Feed Cup Adjustment

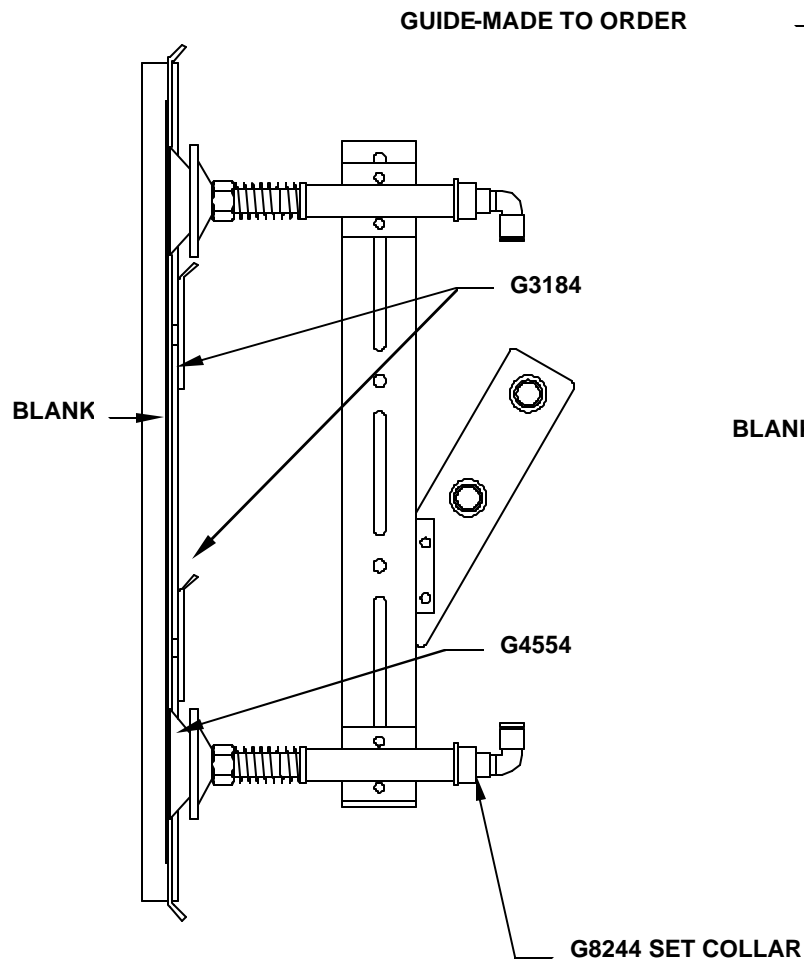
1. Set the slide bearing block at its **lowest** point of travel. Adjust the lower set of cups first.
2. Adjust the support bracket G4441A to clear feed roll shaft G2932E by 1/8-inch to 1/4-inch.
3. Jog the bliss former until the slide bearing block is at its **highest** point of travel.
4. Adjust lower cup width.
5. Adjust center set of cups even with or below the blank stop knives G1562B R/L.
6. Adjust the top set of cups above the set of knives mounted on the side hopper panels G2904.
7. Adjust the width of upper cups to the same width as the lower set. The height should be set to have the centerline of the cups in line with, or slightly above, the support knives mounted on the hopper panels G2904B R/L.



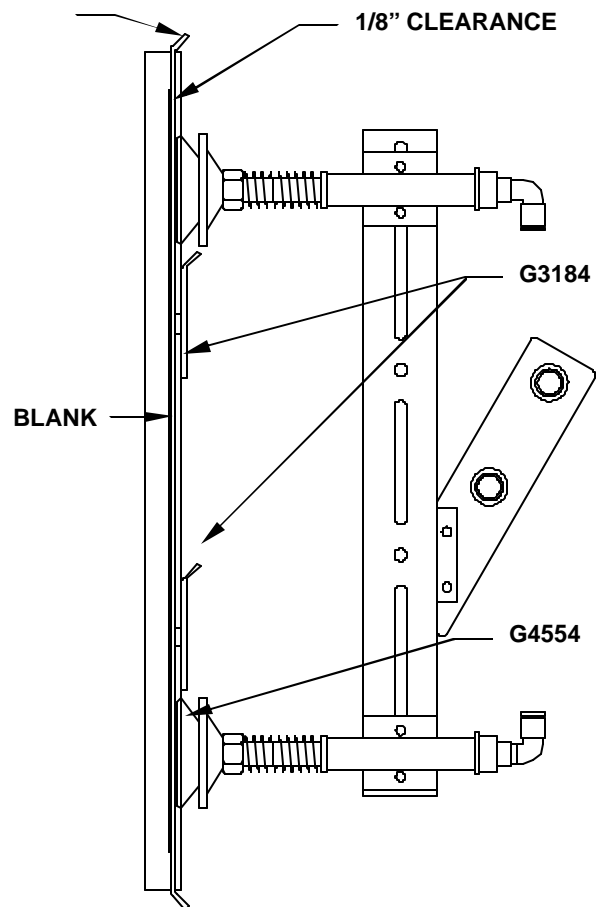
Suction Cup Mount Tube Adjustment

1. Turn the vacuum on. Jog the machine until one body blank is pulled from hopper and starts to move into the feed rolls.
2. The blank should be in contact with the rear blank guide mounted on the vertical guides.
3. If it's not in contact, loosen the screw on the set collar GB244 and pull the tube back until the body blank touches the rear guide. Tighten the set screw.
4. Jog the body blank into the feed rolls.
5. When the vacuum releases, there should be 1/8-inch clearance between the suction cups and the body blank.

Suction On



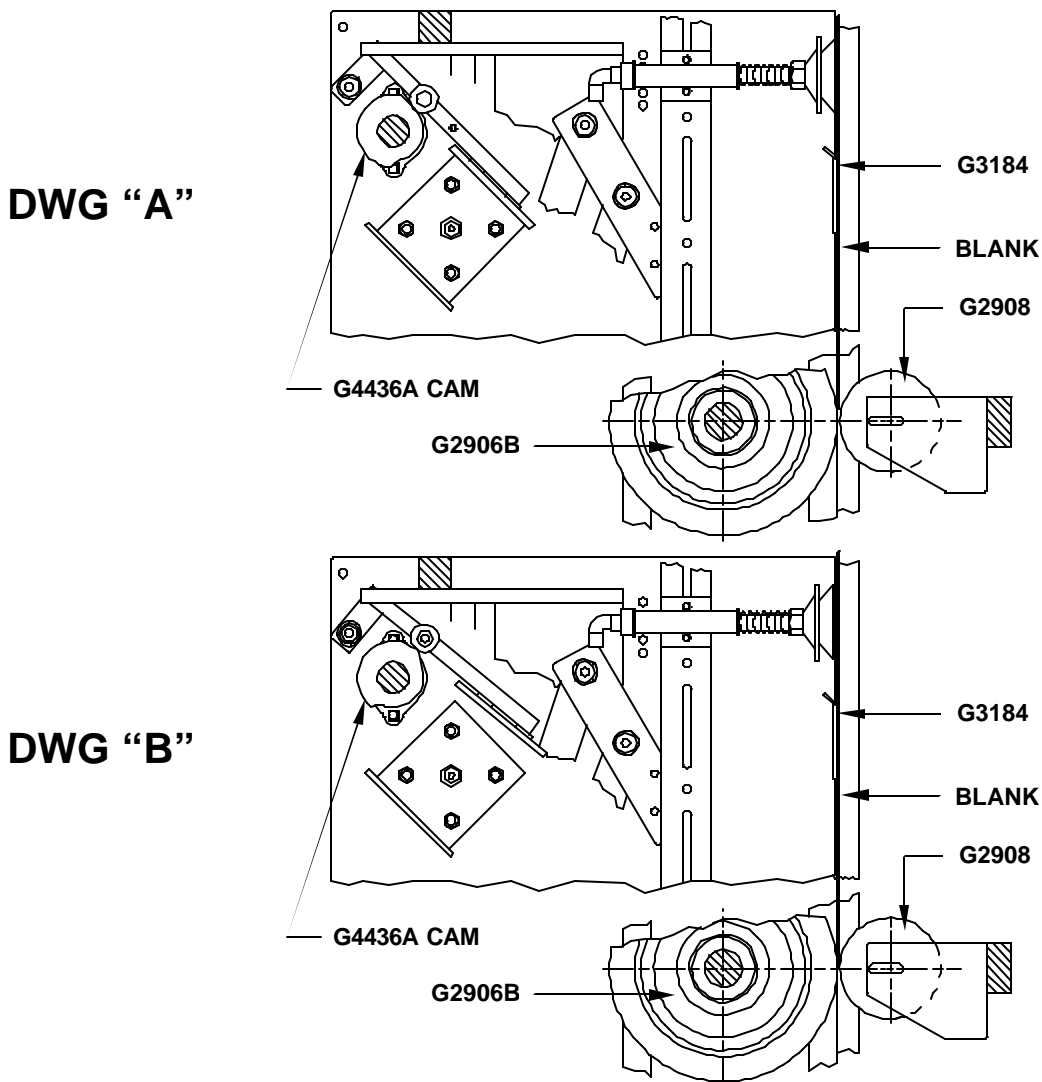
Suction Released



Vacuum Operating Cam Adjustment

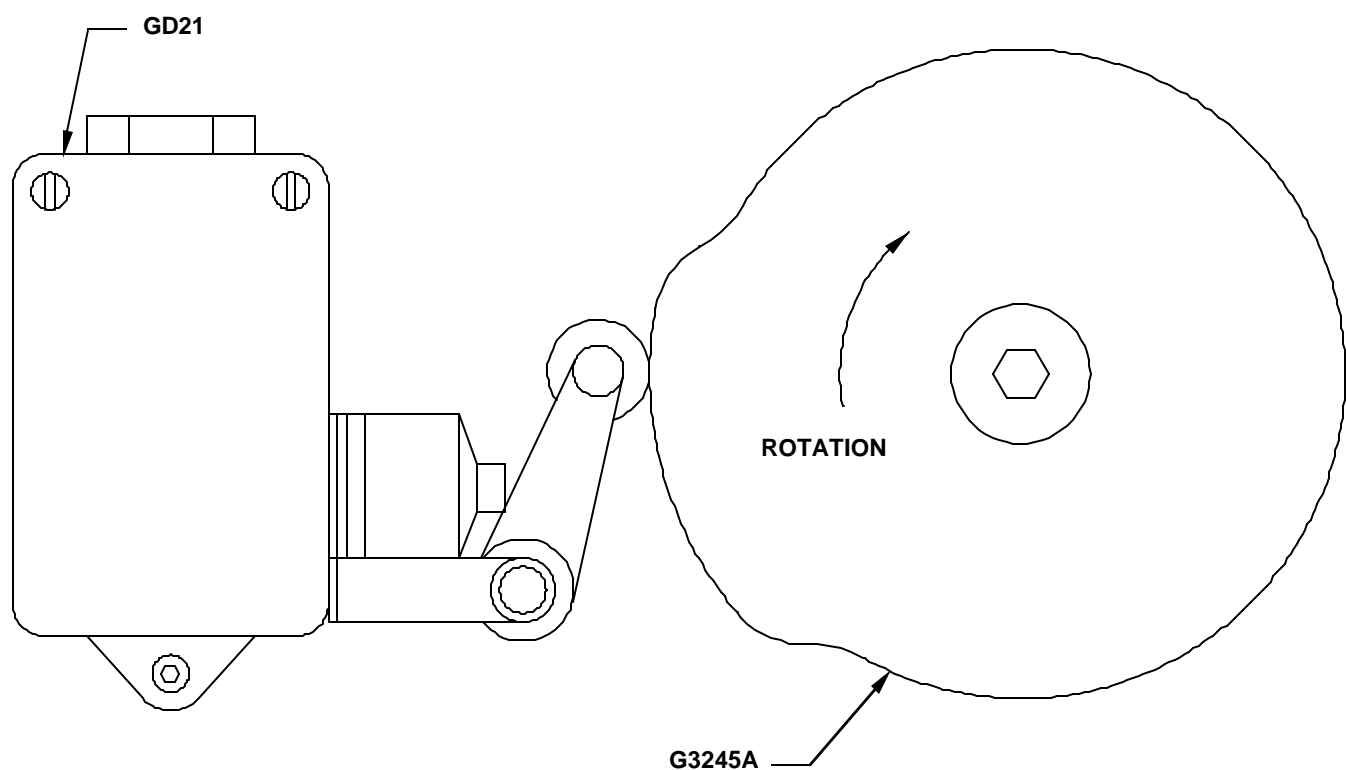
1. Load the hopper with blanks and turn on the vacuum system.
2. Jog the machine until a blank is pulled from the hopper and held by the suction cups.
3. Continue to jog until the blank is between the vertical guide bars and held against the rear stops.
4. When the blank bottom touches the feed roll G2906A or B and idle roller G2908, the cam should begin releasing suction as shown in **DWG "A"**.
5. When the blank bottom meets the **centerline** of feed roll G2906 A or B suction should be completely released as shown in **DWG "B"**.

These settings must be maintained to prevent blanks from misalignment, glue pattern misprogramming, or tearing the vacuum cups.



Machine Stop Micro Cam Adjustment

1. Cam switch GD21 is inside the right lower access cover of the Blissmatic.
2. Position the mandrel operating arm to the end of the forming stroke; full into compression.
3. Loosen the ½-inch flathead Allen bolt securing cam G3245A.
4. Rotate cam G3245A until the arm of GD21 travels to the high point of cam lobe of G3245A.
5. Retighten the Allen screw.
6. This adjustment stops the machine at the compression end of the stroke when the operating switch is turned off. This setting varies with machine speed.



Maintenance and Lubrication

Item	Inspection	Freq	Action
Thermostat	Check the setting.	Hourly	Reset or recalibrate if necessary.
Glue pots & pumps	Check for residual glue waste.	Daily	Scrape off the excess glue.
Bolted joints	Check for security.	Daily	Tighten all joints.
Mandrel, compression plates & vertical guides	Check for foreign material.	Daily	Remove excess glue with scraper.
Former	Check for cleanliness.	Daily	Blow former off with compressed air or brush entire machine.
Mandrel	Check for loose bolts, alignment or guide adjustment.	Weekly	Tighten all bolts. Align mandrel on support bars . Should be no clearance.
Blank hoppers	Check alignment.	Weekly	Adjust as necessary.
Glue backup rollers	Check for clearance.	Weekly	Adjust as necessary.
Glue pump	Check drive wheel. Check clearance.	Weekly	Replace if broken or bent. Adjust if necessary.
Corrugated material	Check specifications	Weekly	Replace material. Contact supplier.
Melt pot screen	Check for damage or waste.	Weekly	Remove, replace or clean
Wiring	Check for connections or damaged wire	Monthly	Tighten connectors or replace wiring
Set screws & bolts	Check security	Monthly	Tighten or replace if damaged
Melt pots	Check for charring	Monthly	Remove charred glue
Main gear	Check lubrication	6 mos	Lubricate with gear grease as required
Mandrel connecting rod		Daily	Lubricate on the pivot point and feed post
Vari speed control rod (if so equipped)		Daily	Lube between knob & end plate. Lube at pivot end.
Mandrel stop brake assembly (if equipped)		Daily	Lube the spring joint
Machine stop micro switch		Daily	Lube roller & pivot points on switch
Feed post actuating arm		Daily	Lube the cam through the grease fittings
Mandrel guide rails		Daily	Lube between mandrel rails and fabric guides. Heavy wear area
Compression shaft & linkage	Must lube daily	Daily	Lube both ends of shaft at transmission plate lube arm, cam roller, pivots and connecting points
Compression		Daily	Lube the plate mount spacer, actuator shaft and pivot parts
Box end pressure		Daily	Lube spacers & spring. Do not get lube on the outside of shoe. This would transfer to the box
Vacuum feed linkage			Use 10 wt. Oil or lighter
Slide bearing block assembly G7825			Use 10 wt. Oil or lighter
Rod end bearings for G7809			Use 10 wt. Oil or lighter
Bushing in the cam top bracket G7825			Use 10 wt. Oil or lighter

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Rod end bearings G7809		Daily	Use 10 wt. Oil or lighter
Bushing in cam top bracket G7825		Daily	Use 10 wt. Oil or lighter
Bolted joints & set screws	Check for security	Daily	Tighten all loose hardware
Vacuum cup pads	Check for wear	Weekly	Replace if cracked or worn
Suction cup mount tubes G4432A	Check lubrication	Weekly	Use Lubriplate 630-AA or equal
Vacuum cup tube support brackets G4441A	Check for wear.	Weekly	Replace if necessary.
Poly flow vacuum tubing	Check for wear & holes	Weekly	Replace tubing
Bliss end holder		Weekly	Lubricate shaft and roller
Feed post cam track		Weekly	Use Lubriplate 630-AA or equal
Roller chain drive	Check for wear	Monthly	Lubricate with chain oil
Vacuum feed drive gear	Check grease	6 months	Lubricate with open type gear grease

Adhesive System

Cleaning the Glue System

1. Turn the power on. Heat the adhesive to a temperature of **350° F**.
2. Remove the drain plug (under side of glue pump) and drain glue into a scrap container.
3. Remove all nozzles and plugs from the glue pump.
4. When all glue is drained, install the drain plug removed in step 2.
5. Fill the melt pot to the $\frac{3}{4}$ full level with paraffin wax.
6. Using a scraper, rotate the pump drive wheel until all glue is displaced by the paraffin wax.
7. Let the paraffin wax remain in the melt pot for **two hours at 350° F**.
8. Remove the lower plug and drain all the paraffin wax.
9. Add the new adhesive, making sure to close the supplying box immediately.
10. When a clean flow of glue is seen coming from the drain hole, install the drain plug.
11. Rotate the pump wheel with a scraper until a clean, bubble free flow is seen.
12. At this point you are ready to purge the adhesive system of air.

Purging the Glue Pump of Air

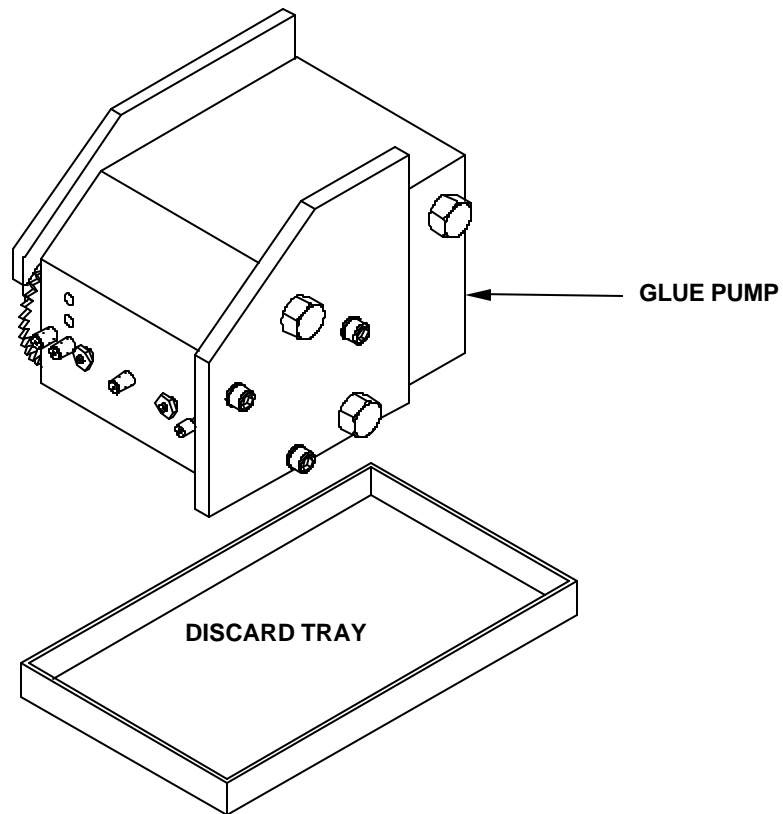
1. Remove all nozzles and plugs from the glue pump front.
2. Screw the volume control needle valve in, until it bottoms out.
3. Using a scraper, rotate the pump drive wheel.
4. When a bubble free glue flow is seen coming from the port farthest away from the wheel, start to install the plug or jets.
5. Rotating the drive wheel, continue to install plugs and jets in successive order.
6. When all ports are purged, adjust the volume control valve in order to produce a 3/32-inch wide bead.

Changing Adhesives

When changing adhesives, follow these steps:

1. Apply power to the bliss former and allow the glue temperature to stabilize at 325° F to 350° F.
2. Remove the pump drip pan and install a small disposable tray under the glue pump.
3. Remove a socket head screw beneath the glue pump body. Drain the glue system.
4. Add the new glue to the system. The new glue forces the old glue out.
5. Note the color change when the new glue displaces the old.
6. Replace the socket head screw under the glue pump.
7. The glue pump may drip from back pressure. The first three or four case blanks purge the system. Repeat this procedure with the other pump.

Do not mix glues. A chemical reaction may result.



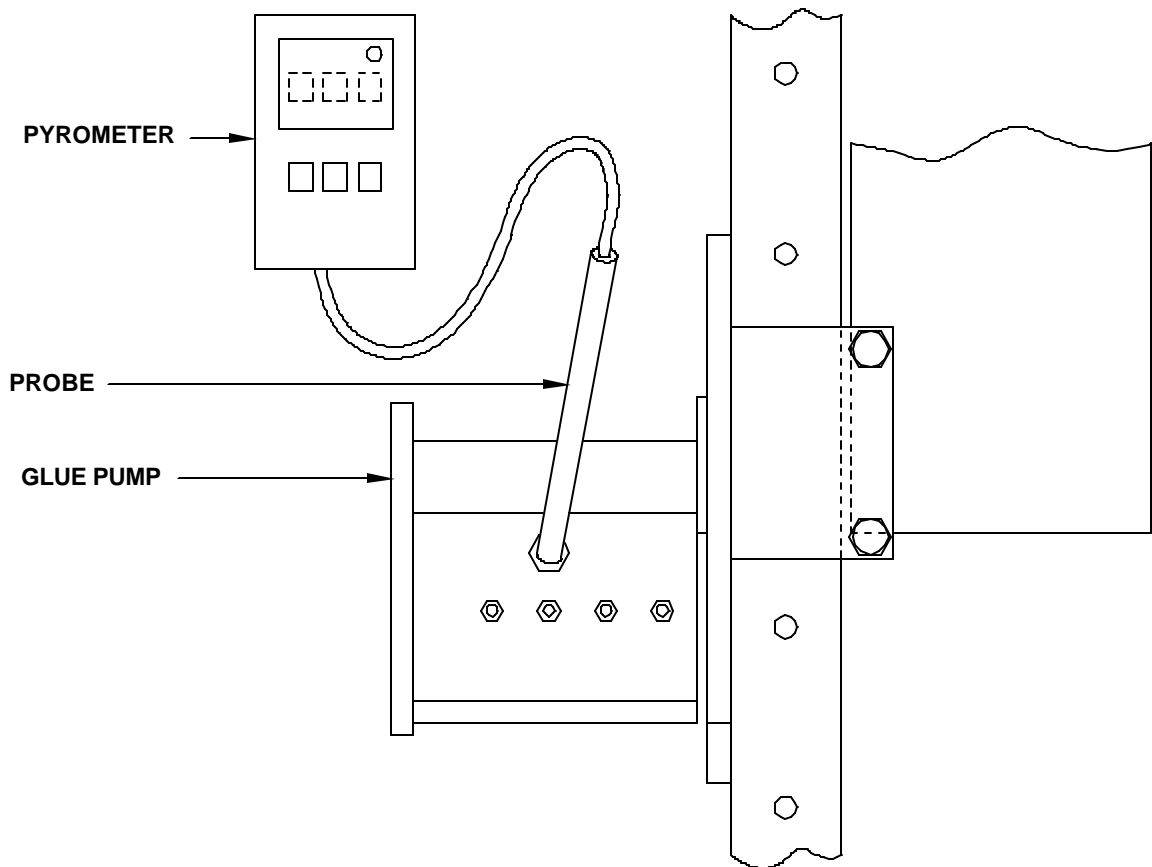
Protective gloves, eyewear and clothing must be worn when changing the adhesive.

Adhesive System

1. Set thermostat dial to **350° F** with power applied.
2. Allow approximately 30 minutes for the glue to heat up.
3. Press the Pyrometer probe to the glue pump as shown and note the reading.
4. The Pyrometer and the thermostat dial readings of 350° F **should be identical**.
5. **If not:** Recalibrate the adhesive system. Recalibration instructions are included on the next page.

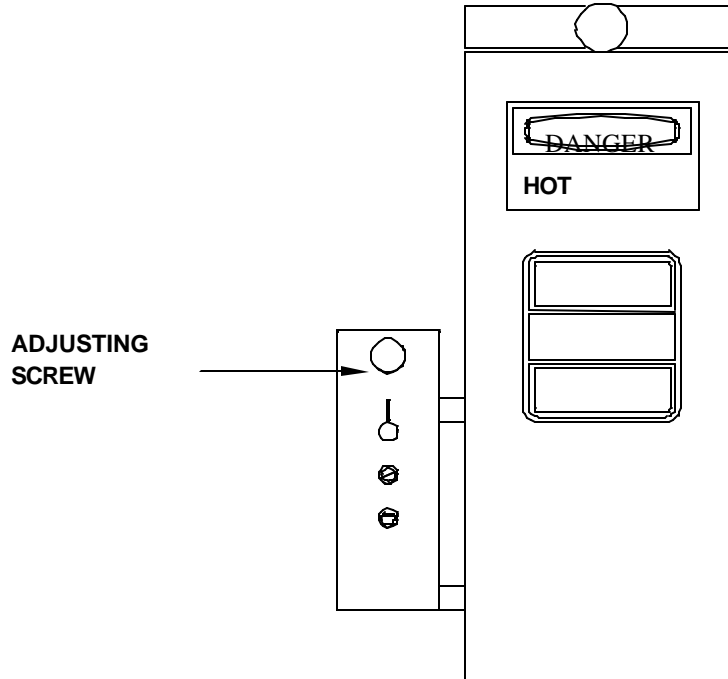


WARNING: When performing any maintenance on the glue system wear safety goggles, heat-resistant gloves, and protective clothing to prevent injury and burns from hot material and hot parts.



Thermostat Calibration

1. Set the Thermostat control dials **to the same temperature** measured by the Pyrometer.
2. Carefully remove the Thermostat control dial.
3. The mount stud holding the Thermostat dial should be visible.
4. Use this slotted stud to adjust the Melt pot temperature.



1. Use a small screwdriver to turn the adjusting screw until the heater light **just goes off**.
2. Reverse direction until the light **just comes on**.
3. Again in reverse direction and turn the adjusting screw until the light **just goes off**.
4. The melt pot temperature is now calibrated.
5. Carefully replace the dial and repeat with the other thermostat.
6. Both Thermostats must be calibrated at the same time.

Troubleshooting

Trouble	Possible Cause	Possible Solution
Machine stops suddenly.	Ground safety switch not making contact. Motor overload relays tripped.	Check the fuses. The control wire is not making contact. Check amperage and voltage.
Blanks will not feed out of the hopper.	Blank support bars dirty. Blanks too wide. Warped blanks. No vacuum.	Polish with Scotch Brite. Replace blanks. Replace blanks. If warped more than ¼-inch per foot, break blank opposite of warp. See <i>No Vacuum</i> below.
Blanks will not slide down the hopper.	Loading ramp dirty or rusty. Blank support bars not adjusted. Support bars dirty.	Polish ramp with Scotch Brite. Adjust bars. Polish with Scotch Brite.
Bottom of blank not sliding between vertical guide bars.	Loading blank guides not adjusted correctly.	Adjust lower guide as low as possible on the body wrap. Make sure inside edge of guide is even with the vertical guides. Adjust the vertical guides out and shim compression in. Readjust mandrel guide or replace blank. Adjust roller.
No glue on sealing flanges.	Body blanks too wide. Back up roller too loose. Body blanks too narrow. Glue pump problem.	The glue wheel is not touching the sealing flange. Adjust the vertical guide bars or replace the blanks. Add shims to bars and adjust top nuts. See glue problems listed below.
Blanks will not feed straight down.	Glue back up rollers too tight.	Adjust rollers to show distinct teeth marks on the blanks.
Blank hits the mandrel.	Blank timing too early. Blanks have excessive warp.	Time vacuum feed. Adjust guides on the vertical guide bars. Break blank on the opposite side of the score. Contact corrugators if the warp is more than ¼-inch per foot.
Body blank hits end guides.	Blanks have excessive warp.	Install spring loaded blank guides or break blanks on opposite side of warp.
End panel picks not returning far enough to get behind end panels.	Mandrel stroke too short. Main gear worn. Cam roll worn or loose.	Readjust stroke. Replace gear. Tighten set screw or replace.

Trouble	Possible Cause	Possible Solution
Seal flanges being torn as carton is formed.	Possible old style plates. Compression plates not opening fully. Broken return spring.	Replace with G3132D or E R/L plates. Check shaft G2992C and all actuating linkage for binding. Remove chaff or excess paper waste that may have clogged the linkage. Lubricate when finished. Replace the spring. Set the stroke.
Mandrel is pulling the cartons back out of compression.	Mandrel stroke is too short. Top compression shoes tight. Dirty mandrel.	Readjust compression. Scrape off excessive glue from the mandrel.
End panels pulling back with the mandrel.	Wrong size mandrel. End panels too thick or thin. Excess glue or glue too hot. Misadjusted strippers.	Change the mandrel. Change end panels. Check the adhesive section. Adjust the strippers.
Mandrel hits the blank before it reaches the bottom stop.	Blanks too wide. Idle roller too close. Blank timing incorrect. Backup roller too tight.	Replace body wraps. Adjust roller. Adjust blank timing. Adjust backup roller.
Blank bounces off the bottom stop, hitting mandrel.	Rebound stop set wrong. Blank timing late.	Add stop or adjust. Adjust timing.
End panels will not feed.	Insufficient hopper clearance. Hopper end too low. Pick is missing the end panels due to warp. Wrong size end picks.	Adjust hoppers. Do not run with less than 4-inches of blanks in hopper. Adjust hopper. Replace ends. If end panels not printed reverse in hopper. Replace end pick.
Bottom corners of carton torn.	Mandrel too large. Misadjusted bottom stop.	Check fit by removing mandrel and sitting on the body wrap. Place end panels in and fold the body wrap around the mandrel. A snug fit is expected. Crank the stop to reach correct setting.
Carton bottom has rounded corners.	Mandrel size incorrect. Top compression too tight. Blank length varies.	Change mandrel or corrugated. Adjust compression. Check with the corrugator.
Mandrel passes "cycle Start" position.	The mandrel stop-brake is worn. (no Variable Freq. Drive) Stop micro switch not adjusted.	Replace brake if so equipped. Adjust micro switch cam.
Carton falls apart after leaving compression.	No glue in pots.	Fill the glue pots ; never letting them go lower than ½ way.

Trouble	Possible Cause	Possible Solution
	<p>Clearance between glue pump and backup roller.</p> <p>Glue too hot, stringy or cold.</p> <p>Compression not correct.</p> <p>Corrugated too thin.</p>	<p>Adjust clearance.</p> <p>Adjust temperature.</p> <p>Adjust compression.</p> <p>Check with the corrugator. Shim if required.</p>
<p>Glue will not flow.</p>	<p>The glue melt pot is empty.</p> <p>Clearance between backup roller and pump setting.</p> <p>Worn or broken teeth on glue pump.</p> <p>Glue jets plugged.</p>	<p>Fill the melt pots.</p> <p>Set clearance.</p> <p>Replace pump drive wheel G3147.</p> <p>Use a paper clip to clean the jets. Remove the jets and turn the pump wheel until a clear flow is observed. Replace the jet. Orifice .040"</p>
<p>Glue will not flow.</p>	<p>Jets are plugged.</p> <p>Volume control needle.</p> <p>Heating element burned out.</p> <p>Thermostat out of calibration.</p> <p>Glue burned around drive wheel shaft. Pump wheel hard to turn.</p> <p>Air in the glue. A skip glue pattern or drooling from the nozzles. Moisture in the melt pots.</p> <p>Debris or charred glue in the adhesive system.</p>	<p>Remove and clean jets. <u>Be aware of high temperatures.</u></p> <p>Using a 1/16-inch Allen wrench, adjust "in" for more glue (clockwise) or out for less. Glue bead width should be 3/32-inch wide on most board except waxed board, which may need full flow.</p> <p>Replace the element.</p> <p>Calibrate.</p> <p>Drain glue. Remove end cap from pump. Push out gear from housing. Polish shaft with #120 grit Emory cloth to bare metal. By hand; using a "V" drill, insert it into the shaft hole and remove burned glue from the housing. Lubricate shaft with "Never Seize" and reinstall. Make sure the drive wheel set screw is in the counter-bored hole and tight.</p> <p>Prevent water from entering the pots when washing down. Change glue if air or water present. The SWF glue system is gravity fed and will not operate properly with air or water in system.</p> <p>Clean the system.</p>
<p>Thermostat light "on" but glue does not reach operating temperatures.</p>	<p>Loose wiring.</p> <p>Defective Thermostat.</p>	<p>Check for loose connectors or broken wiring.</p> <p>Replace the Thermostat.</p>
<p>The thermostat light is on but the glue does not reach operating temperature.</p>	<p>Defective heating element.</p>	<p>Check element with an Ohmmeter for an open circuit. If "open," warm melt pots to 250° F. Loosen the bolts holding the pump to the melt pot.</p> <p>Remove the thermostat cover G2784B and</p>

Trouble	Possible Cause	Possible Solution
		disconnect wires and remove G2997. Slide the new heater in and check voltage and wattage on the new heater. Coat heater with "Never Seize" compound.
Glue constantly running from nozzles.	<p>Air in the system.</p> <p>Foreign material under the ball check valve.</p> <p>Glue jells in the melt pots.</p>	<p>See maintenance information. If this fails, clean the pump with a torch or in an oven. Remove all charred glue. When completed, reinstall the ball check valve with a ¼-inch bar of round steel by lightly tapping on the ball. (Always use a new ball and spring).</p> <p>Clean the system. Prolonged overheating causes the glue to jell.</p> <p>Calibrate the thermostat.</p>
Glue does not bond on one corner.	<p>Glue is too hot or cold.</p> <p>Compression problem.</p> <p>Blank caliper too thin.</p>	<p>Adjust compression</p> <p>Shim compression or mandrel or replace blanks.</p> <p>Turn switch to "on."</p>
Vacuum blower inoperative.	<p>Main disconnect switch is in the "off" position.</p> <p>Vacuum switch is in the "off" position.</p> <p>Loose wiring.</p>	<p>Turn switch to "on."</p> <p>Check for wiring and terminals.</p>
Vacuum blower inoperative.	<p>Motor starter GD63.</p> <p>Blower shuts off after a short period.</p> <p>Blower shuts off after long period.</p>	<p>Replace if defective.</p> <p>Compare incoming voltage versus wired.</p> <p>Motor thermostat is overheated. Allow motor to cool.</p>
No suction at the vacuum cups.	<p>The blower is inoperative.</p> <p>Vacuum tubing damaged.</p> <p>Vacuum cup bolt G4553 suction hole clogged.</p> <p>Vacuum valve cover pad G7555 not seating on valve manifold.</p> <p>G4554 cup pads damaged or worn.</p> <p>Filters are dirty.</p>	<p>Refer to blower problems listed above.</p> <p>Check tubing for cracks or holes.</p> <p>Clean out the tubes.</p> <p>Adjust.</p> <p>Replace pads.</p> <p>Replace or clean the filters.</p>
Suction will not release.	<p>Valve operating cam G4463A is not adjusted.</p>	<p>Adjust cam.</p>
Vacuum cups not pulling blanks from the hopper.	<p>The blower is inoperative.</p> <p>Cups contact blank over slots or holes.</p>	<p>See <i>Too few blanks in the hopper.</i></p> <p>Reposition the cups.</p>

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Trouble	Possible Cause	Possible Solution
	<p>Lower set of vacuum cups are set too low.</p> <p>Blank support knives G1562B R/L are resisting the pull of the cups.</p>	<p>Reposition the lower set.</p> <p>Use 1 or 2 washers to space the knives out.</p>
<p>Blank drops from the vacuum cups before it is placed into the feed wheel.</p>	<p>Vacuum valve operating cam G4436A not set right.</p> <p>Vacuum cup mount tube return stroke needs adjustment.</p> <p>Vertical guide bars.</p>	<p>Adjust the cam.</p> <p>Adjust tubes.</p> <p>Bars set too tight.</p>
<p>Multiple blanks being pulled from the hopper.</p>	<p>Support knives.</p> <p>Vertical guide bars.</p> <p>Blanks are interlocking.</p> <p>Blanks are varying in dimensions.</p>	<p>Remove washers under knives in order to provide more restraint.</p> <p>Adjust bars. Bars are set to blank width +1/8-inch.</p> <p>Check with the corrugator if the plugs or coating is the problem.</p> <p>Check with corrugator after measuring samples.</p>
<p>Vacuum blower is blowing and not creating suction.</p>	<p>Blower rotation incorrect.</p>	<p>For three phase machines , reverse wires M1 and M2.</p>