Value Series V-710BC

Manual





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BEFORE YOU BEGIN

Message Conventions



DANGER signifies an action or specific equipment area that can result in <u>serious injury or death</u> if proper precautions are not taken.



WARNING signifies an action or specific equipment area that can result in <u>personal injury</u> if proper precautions are not taken.



CAUTION signifies an action or specific equipment area that can result in <u>equipment damage</u> if proper precautions are not taken.



ELECTRICAL DANGER signifies an action or specific equipment area that can result in <u>personal injury</u> or death from an electrical hazard if proper precautions are not taken.



TIP signifies information that is provided to help minimize problems in the installation or operation of the feeder.



NOTE provides useful additional information that the installer or operator should be aware of to perform a certain task.



CHECK signifies an action that should be reviewed by the operator before proceeding.



IMPORTANT alerts the installer or operator to actions that can potentially lead to problems or equipment damage if instructions are not followed properly.



WARNING LABELS affixed to this product signify an action or specific equipment area that can result in <u>serious injury or death</u> if proper precautions are not taken.

BEFORE YOU BEGIN

Message Conventions



Avoid injury. Do not reach around guards.



Hazardous voltage. Contact will cause electric shock or burn. Turn off and lock out power before servicing.



Moving parts can crush and cut. Keep guards in place. Lock out power before servicing.



Pinch point. Keep hands and fingers clear.



Moving parts can crush and cut. Keep guards in place. Lock out power before servicing.

Specifications

Maximum Product Size:	12 W x 12 L in (305 x 305 mm)*
Minimum Product Size:	
Optional:	
Min/Max Product Thickness:	
Belt Speed:	
Batch Size:	1-50 pieces
Electrical Requirements:	115/230vac, 50/60Hz, 3A
Weight:	

*Optional product size available

1 About the Machine

Features

The V-710BC Universal Friction Feeder is designed for reliability, flexibility, and ease of use with a variety of host systems. Included are such applications as gripper arm envelope inserters and infeed conveyors for various wrapping machines. All parts required for setup, loading, feeding, sensing and easy operator control are combined into one compact unit.

Review the *main assemblies* in Figure 1-1 to become familiar with names and locations of feeder parts and adjustments. This will help to prepare you for initial setup. Descriptions are found in Table 1-1.

Review the *control panel components* in Figure 1-2 to become familiar with names and locations of specific connectors, switches, and controls. This will help to prepare you for installation and operation. Descriptions are found in Table 1-2.



Main Assemblies

Figure 1-1. Main Assemblies of the V-710BC Universal Friction Feeder

Feature	Description
Gate assembly and adjustment	Mounted on a gate bracket assembly above the feed belts, this device provides a curvature to help preshingle stacked material. When properly adjusted, a clearance is created to help singulate and feed material. (<i>Note:</i> <i>For multiple page material, a 1 to 1.5 maximum thickness is typical.</i>)
Table top	Used to support the back wedge.
Variable angle feed belts adjustment	Located on each side of the feeder, these adjustment knobs allow you to raise the rear feed belts above the table top to achieve optimum contact with material.
Side guides (adjustable)	Holds a stack of material to be fed and helps keep it straight for proper entry through the gate assembly area.
Back wedge and adjustment	Lifts the material to keep it off the table top, reduces excessive contact with the feed belts, and helps push the material against the curvature of the gate assembly. To achieve proper lift, an adjustment wing-nut allows you to slide the wedge to various positions.
Photo sensor and flexible extension	Also called a <i>sheet-detect</i> photo sensor, it "looks" for the leading edge of the material to stop the feeder. For optimum setting, a flexible extension allows you to adjust for distance and perpendicular angle to material.
Feed belts and discharge belts	<i>Feed belts:</i> Provides the friction and motion necessary to pull individual material from the bottom of the stack and through the gate assembly area. <i>Discharge belts:</i> Combined with the top roller hold-down assembly, provides the friction and motion necessary to pull material away from the gate assembly area.
No-adjust hold down assembly	Provides the friction and motion necessary to pull materials away from the gate assembly. Positioned above discharge belts.
Control panel	All connectors and switches for sensor, interface, and AC power are located here. For descriptions, see Figure 1-2 and Table 1-2.
Discharge safety shield	Provides residual risk protection to operator when feeder is running.
LOOSE PARTS	
AC power cord, 8 ft. (2.44 m)	IEC320 removal three-prong. Shipped loose.
Flight-detect sensor	Mounted at a remote location. It "looks" for a target on-line, such as a hold-down ski or conveyor lug, to start the feeder.
Fault output I/O cable	Provides the interface for host system integration.

 Table 1-1.
 Main Assemblies Feature Descriptions

Control Panel Components



Figure 1-2. Control Panel Components



Figure 1-3. Control Panel Components (Left Side View)



Figure 1-4. Control Panel Components (Right Side View)

Feature	Description
AC power cordset connector	Cordset plugs into this IEC320 connector to provide feeder with power from a grounded/fused outlet. Configured for either 115- or 230-VAC.
Feed/flight trigger connector	The remote flight-detect sensor plugs into this 4-pin connector to provide the "start" signal to begin a feed cycle.
Power On/Off	Toggles AC power On or Off.
Fuse holder	Contains two replaceable GMD3, 5A, 5-mm fuses. <i>IMPORTANT: Always</i> make sure power module is replaced exactly as removed. Failure to follow this caution can result in damaged electrical parts.
Reset button/fault indicator/cycle button	Labeled Cycle Fault Reset , the primary purpose of this push-button switch/indicator is to reset the feeder after: 1) a "time-out" occurs or, 2) "misfeed" occurs. Time-outs occur during a misfeed or when the hopper runs out of material. A "time-out" will occur only when operating at line speeds less than 30 pieces per minute. Speeds above 30 pieces per minute will result in a miss fault and a "time-out" will not occur. The push- button switch (labeled Cycle) is primarily used during preparation and test. This switch is used to manually start (or run) a feeder cycle. To "start" a cycle, push Cycle completely in and then release.
Variable speed control	This dial switch (labeled Speed) allows the feeder speed to be synchronized with an inserter, or infeed conveyor. Turning counterclockwise decreases speed; clockwise increases speed.
Batch count thumbwheels	These two wheels allow you to select a number from 01 to 59 to which the feeder will always count and then stop.
Fault output connector (dry contact)	The fault output I/O cable plugs into this connector to provide the host system interface.
Fault configuration selector switch	This switch allows the operator to select between stopping the feeder or sounding an alarm only when a fault is detected.

Table 1-2. Control Panel Feature Descriptions

2 Preparing for Operation



When performing initial feeder adjustments prior to operation, always make sure you turn Off the main power switch and disconnect all equipment from the electrical power source. Failure to do so can expose you to a potential start-up and moving parts which can cause serious injury.

Do not attempt to make any adjustments while the feeder and machine of application are running. Failure to do so can expose you to moving parts which can cause serious injury. Do not wear loose clothing when operating the feeder.

Avoid making adjustments with loose or unsecured parts. This can potentially damage parts.

STEP 1: Gate Assembly Adjustment



Hopper refers to the space where the material is stacked (made up of the side guides).



Keep in mind the gate assembly works with the wedge to provide the proper lift, curvature of the material, and proper belt/material contact to separate and feed one piece at a time.

IMPOR TANT

Feeding problems will occur with either too much material in the hopper, or too large a gap between the gate assembly and the material. to be feeding. Do a test run with this material to verify it is set correctly before you begin cycling the feeder with your particular application. *You will have to perform this procedure for material you plan to feed.*The adjustments you must make (in order) are as follows:

Once the V-710BC Universal Friction Feeder is installed on your host system, you are ready to prepare the machine for operation. To do so, you must perform several adjustments with the material you are going

- 1: Gate assembly adjustment
- 2: Side guides setting
- 3: Back wedge adjustment
- 4: Photo sensor adjustment
- 5: Manual test to verify

Review

The gate assembly provides the curvature to help preshingle material and the proper gap to help the feed belts pull material through the gate assembly area — one at a time. The downward pressure (or weight) of the stack in the hopper will provide the force to help push the material against the curvature of the gate assembly, and help it contact the feed belts. This preshingling will allow the gate assembly to efficiently separate (and singulate) material.

To achieve the optimum separation, you have to use the adjustment knob to either increase (clockwise) or decrease (counterclockwise) the gap between the gate assembly and the feed belts. Depending on the characteristics of the material you are using, you may have to change the gate assembly from the factory-set *high* spring tension to a *low* spring tension. See "Changing from Factory Set High-Tension to Low-Tension" to follow (page 8).

Objective

Adjust the gate assembly for minimum gap, with minimum pressure on the material. Your objective is to adjust the clearance so that a single piece of material passes without resistance. The optimum setting should be a gap adjustment of 1.5 thickness of material.

STEP 1: Gate Assembly Adjustment (continued)



Excessive lowering of the gate assembly can damage product or lead to premature wear of the O-rings or feed belts.



If bottom piece of material does not move freely, the gate assembly is too tight. This can lead to premature wear of the O-rings or feed belts.



A wider gap between product and belt provides the highest tolerance for curled and bent edges.



Feeding problems will occur with either too much material in the hopper, or too large a gap between the gate assembly and the material.



Figure 2-2. Using Two Pieces of Material to Set Gap

Procedure

To adjust the gate assembly for proper gap:

- 1. Slide a single sheet of test product under the gate assembly. It may be necessary to pull up on the adjustment knob to allow the piece to be inserted.
- 2. Test the piece for clearance. Grasp the product with two hands and slide it front-to-back under the gate assembly. A proper adjustment allows a slight amount of drag on the top of the piece.
- 3. Adjust the knob on the gate assembly until the piece has the desired drag. Turn the knob clockwise to increase clearance or counterclockwise to decrease clearance.
- 4. Repeat the drag tests and adjust as needed to achieve acceptable clearance.



Figure 2-1. Lifting Gate Assembly Upward to Insert Material



Figure 2-3. Adjusting Gate Assembly for Correct Gap

STEP 1: Gate Assembly Adjustment (continued)



When feeding product with varying thickness throughout, it may be necessary to turn both adjustment rollers 1-2 **full turns** counterclockwise to compensate for the differential thickness. This procedure allows the gate horizon to "float."



The adjustment knob set screws are pre-set at the factory to lock the knob to the threaded rod. DO NOT OVER-TIGHTEN! Over-tightening the set screws may damage the components.

To adjust the gate for effective material skew control, follow these steps:

- 1. Repeat drag test.
- 2. Test the piece for uneven side-to-side drag. Grasp with two hands and slide it front-to-back under the gate assembly. A proper adjustment allows for equal drag on the left and right sides of the piece of material.
- 3. To compensate for greater drag on one side of the material, turn the *opposite* adjustment roller *counterclockwise* 1/8 turn. Next, turn the other adjustment roller *clockwise* 1/8 turn.
- 4. Repeat drag tests and adjust as needed until equal drag is achieved. You may need to repeat this procedure after observing the feeder cycling (refer to Section 3, How to Operate).



Figure 2-4. Horizon Adjustment (shown on Advancing O-Ring Gate)

Changing From Factory Set High-Tension to Low-Tension



Excessive lowering of the gate assembly can damage material and/or lead to premature wear of the O-rings or feed belts.

IMPOR TANT

When changing from a low-tension to hightension setting, you may have to adjust the stack height downward to prevent feeding problems.



Certain types of single-sheet material may require even more tension than the hightension setting can provide. To increase tension even further; place a washer between the cylinder and spring.



The V-710BC is shipped to you with a high-tension spring in the gate assembly. This setting works well for most materials, allows for tall stack height, and helps provide the best performance in preventing doubles. Certain types of material, however, may demand that you change the gate assembly from a *high-tension* setting to a *low-tension* setting (for example, irregular shaped material).

If you are feeding material of irregular thickness, you should change to low-tension. This setting provides the following benefits:

- 1) allows the gate assembly to adjust to the irregular thicknesses.
- 2) prevents marking on the material by the gate assembly.
- 3) prevents peeling back the top sheet of a multi-page item.

Procedure

To change the spring from a *high* to a *low* tension, follow these steps:

- 1. Remove the gate assembly from gate bracket assembly. To do so, pull cylinder down with one hand, lift up on knob with other, and tip at slight angle to remove.
- 2. Remove the adjustment knob by turning counterclockwise (Figure 2-5A). Then lift the cylinder off of top of spring (Figure 2-5B).
- 3. Turn the cylinder around so the cylinder collar faces up (Figure 2-5C). Then place the cylinder on top of the spring.
- 4. Replace the adjustment knob (make about 8 revolutions of the knob before reinstalling gate assembly on gate plate).





Figure 2-5. Adjusting Gate Assembly for Low-Tension

STEP 2: Side Guides Setting

Review

The side guides hold the stack of material being fed, and guide the material through the feeder in a straight line of movement. You can adjust the side guides to accommodate different sizes of material.

Objective

Adjust the side guides so the material stack maintains uniformity from top to bottom, with no drifting or binding. Adjustments are made *horizontally*.

Make sure the space between the side guides can accommodate the size of the material being fed. Consider the following as you adjust the guides:

- An initial starting point should always be that each guide is of equal distance from the center point of the machine.
- Each edge of the material should rest equally on the belts, on both sides of the gate assembly (or equidistant spacing). *There may be certain instances where guides do not need to be centered due to material characteristics. This is called offset spacing.*
- Adjust both side guides to be as close as possible to either sides of the material, without causing binding, curling of edges, or resistance to movement.

Procedure

One-Knob Side Guides (optional). To adjust each side guide for proper *equidistant* horizontal spacing using the single-knob adjustment, follow these steps (Figure 2-6):

- 1. Place a small stack of material in the hopper.
- 2. Using the side guides adjustment knob (centrally located between the two guides), turn in either direction until guides are located at the recommended distance from the material: .0625 in. (1.6 mm) from each edge, .125 in. (3.1 mm) overall.
- 3. Visually check both guides for proper spacing from material.

Two-Knob Side Guides (standard). To adjust each side guide for proper *equidistant* horizontal spacing using the dual-knob adjustment, follow these steps:

- 1. Place a small stack of material in the hopper.
- 2. Start by loosening each side guide wing adjuster (counterclockwise). This will allow you to move each side guide as needed.
- 3. Grasp the lower part of each guide and slide to the recommended distance from the material: .0625 in. (1.6 mm) from each edge, .125 in. (3.1 mm) overall. Tighten each wing adjuster after you establish proper position for each guide.
- 4. Visually check both guides for proper spacing from material.



A good "rule-of-thumb" measurement to use is about .0625 in. (1.6 mm) between material edge and side guide (.125 in. or 3.1 mm overall).

NO TE

There are two types of side guide adjustments available:

- One-Knob: Both side guides controlled simultaneously by a single knob (as shown in Figures 2-6 and 2-7).
- *2) Two-Knob: Each side guide controlled by separate knobs.*

STEP 2: Side Guides Setting (continued)

One-Knob Side Guides. To adjust each side guide for proper *offset* horizontal spacing using the single-knob adjustment, follow these steps (Figure 2-7):

- 1. Push down on the side guides spring-loaded adjustment knob to disengage guides from gear mechanism.
- 2. Grasp whichever side you wish to offset first and move into position.
- 3. Place a small stack of material in the hopper, with edge of paper against offset guide.
- 4. Move the second side guide so it is located at the recommended distance from the material: .0625 in. (1.6 mm) from each edge, .125 in. (3.1 mm) overall.
- 5. Lift up on the spring-loaded adjustment knob so the guides lock into place.
- 6. Visually check both guides for proper spacing from material.



Figure 2-6. Horizontal Adjustment of Side Guides



Two-Knob Side Guides. To adjust each side guide for proper *offset* horizontal spacing using the dual-knob adjustment, follow these steps:

- 1. Start by loosening each side guide wing adjuster (counterclockwise). This will allow you to move each side guide as needed.
- 2. Repeat steps 2-5 above.
- 3. Tighten each wing adjuster after you establish proper position for each guide.
- 4. Visually check both guides for proper spacing from material.

STEP 3: Back Wedge Adjustment



Keep in mind the back wedge works with the gate assembly to provide the proper lift, curvature of the material, and proper belt/ material contact to separate and feed one sheet at a time.



There are a number of feeding problems which can be solved by simply adjusting the back wedge to different positions. Some of these problems include double feeds, skewing, twisting, poor singulation, ink or varnish buildup on the belts, and jamming at the gate assembly area.

Review

The back wedge provides proper lift to the material to help keep it off the table top and feed belts, and it creates the force necessary to push material against the gate assembly. By adjusting it back and forth from the gate assembly or pivoting side to side, you can create the lift and force necessary to preshingle material against the curvature of the gate assembly. Also, it keeps other sheets off the feed belts until proper separation of the bottom sheet at the gate assembly has occurred.

Here are some general guidelines that should help you determine how the back wedge should be positioned for your particular material:

- *Moving the individual wedge triangles to the outside* of the back wedge shaft will create a bow in the center. The bow will stiffen the material to promote better singulation of thinner material.
- *Pivoting the back wedge from its perpendicular to the gate assembly* will increase or decrease the amount of drag or contact (traction) on the feed belts for a given side. This can also be used to control twisting or skewing of material as it leaves the gate assembly area.
- *If the back wedge is positioned too far backward* from the gate assembly, the belts are driving the material before the bottom sheet has separated and left the gate assembly area. This pushes the gate assembly up, creating more pressure on the material, O-rings, and feed belts. The result can be premature buildup of ink or varnish on the belt surfaces. It can also cause more than one material at a time to be forced under the gate assembly, creating a double feed.

By moving the back wedge forward, only the bottom material can make contact with the belt surface. Slippage is reduced, minimizing buildup on the belt surface. Double feeding is also reduced.

• *If the back wedge is positioned too far forward* to the gate assembly, a pinch point can be created between the top surfaces of the individual rollers and the material. Moving the back wedge even closer toward the gate assembly can allow material to overhang the wedge, creating too much lift of the material off the feed belts.

STEP 3: Back Wedge Adjustment (continued)

Objective

Adjust the back wedge for proper support of the material off the table top, without creating any pinch or stress points.

Procedure

To adjust the back wedge for initial proper positioning, follow these steps:

- 1. Grasp a handful of material, approximately 2 to 2.5 in. (5 to 6 cm) thick, and preshingle the edges with your thumb (Figure 2-8).
- 2. Place the preshingled material in the hopper so the edges rest against the curvature of the gate assembly.



Figure 2-8. Preshingling a Small Stack of Material By Hand

- 3. Turn the back wedge wing-nut adjustment counterclockwise to loosen the wedge.
- 4. Move the back wedge forward and backward until the bottom sheet is not touching the table top. A good starting point is to measure about .625 in. (16 mm) from the bottom sheet to front edge of table top.
- 5. Make sure the edge of the back wedge assembly is parallel with the edge of the material stack. Adjust as required and then tighten the wing-nut.
- 6. Check that individual wedge triangles are evenly spaced to provide enough support to lift the material off the table top and feed belts, without any bowing or twisting. *Refer back to the previous page for guidelines on adjusting individual wedge triangles for thinner material.*



Moving the back wedge too far forward to the gate assembly can create a pinch point between the wedge and the material. If moving the back wedge in is not effective, then an optional wedge may be required.

STEP 4: Photo Sensor Adjustment



Standard photo sensor shipped from the factory is a diffuse reflective detector. No adjustment for gain is required or necessary.



Only adjust the photo sensor when the feeder power is Off. Do not attempt to adjust the photo sensor while the feeder power is On or while the feeder is running. Doing so will expose you to pinch points which can cause injury to hands or fingers.



Potential damage to feeder parts is avoided if adjustments are made when the feeder power is Off.

IMPOR TANT

On the feeder, such objects as shafts, guides, belts, and supports may cause false "reads" if the photo sensor is not adjusted properly for the material. The resulting problem can be intermittent or continuous feeding. See Section 4, Operational Troubleshooting, for a solution.



For any questions you may have about adjusting the Flight-Detect photo sensor, consult with a qualified technician.



Avoid light colored backgrounds in the discharge area.

Review

The **Flight-Detect** photo sensor is mounted on the line to detect a target (for example, a conveyor lug) so as to eject a product. The **Sheet-Detect** photo sensor is mounted on the flexible arm extension assembly to detect the leading edge of a product about to be ejected so as to turn the feeder Off.

In preparing for operation, your initial concern should be to properly position the **Sheet-Detect** photo sensor.

Objective

For the **Sheet-Detect** photo sensor to be effective, it must be adjusted within a specified range and angle to the product.

Procedure

To adjust the **Sheet-Detect** photo sensor for proper positioning, follow these steps:

- 1. Aim and align the photo sensor straight toward (perpendicular to) the product. If the photo sensor is at an angle, the light will not be reflected straight back to the receiver.
- 2. Position the photo sensor at distance between 1 to 1-1/2 in. (25 to 38 mm) from the product. Initially use the adjustable arms on the extension assembly. *When only the green LED is On, you will know when the photo sensor is positioned properly. The amber LED is On when product is staged.*
- 3. When making the adjustment, be aware of any background objects beyond the product range. *On the feeder, such objects as shafts, guides, belts, and supports may cause false returns if the photo sensor is not adjusted properly for the product (or target). The resulting problem can be continuous feeding. See Section 4, Operational Troubleshooting, for a solution.*

STEP 5 Manual Test to Verify



If the gate assembly is too tight, the feeder will have difficulty pulling the material through the gate assembly area. This will cause "missed" feeds.



For certain types of materials, you may have to position the material "off-center" to prevent any skewing effect.

Now that you have made all the necessary adjustments for operation, it is recommended that you verify material singulation and separation at the feeder for your particular application. Before you power-up and run your machine with a full hopper, manually feed several sheets of material through the gate assembly area.

Prepare your test by loading the hopper with approximately 2 to 2.5 in. (5 to 6 cm) of material. Make sure you preshingle the stack so that material rests against the curvature of the gate assembly.

- 1. Manually feed several sheets of material slowly through the gate assembly area. Move the drive belts by pressing your thumb against the discharge belt.
- 2. Observe how individual material enters and exits the gate assembly area. Remember, a properly set gap will allow each new sheet to enter at about the center line of the cylinder while the bottom sheet is exiting the gate assembly area (Figure 2-9). Ideally, this means a slight overlap of both the first sheet and the second sheet (.125 in. or 3 mm) at the gate assembly area. The overlap occurs as the bottom sheet is exiting and the next sheet is entering.
- 3. If feeding doubles, move the wedge in toward the gate assembly. Test again.
- 4. If sheets are overlapping excessively or, if the machine is feeding doubles, reduce the gap slightly by moving the knob about 1/8 turn counterclockwise. Test again.
- 5. As material moves through the hold-down area, check for any skewing or jamming. Also check for damage to the material.
- 6. If this or other feeding problems still persist (slipping, skewing, jamming), then review all the adjustment procedures in Section 2, Preparing for Operation.



Figure 2-9. Optimum Overlap and Separation of Material



Moving the back wedge too far forward to the gate assembly can create a pinch point between the tip of the triangle wedges and the material. If moving the back wedge in is not effective, then an optional wedge may be required. See Section 6, Additional Wedges, for more information. This section provides a *sequence of operation* for the V-710BC Universal Friction Feeder. It also provides information for *clearing a jam* and for *shutdown*.

Successful power-up and operation is assured if you apply the following sequence of steps:

- 1: Loading material in the hopper
- 2: Determining stack height
- 3: Powering On feeder
- 4: Setting/adjusting speed
- 5: Running test cycles
- 6: Final check
- 1. Start by preshingling by hand a small stack of material so that it conforms to the curvature of the gate assembly. Push in gently to make sure lead edges touch the gate bracket assembly and front edges of the hopper guides (Figure 3-1).
- 2. At the back wedge, notice how it helps lift the trailing edges of the material off the table top and feed belts. Also notice how the lifting helps to push the preshingled edges against the curvature of the gate assembly.



Figure 3-1. Preshingling of First Stack

STEP 1: Loading Material in the Hopper

Sequence of

Operation

📝 NO TE

Preshingling prevents multiple sheets from jamming under the gate assembly at startup.

STEP 2: Determining Stack

- 1. Gradually add more material to the hopper after the initial stack is formed around the gate assembly. As stack height will have a preferred minimum and maximum, you will have to experiment to determine effective range of height (Figure 3-2).
- 2. Make sure the material is loaded in the hopper as straight as possible. Before adding to hopper, "jog" each handful of material on a flat surface to make sure lead edges are as even as possible. As you add each handful, gently push in each stack so that lead edges rest firmly against front of side guides.



Figure 3-2. Adding More Material to Hopper

STEP 3: Powering On Feeder



Turn the feeder power On by pushing the horizontal line (—) at the **Power** On/Off rocker switch.



Stack height affects the downward pressure on the feed belts. Greater downward pressure can increase the chances for double feeds.

STEP 4: Setting/Adjusting Speed



STEP 5: Running Test Cycles



It might be helpful to know that a properly set gap will allow the leading edge of sheet to enter at about the center line of the cylinder, as the previous or bottom sheet is exiting the gate assembly area.

STEP 6: Final Check

- 1. Set the variable speed control to the lowest speed (counterclockwise).
- 2. Start by slowly turning the control clockwise to gradually increase feeder speed to coincide with the production line speed of your particular application.

- First test the feeder *off-line* by pressing and releasing the **Cycle** pushbutton switch. Cycle as many times as you need to ensure the material is feeding properly. Make sure the material is preshingling against the gate assembly, and has proper separation out of the gate assembly area.
- Watch for any damage to material.
- Test the feeder on-line (with the photo sensors).

Make sure:

- Leading edge of bottom sheet stops at proper location.
- Proper separation is occurring at gate assembly area.
- Effective preshingling is occurring at curvature of gate assembly.
- Material is not being damaged during cycling.
- Feeder is secured and will not move during operation.

Clearing a Jam



Reposition photo sensor (as required).

Shutdown



If a jam occurs during operation, follow these steps:

- 1. Lift hold-down rollers away from the discharge belts.
- 2. Remove jammed product from feeder. While doing so, try to determine the cause of the jam (see Section 4, Operational Troubleshooting).
- 3. Verify whether any adjustments are loose. If so, refer back to Section 2, Preparing for Operation, for proper adjustment procedures.
- 4. Reset the feeder by pressing the reset/fault indicator button (labeled **Cycle Fault Reset**).

Should you not be using the feeder for long periods of time, follow these steps to ensure safe and secure storage:

- 1. Turn the feeder power Off by pushing the circle (**O**) at the rocker **Power** On/Off rocker switch.
- 2. Disconnect the feeder power cord from the AC power source.
- 3. Cover the feeder with a cloth or plastic tarp to prevent dust and debris from accumulating.

4 Operational Troubleshooting

Problem	Cause	Solution
No AC power to feeder	 On/Off switch in "Off" (or "O" position). Power cord loose or not plugged into outlet (or AC power source). Female end of power cable loose or not plugged into AC power inlet at rear of feeder. Blown fuse. 	 Check that the switch is pressed to "On" (or "" position). Check and secure power cord at AC outlet. Check and secure cord at AC power inlet (rear of feeder). Consult with a qualified technician.
Feeding doubles	 Gate assembly improperly adjusted (possibly more than one sheet thickness). Back wedge improperly adjusted. Worn O-rings (or if applicable, angled edge). Material interlocking. Static buildup. 	 Review gate assembly adjustment in Section 2, Preparing for Operation. Review back wedge adjustment in Section 2, Preparing for Operation. Rotate O-rings. Or, if applicable, replace angled edge (see Section 5, Inspection and Care, for procedure). If wear is excessive, consult with a qualified technician. Check material and source. Check material and source.
Continuous feeding and timing out	 Possible overlapping. Photo sensor not adjusted properly; may be "seeing" background objects. 	 See "Feeding Doubles" above. Review photo sensor adjustment in Section 2, Preparing for Operation.
Feed belts are operating, but material not feeding	 Material stack weight is too low when stack height is down, resulting in reduction of down pressure. Binding in side guides. Slippery feed belts (material buildup). Sheet adhesion or interlocking between the bottom and next sheet. Gate assembly may be down too tight. Too much weight in hopper. 	 Review loading the material in Section 3, How to Operate. Adjust the side guides farther apart to allow freedom of movement between sheets. Consult with a qualified technician. Review loading the material in Section 3, How to Operate, or review back wedge adjustment in Section 2, Preparing for Operation. Review gate assembly adjustment in Section 2, Preparing for Operation. Remove material from stack. Test again.
Feed belts not operating; fast beep alarm sound	 Feeder operation was stopped due to a "time-out" fault (i.e., miss, jam, no material in hopper). 	 Check if reset button/fault indicator is illuminated. Press Reset button.

Table 4-1. Quick-Look Troubleshooting

Problem	Cause	Solution
Feed belt(s) not tracking on rollers	 Excessive weight in hopper. Excessive down pressure on gate assembly. Off-centered product from center point of machine. Stack is bearing down on edge of belt. Belt wear. Rollers out of adjustment. 	 Reduce weight. Test again. Rotate clockwise 1/8 turn to increase gap and manually test. Also, review gate assembly adjustment in Section 2, Preparing for Operation. Review side guides setting in Section 2, Preparing for Operation. Move stack away from belt, even if this causes stack to be aligned off center from center line of feeder. Review gate assembly adjustment and back wedge adjustment in Section 2, Preparing for Operation. Also see Section 5, Inspection and Care. If wear is excessive, consult with a qualified technician. Consult with a qualified technician.
Jamming occurs during operation	 Improper adjustment of any of the following areas: a. Gate assembly. b. Back wedge. 	 a. Turn the Power switch to "Off" by pushing the circle ("O"). b. Remove jammed material from feeder. While doing so, try to determine the cause of the jam. Verify each adjustment by reviewing Section 2, Preparing for Operation.
Material skewing	 Back wedge not aligned properly. Gate horizon not set properly. 	 Review back wedge adjustment in Section 2, Preparing for Operation. Review gate assembly adjustment in Section 2, Preparing for Operation.
Material too far from gripper jaw (inserter application only)	 Photo sensor "staging" leading edge of material too far from hopper plate. Gripper jaw adjusted too far from edge of hopper plate. 	 Review photo sensor adjustment in Section 2, Preparing for Operation. Adjust gripper jaw as required per inserter owner's manual.
Material too deep in gripper jaw (inserter application only)	 Photo sensor "staging" leading edge of material too far past hopper plate. Gripper jaw adjusted too close to edge of hopper plate. 	 Review photo sensor adjustment in Section 2, Preparing for Operation. Adjust gripper jaw as required per inserter owner's manual.

 Table 4-1.
 Quick-Look Troubleshooting (continued)

5 Inspection and Care



When performing initial feeder adjustments prior to operation, always make sure you turn Off the main power switch and disconnect all equipment from the electrical power source. Failure to do so can expose you to a potential startup and moving parts which can cause serious injury.

Do not attempt to make any adjustments while the feeder and machine of application are running. Failure to do so can expose you to moving parts which can cause serious injury. Do not wear loose clothing when operating the feeder.

Avoid making adjustments with loose or unsecured parts. This can potentially damage parts.

Visual Inspection

Please read this Section to learn how to:

- Visually inspect your machine to detect part problems which may require adjustment or replacement.
- Periodically care for your machine to prevent any operational problems.

Checking for Feed and Discharge Belt Wear

Check for visual signs of:

- Walking. Replace as required.
- Cracking. Replace as required.
- Thinning. Replace as required.

Checking for Timing and Drive Belt Wear

Check for visual signs of:

- Fraying. Replace as required.
- Missing teeth. Replace as required.
- Cracking. Replace as required.
- Paper residue buildup. Clean from belts, especially in grooves. For more information, see "Preventive Care," to follow.

Ensuring Proper Feed and Discharge Belt Tracking

Check for visual signs of:

- Stretching.
- Improper roller adjustment.

Visual Inspection (continued)

Ensuring Proper Timing and Drive Belt Tracking

Check for visual signs of:

• Misaligned timing pulleys.

Checking for Gate Assembly Wear

Check for visual signs of wear:

- Advancing O-ring, or standard O-ring gate: Flat areas along the O-rings (Figures 5-1 and 5-2, respectively).
- Bar Gate: Angled wedge begins to flatten excessively (Figure 5-3).

See "Preventive Care" to follow.



Visual Inspection (continued)



Figure 5-4. Advancing O-Ring Gate

.125 to .25 (3 to 6 mm) Flattened edge rotated

Figure 5-5. Standard O-Ring Gate



Figure 5-6. Bar Gate

Advancing O-Ring Gate: Adjusting Worn O-Rings

To adjust worn O-rings on advancing O-ring gate (Figure 5-4):

- 1. Turn Off feeder and remove power cord from outlet.
- 2. Rotate O-rings by grasping advance knob and pushing toward gate cylinder about .125 to .25 in. (3 to 6 mm).
- 3. Restore power.

Standard O-Ring Gate: Adjusting Worn O-Rings

To adjust worn O-rings on standard O-ring gate (Figure 5-5):

- 1. Turn Off feeder and remove power cord from outlet.
- 2. Remove gate assembly from gate plate.
- 3. Insert a screwdriver in slot on top of gate assembly and rotate screwdriver clockwise or counterclockwise 360° to move worn area of O-ring about .125 to .25 in. (3 to 6 mm).
- 4. Remove screwdriver and repeat for each ring as necessary.
- 5. Reinstall gate assembly and restore power.

Replacing Worn Angled Wedge

To replace a worn angled wedge (Figure 5-6):

- 1. Turn Off feeder and remove power cord from outlet.
- 2. Remove gate assembly from gate plate.
- 3. Remove plate (two screws).
- 4. Remove angled wedge.
- 5. Install new angled wedge. Reinstall plate (two screws).
- 6. Reinstall gate assembly and restore power.

Preventive Care



Use only isopropyl alcohol (98% concentration). Other solvents will cause belts to wear prematurely, and even cause total breakdown of material.

Cleaning schedule for various materials:

- Typical: every month
- Dusty: <u>after every shift</u>
- *High ink or varnish: <u>1 time per shift</u>*

Cleaning Feed and Discharge Belts

To clean feed belts:

- 1. Turn Off feeder and remove power cord from outlet.
- 2. Remove gate assembly from gate plate for easier access to belts.
- 3. Apply a small amount of isopropyl alcohol to a soft cloth.
- 4. Use your hand to move the feed belt, start with one feed belt at a time and carefully press the moistened area of the cloth to the belt. As you rotate the belt, use moderate pressure to wipe across the belt, making sure to wipe in direction of grooves. After several rotations of the belt, repeat for each belt.
- 5. Taking a dry portion of the cloth, go back to the first feed belt cleaned and use moderate pressure against the belt for several revolutions to ensure the belt is dried. Repeat for each belt.
- 6. Reinstall gate assembly and restore power.

To clean discharge belts:

- 1. Turn Off feeder and remove power cord from outlet.
- 2. To access discharge belts, remove gate assembly and hold down. Remove safety covers from hopper assembly.
- 3. Repeat steps 3-5 above.
- 4. Reinstall gate and hold down assembly, reinstall discharge safety shield and restore power.

Preventive Care (continued)



Depending upon the application, it may be necessary to move the feeder from original installation so as to access gate assembly.

Cleaning schedule for various materials:

- Typical: <u>every month</u>
- Dusty: after every shift
- *High ink or varnish: <u>1 time per shift</u>*

Cleaning Gate Assembly

Use only isopropyl alcohol (98% concentration). Do not use any other types of solvents. They will cause premature wear of the belts, or even total breakdown of the material.

To clean gate assemblies:

- 1. Turn Off feeder and remove power cord from outlet.
- 2. Remove gate assembly from gate bracket assembly.
- 3. Apply a small amount of isopropyl alcohol to a soft cloth.
- 4. Wipe across O-rings (Figures 5-7 or 5-8), or angled wedge if applicable (Figure 5-9). First wipe in one direction, then the other.
- 5. Taking a dry portion of the cloth, go back and wipe all surfaces to ensure they are dried.
- 6. Reinstall gate assembly and restore power.



Preventive Care (continued)



Do not use any solvents or cleaning agents when cleaning the photo sensor lens. This will result in surface damage and eventual faulty performance.

Cleaning Photo Sensor

To clean the photo sensor lens:

- 1. Turn Off feeder and remove power cord from outlet.
- 2. Using a soft, dry cloth, wipe across the face of the photo sensor lens.
- 3. Recheck the adjustments to make sure it is still in alignment to the target (for a review refer back to Section 2, Preparing for Operation).
- 4. Restore power.

This Section provides information about setting up various wedges which are optional with the V-710BC Universal Friction Feeders.

Now that you are familiar with the basic principles of using a wedge, it is simply a matter of combining these principles with the information provided in this Section. This will allow you to get optimum performance when setting up the wedge included with your particular feeder.

The following wedges are covered:

- Load compensating
- Articulating roller
- Extended narrow
- Combination triangle and low-profile
- Separate triangle and low-profile
- Separate articulating roller and low-profile

Load Compensating

When to use: Effective for moderately thick material. Due to characteristics of material, no mid-range support is required.

Setup guidelines: Adjust so the top angle of wedge preshingles the stack against the curvature of gate assembly. Edges of material should not extend beyond the tip of wedge. Ideal separation should be: as the stack moves down the wedge, 3 or 4 sheets of material separate out and come to rest on lower angle of wedge. Then, 3 or 4 sheets of material fall to table top, which are then replaced with another 3 or 4 sheets from stack above (Figure 6-1).







Articulating Roller



When to use: Effective for very thick and/or ridged material. Due to characteristics of material, no mid-range support is required.

Setup guidelines: Adjust so the roller edges preshingle the stack against the curvature of gate assembly. Again, make sure edges of material does not extend back more than the mid-point of roller (Figure 6-2). *Note: With some material that tends to bind together (for example, perforated material), it may be beneficial to separate 4 to 5 sheets of material at the bottom to provide some air space.*



Figure 6-2. Articulating Roller Wedge Setup

Extended Narrow



When to use: Effective for moving in close to the gate assembly for supporting very small material. Due to characteristics of material, no mid-range support is required.

Setup guidelines: Adjust so the wedge preshingles the bottom of stack against the curvature of gate assembly. Make sure edges of material do not extend back more than the mid-point of wedge (Figure 6-3).



Figure 6-3. Extended Narrow Wedge Setup

Combination Triangle and Low-Profile



When to use: For thin material with minimal body, thus requiring minimal mid-range support.

Setup guidelines: Adjust so that bottom of stack preshingles against the curvature of gate assembly. Make sure edges of material do not touch or overhang tips of triangle wedges as this creates pressure points. Roller(s) should lift bottom of stack off table top to eliminate friction and create body (Figure 6-4).





Separate Triangle and Low-Profile

When to use: If moving separate triangle wedge assembly back from the gate assembly allows bottom of stack to still touch table top, you need mid-range support.

Setup guidelines: Adjust the triangle wedge the same way you would the combined triangle/low-profile wedge assembly (see above). Set the low-profile wedge relative to the triangle wedge so it lifts bottom of the stack off the table top to eliminate friction and create body. Make sure edges of material do not touch or overhang tips of triangle wedges, as this creates pressure points (Figure 6-5).







Separate Articulating Roller and Low-Profile



When to use: For thicker material with more body, thus requiring medium mid-range support. Longer material may also benefit.

Setup guidelines: Initially adjust articulating wedge so that roller edges preshingle the bottom of the stack against the curvature of gate assembly. Make sure edges of material do not extend back more than mid-point of rollers (Figure 6-6). Set the low-profile wedge so that roller(s) lift bottom of stack off the table top to eliminate friction and create body.





7 Mechanical Components



1: TRIANGLE WEDGE ASSEMBLY #63311018

DIAGRAM NUMBER	QTY	DESCRIPTION	PART NUMBER
1-1	1	Wedge Guide Shaft	44633018
1-2	1	SHCS 10-32 X 5/8" LG	00002320
1-3	1	Wedge Block	44633014
1-4	1	T-Nut Round	44633016
1-5	1	Knob 3 Lobe 10-32 X 5/8" LG	44633033
1-6	2	Ring Grip 3/8 Waldes	00001110
1-7	4	Wedge Material Support	43560212



2: GATE PLATE ASSEMBLY #84111006

DIAGRAM NUMBER	QTY	DESCRIPTION	PART NUMBER
2-1	2	Lever Adjustment 10-32 X .75	43555098
2-2	2	Side Guide Adjust Clamp Front	44675006
2-3	1 2 2	Lower Gate Support Bar Gate J Hook SHCS 8-32 X 5/8" LG	44841005 44841011 00002215
2-4	1	Upper Gate Support	44841006
2-5	2	Side Guide Adjust Clamp Rear	44841004
2-6	1	Pregate Bar	44841007
2-7	1 4	Pregate Screw FHS 10-32 X 1/2" LG	44841016 00002330
2-8	1	Adjustment Reference Block	44841019
2-9	2	SHCS 8-32 X 5/8" LG	00002215
NS	4	Screw FHS 10-32 x 1/2" LG	00002330

2: GATE PLATE ASSEMBLY #84111006



3: SIDE GUIDE KIT 1424 TEFLON ASSEMBLY #10501108

DIAGRAM NUMBER	QTY	DESCRIPTION	PART NUMBER
3-1	1 1	Side Guide Right 1424 Teflon Label Warning	51050040 44600005
3-2	1 1	Side Guide Left 1424 Teflon Label Warning	51050039 44600005
3-3	4	Screw FHS 10-32 X 1/2" LG	00002330
NS	2	Guard Rear Accordion	44600001

3: SIDE GUIDE KIT 1424 TEFLON ASSEMBLY #10501108



4: STANDARD O-RING GATE WITH HORIZON ADJUST ASSEMBLY #13511872

DIAGRAM NUMBER	QTY	DESCRIPTION	PART NUMBER
4-1	1	Adj Knob Assembly for Gate	23511037
4-2	1	Cylinder Gate Spring Tension	23500019
4-3	1 1	Shaft Gate Lift Spring Gate Compression	23560084 23500083
4-4	1	Mount Gate Lift Shaft	15000001
4-5	1	BHCS 10-32 X 1/2" LG	00002334
4-6	2	Screw Adjustment	44872005
4-7	12	O Ring Gate Cylinder	23500089
4-8	1 1	BHCS 10-32 X 1" LG Washer Flat #10	00002340 00002607
4-9	1 2	Gate Cylinder (Not Sold Separately) SHSS 10-32 X 1/4" LG Cup Pt	00002216
4-10	2 2	Roller SSS 10-32 X 3/8" LG Nylon Tip	44872003 44872007

4: STANDARD O-RING GATE WITH HORIZON ADJUST ASSEMBLY #13511872



5: HOLD DOWN ASSEMBLY #10501109

DIAGRAM NUMBER	QTY	DESCRIPTION	PART NUMBER
5-1	6	Discharge Roller Collar	51277087
5-2	12	E-Clip 3/8	00001150
5-3	6	R6 Bearing	23500095
5-4	3	Hold Down Shaft	51050238
5-5	3	Spring Pin 1/8"	51312003
5-6	3	Hold Down Spring	51328001
5-7	2	FHSC 10-32 x 3/8"	00002234
5-8	1	Hold Down Mount	51312001
5-9	1	Hold Down Block	51050239



6: GROOVED GUM CARRIAGE ASSEMBLY #10501101

DIAGRAM		DECODIDITION	PART
NUMBER	QIY	DESCRIPTION	NUMBER
6-1	1	Adjustable Roller Shaft	44841020
	2	Roller Crown Driven Narrow	44841033
	4	Bearing Ball R8	23500094
	4	Clip E 1/2 Waldes	00001155
6-2	2	Knob, Black 3 Arm 10-32 X 7/16	23500092
6-3	1	Idler Shaft	43555047
	1	Tube Driven	44630004
	4	Bearing Ball R8	23500094
	3	Clip E 1/2 Waldes	00001155
6-4	1	Shaft Discharge Feed Roller EX	43550036
	10	Roller Support Driven w/Bearing	23511030
	10	Ring Grip 3/8 Waldes	00001110
6-5	1	Shaft Drive 3/4	43555205
	2	Pulley, Timing 24XL037 .500KA	43560098
	4	Crown Drive Roller	23560208
	2	Roller Feed .75 Inch Bore	23500126
	1	Roller Flat Drive	23560206
	2	Bearing Ball R8	23500094
	2	Ring Grip 1/2 Waldes	00001115
	10	Screw Socket Set 10-32 X 1/4" LG	00002216
	6	Screw Socket Set 10-32 X 5/16" LG	00002217
		(2 for each 24T pulley, 1 for each blue feed roller)	
	2	Key Woodruff 1/8 X 3/8	00003351
6-6	2	Belt, Feed Tan Gum 24G Liner Grooved Composite 3/4W	15000076
6-7	1	Belt, Timing 206XL037	44841034
6-8	4	Belt, Feed Tan Gum 24G Liner .75W X 9L	23500162
6-9	1	Holder Carriage Right Side	44485005
6-10	1	Belt, Timing 86XL037	51050010
6-11	4	Belt Discharge Clear 1W	51050062
6-12	1	Belt, Feed Tan Gum 36G Liner 1W X 14L	44759062
6-13	1	Holder Carriage Left Side	44485006
6-14	1	Upper Discharge Shaft	51050008
	2	Holder Outboard Bearing Cup	23500032
	4	Drive Crown Roller	51050006
	1	Roller Crown Driven Narrow	44841033
	1	Pulley, Timing 16XL037 .500KDFA	43560097
	4	Bearing Ball R8	23500094
	4	Clip E 1/2 Waldes	00001155
	2	Screw Socket Set 10-32 X 1/8" LG (for 16T pulley)	00003352
	8	Screw Socket Set 10-32 X 5/16" LG	00002217
	1	Key Woodruff 1/8 X 3/8	00003351
6-15	1	Lower Discharge Shaft	51050007
	2	Cup Bearing R4	44846050
	2	Bearing Ball R4	44582021

6: GROOVED GUM CARRIAGE ASSEMBLY #10501101



7: EXTERIOR FEATUR

DIAGRAM NUMBER	QTY	DESCRIPTION	PART NUMBER
7-1	2	Spacer Shield	51050073
7-2	1	Shell Split Front Ear Right	51050102
7-3	2 2 4	Shield Lexan Smoked Label Warning Roller Pinch Point BHCS 10-32 X 2" LG	51050072 44600004 00003396
7-4	1	Sensor Assembly, Sheet V-710BC	10501115
7-5	1	Shell Split Front Ear Left	51050101
7-6	4	Foot Suction Cup	44846058
7-7	4	Washer Lock 1/4 Internal Star Tooth	00003341
7-8	1 2	Module AC Power Entry w/o Fuses Fuse 5A 250V Slo-Blo 5 x 20 mm	44649034 53500558
7-9	1	Pull Handle	44841002
7-10	1	Shell Split Back	44841060
7-11	1	Knob Straight Knurl Black	44675030
7-12	1	T-Nut Mounting Plate	51050058

7: EXTERIOR FEATURES



8: INTERIOR FEATURES

	ΟΤΥ	DESCRIPTION	
	QTT		NOMBER
8-1	1	Power Supply Switching 5V & 12V 2.5 X 4.25	44649033
or	1	Power Supply, 5V & 12V	901745
8-2	1	Line Filter Assembly (with leads)	10501157
	1	Standoff Fem/Fem 5/16 Hex 8-32 x 1-5/16 Al	51050115
or	1	ASSY, V710BC FILTER & PLATE	311-0632
or	1	FILTER ASSY, V710BC (with spade lugs)	611-0239
8-3	1	Control Board V710BC	51050001
8-4	1	Pulley, Timing 14XL037 .500DFA	44846038
8-5	1	Base Plate	51050237
8-6	1	Motor 90VDC Assembly (115V Models Only)	10501133
	1	Motor 180VDC Assembly (230V Models Only)	10502233
8-7	2	Mount Front Base Plate	44675003
8-8	1	Bracket Belt Tensioner	44846056
8-9	1	Belt Tensioner Assembly	23511290
8-10	1	Block Pivot Center	44841063
8-11	1	Block Pivot Right	44841065
8-12	1	Speed Pot Assembly	10501137
8-13	1	Resistor Inhibit Assy, 90VDC (115V Only)	10501145
	1	Resistor Inhibit Assy, 180VDC (230V Only)	10502245
8-14	1	Relay 120VAC DPDT K10P (115V Only)	53500453
	1	Relay 240VAC DPDT K10P (230V Only)	53550457
	1	Clamp, Relay	51050114
8-15	1	Plate, Mounting SCR	51050112
8-16	1	Board, SCR Drive w/36" Pot Leads	44642025
8-17	1	Block Pivot Left	44841064
NS	1	Mount, Cable Tie Blk Adh/Scr 4Way 3/4sq	00003402
NS	1	Wire Assy, Ground	10501136
NS	1	Cable, DC Motor Extension	10501142
NS	1	Harness, SCR Inhibit	10501144
NS	1	Cable Assy, Fault Output 5ft V710BC	84111011
NS	9	Terminal Fork	53500047
NS	5	Terminal Disc Female .020 22-18 AWG	53500254
NS	1	Power Cord (115V Models Only)	53511020
NS	1	Power Cord & Allen Wrench Kit (230V Models Only)	53522210
NS	1	Sensor Flight Assembly 50mm	63011038
NS	1	Harness Sheet Sensor	10501154
NS	1	Thumbwheel Assy, V710BC	10501141
NS	1	Harness Assy, Power Supply to Control Board	10501147
NS	1	Harness Assy, SCR to Relay to Control Board	10501149
NS	1	Harness Assy, Fault Selector Switch	84111009
NS	1	Reset/Cycle Button Assy	10501156

8: INTERIOR FEATURES





VALUE SERIES V-710BC MANUAL

8 Electrical Components



Power Cord 230 volt models, no. 53500210 Cont. Europe



V710 Batch Count Wiring Detail

Drg. No.

Controlled Document No. 5-1050-250



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