

Value Series V-710DM

Manual



Thiele
Technologies

Streamfeeder
PRODUCT LINE

Part Number: 00900394

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Thiele Technologies, Inc. - Streamfeeder
315 27th Avenue NE
Minneapolis, MN 55418 USA

TEL: (763) 502-0000
FAX: (763) 502-0100
E-MAIL: service@streamfeeder.com
WEB: www.streamfeeder.com

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BEFORE YOU BEGIN

Message Conventions



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



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



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



ELECTRICAL DANGER signifies an action or specific equipment area that can result in personal injury 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 serious injury or death 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: 3.75 W x 3.75 L in (95 x 95 mm)

Optional: 2.5 W x 2.5 L in (63 x 63 mm)

Min/Max Product Thickness:003-.75 in (.076-19.1 mm)

Belt Speed: 4000 in/min (101,600 mm/min)

Electrical Requirements: 115/230vac, 50/60Hz, 3A

Weight: 41 lbs. (18.6kg)

*Optional product size available

1 About the Machine

Features

The V-710DM Universal Friction Feeder is designed for reliability, flexibility, and ease of use with a variety of host systems. Included are such applications as vacuum and non-vacuum bases and gripper-arm inserters. 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

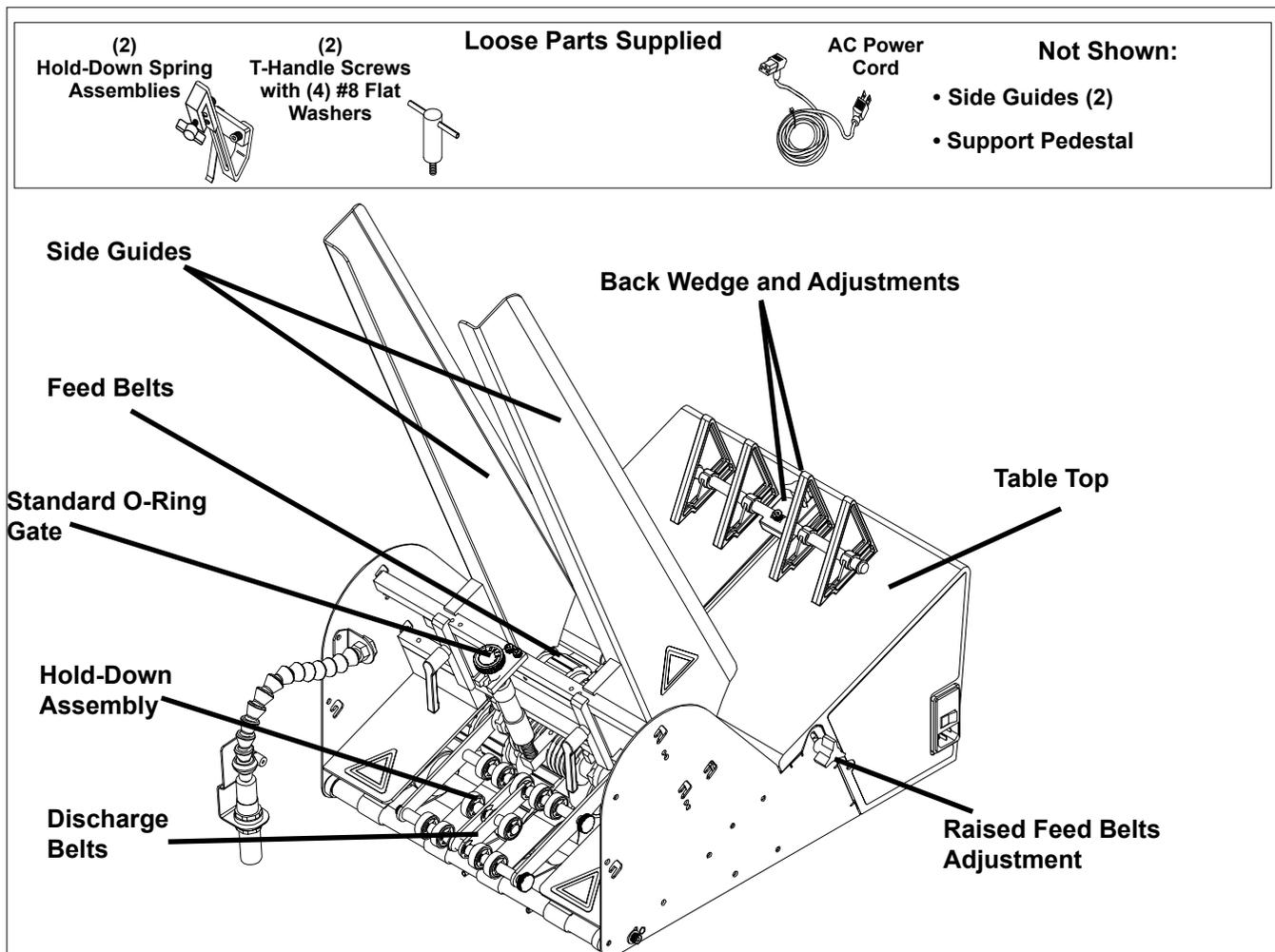


Figure 1-1. Main Assemblies of the V-710DM Universal Friction Feeder

Table 1-1. Main Assemblies Feature Descriptions

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: For multiple page material, a 1 to 1.5 maximum thickness is typical.)</i>
Table top	Used to support the back wedge.
Raised 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 adjustments	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, adjustment wing-nut allows you to slide the wedge to various positions and angles.
Photo sensor and flexible extension	Also called a sheet-detect 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. <i>(Note: Sensor is used for gripper-arm inserter applications only.)</i>
Feed belts and discharge belts	<u>Feed Belts:</u> Provide the friction and motion necessary to pull individual material from the bottom of the stack and through the gate assembly area. <u>Discharge Belts:</u> Combined with the top roller hold-down assembly, provides the friction and motion necessary to transport material away from the gate assembly area.
Top roller hold-down assembly	Provides the friction and motion necessary to pull materials away from the gate assembly. Positioned above discharge belts.
AC power cord, 8 ft. (2.44 m)	IEC320 removal three-prong. Shipped loose.
Discharge safety shields	Provides a residual risk protection to operator when feeder is running.
Support pedestal	Supports part of feeder that extends over the inserter's back deck plate. Includes built-in height adjustment. <i>(Note: Not used on vacuum base applications.)</i>
<u>LOOSE PARTS</u>	
Hold-down spring assemblies	<i>(Note: For inserter applications.)</i> As a piece of material exits the feeder gate assembly area, these two hold-down spring assemblies help keep it aligned and in proper position for the gripper jaw. Mounted on inserter.
T-handle screw assemblies	<i>(Note: For inserter applications only.)</i> These two hand-tightening screws secure the feeder to the inserter back deck plate. Fastened to underside of feeder.

Control Panel Components

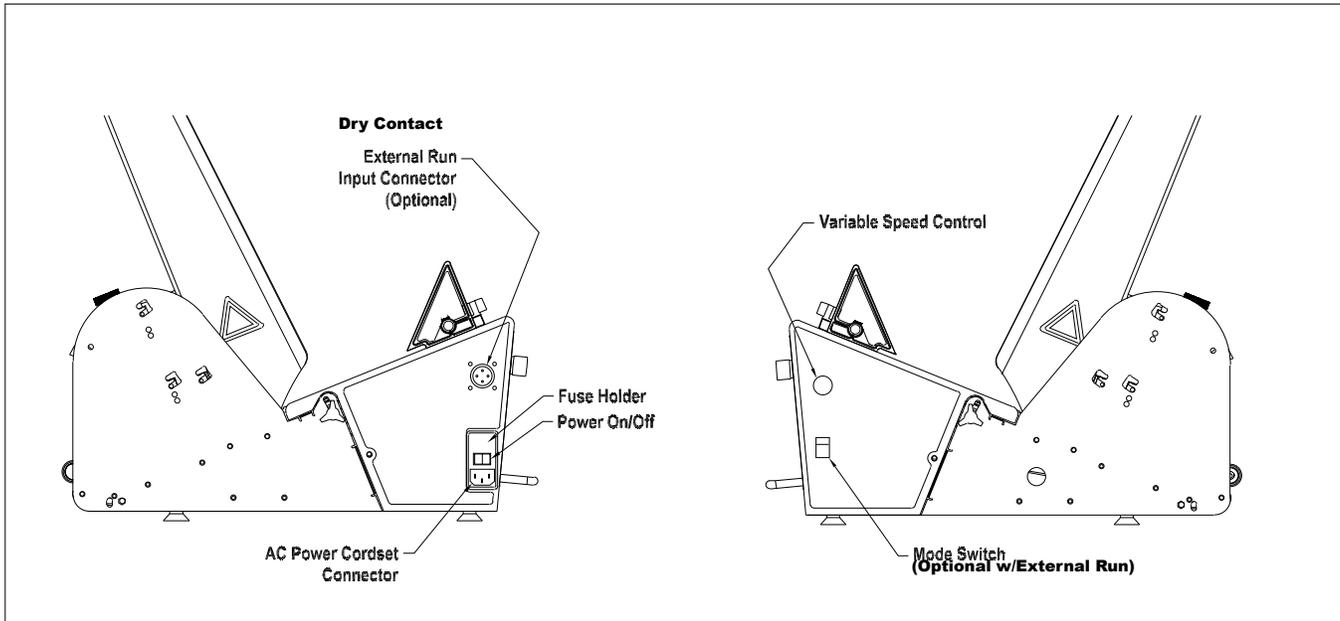


Figure 1-2. Control Panel Components (Left and Right Side Views)

Table 1-2. Control Panel Feature Descriptions

Feature	Description
AC power cordset connector	Cordset plugs into this IEC320 connector to provide feeder with power from a grounded/fused outlet.
Power On/Off	Toggles AC power On or Off.
Fuse holder	Contains two replaceable GMD3, 3-Amp, 5-mm fuses. <i>IMPORTANT: Always make sure power module is replaced exactly as removed. Failure to follow this caution will result in damaged electrical parts.</i>
Variable speed control	This dial switch (labeled Speed) allows the feeder speed to be synchronized with an inserter, vacuum or non-vacuum base. Turning counterclockwise decreases speed; clockwise increases speed. (<i>Note: Feeder motor stops if turned completely counterclockwise.</i>)
Dry contact external run input connector and mode switch (optional)	This interface allows for the electrical integration into vacuum type bases for integrated start/stop control.

2 Installing the Machine



When performing initial installation, 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 feeder installation 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 turning on the feeder or making initial adjustments until all parts are secured. Failure to do so can cause damage to equipment.

This section provides information on how to the install the V-710DM Universal Friction Feeder in the following application environments:

- Vacuum base installation (2A)
- Inserter installation (2B)

Information for a particular application typically includes procedures for basic parts removal, feeder mounting and alignment, and cable connections for power and control interface. *Information that relates to specific adjustments you must make to feeder prior to startup and operation is found in Section 3, Preparing for Operation.*

2A: Vacuum Base

Installation of the V-710DM Universal Friction Feeder onto various types of vacuum and non-vacuum bases is a relatively simple procedure. Several minor modifications to the vacuum base are required prior to mounting and aligning the feeder.

To install the feeder onto a vacuum base, perform the following steps:

- 1: Repositioning front side guides
- 2: Removing back jogging plate/back hopper guide
- 3: Raising hopping rollers
- 4: Disabling the shuttle
- 5: Initial positioning of feeder
- 6: Providing AC power to feeder
- 7: Checking material discharge from feeder
- 8: Miscellaneous feeder adjustments

STEP 1: Repositioning Front Side Guides

1. Loosen locking knobs at both side guides (Figure 2-1).
2. Slide each side guide to the outermost position. Do not lock in place.

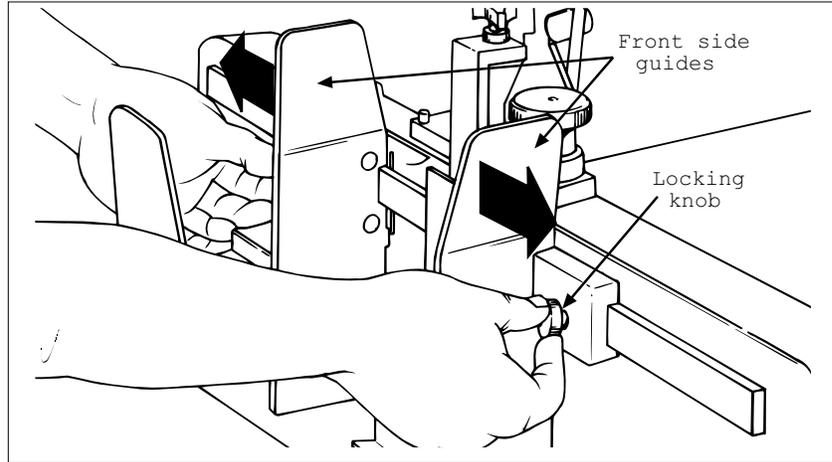


Figure 2-1. Front Side Guides Being Repositioned

STEP 2: Removing Back Jogging Plate/Back Hopper Guide

1. Loosen each of the setscrews at the two shaft housing assemblies A and B (Figure 2-2).
2. Slide shaft end closest to the vacuum base gate out of housing A (with jogging plate/hopper guides still attached). Slide shaft back far enough on housing B to allow removal of jogging plate/hopper guides.
3. Loosen locking knob and slide jogging plate/back hopper guide off of shaft and away from the surface of the vacuum in-position, with no further disassembly.
4. Return shaft end to housing B. Lock setscrews in both housing assemblies.

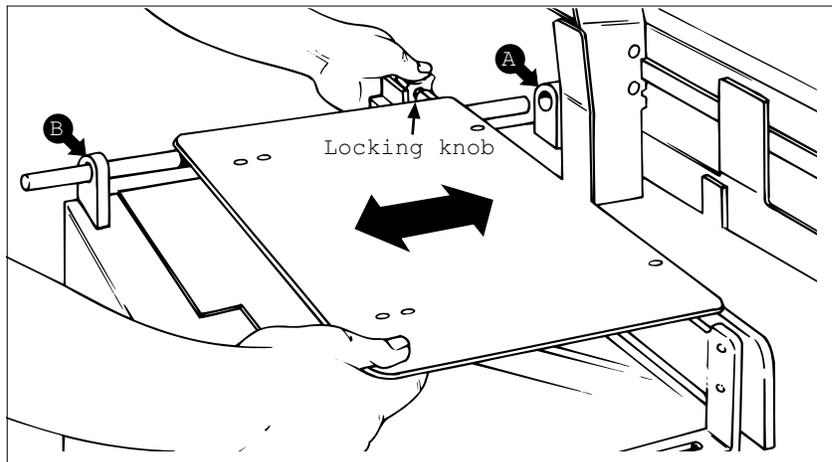


Figure 2-2. Back Jogging Plate/Back Hopper Guide Removal

STEP 3: Raising Hopping Rollers

NOTE

If additional control of material is required during feeding, you may choose to keep the base's hopping roller assembly in the down (or normal) position.

1. Locate the gate adjustment knobs (Figure 2-3) and turn completely in a clockwise direction to raise hopping rollers.
2. Then, locate the vertical adjustment lever on the hopping rollers assembly and push down all the way. This will raise the feed rollers to highest vertical position possible, thus making for maximum clearance.

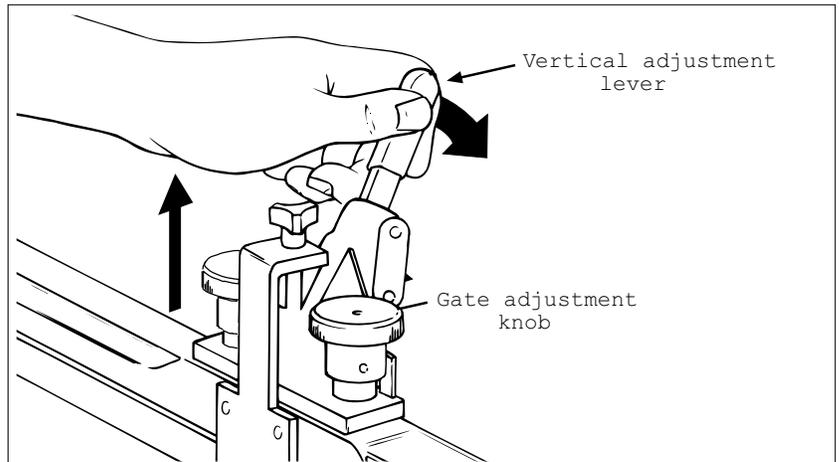


Figure 2-3. Using the Adjustments to Raise Hopping Rollers

STEP 4: Disabling the Shuttle



To prevent any accidental startup of shuttle motor and to eliminate the hazard of moving parts, you can prevent accidental startup by either disconnecting vacuum base from AC power at the outlet, or you can remove the internal AC power fuse (located behind the access door of the vacuum base).

1. Remove side access panel from vacuum base enclosure.
2. Locate the reciprocating arm and reciprocating block directly beneath the underside of shuttle (Figure 2-4).
3. Using a box wrench, remove the hex-head rod end bearing bolt holding the reciprocating arm to the reciprocating block.
4. Once the bearing bolt is removed, the reciprocating arm is effectively disconnected. As the shaft is connected to the shuttle base plate on the other end, simply allow the shaft to hang in-position, with no further disassembly.
5. Make sure the base plate of shuttle is all the way forward (toward the vacuum base gate).

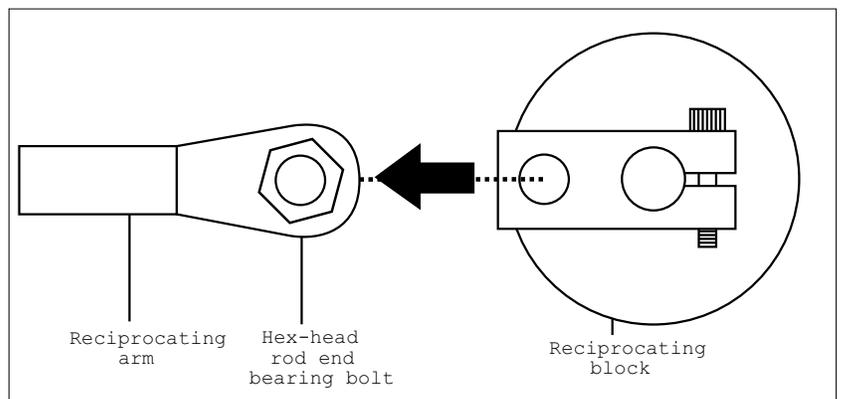


Figure 2-4. Disabling the Shuttle from Inside the Access Panel

STEP 5: Initial Positioning of Feeder

1. Position photo-eye pointing up and away from feeder and vacuum base.
2. Lift the feeder onto the top plate of the vacuum base and slide forward toward the vacuum base gate.
3. Center the feeder between the two side guides as you position the feeder fully forward. To verify centering, sight down the center of the feeder gate, making sure it is in-line with the vacuum base gate (Figure 2-5).
4. Trap the feeder in-between the vacuum base side guides by sliding each in toward the side plates of the feeder until they gently touch. Tighten side guide knobs to secure in position.

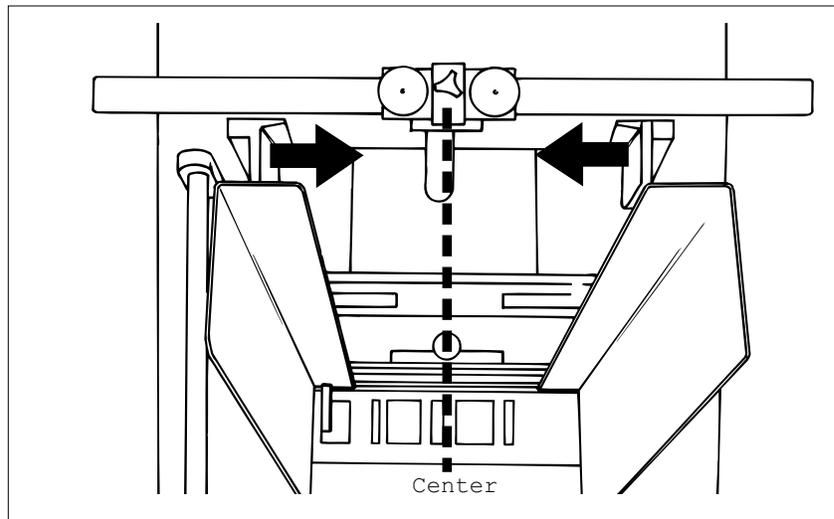
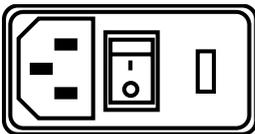


Figure 2-5. Positioning the Feeder on the Vacuum Base

STEP 6: Providing AC Power to Feeder



IMPORTANT

Please verify that the voltage shown at the power inlet module matches the incoming voltage from the power source.

1. Connect IEC320 end of power cord to the feeder (at the power inlet module).
2. Connect three-prong end to nearest AC voltage power source.

STEP 7: Checking Material Discharge from Feeder

IMPORTANT

Make sure rollers on vacuum base are raised in the highest vertical position so it does not interfere with the material.

As material leaves the feeder gate cylinder, the trailing edge must be under the hold-down as the leading edge is entering the vacuum base transfer section. *There must be a good transfer of material from the feeder hold-down to the vacuum base transfer section.*

To verify:

1. Slide feeder back far enough to clear the vacuum base side guides. *If necessary, loosen the knobs on both side guides and pull to the outside slightly to allow movement of the feeder.*
2. Insert a piece of material under the hold-down bearings in such a way that approximately 2/3 of the leading edge is extending out beyond the feeder (Figure 2-6).
3. Slide feeder back into position, making sure it is again centered between the side guides. As you do so, make sure the leading edge of the material moves into the transfer section of the vacuum base unobstructed.
4. Check to make sure the material is still under the hold-down bearings and also resting on the vacuum base transfer section.
5. Trap the feeder in-between the side guides until they gently touch. Tighten side guide knobs.

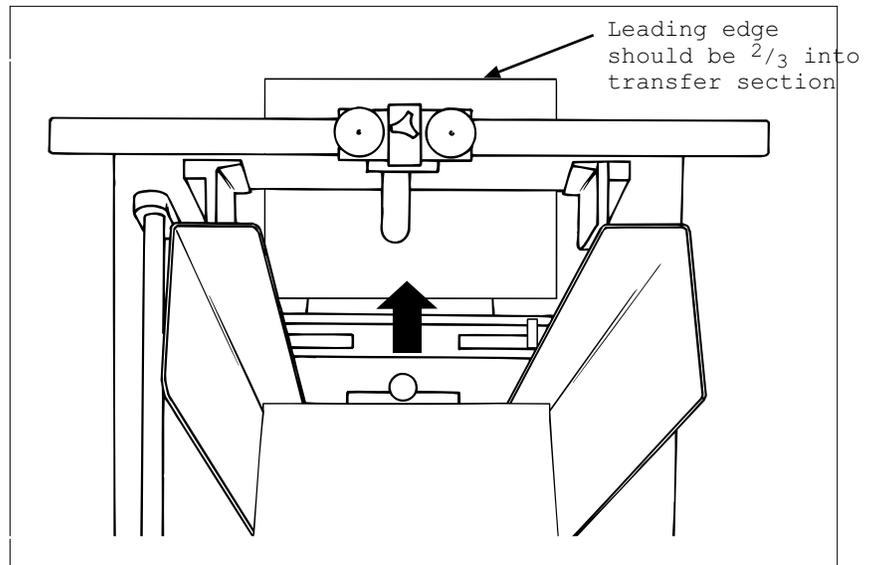


Figure 2-6. Checking for Proper Material Discharge from Feeder to Vacuum Base

STEP 8: Miscellaneous Feeder Adjustments



Feeder motor stops if turned completely counterclockwise.

1. Position photo-eye pointing up and away from all objects for continuous operation.
2. Set the variable speed control (Figure 2-7) to the lowest speed (counterclockwise). Gradually increase the speed to match the speed of the vacuum base, thus bringing the gap of the material closer together.

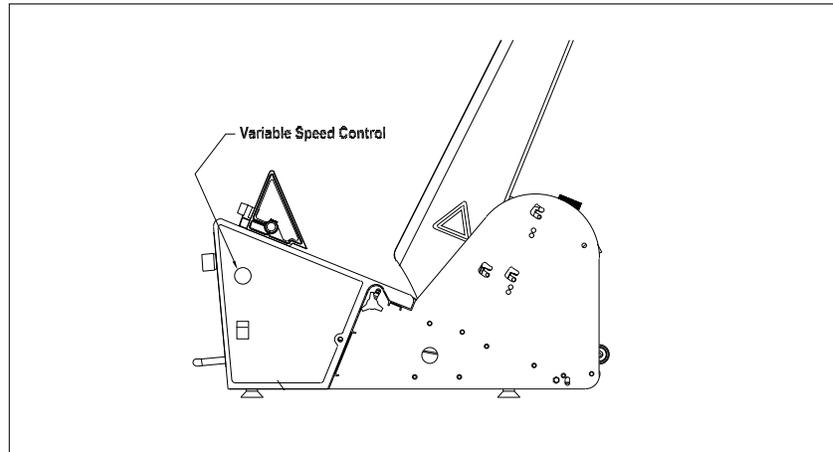


Figure 2-7. Location of Variable Speed Control

2B: Inserter Installation

Installation of the V-710DM Universal Friction Feeder onto the back deck plate of an inserter is a relatively simple procedure. Several minor modifications to the selected insert station are required prior to mounting, wiring, and aligning the feeder.

To install the feeder, perform the following steps:

- 1: Removing rear guide assembly
- 2: Removing T-plate
- 3: Repositioning separator foot
- 4: Removing suction cup and closing off vacuum hose
- 5: Repositioning insert guide tabs
- 6: Installing feeder hold-down spring assemblies
- 7: Aligning feeder with insert station
- 8: Securing feeder to inserter
- 9: Installing support pedestal
- 10: Providing AC power to feeder
- 11: Initial feeder photo sensor positioning

STEP 1: Removing Rear Guide Assembly

At the selected insert station, remove the fasteners that hold the inserter rear guide assembly to the inserter back deck plate. Lift rear guide assembly off of back deck plate (Figure 2-8).

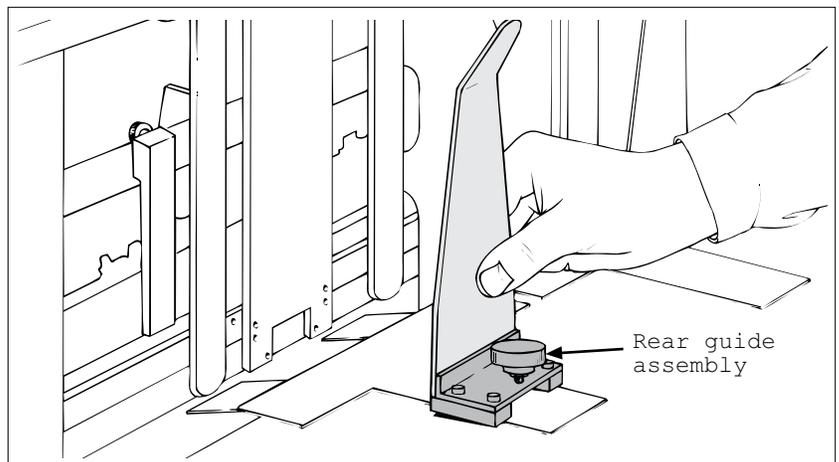


Figure 2-8. Removing Guide Assembly Rear from Inserter

STEP 2: Removing T-Plate

With the rear guide assembly removed, you can now access the inserter T-plate. Simply lift off of back deck plate (Figure 2-9).

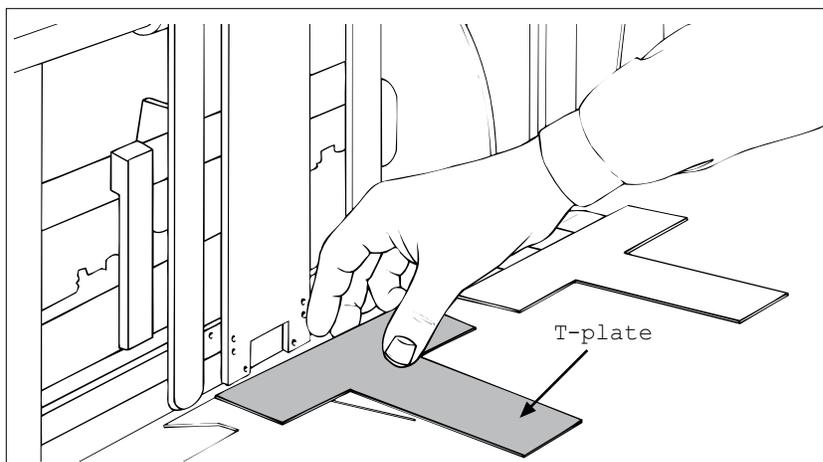


Figure 2-9. Removing T-Plate from Inserter

STEP 3: Repositioning Separator Foot

1. Locate the separator foot at the front side of the inserter station (attached to top rotating shaft).
2. With a screwdriver, loosen the inserter separator foot and tilt away slightly from insert station assembly (opposite feeder) so that foot does not interfere with material being fed (Figure 2-10).
3. Retighten to secure.

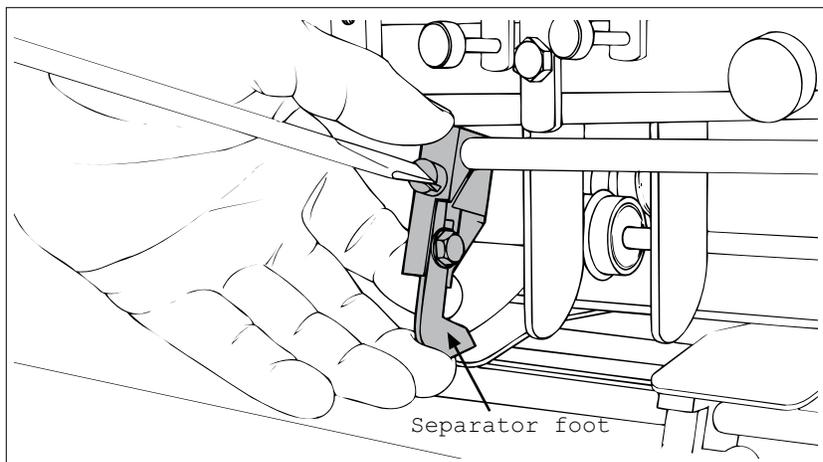


Figure 2-10. Repositioning Separator Foot at Front of Inserter

STEP 4: Removing Suction Cup and Closing Off Vacuum Hose

1. Locate the suction cup and hose from front side of insert station.
2. Remove suction cup from vacuum assembly (Figure 2-11).
3. Lower and tilt the adjustable vacuum assembly forward (by turning the built-in thumbscrew). The vacuum assembly may be moved down and to one side if it interferes with the material being fed.
4. Close off the vacuum hose opening; any convenient plugging method will do.

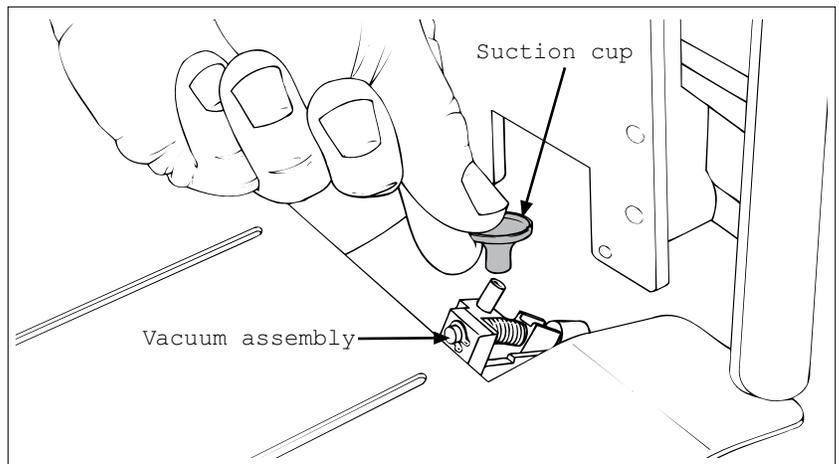


Figure 2-11. Removing Suction Cup from Vacuum Assembly

STEP 5: Repositioning Insert Guide Tabs

1. Cycle the inserter until the gripper arm jaw is approximately .5 in. (12.7 mm) from the hopper plate (leading edge of material exiting feeder stops here).
2. Locate the two insert guide tabs that protrude from under the back deck plate. Bend these tabs as required (either up or down) until their top surface is slightly above the bottom of the gripper arm jaw (Figure 2-12A). The material to be run will rest on these tabs. The bottom of the gripper arm jaw must pass under the material without making contact with it.
3. As it is important that there be adequate clearance between the guide tabs surface and the gripper jaw, use a flat, thin rule (or gauge) to test for clearance (Figure 2-12B). Ideally, the gripper jaw should be fully open when testing.
4. Center the gauge on the guide tabs and slide the gauge back and forth on the tabs, making sure the gripper jaw does not touch the bottom of the gauge (Figure 2-12B).

NOTE

*Mailcrafters' inserters only:
Remove the two insert guide tabs that protrude from the back deck plate. Make a bend in each tab approximately 1.375 in. (34.9 mm) from the tip by placing the tab approximately 1.375 in. (34.9 mm) into the rear guide assembly. Bend the tab slightly and repeat same for second tab. Reinstall insert guide tabs to back deck plate.*

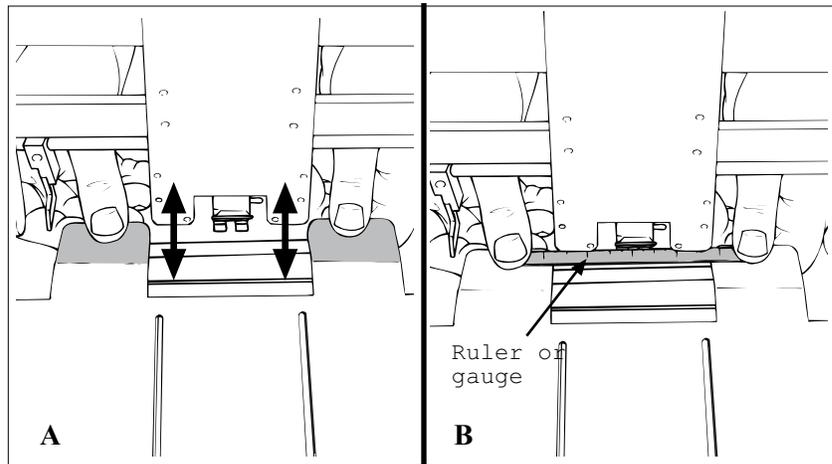
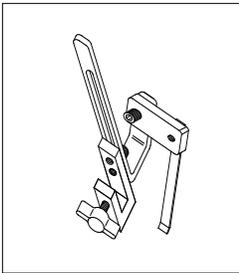


Figure 2-12. Repositioning Guide Tabs and Testing for Clearance

STEP 6: Installing Feeder Hold-Down Spring Assemblies

NOTE

Certain inserter models require hold-down spring assemblies to mount from the bottom side of the crossbar (see figure below). To invert, simply remove screw and invert L-bracket and spring.



1. Using the two provided hold-down spring assemblies (with support bars), place each on the insert station rail (feeder side of inserter).
2. Position each spring support bar so they are equally spaced from each edge of the material to be run (Figure 2-13A).
3. Tighten the built-in wing nut on each to secure.
4. Check for placement and pressure of the hold-down spring assemblies by sliding a piece of material to be run under the springs (Figure 2-13B). There should be a “slight drag” when moving the material back and forth.
5. Make adjustments as required and recheck.

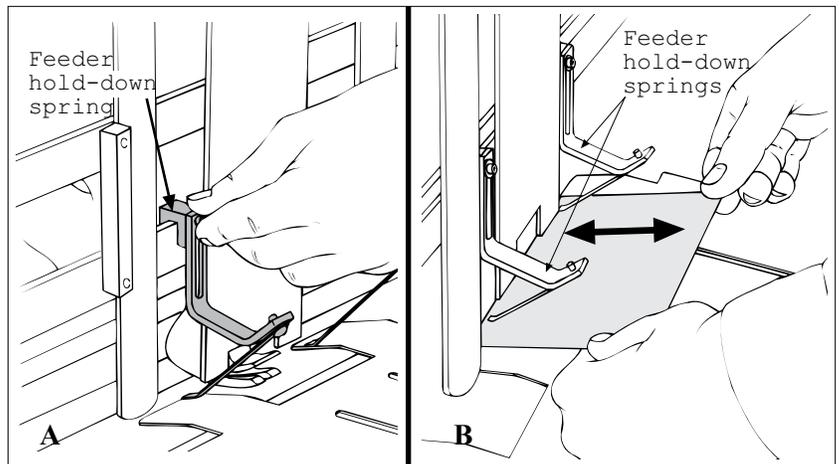


Figure 2-13. Installing Hold-Down Spring Assemblies and Testing for Drag

TIP

Knowing how far from each edge of the material to place the hold-down spring assemblies is a combination of intuition and testing.

TIP

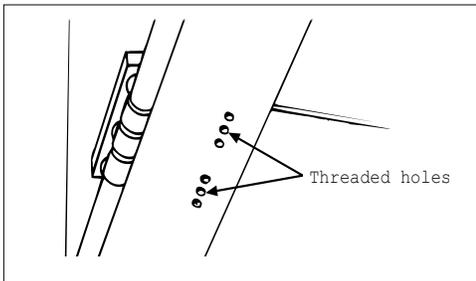
With material inserted between the springs and the insert guide tabs, test the spring tension by sliding the material back and forth. Tension should not be so great that it distorts the material as it moves.

If adjustment is required, loosen the hex-head screw for each spring and move up or down on support bar. Retighten when optimum tension is achieved.

STEP 7: Aligning Feeder with Insert Station



If there are brackets or hangers in the way, you may have to adjust the feeder side-to-side by selecting any of the three hole positions in the bottom mounting plate. See figure below.



1. Position the feeder on the rear deck plate so the two slots on the back deck plate line up with two threaded holes in the bottom of the feeder (Figure 2-14A).
2. Install the provided (2 each) #8 flat washers on the T-handle screw assemblies before proceeding to step 3.
3. Using the two provided T-handle screws, start these part way into the bottom threaded holes of the feeder base plate from the underside of the back deck plate (but not tight).
4. Make sure a piece of material to be run is placed under the hold-down springs (and centered), with the front edge of the material in-line with the front hopper plate.
5. Carefully slide the feeder toward the gripper arm (Figure 2-14B) until the trailing edge of material fits between the feeder exit rollers (.25 in. - .5 in., or 6.4 mm - 12.7 mm of material).

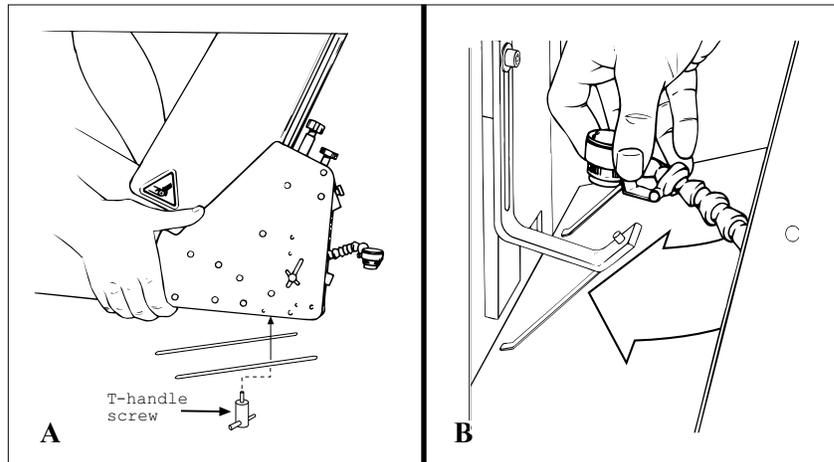
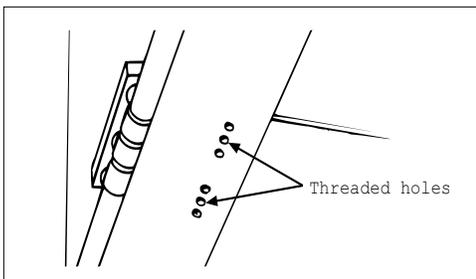


Figure 2-14. Aligning Feeder with Insert Station

STEP 8: Securing Feeder to Inserter



If you need to move the feeder side-to-side to fine-tune the alignment with the insert station, use any of the three hole positions in the bottom mounting plate. See figure below.



When you are satisfied with the alignment, secure the feeder by tightening the two T-handle screws from underside of inserter rear deck plate (Figure 2-15).

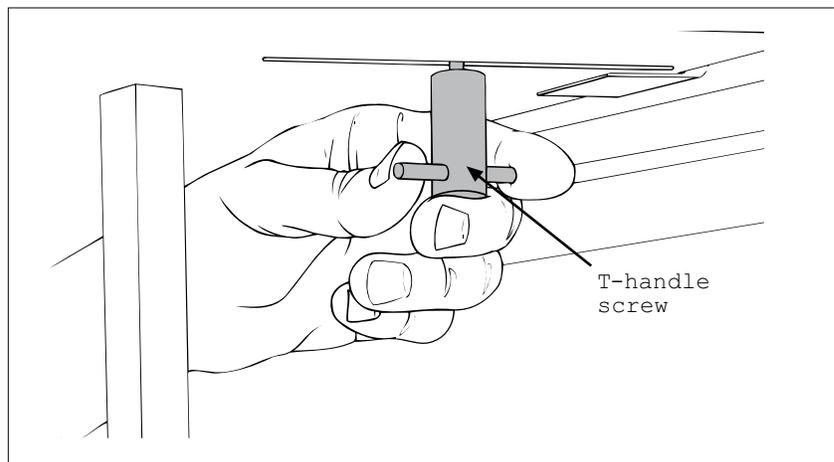


Figure 2-15. Securing Feeder to Back Deck Plate

STEP 9: Installing Support Pedestal

The length and weight of the feeder may cause the rear deck plate of the inserter to flex. A variety of alignment and feeding problems can result from such flexing. *Always use a support stand on all inserter applications.*

To install:

1. Position the pedestal under the rear of the feeder (where support is needed).
2. Loosen both height adjustment knobs on the telescoping support beam (Figure 2-16).
3. Raise the support beam until the L-bracket rests against the bottom of the feeder. Make sure the support pedestal is perpendicular to the feeder before tightening the two adjustment knobs.

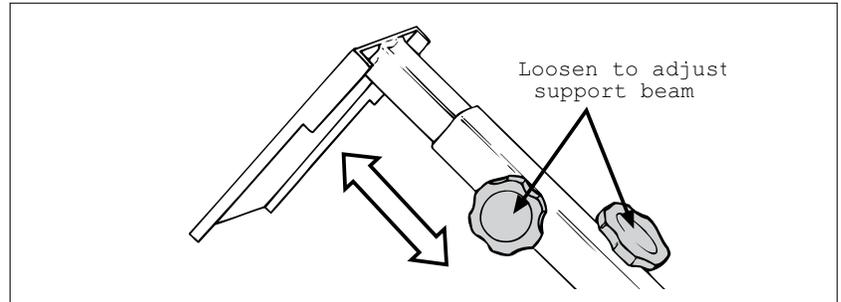
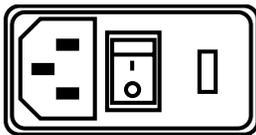


Figure 2-16. Pedestal Installation

STEP 10: Providing AC Power to Feeder



IMPORTANT

Please verify that the voltage shown at the power inlet module matches the incoming voltage from the power source.

1. Connect IEC320 end of power cord to the feeder (at the power inlet module).
2. Connect three-prong end to nearest AC voltage power source.

STEP 11: Initial Feeder Photo Sensor Positioning

1. With the machine turned Off, position the photo sensor so it first is somewhat centered between outside edges of the material.
2. Next, adjust the sensor so it points exactly at the leading edge of material being held by the hold-down springs (Figure 2-17). *Use the flexible extension arm to maneuver the photo sensor into position for desired height and angle.*
3. During the final adjustment of the photo sensor, you need to actually load material into hopper, turn the feeder Off, and cycle the inserter. See Section 3, Preparing for Operation, for more information.

IMPORTANT

A perpendicular alignment to the material is preferred. However, in many instances you may be limited to an angular alignment due to the constraints of the flexible extension arm.

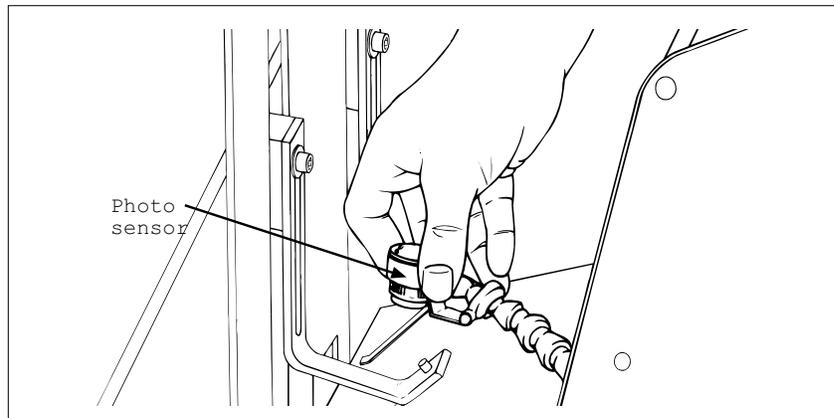


Figure 2-17. Initial Photo Sensor Adjustment

3 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 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.

Once the Streamfeeder V-710DM Universal Friction Feeder is installed on your host system, you are then ready to prepare the machine for operation. To do so, you must perform several adjustments with the material you are going to be feeding. You must also 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:

- 1: Gate assembly adjustment
- 2: Side guides setting
- 3: Back wedge adjustment
- 4: Final photo sensor adjustment (inserter applications only)
- 5: Verify proper installation

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.

Review

The gate assembly provides the curvature to help preshingle material and provides 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 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.

Objective

Adjust the gate assembly for minimum gap, with minimum pressure on the material. Your objective is to adjust the clearance so 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.

TIP

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

NOTE

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

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.

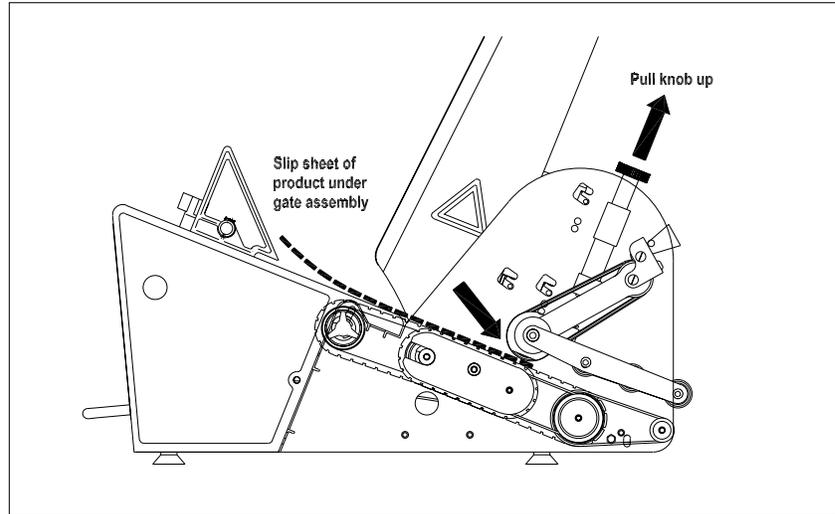


Figure 3-1. Lifting Gate Assembly Upward to Insert

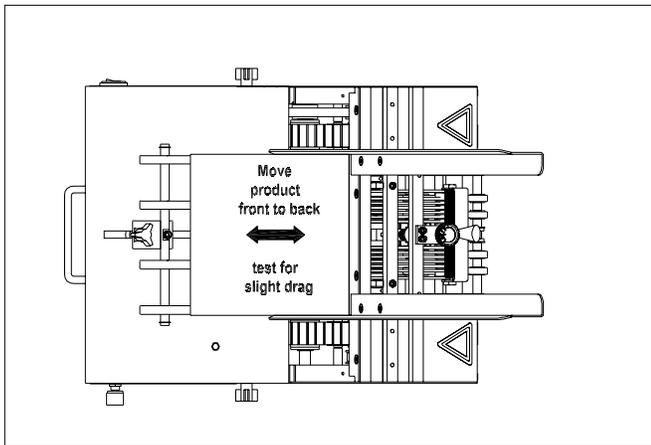


Figure 3-2. Using Two Pieces of Material to Set Gap

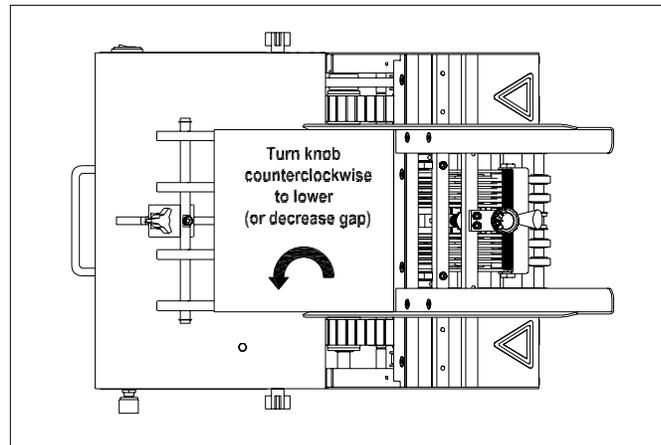


Figure 3-3. Adjusting Gate Assembly for Correct Gap

STEP 1: Gate Assembly Adjustment (continued)

NOTE

*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.”*

IMPORTANT

*The adjustment knob set screws are pre-set at the factory to lock the knob to the threaded rod. **DO NOT OVERTIGHTEN!** Overtightening 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 4, How to Operate).

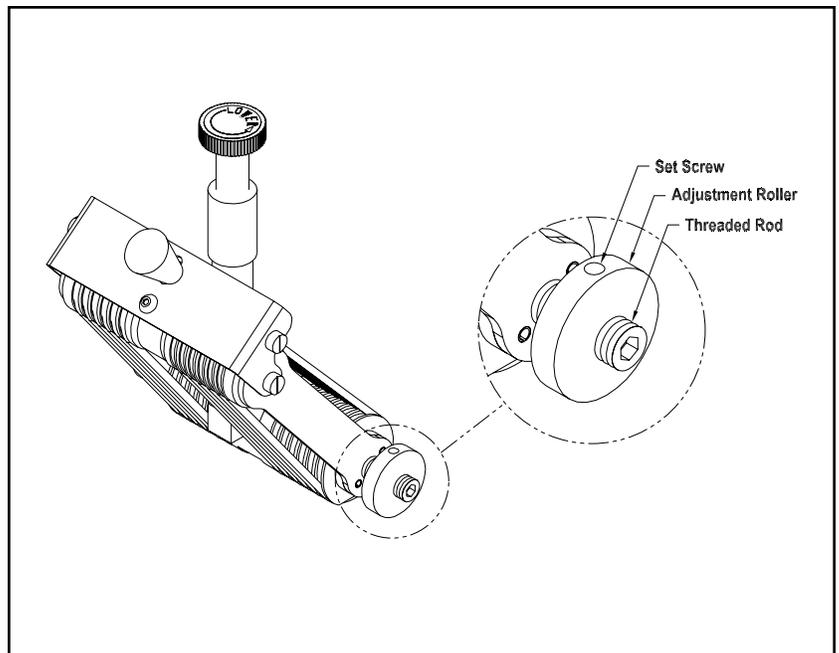


Figure 3-4. Horizon Adjustment Mechanism (shown on Advancing O-Ring Gate)

Changing From Factory Set High-Tension to Low-Tension



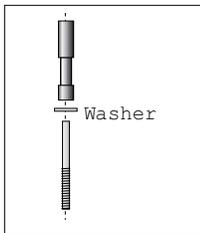
Excessive lowering of the gate assembly can damage material and/or lead to premature wear of the O-rings or feed belts.

IMPORTANT

When changing from a low-tension to high-tension 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 high-tension setting can provide. To increase tension even further, place a washer between the cylinder and spring.



Review

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

If you are feeding a material of irregular thickness, you should change to low-tension. This 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 3-5A). Then lift the cylinder off of top of spring (Figure 3-5B).
3. Turn the cylinder around so the cylinder collar faces up (Figure 3-5C). 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).

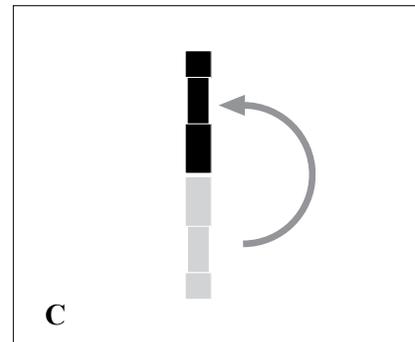
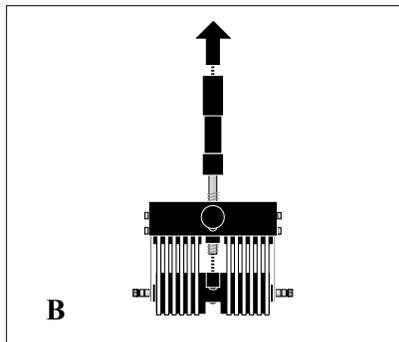
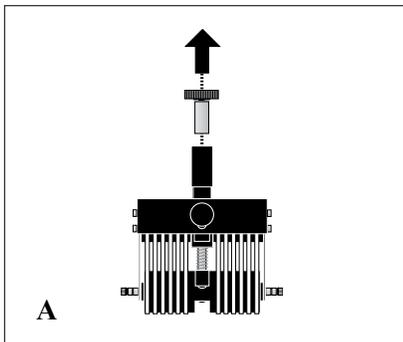


Figure 3-5. Adjusting Gate Assembly for Low-Tension

STEP 2: Side Guides Setting

Review

The side guides hold the stack of material being fed and they 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). *However, 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.

TIP

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).

Procedure

Dual-Knob Side Guides. 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.

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 3-6).
2. Place the preshingled material in the hopper so the edges rest against the curvature of the gate assembly.
3. Turn the back wedge wing-nut adjustment counterclockwise to loosen the wedge.

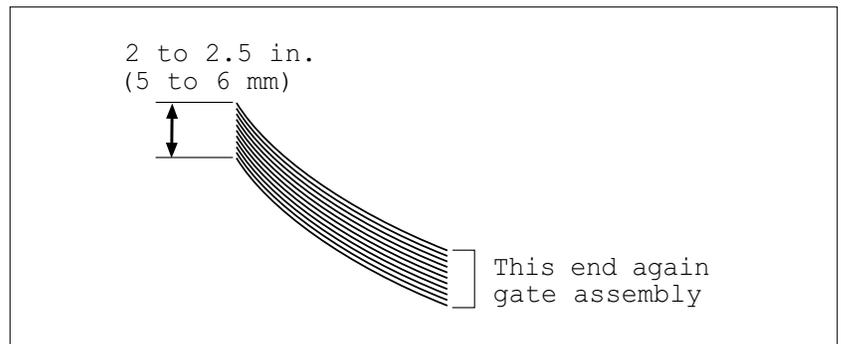


Figure 3-6. Preshingling a Small Stack of Material By Hand



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.

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 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.*

STEP 4: Final Photo Sensor Adjustment (Inserter Applications Only)

NOTE

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.

IMPORTANT

Observe the overlap between the trailing edge of the bottom sheet and leading edge of the next sheet. It should be approximately .25 in. (6.4 mm) to .5 in. (12.7 mm). If not, refer back to Section 2, 2B: Inserter Installation, Step 7, Aligning Feeder with Inset Station, for more information.

Review

The photo sensor is mounted on the flexible extension arm to detect the leading edge of a piece of material to be staged. When the gripper jaw pulls the material from the feeder, the photo sensor no longer “sees” the material and sends a signal to start the feeder. The feeder then moves another piece of material into place and then stops.

Objective

For the photo sensor to be effective, it must be adjusted so each time the feeder starts, the leading edge of the material being fed stops in-line with the front hopper plate. The feeder should stop so the trailing edge of the material has minimal overlap with the next trailing edge exiting the gate assembly area.

Procedure

To adjust the photo sensor for proper positioning, follow these steps:

1. Prepare your adjustment by loading the hopper with approximately 2 to 2.5 in. (5 to 6 cm) of material. Make sure you preshingle the stack so the material rests against the curvature of the gate assembly.
2. Use your finger or thumb on the drive belt or one of the feed rollers to manually move the bottom sheet of material through the gate assembly area and under hold-down springs. Continue until material leading edge is in-line with front hopper plate, then stop (Figure 3-7).
3. Turn the feeder power On by pushing the horizontal line (—) at the **Power On/Off** rocker switch.

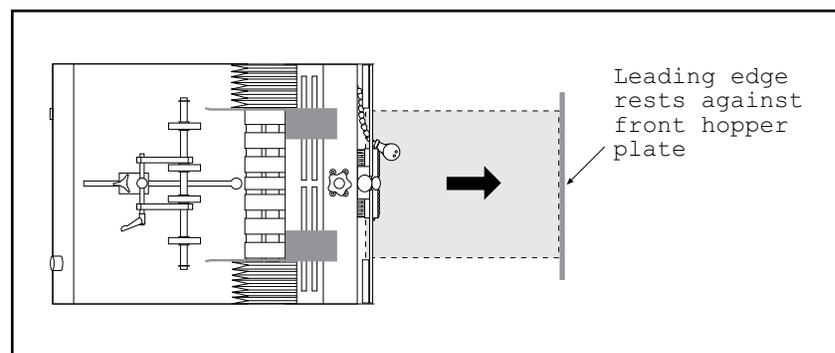


Figure 3-7. Moving the First Sheet Into Position

STEP 4: Final Photo Sensor Adjustment (Inserter Applications Only) (continued)

IMPORTANT

Sensing range from the lens to the paper should not exceed 2 in. (5.08 cm).

4. Simulate gripper jaw action by manually grasping the leading edge of the bottom sheet and pulling completely away from the gate assembly area. Once a piece is removed from the gripper jaw, the sensor sends a signal to the feeder to “stage” the next piece. The leading edge of the “staged” piece should be in-line with the front hopper plate.
5. After running several sheets through, turn the feeder power Off by pushing the circle (O) at the **Power** On/Off rocker switch. Adjust the photo sensor as needed to achieve the correct stopping point. This compensates for the slight over-travel of the motor after it turns Off, thus allowing the leading edge to stop in-line with the front hopper plate.
6. Retest the feeder as needed until optimum results are achieved.

NOTE

If the photo sensor is set too far from the surface of the material, the indicator on the back of the photo sensor will simply turn On and the feeder will start. This indicates the sensor is out of range and therefore will not “see” the target.

IMPORTANT

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 (or target). The resulting problem can be intermittent or continuous feeding. See Section 5, Operational Troubleshooting, for a solution.

IMPORTANT

Black opaque objects may require a special photo sensor. If the photo sensor fails to stop the feeder when the material is within the target range, then consult with a qualified technician.

STEP 5: Verifying Proper Installation

Before you move on to Section 4, How to Operate, verify the installation is properly done by reading the following to prevent any operational problems:

- Review of installation
 - Manual test to verify
-

Review of Installation

Please notice the two applications covered in the text to follow: *vacuum base and inserter*.

Vacuum Base Applications

For the *vacuum base* installation, it is recommended you check the following to ensure a proper installation:

1. Review all vacuum base preparations to make sure they have been properly done.
2. Check electrical connection.
3. Make sure feeder is properly trapped (or centered).

Inserter Applications

For the *inserter* installation, it is recommended you check the following to ensure a proper installation:

1. Review all inserter preparations to make sure they have been properly done.
2. Check alignment of feeder with station.
3. Check electrical connection.
4. Make sure feeder is properly secured to the deck plate.

STEP 5: Verifying Proper Installation (continued)

Now that you have made all the necessary adjustments for operation, it is recommended 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.

NOTE

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.

NOTE

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.

TIP

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

Manual Test to Verify (for All Applications)

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 the material rests against the curvature of the gate assembly.

1. Manually feed several sheets of material slowly through the gate assembly area.
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. 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 3, Preparing for Operation.

4 How to Operate

This section provides a *sequence of operation* for the V-710DM Universal Friction Feeder. It also provides information for *clearing a jam* and for *shutdown*.

Sequence of Operation

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

STEP 1: Loading Material in the Hopper



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



If you wish, loading of material can be accomplished from the front side of the inserter.

1. Start by preshingling by hand a small stack of material so 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.
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.

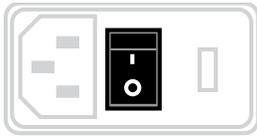
STEP 2: Determining Stack Height

TIP

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

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 a maximum, you will have to experiment to determine effective range of height.
2. Make sure the material is loaded in the hopper as straight as possible. Before adding to hopper, “jog” each hand-full 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.

STEP 3: Powering On Feeder



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

- *For inserter applications only (presentation mode):* As the photo sensor “sees” the leading edge, the feeder motor should turn Off. Check the leading edge of bottom sheet. It should be in-line with the front hopper plate and ready for cycling.

STEP 4: Setting/Adjusting Speed

Note: The following applies to all applications, including both “presentation mode” and “continuous mode.”

1. Set the variable speed control to the lowest speed (counter-clockwise). *Feeder motor stops if turned completely counter-clockwise.*
2. Start by slowly turning the control clockwise to gradually increase feeder speed to coincide with the production line speed of your particular application.

STEP 5: Running Test Cycles



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

For vacuum base applications:

1. With the feeder already fully loaded and powered On, run the vacuum base through several cycles.
2. Notice transition of material from feeder gate assembly area to the transfer area of the vacuum base. Adjust feeder horizontally as needed (refer back to Section 2, Installing the Machine).
3. Adjust feeder speed as needed to coincide with transport belt speed.

For inserter applications:

1. Jog the inserter to see if hold-down spring pressure is equal. Any unequal spring pressure will skew material in the jaw.
2. With the feeder already fully loaded and powered On, run the inserter through several cycles.
3. Check material alignment to make sure it is consistent with the grip position (refer back to Section 2, Installing the Machine).

STEP 6: Final Check

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

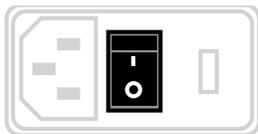


For inserter applications only: Reposition photo sensor (as required).

If a jam occurs during operation, follow these steps:

1. Lift roller hold down up and away from the discharge belts.
2. Remove jammed product from feeder. While doing so, try to determine the cause of the jam (see Section 5, Operational Troubleshooting).
3. Verify whether any adjustments are loose. If so, refer back to Section 3, Preparing for Operation, for proper adjustment procedures.

Shutdown



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.

5 Operational Troubleshooting

Table 5-1 is intended to provide you with quick solutions to the more common day-to-day problems you may encounter. For additional troubleshooting information, see the Section 9, Technical Troubleshooting.

Table 5-1. Quick-Look Troubleshooting

Problem	Cause	Solution
No AC power to feeder	<ol style="list-style-type: none"> 1. On/Off switch in "Off" (or "O" position). 2. Power cord loose or not plugged into outlet (or AC power source). 3. Female end of power cable loose or not plugged into AC power inlet at rear of feeder. 4. Blown fuse. 	<p>Move switch to "On" (or " _ " position).</p> <p>Check and secure power cord at AC outlet.</p> <p>Check and secure cord at AC power inlet at rear of machine.</p> <p>Consult with a qualified technician.</p>
Feeding doubles	<ol style="list-style-type: none"> 1. Gate assembly improperly adjusted (possibly more than one sheet thickness). 2. Back wedge improperly adjusted. 3. Worn O-rings (or angled edge). 4. Material interlocking. 5. Static buildup. 	<p>Review gate adjustment procedure.</p> <p>Review back wedge adjustment procedure.</p> <p>Rotate O-rings. If applicable, replace angled edge. If wear is excessive, consult with a qualified technician.</p> <p>Check material and source.</p> <p>Check material and source.</p>
Continuous feeding (Inserter Applications)	<ol style="list-style-type: none"> 1. Possible overlapping. 2. Photo sensor not adjusted properly; may be "seeing" background objects. 	<p>See "Feeding Doubles" above.</p> <p>Review photo sensor adjustment procedure.</p>
Feed belts are operating, but material not feeding	<ol style="list-style-type: none"> 1. Material stack height is too low when stack height is down, resulting in reduction of down pressure. 2. Binding in side guides. 3. Slippery feed belts. 4. Sheet adhesion or interlocking between the bottom and next sheet. <p><i>(continued)</i></p>	<p>Review material loading procedure.</p> <p>Adjust side guides farther apart to allow freedom of movement between sheets.</p> <p>Consult with a qualified technician.</p> <p>Review material loading procedure and back wedge adjustment procedure.</p>

Table 5-1. Quick-Look Troubleshooting (continued)

Problem	Cause	Solution
Feed belts are operating, but material not feeding (continued)	<ol style="list-style-type: none"> 5. Gate assembly may be down too tight. 6. Too much weight in hopper. 	<p>Review gate assembly adjustment procedure.</p> <p>Remove material from stack. Test again.</p>
Feed belt(s) not tracking on rollers	<ol style="list-style-type: none"> 1. Excessive weight in hopper. 2. Excessive down pressure on gate assembly. 3. Off-centered product from center point of machine. 4. Stack is bearing down on edge of belt. 5. Belt wear. 6. Rollers out of adjustment. 	<p>Reduce weight. Test again.</p> <p>Rotate gate adjustment 1/8 turn to increase gap and manually test. Review gate assembly adjustment procedure.</p> <p>Review side guide setting procedure.</p> <p>Move stack away from belt, even if this causes stack to be off center from center line of feeder.</p> <p>Review gate assembly adjustment procedure. Also review inspection and care procedures. If wear is excessive, consult with a qualified technician.</p> <p>Consult with a qualified technician.</p>
Jamming occurs during operation	<ol style="list-style-type: none"> 1. Improperly adjustment in one or more of the following: <ul style="list-style-type: none"> • gate assembly • back wedge 	<ol style="list-style-type: none"> 1. Turn the Power switch to "Off" by pressing the circle (O). 2. Remove jammed material from feeder. While doing so, try to determine the cause of the jam. 3. Verify each adjustment by reviewing the "Preparing for Operation" section of the manual.
Material skewing	<ol style="list-style-type: none"> 1. Back wedge not aligned properly. 2. Hold down spring tension too tight or too loose. 3. Improperly adjusted gate horizon. 	<p>Review back wedge adjustment procedure.</p> <p>Review hold-down spring installation procedure.</p> <p>Review gate assembly adjustment procedure.</p>
Material too far from gripper jaw (Inserter Applications only)	<ol style="list-style-type: none"> 1. Photo sensor "staging" leading edge of material too far from hopper plate. 2. Gripper jaw adjusted too far from edge of hopper plate. 	<p>Review photo sensor adjustment procedure.</p> <p>Adjust gripper jaw as required per inserter owner's manual.</p>
Material too deep in gripper jaw (Inserter Applications only)	<ol style="list-style-type: none"> 1. Photo sensor "staging" leading edge of material too far past hopper plate. 2. Gripper jaw adjusted too close to leading edge of hopper plate. 	<p>Review photo sensor adjustment procedure.</p> <p>Adjust gripper jaw as required per inserter owner's manual.</p>

6 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.

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.

Visual Inspection

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: Flat areas along the O-rings (Figures 6-1 and 6-2, respectively).
- Bar Gate: Angled wedge begins to flatten excessively (Figure 6-3).

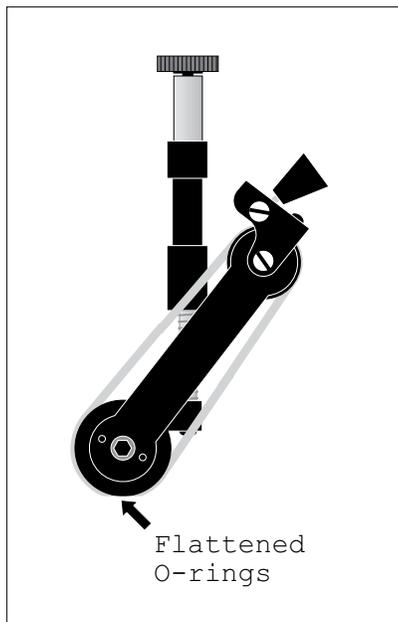


Figure 6-1. Advancing O-Ring Gate

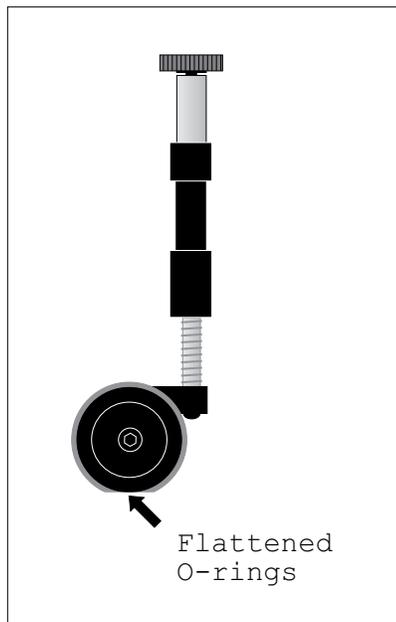


Figure 6-2. Standard O-Ring Gate

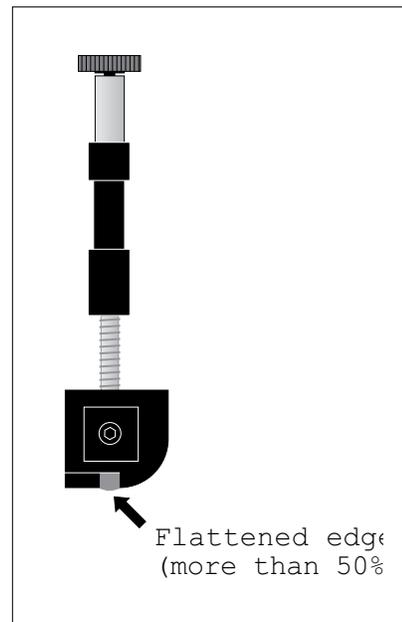


Figure 6-3. Bar Gate

Visual Inspection (continued)

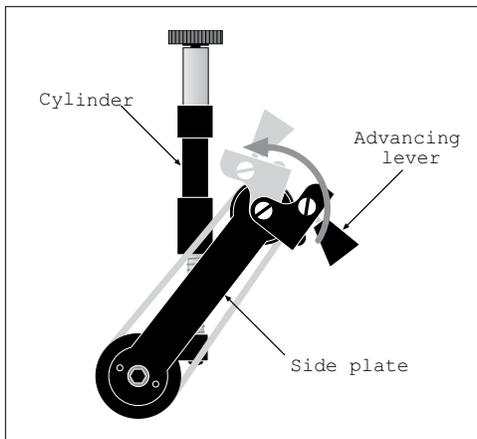


Figure 6-4. Advancing O-Ring Gate

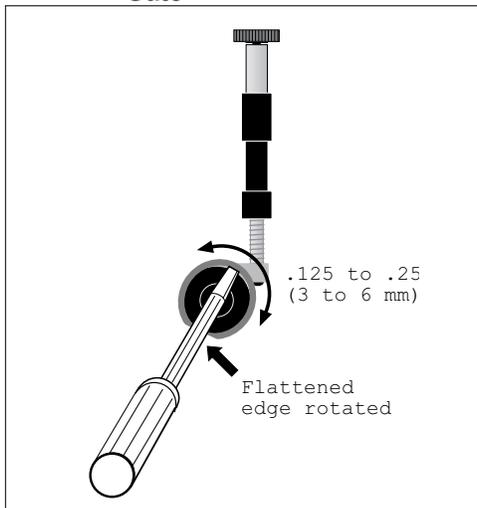


Figure 6-5. Standard O-Ring Gate

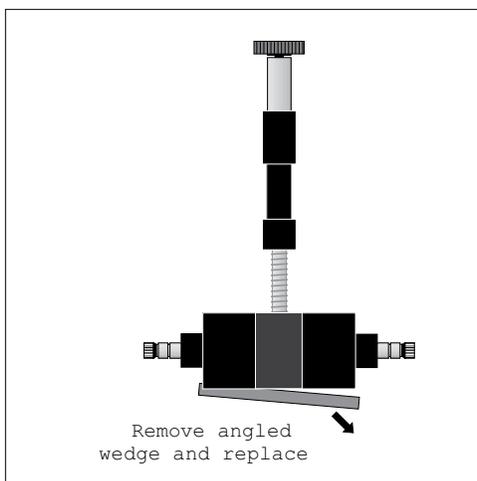


Figure 6-6. Bar Gate

Advancing O-Ring Gate: Adjusting Worn O-Rings

To adjust worn O-rings on advancing O-ring gate (Figure 6-4):

1. Turn Off feeder and remove power cord from outlet.
2. Open discharge safety shield to access gate.
3. Make sure advance knob is in-line with the side plate and secure. Then loosen left and right locking wing nuts.
4. Rotate O-rings by grasping advance knob and pushing toward gate cylinder about .125 to .25 in. (3 to 6 mm).
5. Retighten locking wing nuts. Then loosen advance knob and move to original position (in-line with side plate). Retighten.
6. Close discharge safety shield and restore power.

Standard O-Ring Gate: Adjusting Worn O-Rings

To adjust worn O-rings on standard O-ring gate (Figure 6-5):

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

Replacing Worn Angled Wedge

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

1. Turn Off feeder and remove power cord from outlet.
2. Open discharge safety shield to access gate.
3. Remove gate assembly from gate plate.
4. Remove plate (two screws).
5. Remove angled wedge.
6. Install new angled wedge. Reinstall plate (two screws).
7. Reinstall gate assembly, close discharge safety shield, and restore power.

Preventive Care



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

<i>Cleaning schedule for various materials:</i>
<ul style="list-style-type: none">• <i>Typical: <u>every month</u></i>• <i>Dusty: <u>after every shift</u></i>• <i>High ink or varnish: <u>1 time per shift</u></i>

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. Repeat for each belt.
4. Reinstall gate and hold down assembly, reinstall discharge safety shield and restore power.

Preventive Care (continued)



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

<p>Cleaning schedule for various materials:</p> <ul style="list-style-type: none"> • Typical: <u>every month</u> • Dusty: <u>after every shift</u> • 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 can 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. Open discharge safety shield to access gate.
3. Remove gate assembly from gate bracket assembly.
4. Apply a small amount of isopropyl alcohol to a soft cloth.
5. Wipe across O-rings, or angled wedge if applicable. First wipe in one direction, then the other.
6. Taking a dry portion of the cloth, go back and wipe all surfaces to ensure they are dried.
7. Reinstall gate assembly, close discharge safety shield, and restore power. *It may be necessary to recheck alignment of feeder with host machine if feeder was moved from original installation position (for a review, refer back to Section 2, Installing the Machine).*

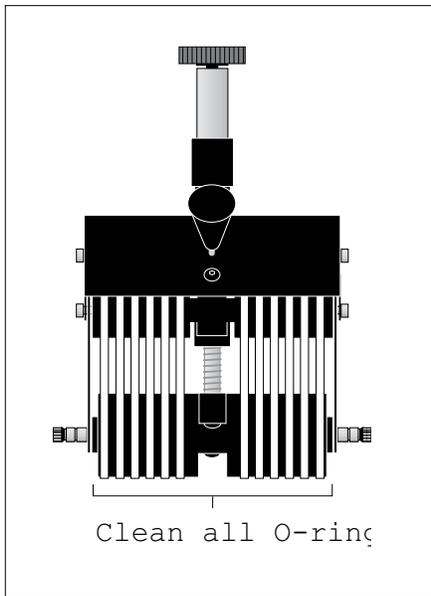


Figure 6-7. Advancing O-Ring Gate

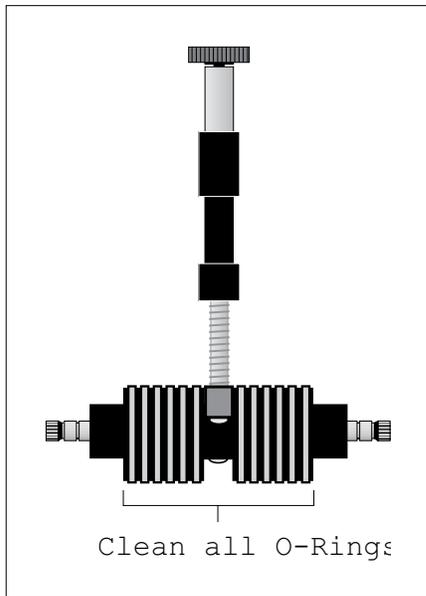


Figure 6-8. Standard O-Ring Gate

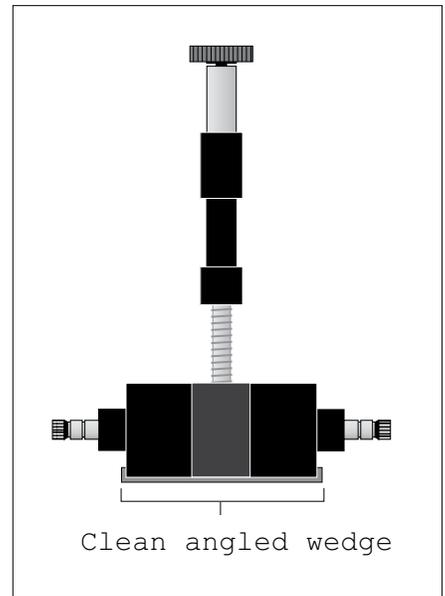


Figure 6-9. Bar Gate

Preventive Care (continued)



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

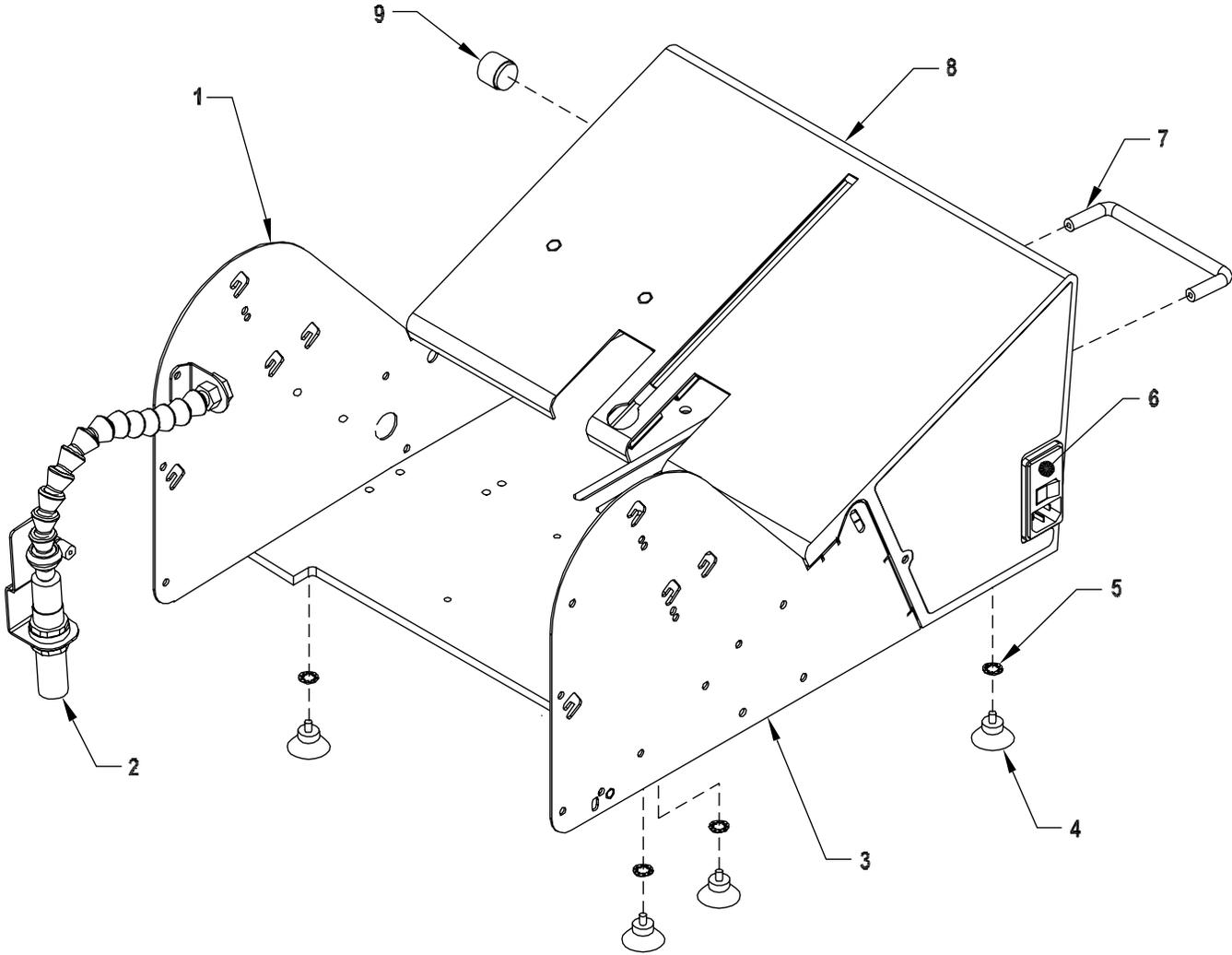
Cleaning Photo Sensor

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 3, Preparing for Operation).
4. Restore power.

7 Mechanical Components

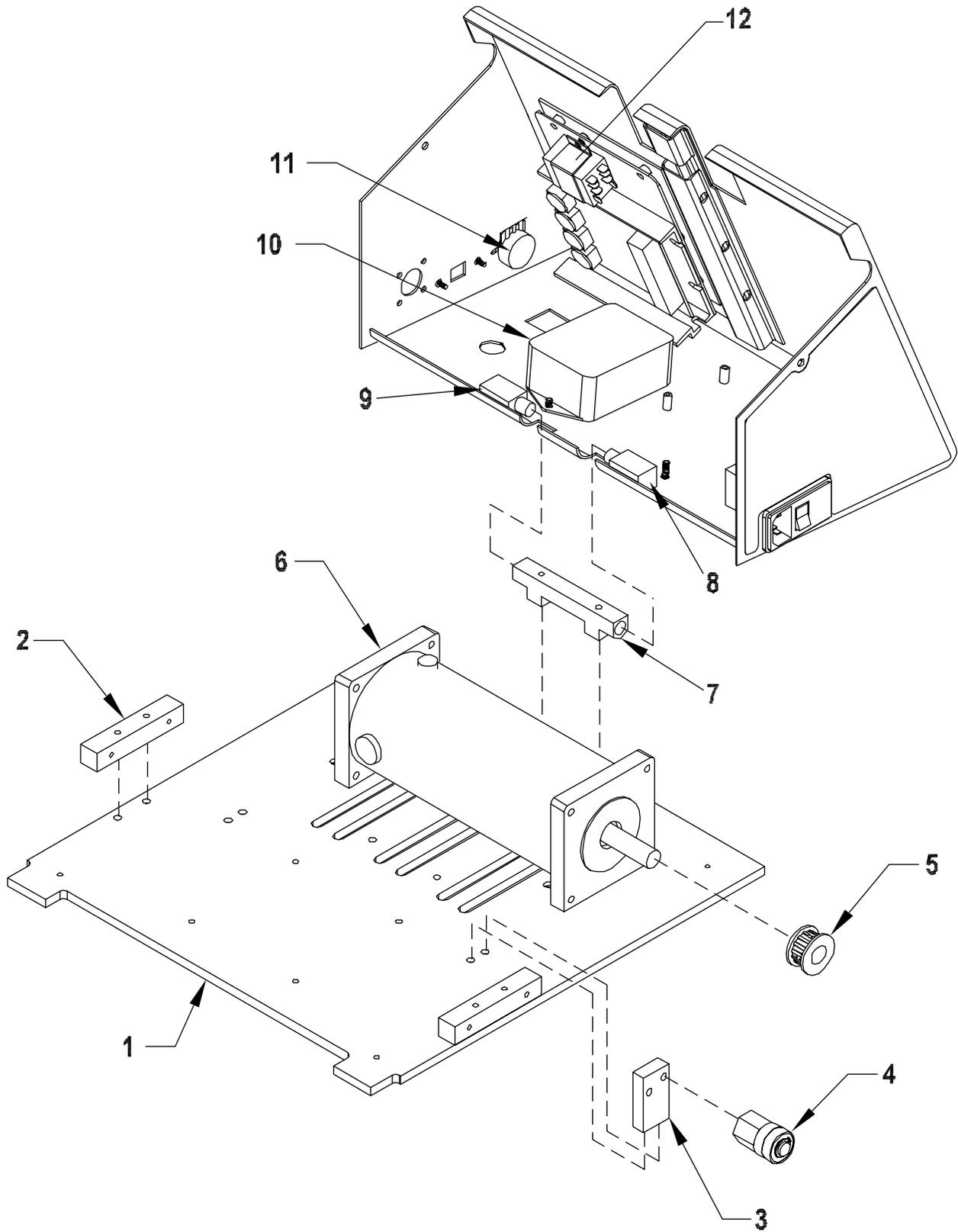
BASE FEATURES



BASE FEATURES

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	2	51050102	SHELL SPLIT FRONT EAR RIGHT
2	1	10501139	SENSOR ASSEMBLY, SHEET V710 DUAL MODE
3	1	51050101	SHELL SPLIT FRONT EAR LEFT
4	4	44846058	FOOT SUCTION CUP
5	4	00003341	WASHER LOCK 1/4 INTERNAL STAR TOOTH
6	1	44649034	MODULE AC POWER ENTRY W/O FUSES
	2	53500558	FUSE 5A 250V SLO-BLO 5 X 20 MM
7	1	44841002	PULL HANDLE
8	1	44841060	SHELL SPLIT BACK
9	1	44675030	KNOB STRAIGHT KNURL BLACK

BASE FEATURES



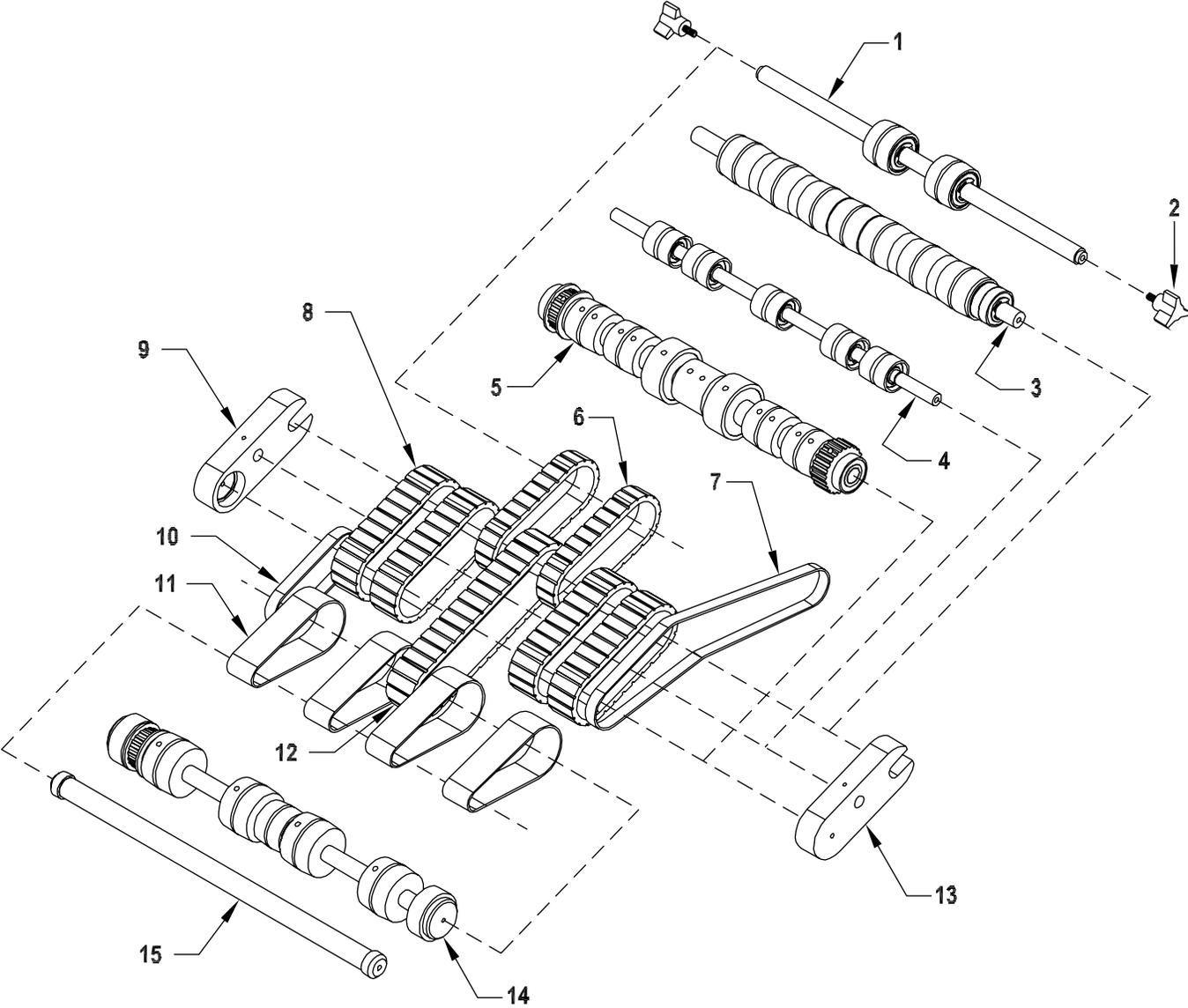
BASE FEATURES

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	2	51050237	BASE PLATE
2	2	44675003	MOUNT FRONT BASE PLATE
3	1	44846056	BRACKET BELT TENSIONER
4	1	23511290	BELT TENSIONER ASSEMBLY
5	1	44846038	PULLEY, TIMING 14XL037 .500DFA
6	1	10501133	MOTOR ASSEMBLY 90VDC (115V MODELS ONLY)
	1	10502233	MOTOR ASSEMBLY 180VDC (230V MODELS ONLY)
7	1	44841063	BLOCK PIVOT CENTER
8	1	44841064	BLOCK PIVOT LEFT
9	1	44841065	BLOCK PIVOT RIGHT
10	1	311-0633	ASSY, HARNESS AC PWR REGEN DRV
	OR 1	611-0242	ASSY, LINE FILTER (WITH SPADE LUGS)
11	1	10501137	SPEED POT ASSEMBLY
12	1	53500453	RELAY 120VAC DPDT K10P (115V ONLY)
	1	53500457	RELAY 240VAC DPDT K10P (230V ONLY)
	1	51050114	CLAMP
NS	1	10501136	WIRE ASSEMBLY, GROUND
NS	3	53500030	TIEWRAP
NS	2	00003402	BASE ADHESIVE
NS	3	53500254	TERMINAL DISC FEMALE .020 22-18 AWG
NS	1	53500002	POWER CORD (115V MODELS ONLY)
NS	1	53522210	POWER CORD, ALLEN WRENCH KIT (230V MODELS)

NS = NOT SHOWN

CARRIAGE ASSEMBLY

Assembly # : 10501102

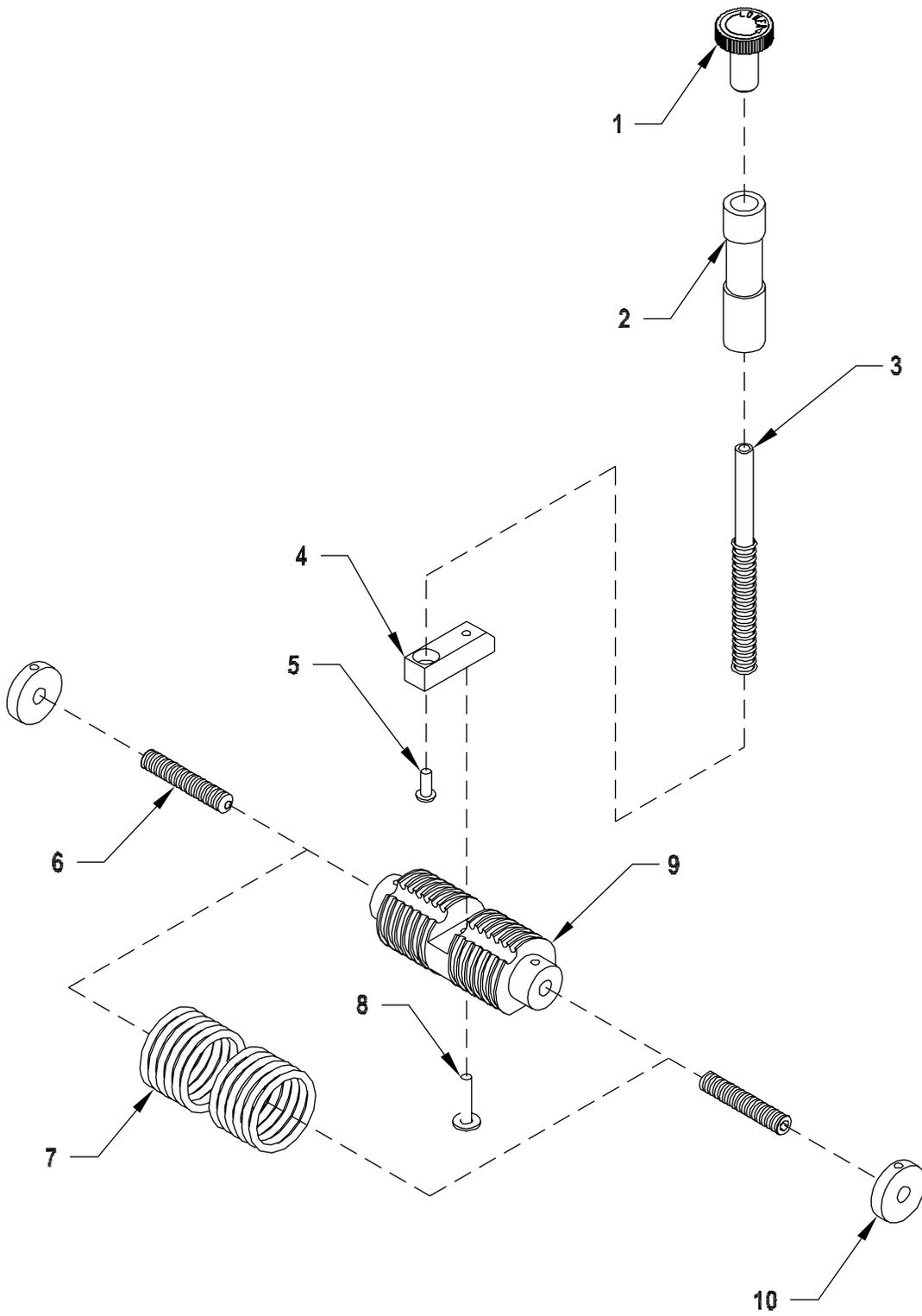


CARRIAGE ASSEMBLY
Assembly # : 10501102

ITEM	QTY.	PART NO.	DESCRIPTION	ITEM	QTY.	PART NO.	DESCRIPTION
1	1	44841020	ADJUSTABLE ROLLER SHAFT	6	2	15000076	BELT, TAN GUM 24G .75W X 9L
	2	44841033	ROLLER	7	1	44841034	BELT, TIMING 206XL037
	4	23500094	BEARING BALL R8	8	4	23500162	BELT, TAN GUM 24G 1W X 9L
	4	00001155	CLIP E 1/2 WALDES	9	1	44485005	HOLDER CARRIAGE RIGHT
2	2	23500092	KNOB 3 ARM 10-32 X 7/16		1	00003316	SCREW 6-32 X 1/4" LG
3	1	43555047	IDLER SHAFT	10	1	51050010	DRIVE BELT 86XL037
	1	44630004	TUBE DRIVEN	11	4	51050062	BELT DISCHARGE CLEAR 1W
	4	23500094	BEARING BALL R8	12	1	44759062	BELT, TAN GUM 36G 1W X 14L
	3	00001155	CLIP E 1/2 WALDES	13	1	44485006	HOLDER CARRIAGE LEFT SIDE
4	1	43550036	SHAFT DISCHARGE ROLLER		1	00003316	SCREW 6-32 X 1/4" LG
	10	23511030	ROLLER SUPPORT	14	1	51050008	UPPER DISCHARGE SHAFT
	10	00001110	RING GRIP 3/8 WALDES		2	23500032	HOLDER OUTBOARD BRG CUP
5	1	43555205	SHAFT DRIVE 3/4		4	51050006	DRIVE CROWN ROLLER
	1	23500097	PULLEY 20XL037 .500KDFA		1	44841033	ROLLER CROWN DRIVEN
	1	43560098	PULLEY 24XL037 .500KA		1	23500097	PULLEY, 20XL037 .500KDFA
	4	23560208	CROWN DRIVE ROLLER		4	23500094	BEARING BALL R8
	2	23500126	ROLLER FEED .75 INCH BORE		4	00001155	CLIP E 1/2 WALDES
	1	23560206	ROLLER FLAT DRIVE		1	00002216	SCREW 10-32 X 1/4" LG
	2	23500094	BEARING BALL R8		9	00002217	SCREW 10-32 X 5/16" LG
	2	00001115	RING GRIP 1/2 WALDES		1	00003351	KEY WOODRUFF 1/8 X 3/8
	12	00002216	SCREW 10-32 X 1/4" LG	15	1	51050007	LOWER DISCHARGE SHAFT
*	4	00002217	SCREW 10-32 X 5/16" LG		2	44846050	CUP BEARING R4
	2	00003351	KEY WOODRUFF 1/8 X 3/8		2	44582021	BEARING BALL R4

* 1 FOR EACH TIMING PULLEY, 1 FOR EACH BLUE FEED ROLLER

STANDARD O-RING GATE W/HORIZON ADJUST ASSEMBLY
Assembly # : 13511872

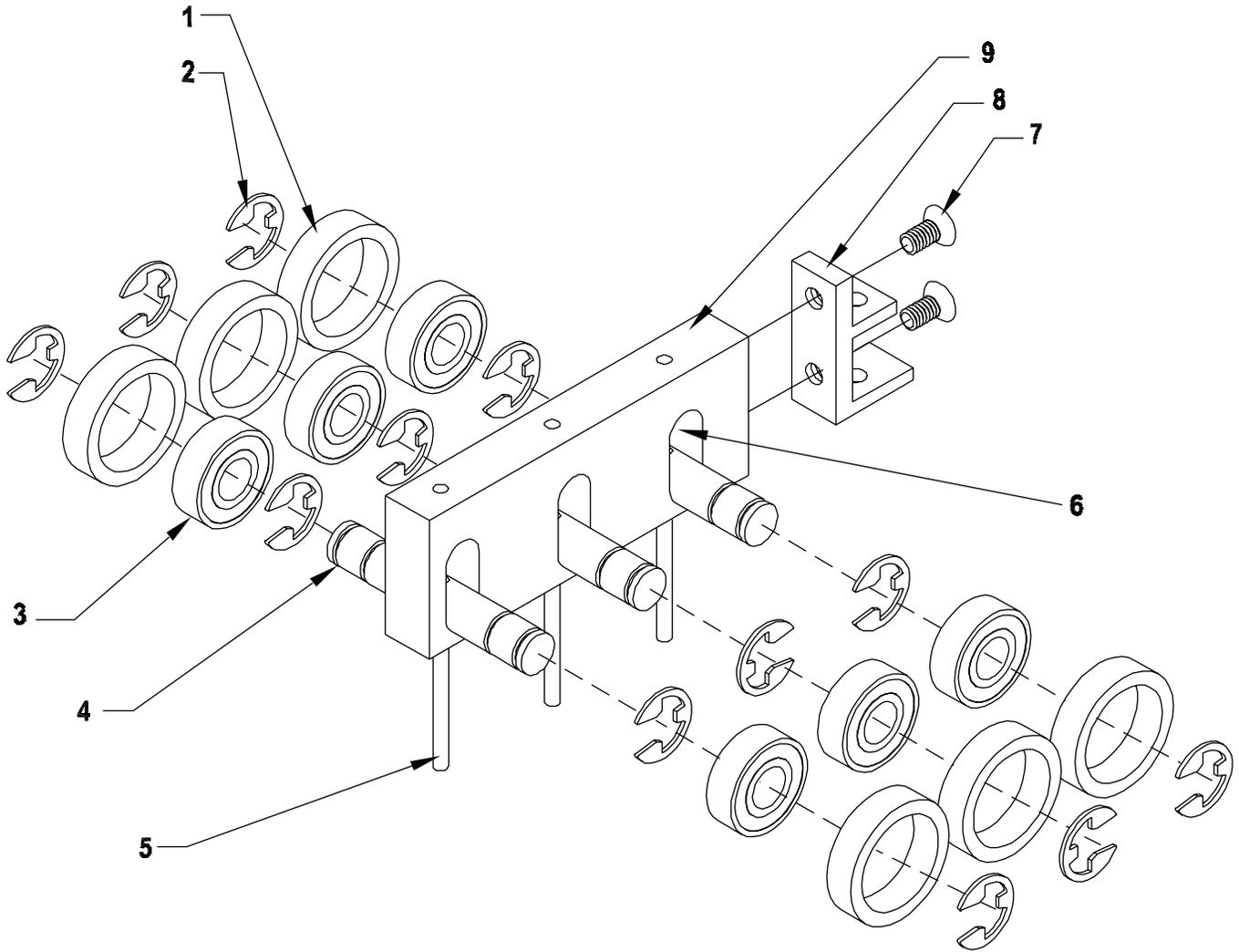


STANDARD O-RING GATE W/HORIZON ADJUST ASSEMBLY

Assembly # : 13511872

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	23511037	ADJ KNOB ASSEMBLY FOR GATE
2	1	23500019	CYLINDER GATE SPRING
3	1	23560084	SHAFT GATE LIFT
	1	23500083	SPRING GATE COMPRESSION
4	1	15000001	MOUNT GATE LIFT SHAFT
5	1	00002334	BHCS 10-32 X 1/2" LG
6	2	44872005	SCREW ADJUSTMENT
7	12	23500089	O RING GATE CYLINDER
8	1	00002340	BHCS 10-32 X 1" LG
	1	00002607	WASHER FLAT #10
9	1	51101001	GATE CYLINDER (NOT SOLD SEPARATELY)
	2	00002216	SHSS 10-32 X 1/4" LG CUP PT
10	2	44872003	ROLLER
	2	44872007	SHSS 10-32 X 3/8" LG NYLON TIP

HOLD DOWN ASSEMBLY
Assembly # : 10501109



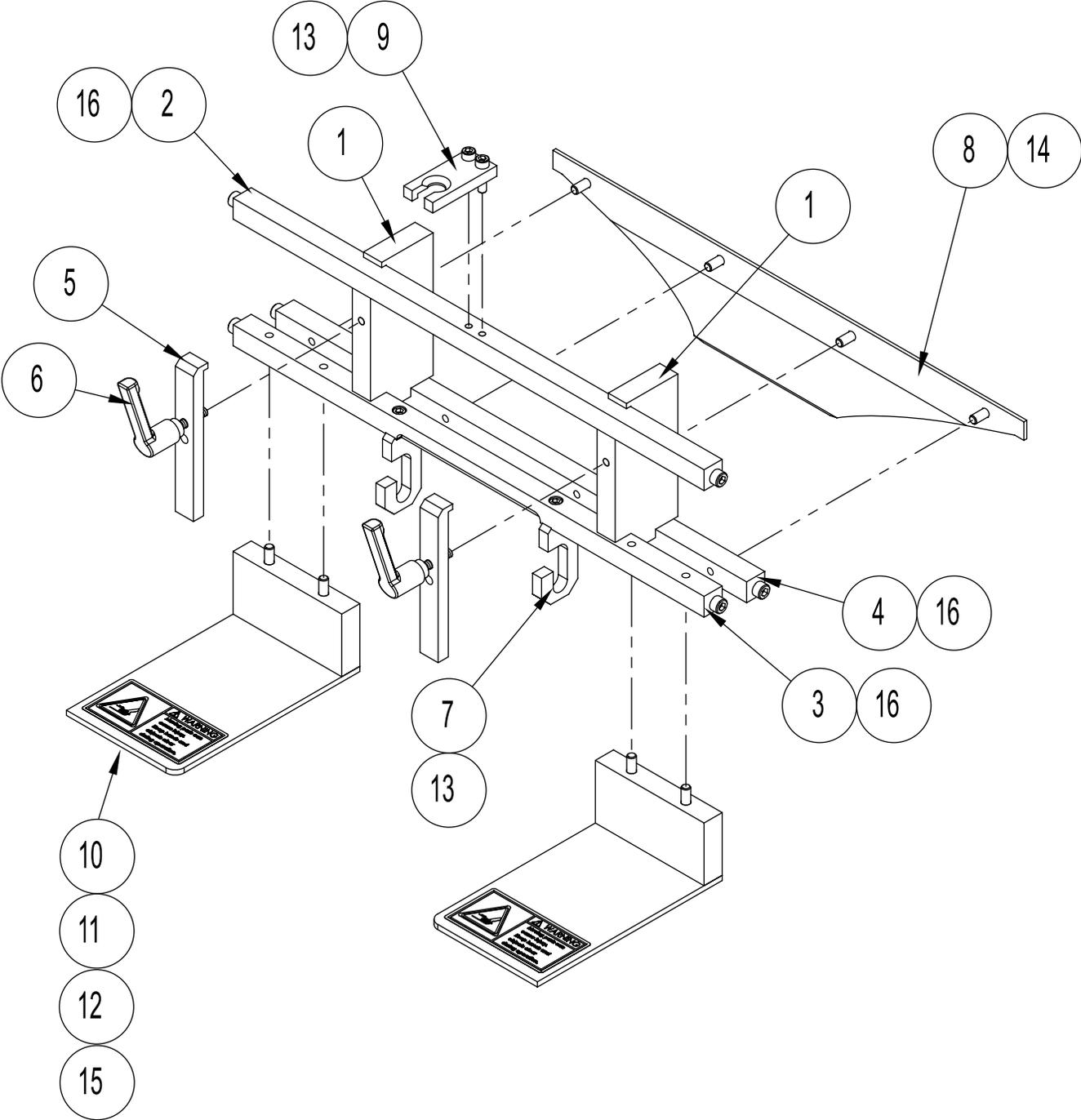
HOLD DOWN ASSEMBLY

Assembly # : 10501109

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	6	51277087	DISCHARGE ROLLER COLLAR
2	12	00001150	E-CLIP 3/8
3	6	23500095	R6 BEARING
4	3	51050238	HOLD DOWN SHAFT
5	3	51312003	SPRING PIN 1/8"
6	3	51328001	HOLD DOWN SPRING
7	2	00002234	FHSC 10-32 X 3/8"
8	12	51312001	HOLD DOWN MOUNT
9	1	51050239	HOLD DOWN BLOCK

GATE PLATE ASSEMBLY

Assembly # : 84111006

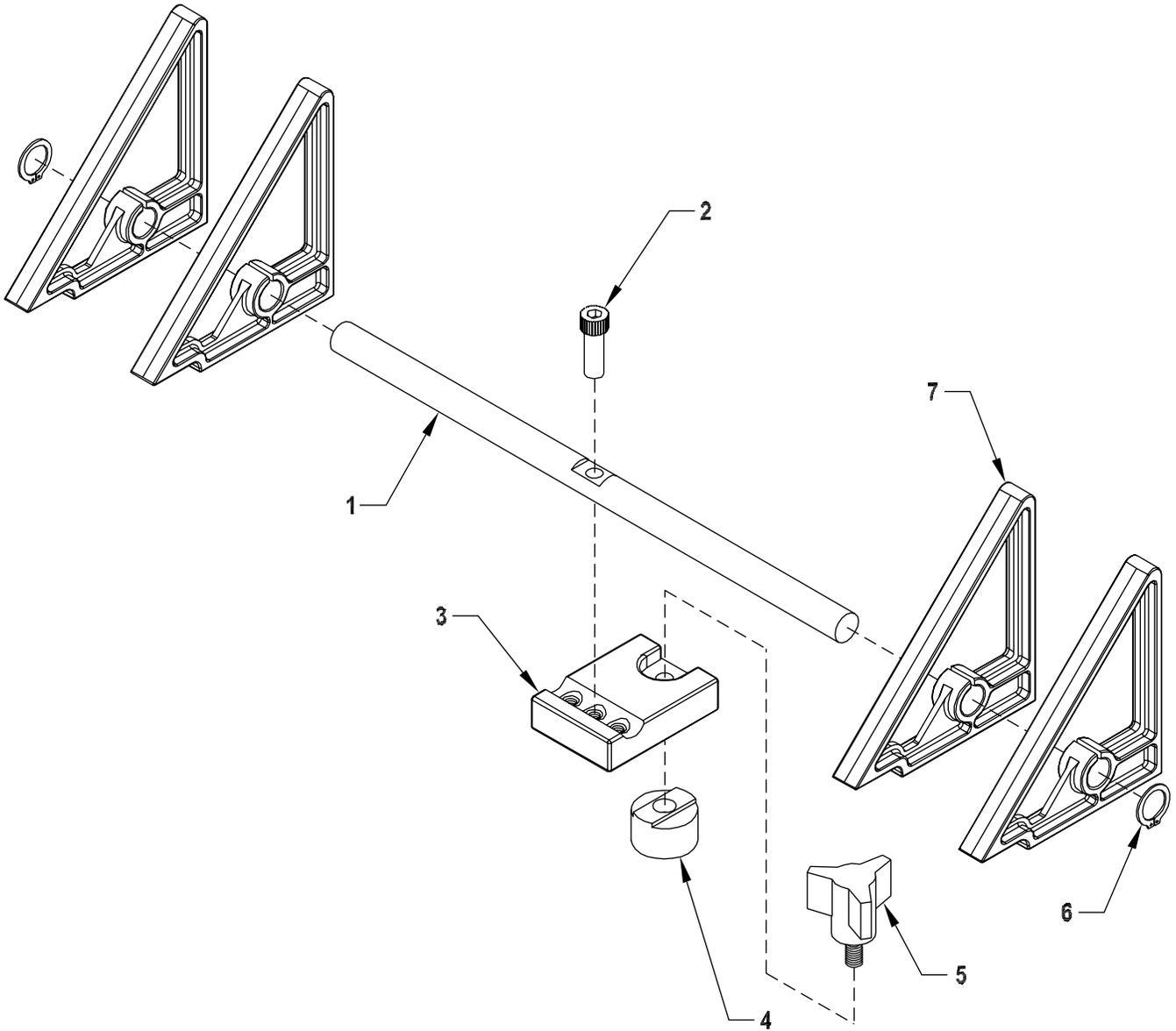


GATE PLATE ASSEMBLY

Assembly # : 84111006

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	2	44841004	CLAMP, SIDE GUIDE
2	1	44841006	SUPPORT, UPPER GATE BAR
3	1	44841005	BAR, LOWER GATE SUPPORT
4	1	44841007	BAR, PRE-GATE
5	2	44675006	CLAMP, SIDE GUIDE ADJUST
6	2	43555098	HANDLE 10-32 X .75
7	2	44841011	HOOK, GATE J
8	1	44841016	GATE, PRE-GATE
9	1	44841019	BLOCK, ADJUSTMENT REFERENCE
10	2	51050072	SHIELD, SMOKED LEXAN
11	2	51050073	BLOCK, SPACER, SHIELD
12	2	53500609	LABEL, WARN INJURY 2.7 X 1.4
13	4	102685B04	SHCS 8-32 X 5/8
14	4	102637B03	FHCS #10-32 X 1/2
15	4	102708B10	BHCS 10-32NC X 2.00
16	6	102688B02	SHCS #10-32 X 3/8

TRIANGLE WEDGE ASSEMBLY
Assembly # : 63311018

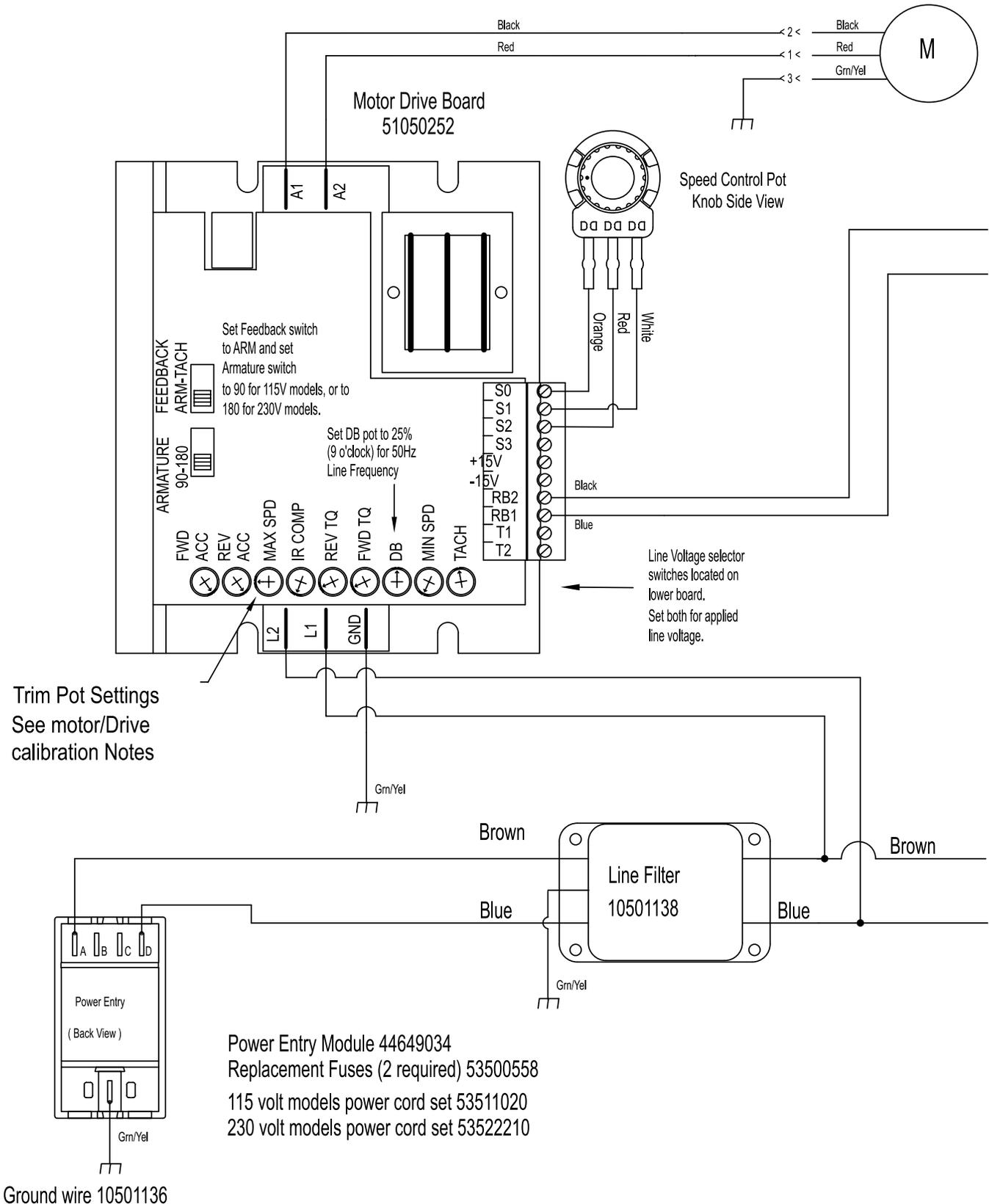


TRIANGLE WEDGE ASSEMBLY

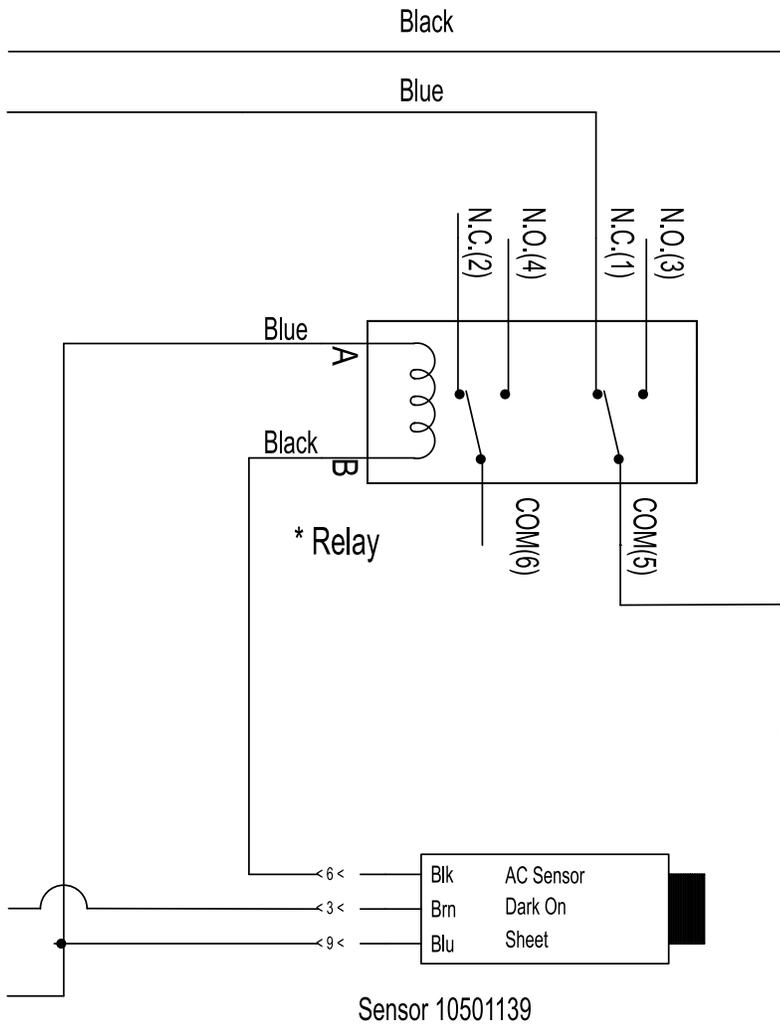
Assembly # : 63311018

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	44633018	WEDGE GUIDE SHAFT
2	1	00002320	SHCS #10-32 X 5/8 LG
3	1	44633014	WEDGE BLOCK
4	1	44633016	ROUND T-NUT
5	1	44633033	KNOB, 3 LOBE
6	2	00001110	RING GRIP 3/8 WALDES
7	4	43560212	WEDGE, MATERIAL SUPPORT

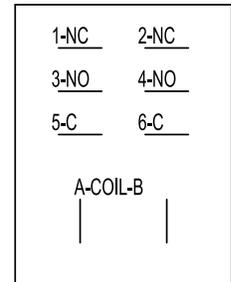
8 Electrical Components



115vac models supplied with a 90VDC motor (10501133)
 230vac models supplied with a 180VDC motor (10502233)



* Relay Bottom View



115vac Models

* Relay 53500453

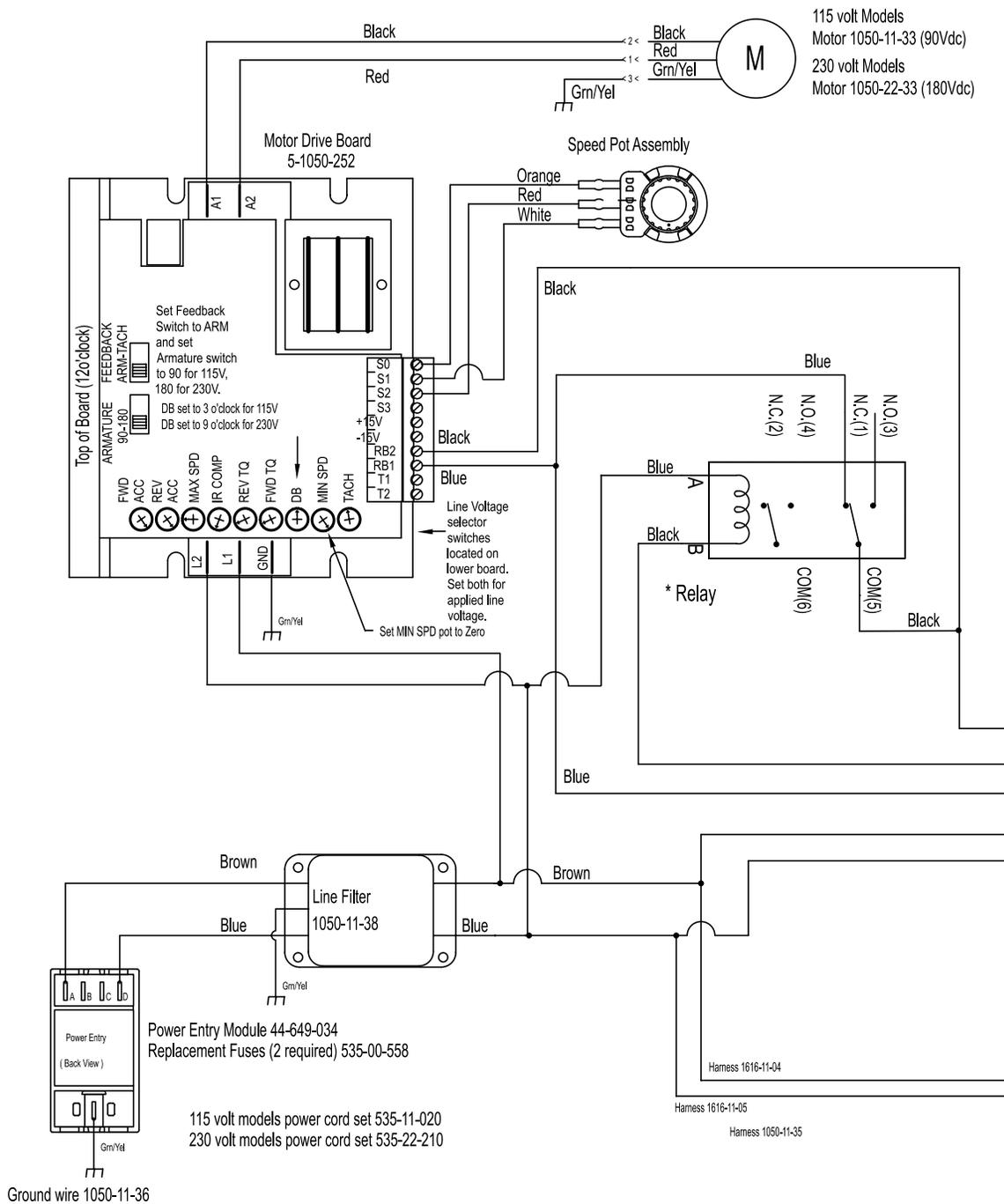
230vac Models

* Relay 53500457

Motor/Drive Calibration

With user speed control set to maximum, adjust drive MAX SPD trim pot (to about the 12 o'clock position) until 50VDC for 115V models and 100VDC for 230V models is measured at the motor leads A1 and A2. (Approx. 1100 R.P.M.)

With user speed control set to minimum, adjust drive MIN SPD trim pot (to about the 10 o'clock position) until 0VDC for 115V and 230V models is measured at the motor leads A1 and A2.



D1 - Power on LED is illuminated any time power is applied to CN2.

D2 - Run Enable LED is illuminated any time the CN3 is jumpered or K1 is energized. The LED will also be on during the timing cycle. The timing cycle is adjustable via R5 for a period of 0-12 seconds. The timing cycle is an 'ON' Delay timing period.

Motor/Drive Calibration

With user speed control set to maximum, adjust drive MAX SPD trim pot (to about the 12 o'clock position) until 50VDC for 115V models and 100VDC for 230V models is measured at the motor leads A1 and A2. With user speed control set to minimum, adjust drive MIN SPD trim pot (to about the 8 o'clock position) until 0VDC for 115V and 230V models is measured at the motor leads A1 and A2.

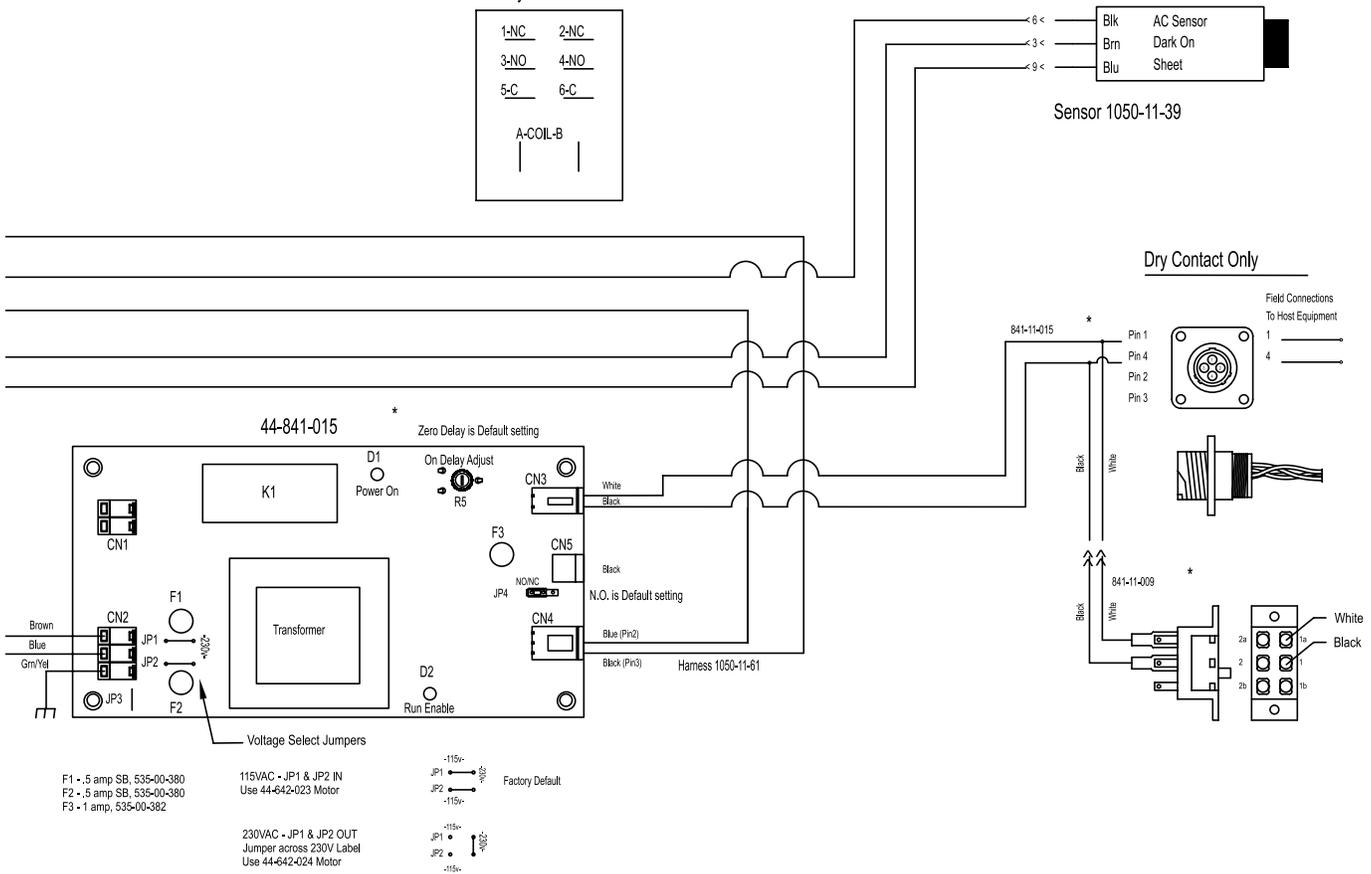
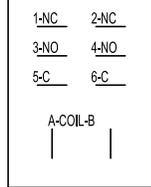
115vac Models

* Relay 535-00-453
 Motor 1050-11-33 (90Vdc)
 115vac models supplied with a 90VDC motor

230vac Models

* Relay 535-00-457
 Motor 1050-22-33 (180Vdc)
 230vac models supplied with a 180VDC motor

* Relay Bottom View



9 Technical Troubleshooting

General Troubleshooting Terms



Only a qualified technician should perform electrical troubleshooting activities. This unit operates on 115V or 230V electrical power. Bodily contact with these voltages can result in serious injury or death.

Gaining Access to the Internal Electrical Components

Refer to the Model V-710DM electrical wiring diagram located in Section 8, Electrical Components. Also refer to the interior features diagram in Section 7, Mechanical Components. Access to the electrical components is gained by removing the two screws securing the rear section of the shell to the forward section. These screws are located on each side of the machine near the label that states: “No serviceable parts inside. Refer servicing to qualified service personnel.” Open the split-shell design by tipping the rear shell section back to expose the internal contents. It may also be desirable to completely remove the rear section of the shell. Remove the two screws securing the hinge to the base plate, leaving the hinge secured to the rear section of the shell.

In the test sections that follow, Streamfeeder OEM part numbers are shown in parentheses.

Machine Operation Overview

This machine utilizes an SCR motor drive board to run a DC motor. The board has an inhibit control pin that disables the drive and causes the motor to stop when the control pin is asserted. This machine also employs a dynamic braking resistor that is connected across the motor wires at the same time the inhibit control pin is asserted. This application reduces motor coasting, so that the feed belts stop sooner than otherwise would be possible. All this control logic is provided by the combination of an AC diffuse reflective sensor operating in the dark-on mode, and a DPDT mechanical relay with an AC coil. When the sensor detects an object, its output turns off, the relay coil de-energizes, and the motor stops. When the sensor is not sensing an object, its output is on, the relay coil is energized, and the motor runs.

Problem	Solution
<p>Testing the power entry module</p>  <p><i>Exercise care when performing the following test. Bodily contact with 115VAC or 230VAC can result in serious injury or death.</i></p>  <p><i>To ensure safety, the machine must be connected to a three-prong grounded outlet. Never allow machine operation without the ground pin present in your power cord. Replace power cord if it is damaged in any way.</i></p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">  NOTE </div> <p><i>This power module is designed to hold 5mm x 20mm fuses, as well as 1.25" x .25" fuses. The machine ships from Streamfeeder's facility with 5mm x 20mm fuses, rated at 5A, 250V, slow blow.</i></p>	<ol style="list-style-type: none"> 1. Make sure there is power present at the AC main where the feeder is plugged in. 2. Remove power cord from the AC input switch module (44-649-034) and disconnect the two spade connector leads located on the back of the module inside the feeder. These terminals are labeled "A" where the brown L1 wire is connected; and "D" where the blue Neutral (or L2) wire is connected. The brown and blue wires lead to the AC line filter (1050-11-38 or 311-0633 or 611-0242). 3. Check three-wire AC power cord 115V (53500002) or 230V (535-22-210) for integrity at all three points. 4. Check the two fuses (535-00-558) located inside the feeder's input power module. BOTH fuses must be present and test good. <ol style="list-style-type: none"> a. Observe the voltage label showing through the window on the fuse housing for proper orientation when the holder is reinserted. b. A small screwdriver inserted under the tab will allow you to pry open the fuse housing. Remove the red fuse holder. If the smaller 5mm x 20mm fuse is present, verify that the metal tab "finger" is holding the fuse in the forward position. Make sure it has not allowed the fuse to slide back toward the outside of the feeder and away from where contact with the metal pressure points inside the module body is made. c. Use an ohmmeter to test the fuses. A visual inspection will not always be sufficient to determine fuse integrity. If necessary, replace with fuses of the same rating only. 5. Reconnect power cable and with power switch turned "on," check for presence of AC at the output spade connectors "A" and "D" on the back of module where the internal L1 and Neutral (or L2) lead connections are made. 6. If steady AC power is not measured as in the previous step, the module's internal contacts are most likely worn, and the module must be replaced.
<p>Testing the sensor</p>	<ol style="list-style-type: none"> 1. Make sure the quick-disconnect of the AC sensor harness (1050-11-43) is fully engaged with the sensor (1050-11-39) cable's mating connector. Also make sure the AC sensor harness (1050-11-43) is securely connected to the motor drive board terminals labeled L1 and Neutral (L2), where the output of the line filter assembly (1050-11-38 or 311-0633 or 611-0242) is also connected. 2. Turn machine power on. The green LED on the sensor's body should illuminate indicating it has received power. Is the green LED illuminated? <ol style="list-style-type: none"> a. Yes: Go to step 4. b. No: Go to step 3.

Table 9-1. Quick-Look Troubleshooting (continued)

Problem	Solution
<p>Testing the sensor (continued)</p>	<ol style="list-style-type: none"> 3. Measure for the presence of AC power at the L1 and Neutral (L2) terminal of the motor drive board. If power is not present, first verify integrity of AC power leads from the power entry module, and refer to section titled "Testing the power entry module." Correct the absence of AC before continuing. Is the green light on the sensor illuminated? <ol style="list-style-type: none"> a. Yes: Go to step 4. b. No: Replace sensor assembly (1050-11-39). 4. Cover the sensor. The yellow LED should illuminate. Does the yellow LED illuminate? <ol style="list-style-type: none"> a. Yes: Go to step 5. b. No: Replace sensor assembly (1050-11-39). 5. When the sensor is uncovered, the light it emits does not reflect back into the sensor's receiver and is "dark". The relay coil should de-energize when the sensor is covered, and should energize when the sensor is uncovered. Therefore this sensor works in the "dark-on" or "normally closed" mode. Does the relay coil alternately de-energize and reenergize as the sensor is alternately covered and uncovered? <ol style="list-style-type: none"> a. Yes: Sensor assembly is good. b. No: Replace relay with a known good relay. See the section titled "Testing the control relay," 115V (535-00-453), 230 V (535-00-457). If relay coil still does not alternately de-energize and re-energize as the sensor is alternately covered and uncovered, replace sensor assembly (1050-11-39).
<p>Testing the control relay</p>  <p><i>Exercise care when performing the following test. Bodily contact with 115VAC or 230VAC can result in serious injury or death.</i></p>	<ol style="list-style-type: none"> 1. Remove relay 115V (535-00-453), or 230V (535-00-457) from the machine disconnecting all leads from the relay terminals. 2. Measure the normally closed sets of contacts for continuity using an ohmmeter: <ol style="list-style-type: none"> a. Measure between terminals 1 and 5, and terminals 2 and 6. Zero ohms measured indicates complete continuity. If more than a couple of ohms is measured, replace relay. 3. Verify coil operation and test the normally open sets of contacts for continuity using an ohmmeter: <ol style="list-style-type: none"> a. Carefully apply the appropriate AC power to the coil terminals "A" and "B" on the relay. If the contacts do not move, replace the relay. b. While the coil is energized, measure between terminals 3 and 5, and terminals 4 and 6. Zero ohms measured indicates complete continuity. If more than a couple of ohms is measured, replace relay. 4. If the contacts move when power is applied, and all contacts have continuity, the relay is OK. If a known good relay's contacts do not move when installed in the machine verify all wiring is correct and the AC sensor is operational. Correct wiring or replace sensor as necessary to return feeder to operation.

Table 9-1. Quick-Look Troubleshooting (continued)

Problem	Solution
<p>Testing the user speed control assembly</p>	<ol style="list-style-type: none"> 1. Remove the three pot leads from the drive board; orange, red, and white. 2. Using an ohmmeter, measure between the orange and white leads for approximately 5k ohms. If approximately 5k ohms are not measured, replace user speed control. 3. Turn user speed control pot (1050-11-37) fully clockwise. 4. Measure between the red and orange leads for approximately 5k ohms. If approximately 5k ohms are not measured, replace user speed control. 5. Keeping the ohmmeter leads connected to the red and orange leads, slowly turn the user speed control counterclockwise. Your meter should indicate a continuous reduction of the ohm value across its entire range to less than 100 ohms. If not, replace the user speed control assembly. 6. Next measure between the red and white leads. You should measure approximately 5k ohms with the user speed control set fully counterclockwise. If not, replace user speed control assembly. 7. Keeping the ohmmeter leads connected to the red and white leads, slowly turn the user speed control clockwise. Your meter should indicate a continuous reduction of the ohm value across its entire range to less than 100 ohms. If not, replace the user speed control assembly.
<p>Testing DC motor drive</p>  <p><i>Exercise care when performing the following test. Bodily contact with 115VAC or 230VAC can result in serious injury or death.</i></p> <p>Testing DC motor drive (continued)</p>	<ol style="list-style-type: none"> 1. Verify motor integrity, and re-install in feeder if necessary. See section titled “Testing the motor.” 2. Disconnect red motor wire from relay 115V (535-00-453), or 230V (535-00-457) contact common terminal number 6, and connect this wire to the motor drive board (44-642-025) terminal labeled - Arm. 3. Remove violet wire from the motor drive inhibit pin. Prevent this wire from touching anything. Cover its terminal with electrician’s tape if necessary. 4. Verify user speed control integrity (see section titled “Testing the user speed control assembly”) and turn control fully clockwise. 5. Set all four dials to their respective positions as shown in the electrical wiring diagram; Min, Max, IR Comp, and Cur Lim. (If your feeder operates on 230V power, set your Max dial to the 10 o’clock position instead of the 6 o’clock position as viewed on the diagram). 6. Turn feeder power on and verify AC power has been applied to terminals labeled L1 and Neutral (L2). Does the motor run? <ol style="list-style-type: none"> a. Yes: The drive tests good. See section titled “DC motor drive board setup procedure.” b. No: Replace DC motor drive board and see section titled “DC motor drive board setup procedure.”

Table 9-1. Quick-Look Troubleshooting (continued)

Problem	Solution
<p>DC motor drive board setup procedure</p>  <p><i>Exercise care when performing the following test. Bodily contact with 115VAC or 230VAC can result in serious injury or death.</i></p>	<ol style="list-style-type: none"> 1. Set user speed control to fully clockwise position (maximum speed). 2. Set all four dials of the DC motor drive board (44-642-025) to their respective positions as shown in the electrical wiring diagram; Min, Max, IR Comp, and Cur Lim. (If your feeder operates on 230V power, set your Max dial to the 10 o'clock position as viewed on the diagram). 3. Verify machine line voltage configuration: <ol style="list-style-type: none"> a. 115V machine: Go to step 4. b. 230V machine: Go to step 5. 4. 115V machines. Using a DC volt meter, measure applied motor voltage: <ol style="list-style-type: none"> a. Place the red meter lead on the terminal labeled + Arm. b. Place the black meter lead on the terminal labeled - Arm. c. Adjust the Max dial until approximately 62 VDC is measured across the + Armature and - Armature terminals. 5. 230V machines. Using a DC volt meter, measure applied motor voltage: <ol style="list-style-type: none"> a. Place the red meter lead on the terminal labeled + Arm. b. Place the black meter lead on the terminal labeled - Arm. c. Adjust the Max dial until approximately 126 VDC is measured across the + Armature and - Armature terminals. 6. Turn the user speed control to fully counterclockwise. If motor is running, turn Min dial counterclockwise until the motor stops.
<p>Testing the motor</p> <p>Testing the motor (continued)</p>	<ol style="list-style-type: none"> 1. Verify machine line voltage configuration: <ol style="list-style-type: none"> a. 115V machine: Go to step 2. b. 230V machine: Go to step 3. 2. In 115V machines you will find a 90VDC motor. Using an ohmmeter, measure across the red and black motor leads: You should measure less than about 10 ohms across the motor leads. If you measure an open or high resistance, rotate the motor shaft to ensure the brushes are making good contact with the commutator. Check the brushes (44-642-035) and replace if necessary. 3. In 230V machines you will find a 180VDC motor. Using an ohmmeter, measure across the red and black motor leads: You should measure less than about 20 ohms across the motor leads. If you measure an open or high resistance, rotate the motor shaft to ensure the brushes are making good contact with the commutator. Check the brushes (44-642-035) and replace if necessary. 4. Replace the motor if an open is measured after replacing the brushes. 5. Using an ohmmeter, measure between the red lead and the motor body (where paint is not covering the body), and also between the black motor lead and the body. The motor winding must not be shorted to the motor body. If you measure a short to the body, replace the motor.

Table 9-1. Quick-Look Troubleshooting (continued)

Problem	Solution
Testing the motor (continued)	<p>6. Using an ohmmeter, measure between the motor body and the motor connector pin that has the green wire with a yellow stripe. This is a ground wire that bonds the motor body to earth ground. You should measure continuity between the pin and the motor body. Also, when the motor is connected to the drive, you should be able to measure continuity between the motor body and the ground pin of the power entry module. If continuity is not measured, repair faulty ground wire connection, as this is a user safety issue.</p>

Thiele
Technologies | **Streamfeeder**
PRODUCT LINE

315 27th Avenue NE · Minneapolis, MN 55418 · USA
TEL: (763) 502-0000 · FAX: (763) 502-0100
EMAIL: service@streamfeeder.com
WEB: www.streamfeeder.com

