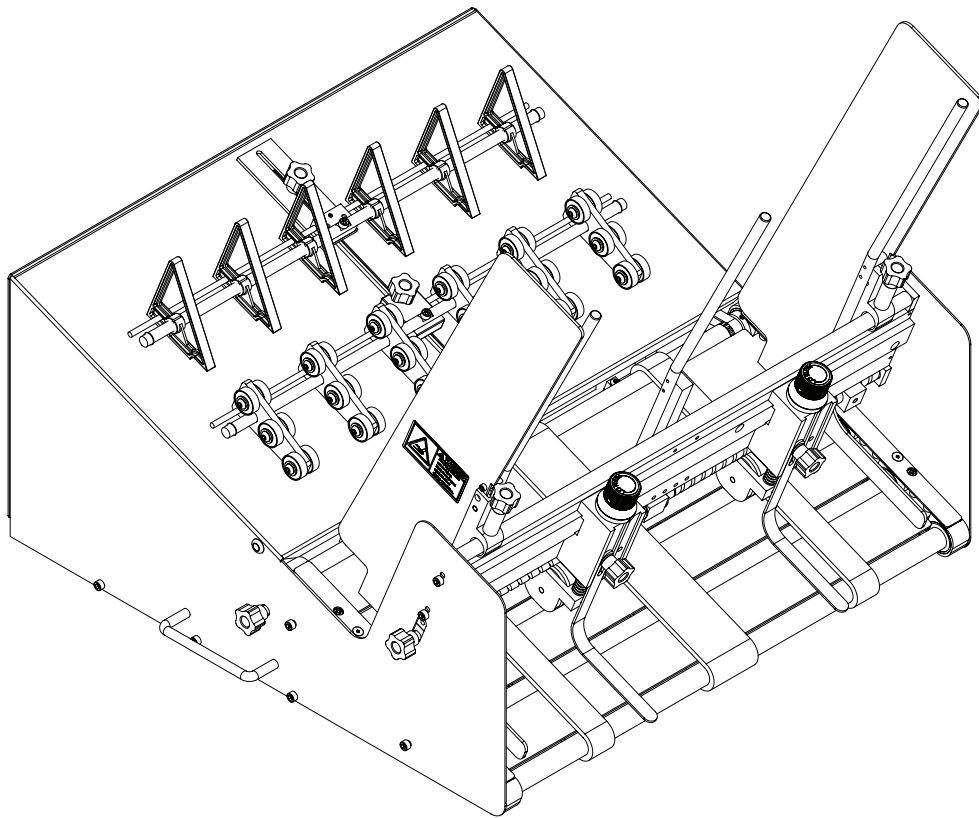


Value Series V-2000

Product Guide



Thiele
Technologies
A Barry-Wehmler Company

Streamfeeder
®

Part Number: 901272

This Product Guide supports feeder part numbers 1805004 and 1805005 with serial numbers beginning with V2000B.

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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.

SAFETY

Make sure you thoroughly read this section to become familiar with all the safety issues relating to the safe operation of this product.

Please read all of the warnings that follow to avoid possible injury. Although Streamfeeder has made every effort to incorporate safety features in the design of this feeder, there are residual risks that an installer or operator should be aware of to prevent personal injury.

Please read all of the cautions that follow to prevent damage to this product. This product is built with the highest quality materials. However, damage can occur if the system is not operated and cared for within design guidelines as recommended by Streamfeeder.

Danger



To insure proper machine operation make sure that all the safety devices are installed properly and functioning. If the feeder has the media sensor on the side guides insure that these are properly installed. Do not attempt to defeat a safety interlock or safety feature.

Equipment interior contains incoming 115 or 230VAC electrical power. Bodily contact with these high voltages can cause electrocution, which can result in serious injury or death.

SPECIFICATIONS

Maximum Product Size:	20 in. W x 18 in. L (508 mm x 457.2 mm)
Minimum Product Size:	2.5 in. W x 3 in. L (63.5 mm x 76.2 mm)
<i>With optional narrow extended wedge:</i>	<i>2 in. W x 3 in. L (50.8 mm x 76.2 mm)</i>
Min/Max Product Thickness:	.003 in to 1.0 in. (.0762 mm - 25.4 mm)
Belt Speed:	7800 ipm (198,120 mm/min)
Drive:	DC motor
Electrical Requirements:	115vac/60Hz/3A, 230vac/50Hz/2A
Multiple Voltage Interface Relay:	24vac, 115vac, 5-24vdc
Overall Dimensions:	22.96 in W (583 mm) 25.24 in L (641 mm) 21.31 in H (541 mm)
Weight:	97 lbs. (43.99 kg)

CE CERTIFICATION



Make sure you thoroughly read this section to become familiar with all the safety issues relating to the safe operation of this product. Thiele Technologies - Streamfeeder hereby declares that this product is in conformance with the following standards:

Machinery Directive 98/37/EC

Low Voltage Directive IEC/EN/CSA/UL 60950

Emissions - EN55014-1

Immunity - EN55014-2

The technical file for these products is maintained at the corporate headquarters of Thiele Technologies - Streamfeeder in Minneapolis, Minnesota USA.

1 About the Machine

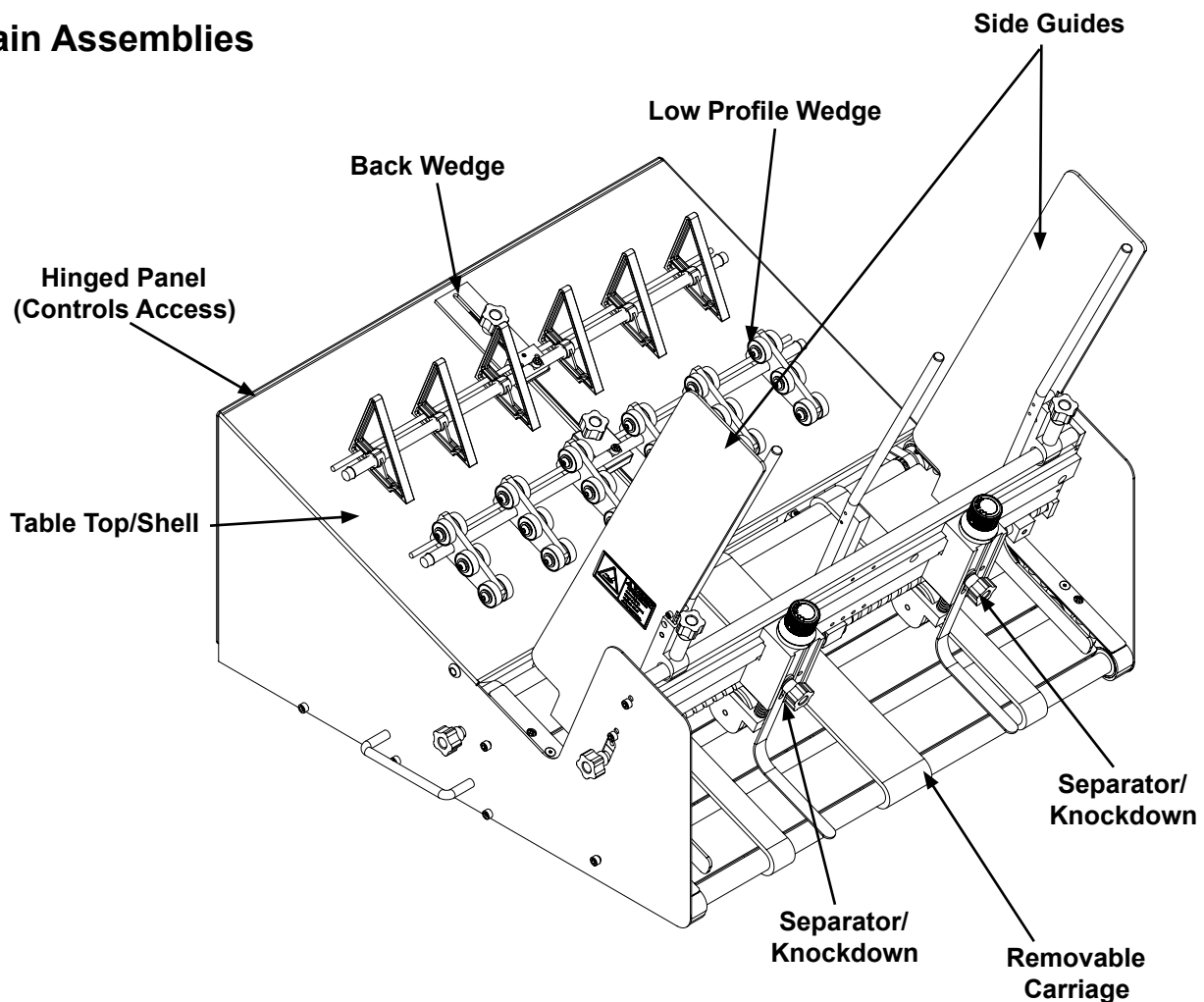
Features

The V-2000 is designed for reliability, flexibility, and ease of use with a variety of vacuum and non-vacuum bases.

All parts required for setup, loading, feeding, and easy operator control are combined into one compact unit.

Review the *main assemblies* below to become familiar with names and locations of feeder parts and adjustments. This will help to prepare you for initial setup.

Main Assemblies



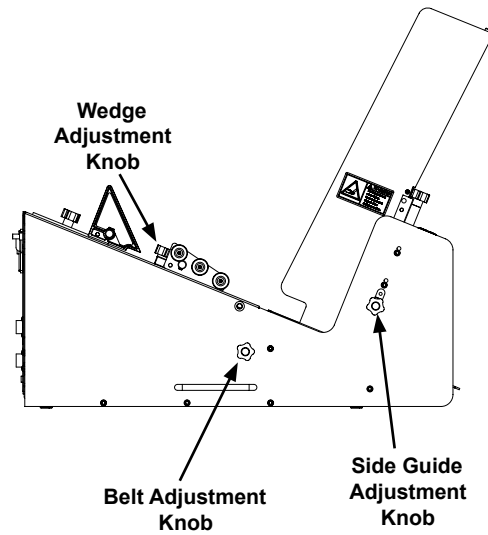
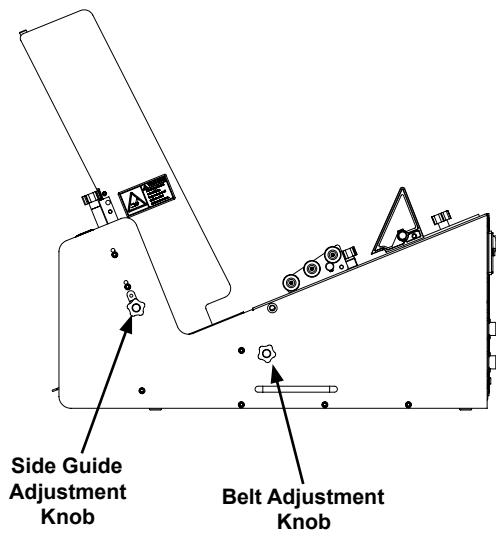
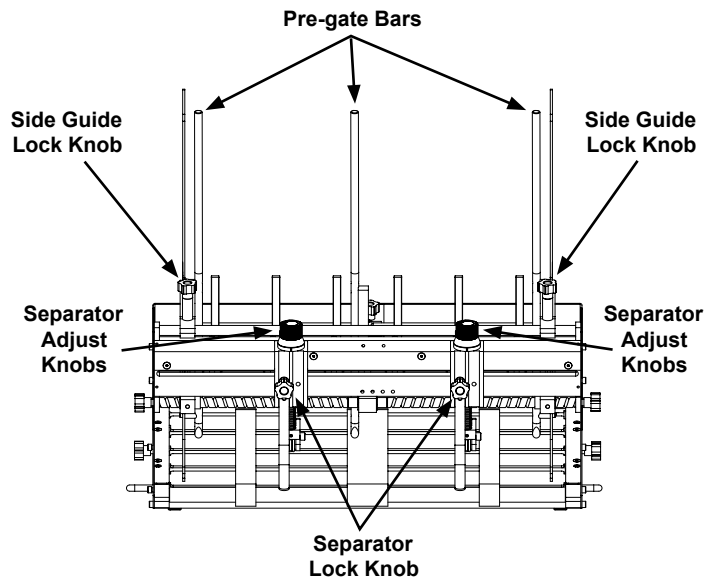
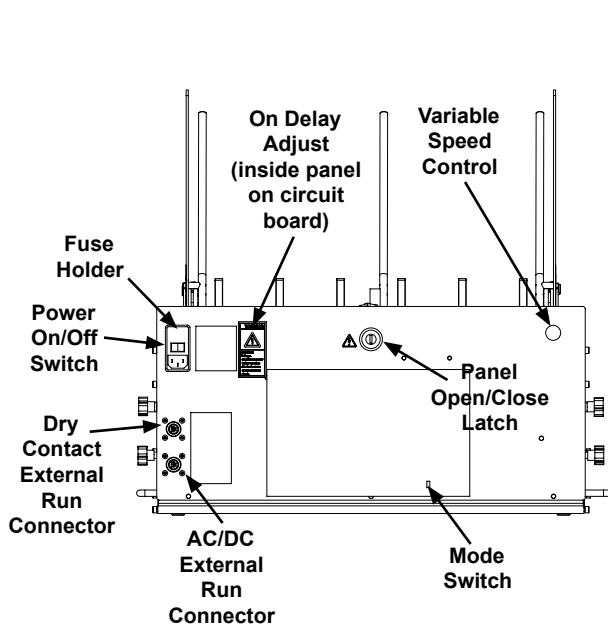
Loose Parts Supplied:

- AC Power Cord
- Side Guides
- Product Guide
- External Run Input Cord

Main Assemblies Feature Descriptions

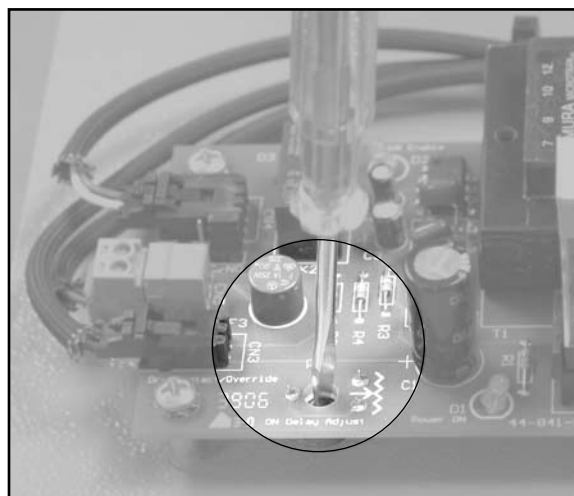
Feature	Description
Separator assembly and adjustment	Single or double separators mounted above the carriage housing the feed belts. This device provides a curvature to help preshingle stacked product. When properly adjusted, a clearance is created to help singulate and feed product.
Side guides	Single knob adjust (one on each side) allows lateral adjustment from each side for different size product.
Side guide adjustments	Dual-knob design allows you to move side guides together or apart for different size product. Can be positioned equally or offset.
Back wedge and adjustments	Lifts the product to keep it off the table top, reduces excessive contact with the feed belts, and helps push the product against the curvature of the separator assembly. To achieve proper lift, adjustment wing-nuts and locking levers allow you to slide the wedge to various positions and angles.
Shell	One piece shell for mounting of all sub-assemblies and components.
Easy access to controls	Located in rear of feeder. Allows for easy assembly and servicing of control and other electronic components.
Removable carriage	Houses the feed belts which provides the friction and motion necessary to pull individual product from the bottom of the stack and through the separator assembly. Easy to remove for feed belt replacement.
Lateral feed belt positioning	Single knob adjust (one on each side) allows for two outside belts to be adjusted laterally depending on product size and feeding characteristics.
AC power cord, 8' (2.44m)	IEC320 removal three-prong. Shipped loose.
External run input (optional)	This two-wire cable allows the feeder to be turned On or Off with the host base.
Host interface relays	Supplied kit allows for easy interface to host equipment. They include 24VAC, 115VAC, 5-24VDC.
Product guide	Provides all the information you need to efficiently operate and maintain the feeder.

Control Features



Control Panel Feature Descriptions

Feature	Description
AC power cordset connector (optional)	Cordset plugs into this IEC320 connector to provide feeder with power from a grounded and fused outlet.
Power On/Off	Toggles AC power On or Off.
Fuse holder	Contains two replaceable 5-Amp, 5x20 mm time delay fuses. <i>IMPORTANT: Always make sure power module is replaced exactly as removed so that "115" is always visible on 115V models and "230" is always visible on 230V models. Failure to follow this caution can result in damaged electrical parts.</i>
External run input connector	This 4-pin connector (labeled External Run Input) is used to carry start/stop signals from a vacuum or non-vacuum base to the feeder.
Mode switch	This slide switch (labeled Continuous/External Run) allows you to use the feeder "stand- alone" or with the external run input interface.
Dry contact external run	Used to interface to host equipment, using the external run cable that is supplied with the unit. This interface would connect to the contact side of a coil (dry contact) in the host equipment.
AC / DC external run	Used to interface to host equipment, using the external run cable that is supplied with the unit. This interface would connect to Signal in the host equipment with the voltages supplied with the host interface relays.
Variable speed control	This dial switch (labeled Speed) allows the feeder speed to be synchronized with a vacuum or non-vacuum base. Turning counter-clockwise decreases speed; clockwise increases speed. <i>Note: Feeder motor stops if turned completely counter-clockwise.</i>
On delay adjust	Used to delay (or synchronize) feeder startup with base startup. Range is adjustable from 0 to 15 seconds (factory set at 0 seconds). Located on circuit board on inside of panel. See photo below.



On Delay Adjustment

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 installing the V-2000 onto a vacuum or non-vacuum transport base.

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."*

Vacuum Base Installation

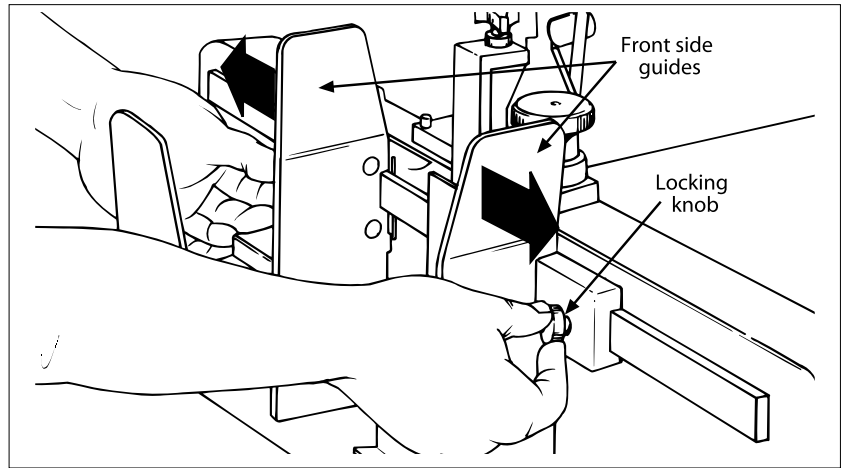
Installation of the V-2000 onto various types of vacuum and non-vacuum bases is a relatively simple procedure. Several minor modifications to the vacuum base are required prior to mounting, wiring, and aligning the feeder.

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: Connecting external run input
- 8: Checking product discharge from feeder

STEP 1: Repositioning Front Side Guides

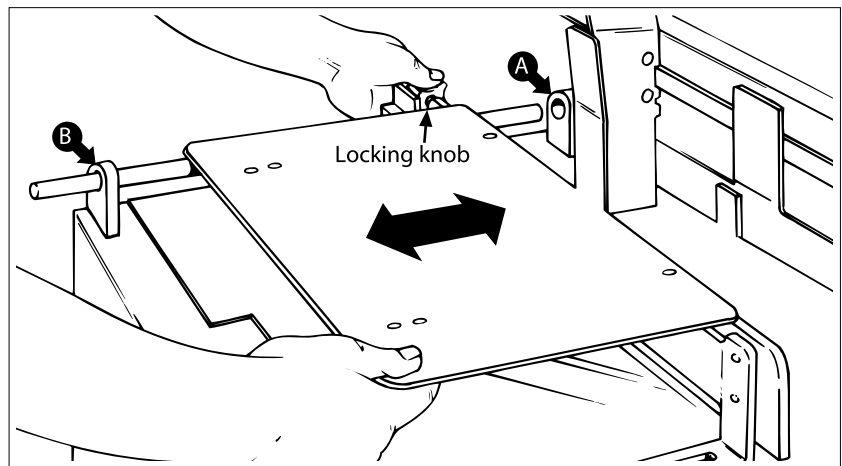
1. Loosen locking knobs at both side guides.
2. Slide each side guide to the outermost position. Do not lock in place.



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.
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 base.
4. Return shaft end to housing B. Lock setscrews in both housing assemblies.



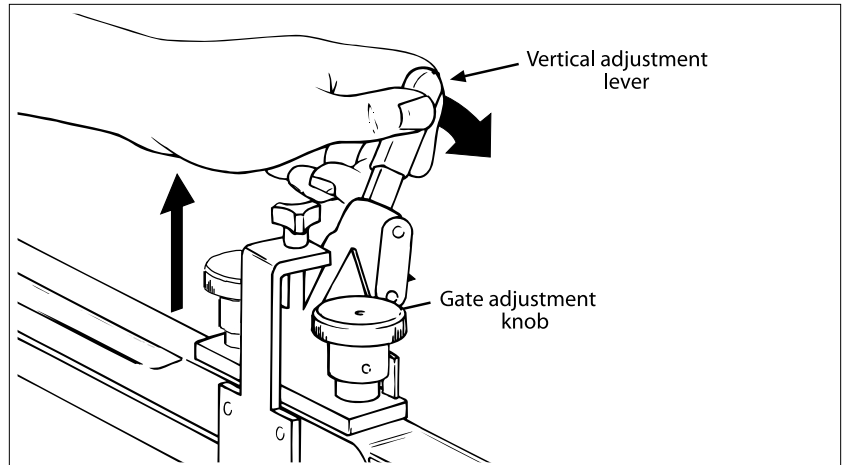
Back Jogging Plate/Back Hopper Guide Removal

STEP 3: Raising Hopping Rollers



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 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.



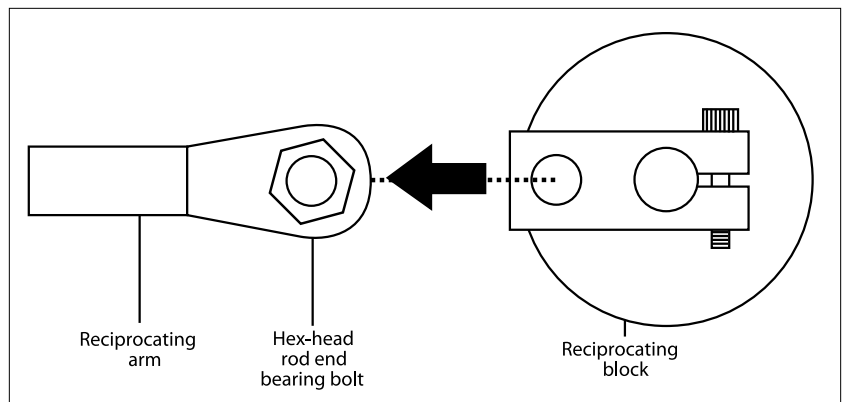
Using the Adjustments to Raise Hopping Rollers

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).

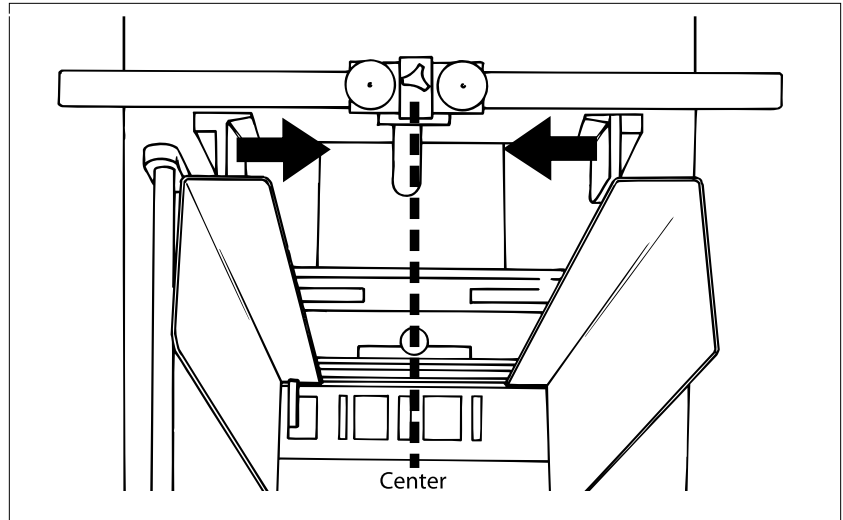
1. Remove side access panel from vacuum base enclosure.
2. Locate the reciprocating arm and reciprocating block directly beneath the underside of shuttle.
3. Using a box wrench, remove the hex-head rod end bearing bolt holding the reciprocating arm to the reciprocating block.
4. Once the bearing bolt 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).



Disabling the Shuttle from Inside the Access Panel

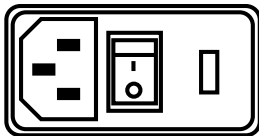
STEP 5: Initial Positioning of Feeder

1. Lift the feeder onto the top plate of the vacuum base and slide forward toward the vacuum base gate.
2. 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 separator, making sure it is in-line with the vacuum base gate.
3. 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.



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.

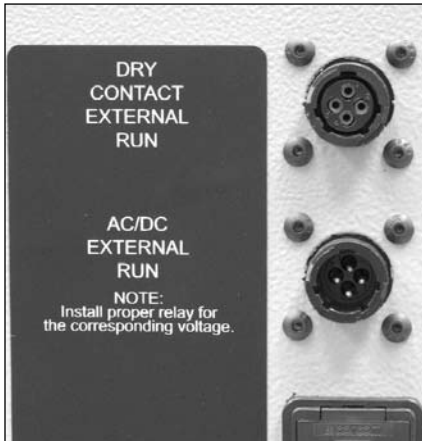
In order to comply with EN 6100-4-5, the AC power line must be protected with a surge suppressor.

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: Connecting External Run Input

IMPORTANT

This procedure should be performed only by a qualified technician.



External Run Connectors

Using the external run cables supplied for host interface applications:

Dry Contact External Run

1. Ensure power is not applied and power cord is disconnected from feeder.
2. Connect the dry contact external run cable (P/N 84111011) to the top male four-pin threaded connector on the feeder.
3. At the host equipment, locate start/stop control circuit.
4. Route external run input cable from the feeder to this area.
5. Interface the leads of the interface cable to the host start/stop circuit. This involves splicing the black wire and white wire to the start/stop circuit.
6. Connect power cord to feeder.

AC/DC External Run

1. Ensure power is not applied and power cord is disconnected from feeder.
2. Connect the AC/DC external run cable (P/N 17451109) to the bottom female four-pin threaded connector on the feeder.
3. At the host equipment, locate start/stop control circuit.
4. Determine the exact run input voltage required by checking host start/stop control circuit.
5. Interface the leads of the interface cable to the host start/stop circuit. This involves splicing the black wire and white wire to the start/stop circuit.
6. The appropriate coil relay must be installed into the feeder. To do this, twist the lock mechanism quarter turn and carefully open panel door.
7. Locate K1 relay slot on the control board and insert the appropriate coil relay (24VAC, 115VAC, and 5-24VDC) from the supplied kit (P/N 311-0090). Close panel door on the feeder. (See electrical diagram).
8. Connect power cord to feeder.

Status Signal

1. This is a configurable dry contact used to monitor the feeder's status.

The host equipment will connect to the green wire and the red wire, which are located in both external run cable sets.

STEP 8: Checking Product Discharge from Feeder

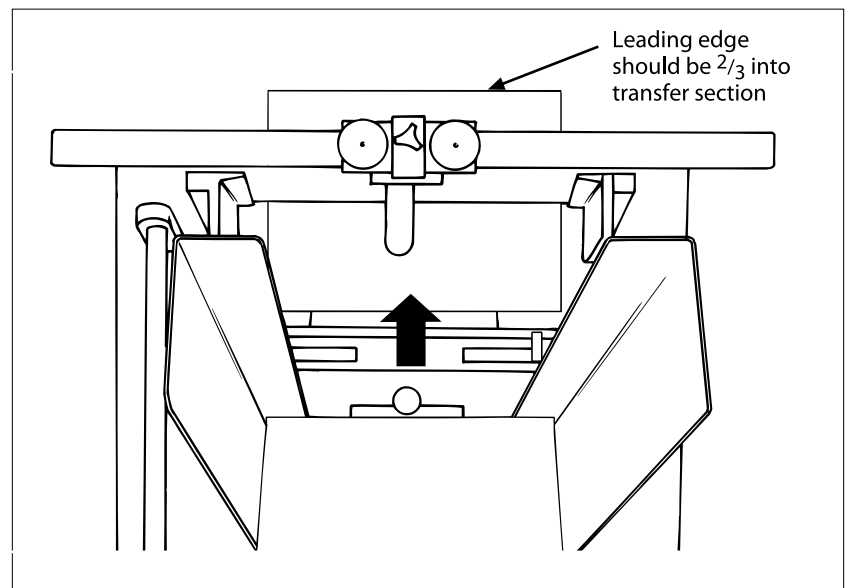
As product leaves the feeder separator cylinder, the trailing edge must be under the hold-down as the leading edge is entering the vacuum base transfer section. *In other words, there must be a good transfer of product from the feeder hold-down to the vacuum base transfer section.*

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 product under the hold-down in such a way that approximately 2/3 of the leading edge is extending out beyond the feeder (Figure 2-7).
3. Slide feeder back into position, making sure it is again centered between the side guides. As you do so, also make sure that the leading edge of the product moves into the transfer section of the vacuum base unobstructed.

IMPORTANT

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



Checking for Proper Product Discharge from Feeder to Vacuum Base

4. Check to make sure the product is still under the hold-down roller 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.

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.

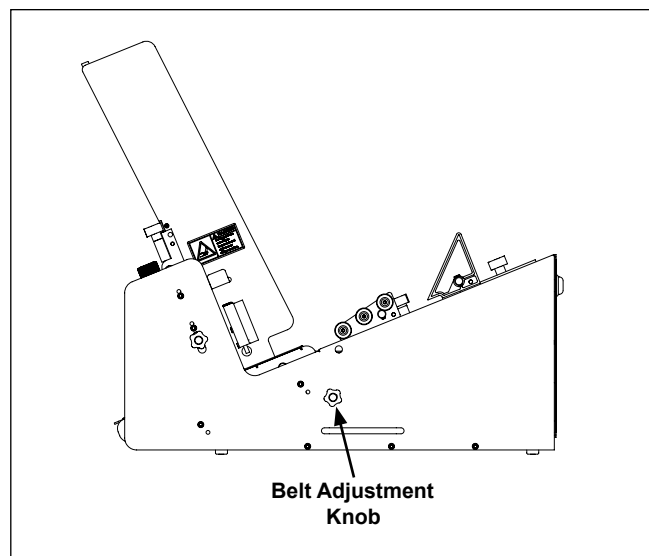
Once the V-2000 is installed on your host system, you are then ready to prepare the machine for operation. To do so, you must perform several adjustments with the product you are going to be feeding. And, you must do a test run with this product to verify that it is set correctly before you begin cycling the feeder. *You will have to perform this procedure for product you plan to feed.*

The adjustments you must make (in order) are as follows:

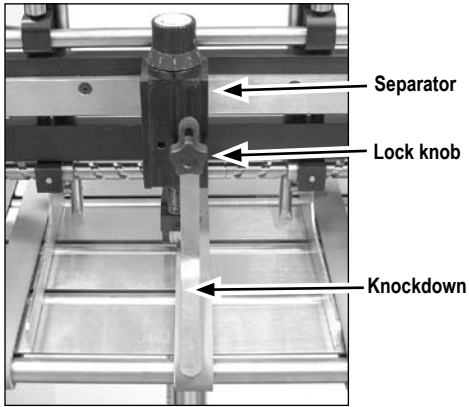
- 1: Lateral feed belt adjustment
- 2: Separator/knockdown adjustment
- 3: Side guide setting
- 4: Back wedge adjustment
- 5: Verifying proper installation

STEP 1: Lateral Feed Belt Adjustment

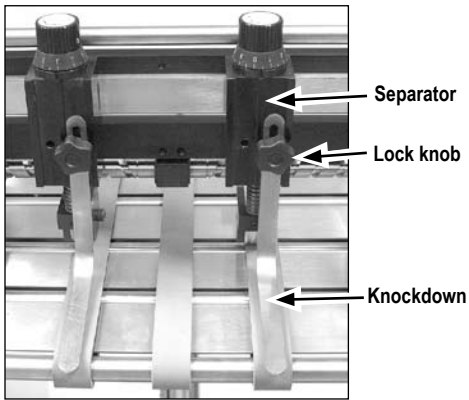
Smaller size product may use only the middle belt where as larger product will likely use the two outside feed belts. The middle feed belt is stationary and has no lateral adjustment. Since this belt is located exactly in the center, it should be used as reference for the balance of the feed belt set-up. If the outside belts are used, they should be positioned towards the outside edge of the product for the benefit of drive and support. They are adjusted using the knobs located on each side of the feeder.



STEP 2: Separator/ Knockdown Adjustment



Single separator over the middle belt



Two separators over the outer belts



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



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

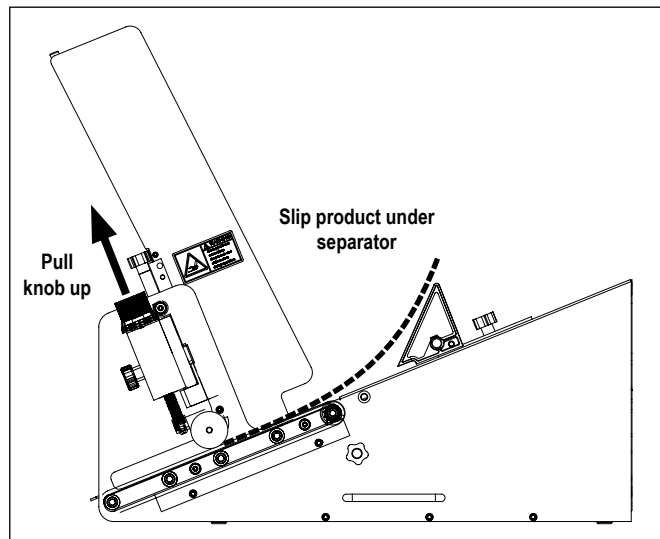


Feeding problems will occur with either too much product in the hopper, or too large a gap between the separator assembly and the product.

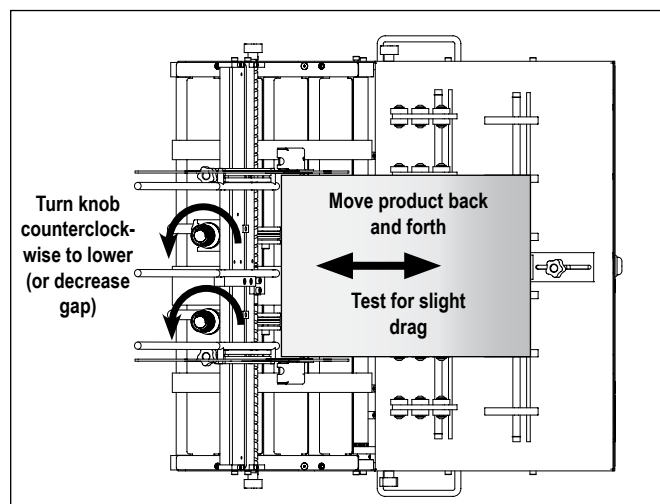
When feeding product with varying thickness, it may be necessary to adjust the two separators individually for the different thicknesses.

Decide whether one or two separators will be needed. This is usually based on the material size and the function of separating. They can be placed either over the belts or over the void between belts.

1. Position the separator (either over the middle feed belt or the void between the belts) and position the knockdown approximately 1/16" above product (or a gap which allows unimpeded feeding). Tighten the lock knob.
2. Slide a single piece of product between the feed belt and the separator.
3. Rotate the separator adjustment knob either up or down until the product can be pulled from under the separator assembly with a slight amount of drag.
4. Repeat the drag tests and adjust as needed to achieve acceptable clearance.
5. When using two separators, position each separator and repeat steps 1 through 4.

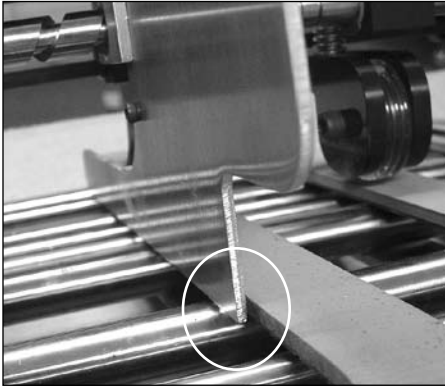


Lift separator assembly upward to insert product

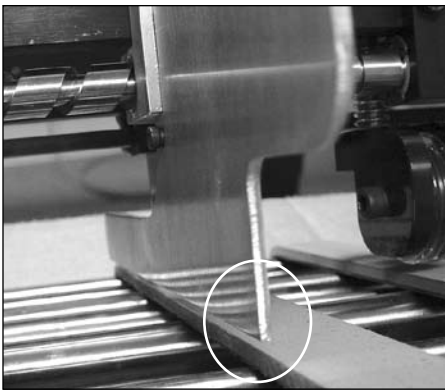


Use one piece thickness to set gap

STEP 3A: Side Guide Adjustment

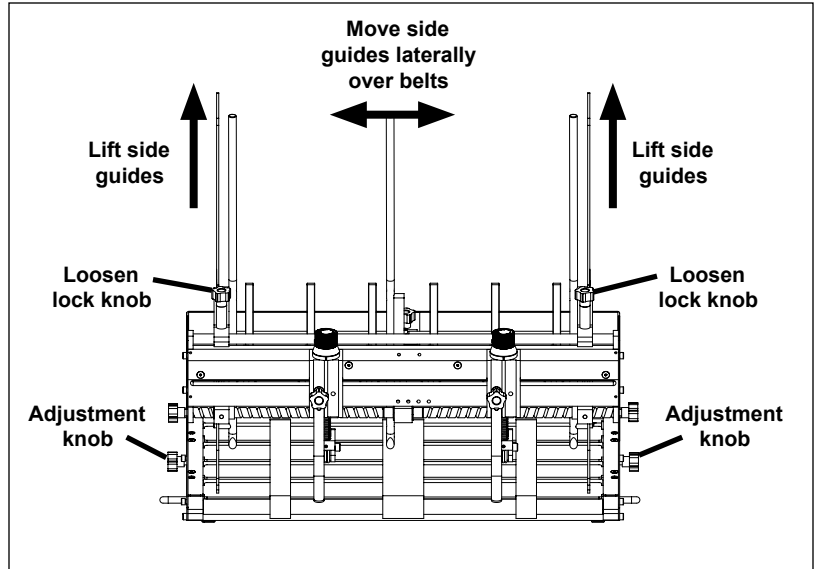


Side guide in down position

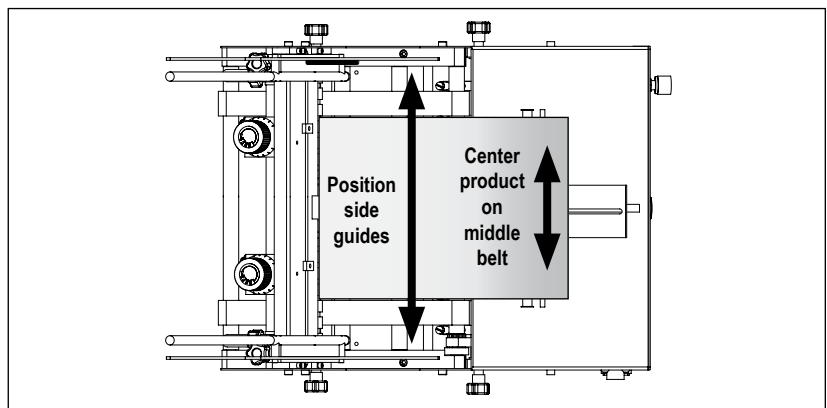
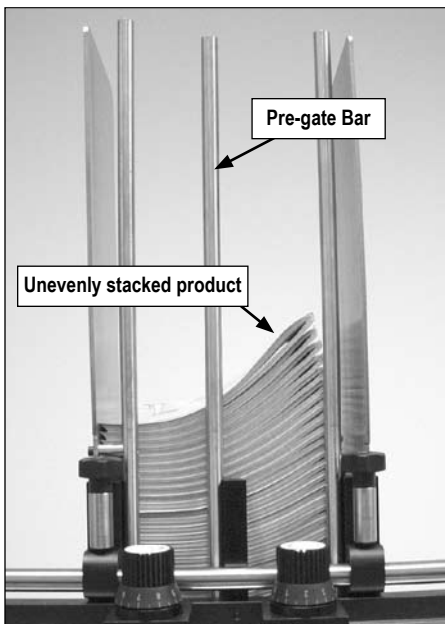


Side guide in up position

1. Loosen each side guide lock knob. This will allow you to move each side guide individually from side to side.
2. Each guide is attached by a pin and slot mechanism allowing the guide to adjust vertically approximately ½ inch. To move over a feed belt, lift the side guide and move it laterally. After it has passed over the belts, push the side guide down in the slot.



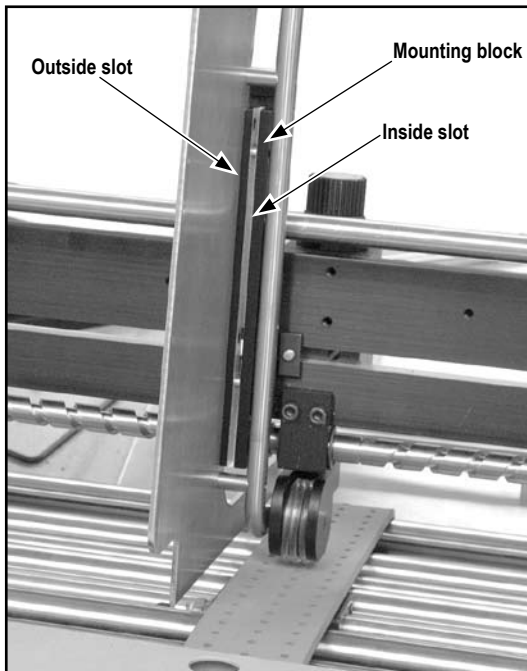
3. Center the product to be run on the middle belt and position both side guides close to the edge of the product (approximately 1/16th inch) by turning the side guide adjustment knobs.
4. Place a handful of pre-shingled product in the hopper and against the separator(s).
5. Test run to assure proper feeding and singulation.
6. Tighten the side guide lock knobs to secure the position.



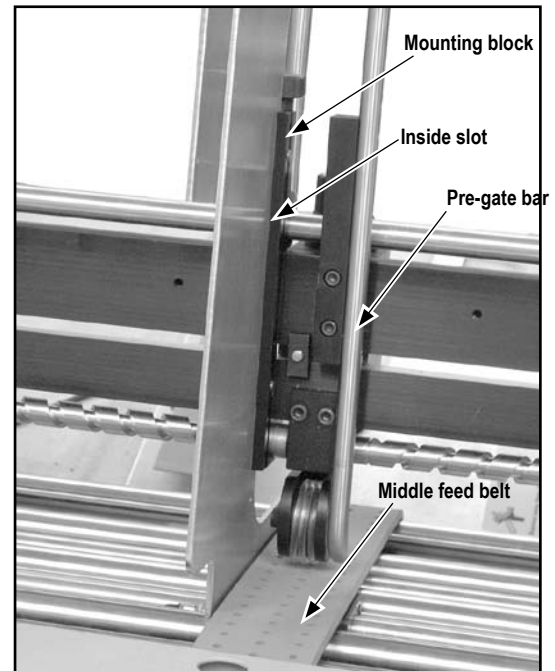
7. Use the pre-gate bar for product that stacks unevenly in the hopper. It will hold product in place to keep it from falling through the center area of the hopper. Refer to the Hopper Assembly diagram in the Mechanical Components section for installation.

STEP 3B: Side Guide Adjustment For Running Small Products Under 3” Wide

1. Remove the center pre-gate bar.
2. Position either of the two separators over the center of the middle belt.
3. Make sure the side guides are installed with the pre-gates toward the outside, away from the product, allowing the side guides to be adjusted to the narrowest position possible.
4. Adjust the side guides, keeping them equally distanced from the center belt, to roughly 1/16” from each side of your product.
5. Using the triangle wedge, arrange the two inside wedges of the triangle wedge between the side guides to support your narrow product. For further wedge adjustment instructions, see STEP 4.
6. Or instead of the triangle wedge, use the optional narrow extended wedge. For further wedge adjustment instructions, see STEP 4.
7. Refer to STEP 3A to complete side guide set-up.



Standard side guide in the outside slot position.



Small product side guide in the inside slot position with pre-gate bar installed on center of gate plate.

STEP 3C: Side Guide Adjustment For Running Products Over 19” Wide

1. Make sure the center pre-gate bar is installed.
2. For product over 3” wide, ensure the side guides are mounted in the outside slots with the pre-gates toward the inside, toward the product.
3. Widen the side guides more than 19” by raising them to clear the carriage side covers.
4. Adjust the side guides to roughly 1/16” from each side of your product.
5. Install the triangle wedge and adjust to support your wide product. For further wedge adjustment instructions, see STEP 4.
6. Refer to STEP 3A to complete side guide setup.

STEP 4: Back Wedge Adjustment

NOTE

Moving the back wedge too far forward to the separator assembly can create a pinch point between the tip of the triangle wedges and the product. If moving the back wedge in is not effective, then an optional wedge may be required.

NOTE

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

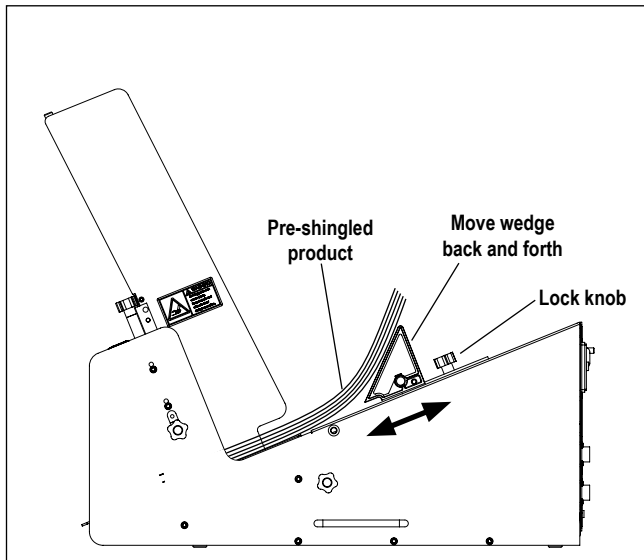
TIP

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 separator assembly area.

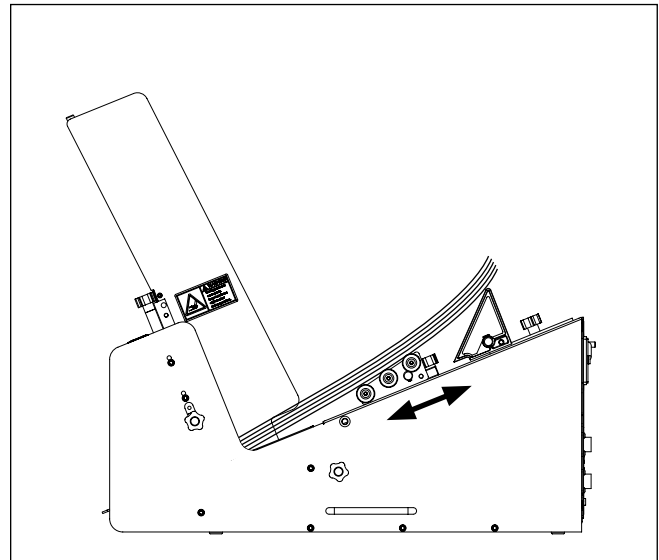
Procedure

Adjust the back wedge for proper positioning following these steps:

1. Grasp a handful of product, approximately 2 to 2.5 in. (5 to 6 cm) thick, and preshingle the edges with your thumb.
2. Place the pre-shingled product in the hopper so that the edges rest against the curvature of the separator assembly.
3. Loosen the wedge adjustment lock knob.
4. Move the wedge back and forth 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. Then as you test, you can “fine tune” from this point.
5. Make sure the wedge assembly is parallel with the edge of the product stack. Adjust as required and tighten the lock knob.
6. To feed longer products you may need to use a secondary wedge assembly for assistance, called a “low profile” wedge. It is positioned between the triangle wedge and the feed belts to give extra support to the product as it resides in the hopper. It should be adjusted so that the proper amount of belt surface contacts the bottom piece of the product. The wedges should be evenly spaced to provide enough support to lift the product off the table top and feed belts, without any bowing or twisting.



Adjusting the back wedge



Using a low profile wedge

STEP 5: Verifying Proper Installation

Now that you have made all the necessary adjustments for operation, it is recommended that you verify product 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 pieces of product through the separator assembly area.



If the separator assembly is too tight, the feeder will have difficulty pulling the product through the separator assembly area. This will cause “missed” feeds.



Moving the back wedge too far forward to the separator assembly can create a pinch point between the tip of the triangle wedges and the product. If moving the back wedge in is not effective, then an optional wedge may be required.



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

Manual Test to Verify

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

1. With the power off, manually feed several pieces of product slowly through the separator assembly area.
2. Observe how individual products enter and exit the separator assembly area. Remember, a properly set gap will allow each new piece to enter at about the center line of the cylinder while the bottom piece is exiting the separator assembly area.
3. If feeding doubles, then move the wedge in towards the separator assembly. Test again.
4. If pieces are overlapping excessively or, if the machine is feeding doubles, then reduce the gap slightly by moving the separator(s) adjustment knob about 1/8 turn counter-clockwise. Test again.
5. As product moves through the hold-down area, check for any skewing or jamming. Also check for damage to the product.
6. If this or other feeding problems still persist (slipping, skewing, jamming), then review all the adjustment procedures in “Preparing for Operation”.

4 How to Operate

This section provides a *sequence of operation* for the V-2000. 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 product 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 Product in the Hopper



Preshingling prevents multiple pieces from jamming under the separator assembly at startup.

1. Start by preshingling by hand a small stack of product so that it conforms to the curvature of the separator assembly. Push in gently to make sure lead edges touch the separator assembly and front edges of the pre-separator bars.
2. At the back wedge, notice how it helps lift the trailing edges of the product off the table top and feed belts. Also notice how the lifting helps to push the preshingled edges against the curvature of the separator assembly.

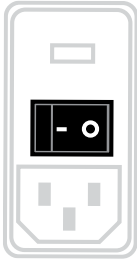
STEP 2: Determining Stack Height



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

1. Gradually add more product to the hopper after the initial stack is formed around the separator 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 product is loaded in the hopper as straight as possible. Before adding to hopper, "jog" each handful of product 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. "Fanning" the stack prior to loading it into the hopper may reduce double feeds.

STEP 3: Powering On Feeder



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

- For feeders using external run, feeder motor will not run until the entire base power switch is turned On (feeder On/Off is controlled via external run input cable).

STEP 4: Setting/Adjusting Speed

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 product to enter at about the center line of the cylinder, as the previous or bottom piece is exiting the separator 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 product from feeder separator assembly area to the transfer area of the vacuum base. Adjust feeder horizontally as needed (refer to “Installing the Machine”).
3. Adjust feeder speed as needed to coincide with transport belt speed.

STEP 6: Final Check

Make sure:

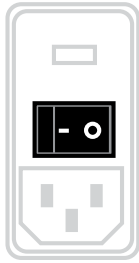
- Leading edge of bottom product stops at proper location.
- Proper separation is occurring at separator assembly area.
- Product is not skewing.
- Effective preshingling is occurring at curvature of separator assembly.
- Product is not being damaged during cycling.
- Feeder is secured and will not move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

Clearing a Jam

If a jam occurs during operation, follow these steps:

1. Turn the feeder power Off by pushing the circle (○) at the rocker **Power** On/Off rocker switch.
2. Remove jammed product from feeder. While doing so, try to determine the cause of the jam (see “Troubleshooting”).
3. Verify whether any adjustments are loose. If so, refer to “Preparing for Operation”, for proper adjustment procedures.
4. Turn the feeder power back On by pushing the horizontal line (—) at the **Power** On/Off rocker switch.

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 (○) at the rocker **Power** On/Off rocker switch.
2. Disconnect the feeder power cord from the AC power source. *If installed, disconnect external run input from feeder control panel.*
3. Cover the feeder with a cloth or plastic tarp to prevent dust and debris from accumulating.

5 Troubleshooting

This table is intended to provide you with quick solutions to the more common day-to-day problems you may encounter.

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. Faulty external run input connection or cable. 	<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>Check and secure cable connections. Replace if necessary.</p>
Feeding doubles	<ol style="list-style-type: none"> 1. Separator assembly improperly adjusted (possibly more than one sheet thickness). 2. Back wedge improperly adjusted. 3. Worn O-rings (or angled edge). 4. Product interlocking. 5. Static buildup. 	<p>Review separator 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 product and source.</p> <p>Check product and source.</p>
Feed belts are operating, but product not feeding	<ol style="list-style-type: none"> 1. Product 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>Review product loading procedure.</p> <p>Adjust side guides further apart to allow freedom of movement between sheets.</p> <p>Consult with a qualified technician.</p> <p>Review product loading procedure and back wedge adjustment procedure.</p>

Troubleshooting (continued)

Problem	Cause	Solution
Feed belts are operating, but product not feeding (continued)	5. Separator assembly may be down too tight.	Review separator assembly adjustment procedure.
	6. Too much weight in hopper.	Remove product from stack. Test again.
Jamming occurs during operation	1. Improper adjustment in one or more of the following: <ul style="list-style-type: none"> • separator assembly • back wedge • material control 	A. Turn the Power switch to "Off" by pressing the circle (O). B. Remove jammed product from feeder. While doing so, try to determine the cause of the jam. C. Verify each adjustment by reviewing the "Preparing for Operation" section of the manual.
Product skewing	1. Back wedge not aligned properly.	Review back wedge adjustment procedure.
	2. Improperly adjusted separator(s) horizon.	Review separator assembly adjustment procedure.
Excessive fuse failure	1. Product too thick.	Consult with a qualified technician.
	2. Excessive weight in hopper.	Consult with a qualified technician.

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 therefore 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 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 belts.

Ensuring Proper Timing Belt Tracking

Check for visual signs of:

- Misaligned timing pulleys.

Checking for Separator Assembly Wear

Check for visual signs of wear:

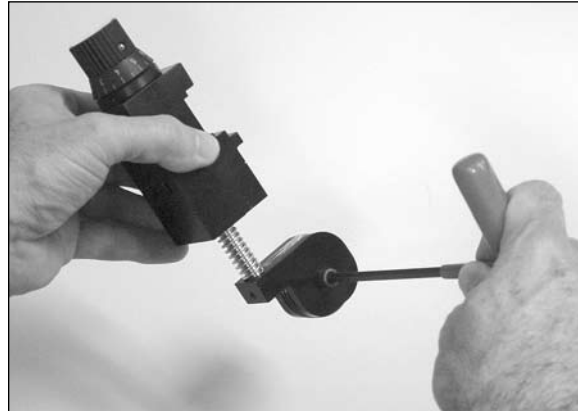
- Flat areas along the O-rings.
- Gum-like material build-up around separating surface.

Visual Inspection (continued)

Standard O-Ring Separator: Adjusting Worn O-Rings

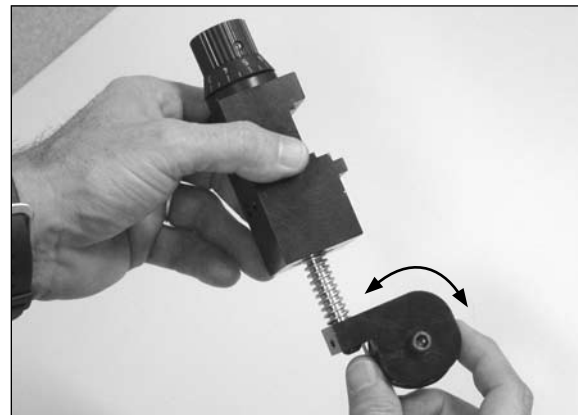
To adjust worn O-rings:

1. Turn Off feeder and remove power cord from outlet.
2. Remove separator(s) assembly from separator plate
3. Loosen cap screw holding o-ring spool in housing



Loosen cap screw

4. Rotate o-ring spool clockwise or counter-clockwise to relocate worn o-ring area about 1/8" to 1/4" (3 to 6mm).



Rotate o-ring spool

5. Tighten cap screw to secure o-ring spool within housing
6. Reinstall separator assembly and restore power.

Preventive Care



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

Cleaning schedule for various materials:

- *Typical: every month*
- *Dusty: after every shift*
- *High ink or varnish: 1 time per shift or as needed to maintain coefficient of friction integrity*



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

Cleaning schedule for various products:

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

Cleaning Feed and Discharge Belts

To clean feed belts:

1. Turn Off feeder and remove power cord from outlet.
2. Apply a small amount of isopropyl alcohol to a soft cloth.
3. Use your hand to move the feed belt, starting with one feed belt at a time and carefully pressing 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.
4. Using a dry 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.
5. Restore power.

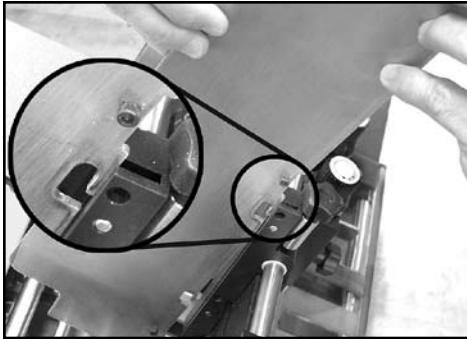
Cleaning Separator Assembly

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 o-ring.

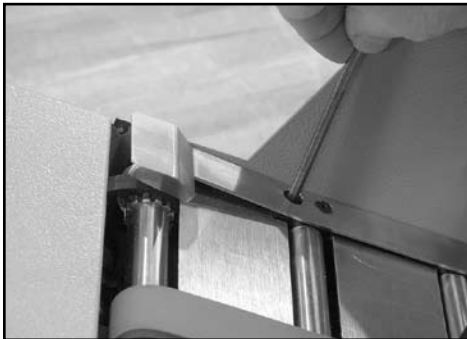
To clean separator assemblies:

1. Turn Off feeder and remove power cord from outlet.
2. Remove separator assembly from bracket assembly.
3. Apply a small amount of isopropyl alcohol to a soft cloth.
4. Wipe across O-rings, or angled wedge if applicable. First wipe in one direction, then the other.
5. Using a dry cloth, go back and wipe all surfaces to ensure they are dried.
6. Reinstall separator assembly and restore power. *It may be necessary to re-check alignment of feeder with host machine if feeder was moved from original installation position (for a review, refer back to "Installing the Machine").*

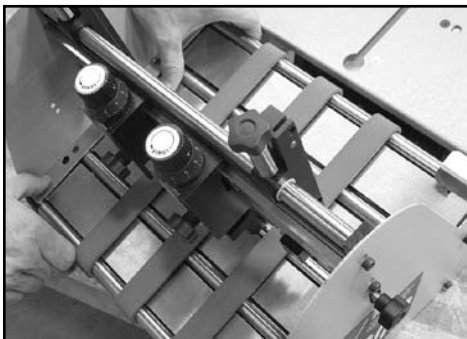
Carriage Feed Belt Replacement



Remove the side guides.



Remove carriage mounting bolts.



Pull carriage toward motor.

Remove carriage mounting bolts.

Removal

The procedure for feed belt replacement requires the removal of the side guides, carriage safety guard and the carriage.

Side Guides:

1. Each guide is attached by a pin and slot mechanism allowing the guide to be raised vertically (see Step 3 Page 13). Lift the guide up and remove it from the pin. Repeat for both side guides.

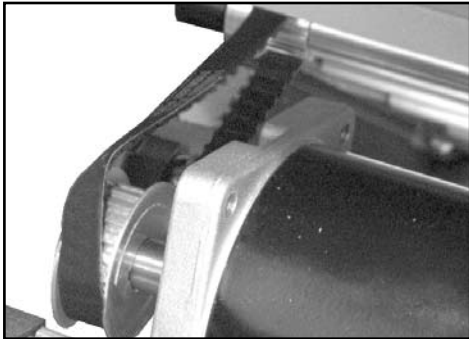
Carriage:

2. Remove the 4 bolts securing the carriage blocks.

3. Pull the carriage toward the motor. This loosens the timing belt to allow you to disengage the belt.

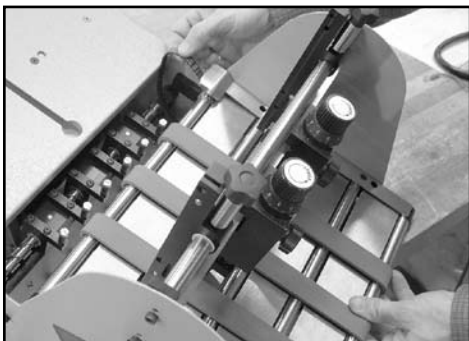
Carriage Feed Belt Replacement (continued)

Removal



Disengage timing belt.

4. Disengage the timing belt by slipping it over the motor pulley.



Remove carriage.

5. Remove the carriage by pulling it out through the discharge area of the feeder.



Remove the belts.

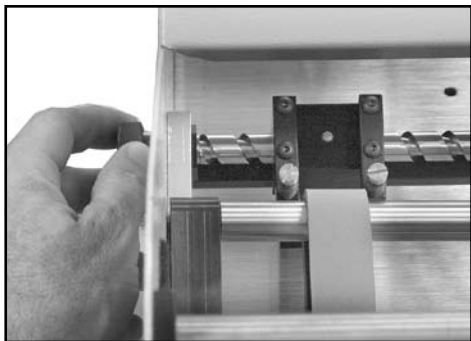
Feed Belts:

6. Position the carriage on end. Slip the belts over and off of the carriage block.

Carriage Feed Belt Replacement (continued)



Install the belts.



Align the belt adjustment blocks with the belts.

Installation

Install new feed belts by repeating the previous steps in reverse order.

Feed Belts:

1. Slip the new belts over and onto the carriage block. Position the belts equally on the carriage shafts.

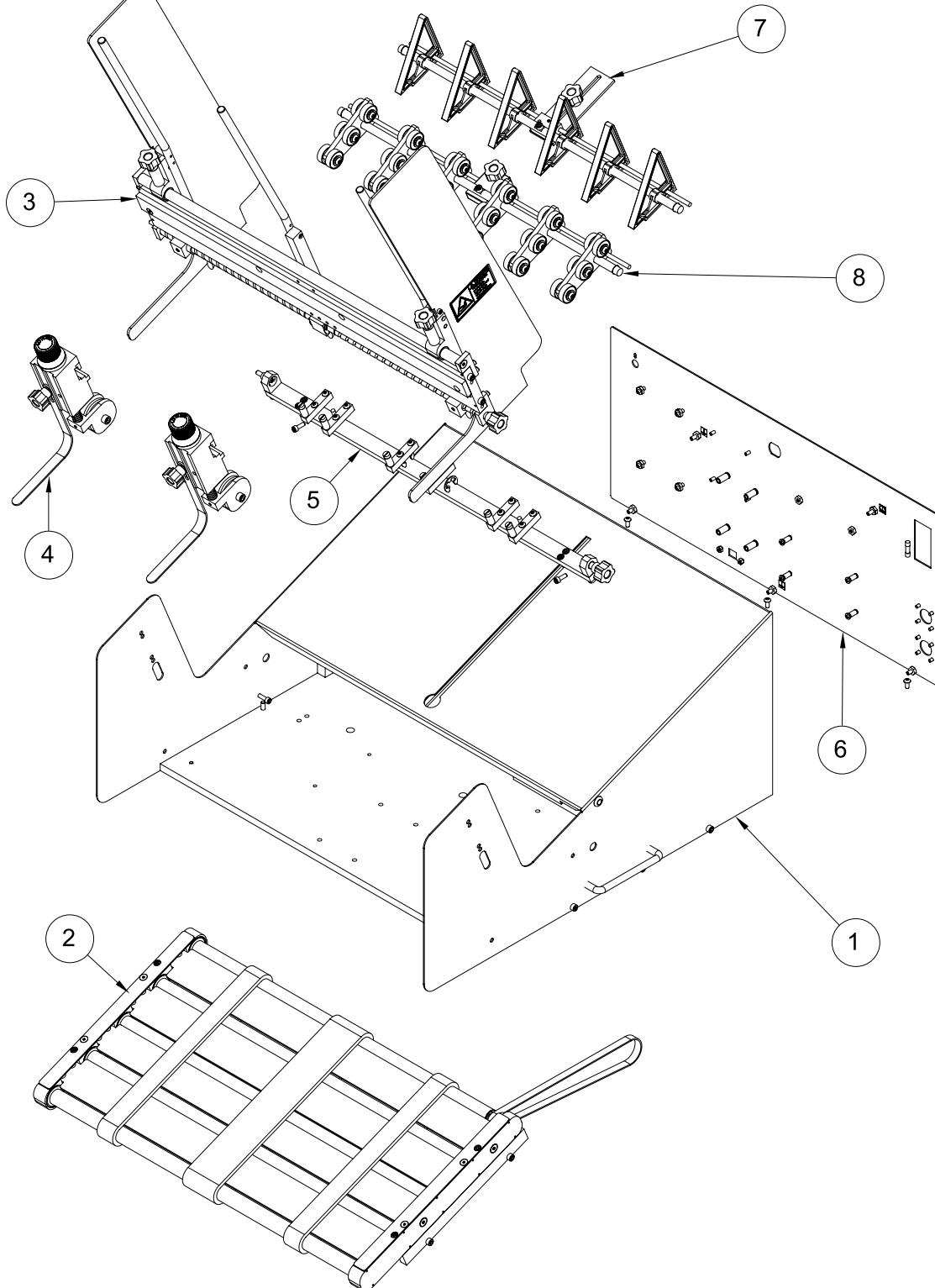
Carriage:

2. Install the carriage by pulling it through the discharge area of the feeder.
3. While holding the carriage in place, align the belt adjustment blocks with each corresponding belt. Slide the carriage up and over the spacers of the adjustment blocks.

4. Pull the carriage toward the motor as to allow you to re-engage the timing belt on the motor pulley.
5. Re-engage the timing belt by slipping it over the motor pulley.
6. Position the carriage and reinstall the 4 bolts securing the carriage blocks.

7 Mechanical Components

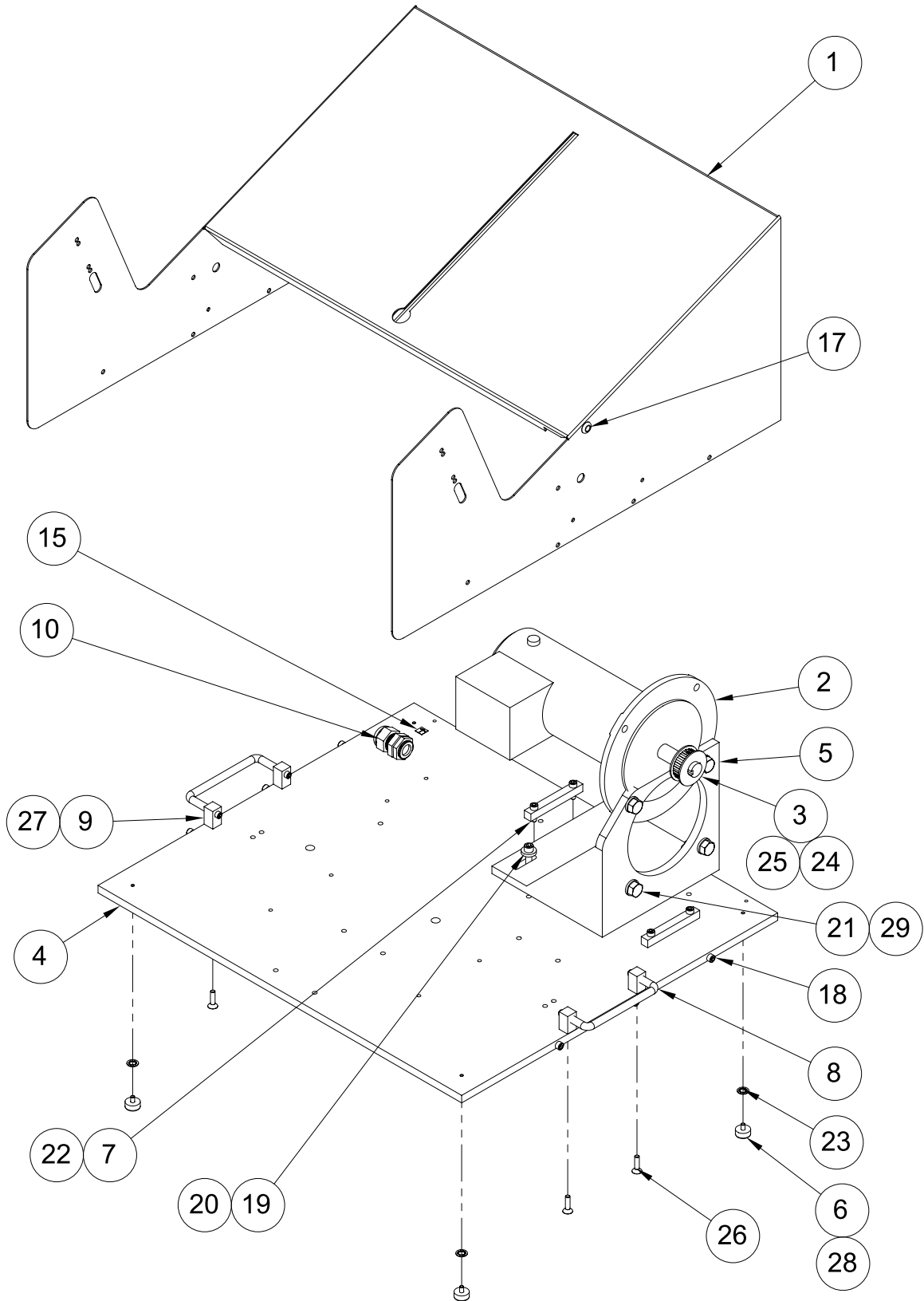
V-2000 ASSEMBLIES



V-2000 ASSEMBLIES

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	311-0222	BASE ASSEMBLY (115V)
	1	311-0223	BASE ASSEMBLY (230V)
2	1	311-0190	CARRIAGE ASSEMBLY
3	1	311-0225	HOPPER ASSEMBLY
4	2	18051103	GATE ASSEMBLY
5	1	311-0228	BELT ADJUSTMENT ASSEMBLY
6	1	311-0229	BACK PANEL ASSEMBLY (115V)
	1	311-0230	BACK PANEL ASSEMBLY (230V)
7	1	18051106	TRIANGLE WEDGE ASSEMBLY
8	1	18051107	LOW PROFILE ASSEMBLY

BASE ASSEMBLY
Assembly # : 311-0222 (115V)
Assembly # : 311-0223 (230V)



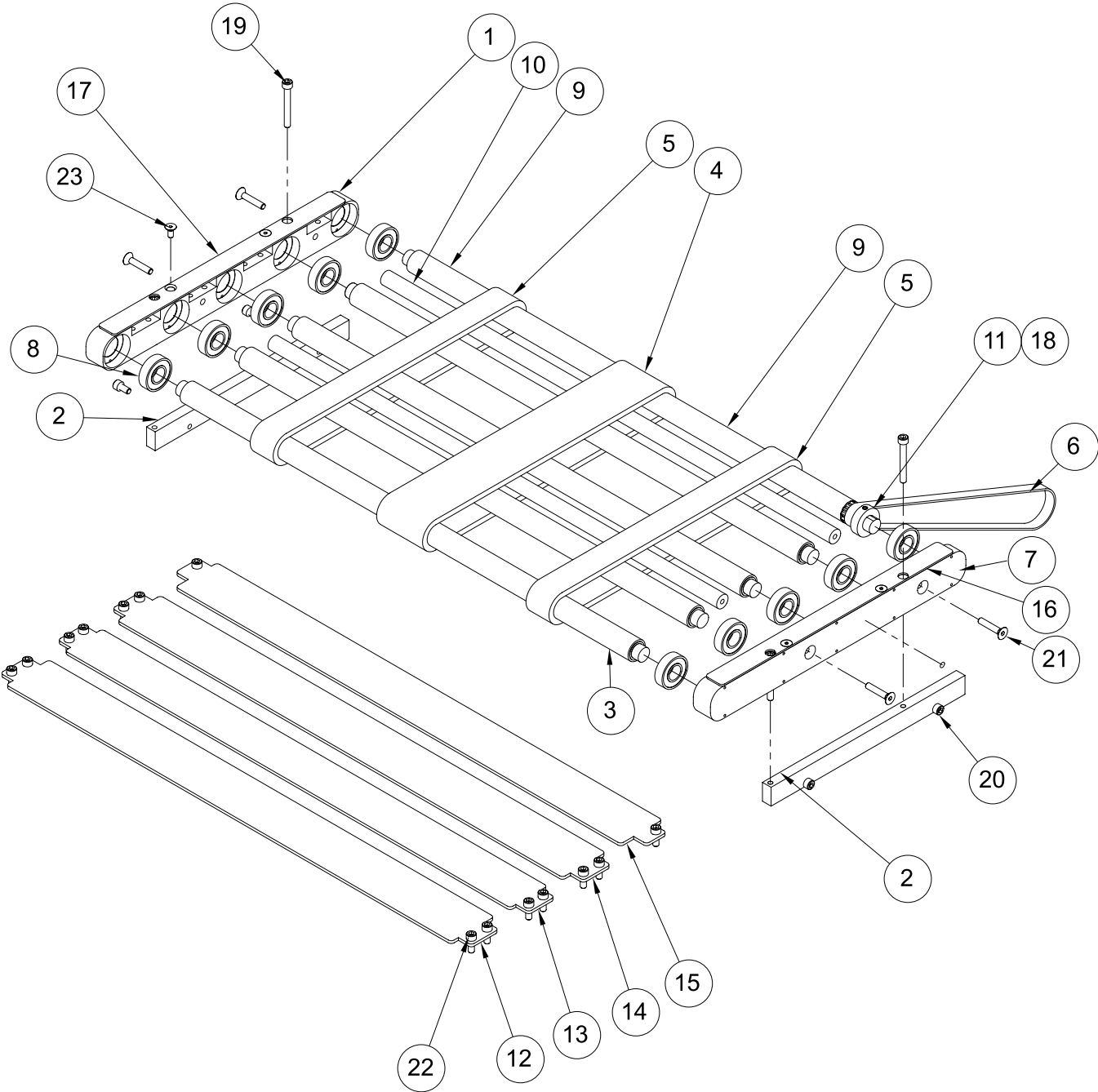
BASE ASSEMBLY
Assembly # : 311-0222 (115V)
Assembly # : 311-0223 (230V)

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	901045	SHELL
2	1	51805029	MOTOR, 90VDC (FOR 115V)
2	1	51805033	MOTOR, 180VDC (FOR 230V)
3	1	51805030	PULLEY, TIMING
4	1	51805016	PLATE, BASE
5	1	51805028	BASE, MOTOR PLATE
6	4	44642042	FOOT, RUBBER 5/8 CYL
7	2	51805035	BAR, MOTOR MOUNTING
8	2	44841002	HANDLE, PULL
9	4	900644	MOUNT, HANDLE
10	1	53500217	GRIP, STRAIN RELIEF
NS	1	611-0022	HARNESS, V2000 DC MOTOR
NS	2	53500152	JOINT, WIRE CRIMP
NS	1	17451109	ASSY, CABLE EXT RUN
NS	1	84111011	ASSY, EXT RUN
15	1	900739	LABEL, GROUND EARTH
NS	1	901272	MANUAL, V2000B
17	2	1130	GROMMET
18	6	102688B02	SHCS #10-32 X 3/8
19	2	103241B01	.25 HEAVY FLAT WASHER
20	2	102689B05	SHCS 1/4-20 X 3/4
21	4	102614B03	HHCS 3/8-16NC X .75
22	4	102688B04	SHCS #10-32 X 5/8
23	4	103239B04	LW, 1/4 INTERNAL TOOTH
24	1	102732B03	SSSCPPT #10-32 X 1/4
25	1	102732B02	SSSCPPT 10-32 X .19
26	4	102637B05	FHCS #10-32 X 3/4
27	4	102685B06	SHCS #8-32 X 7/8
28	4	102685B02	SHCS 8-32 X .38
29	4	103237B07	LW 0.375

NS = NOT SHOWN

CARRIAGE ASSEMBLY

Assembly # : 311-0190

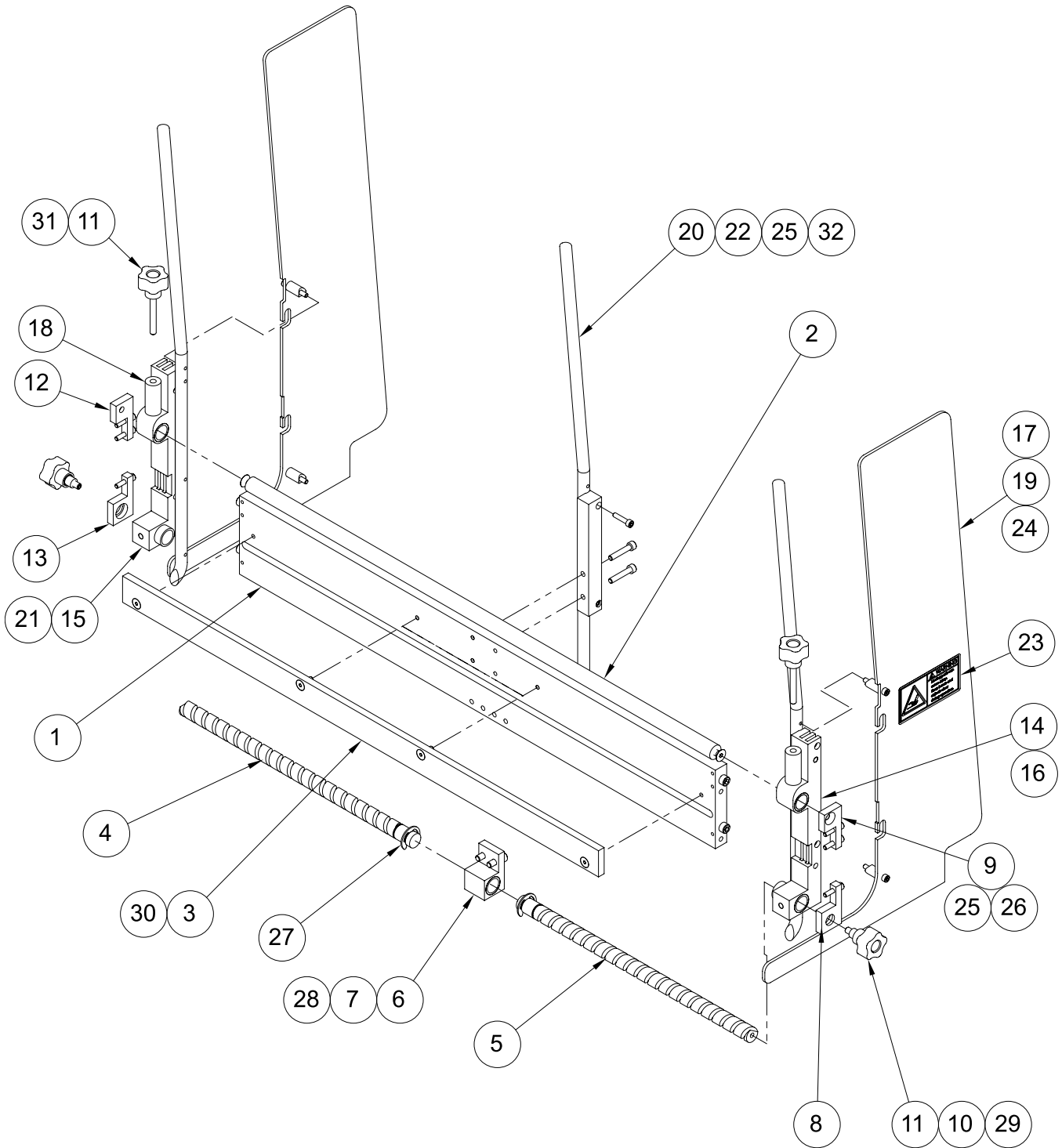


CARRIAGE ASSEMBLY
Assembly # : 311-0190

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	900970	BLOCK, RH
2	2	51805008	MOUNT, CARRIAGE
3	4	51805001	SHAFT, SUPPORT
4	1	51805005	BELT, BLUE FEED 2"
5	2	51805006	BELT, BLUE FEED
6	1	43555108	BELT, TIMING
7	1	900971	BLOCK, LH
8	10	51805047	BEARING, BALL
9	1	51805007	SHAFT, DRIVE
10	2	51805002	SHAFT CARRIAGE SUPPORT
11	1	43555302	PULLEY, TIMING
12	1	900972	PLATE, COVER
13	1	900973	PLATE, COVER
14	1	900974	COVER, PLATE
15	1	900975	PLATE, COVER
16	1	900976	PLATE, SIDE COVER
17	1	901121	PLATE, SIDE COVER
18	2	102732B03	SSSCPPT #10-32 X 1/4
19	4	102668B09	SHCS 10-32 X 1-1/2
20	4	102688B02	SHCS #10-32 X 3/8
21	4	102637B06	FHCS 10-32 X 1
22	14	102688B03	SHCS #10-32 X 1/2
23	4	102914B02	FHCS #8-32 X 3/8

HOPPER ASSEMBLY

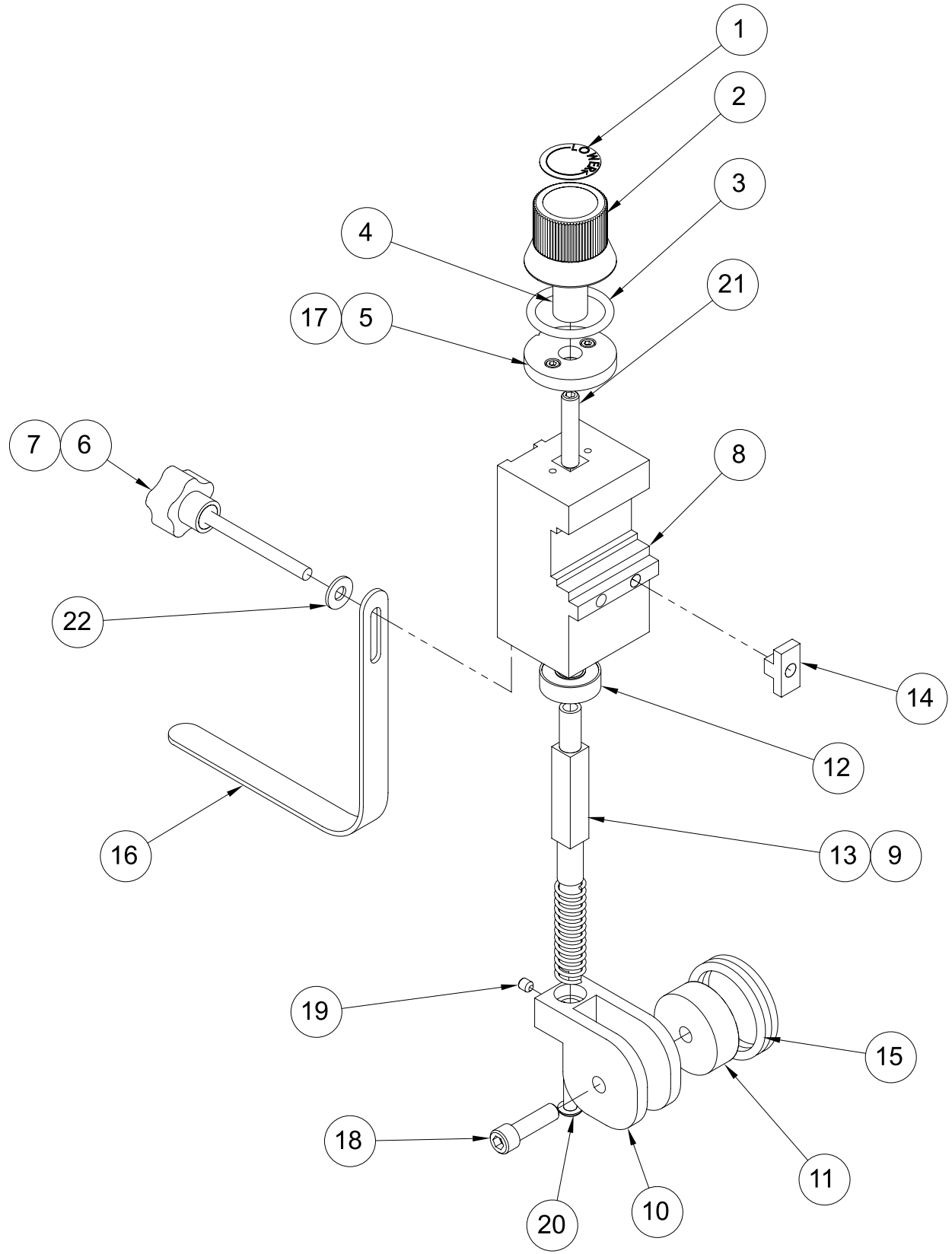
Assembly # : 311-0225



HOPPER ASSEMBLY
Assembly # : 311-0225

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	51805009	PLATE, GATE
2	1	51805010	SHAFT UPPER SUPPORT
3	1	51805011	BAR, TRACK
4	1	51805012	SCREW, RH LEAD
5	1	51805013	SCREW, LH LEAD
6	1	51745047	SUPPORT, CENTER
7	1	51745078	OILITE BEARING
8	1	51745048	SUPPORT, LH
9	1	51745069	BLOCK, UPPER SUPPORT LH
10	2	51745042	SPACER, LEAD SCREW
11	4	44963102	KNOB, 5 LOBE
12	1	51745072	BLOCK, UPPER SUPPORT RH
13	1	51745056	SUPPORT, RH
14	1	51745049	BLOCK LH
15	1	51745046	BLOCK RH
16	4	900676	PIN, DOWEL
17	2	51745025	SIDE GUIDE
18	2	51745074	STANDOFF, SIDE GUIDE
19	4	51745081	STANDOFF, SIDE GUIDE
20	3	51745045	BAR, PREGATE
21	2	51745067	PIN, DOWEL
22	1	51745063	MOUNT, CENTER PREGATE
23	2	53500609	LABEL, WARN INJURY 2.7 X 1.4
24	4	102683B06	SHCS #6-32NC X .88 LG.
25	8	102683B04	SHCS #6-32 X 5/8
26	2	102637B04	FHCS #10-32 X 5/8
27	2	104308B02	E-CLIP 1/2
28	6	102688B03	SHCS #10-32 X 1/2
29	2	102732B11	SET SCREW, #10-32 X 1
30	4	102635B03	FHCS #8-32 X 1/2
31	2	102732B15	SET SCREW, #10-32 X 2
32	2	102934B06	SHCS #8-32 X 7/8

GATE ASSEMBLY
Assembly # : 18051103

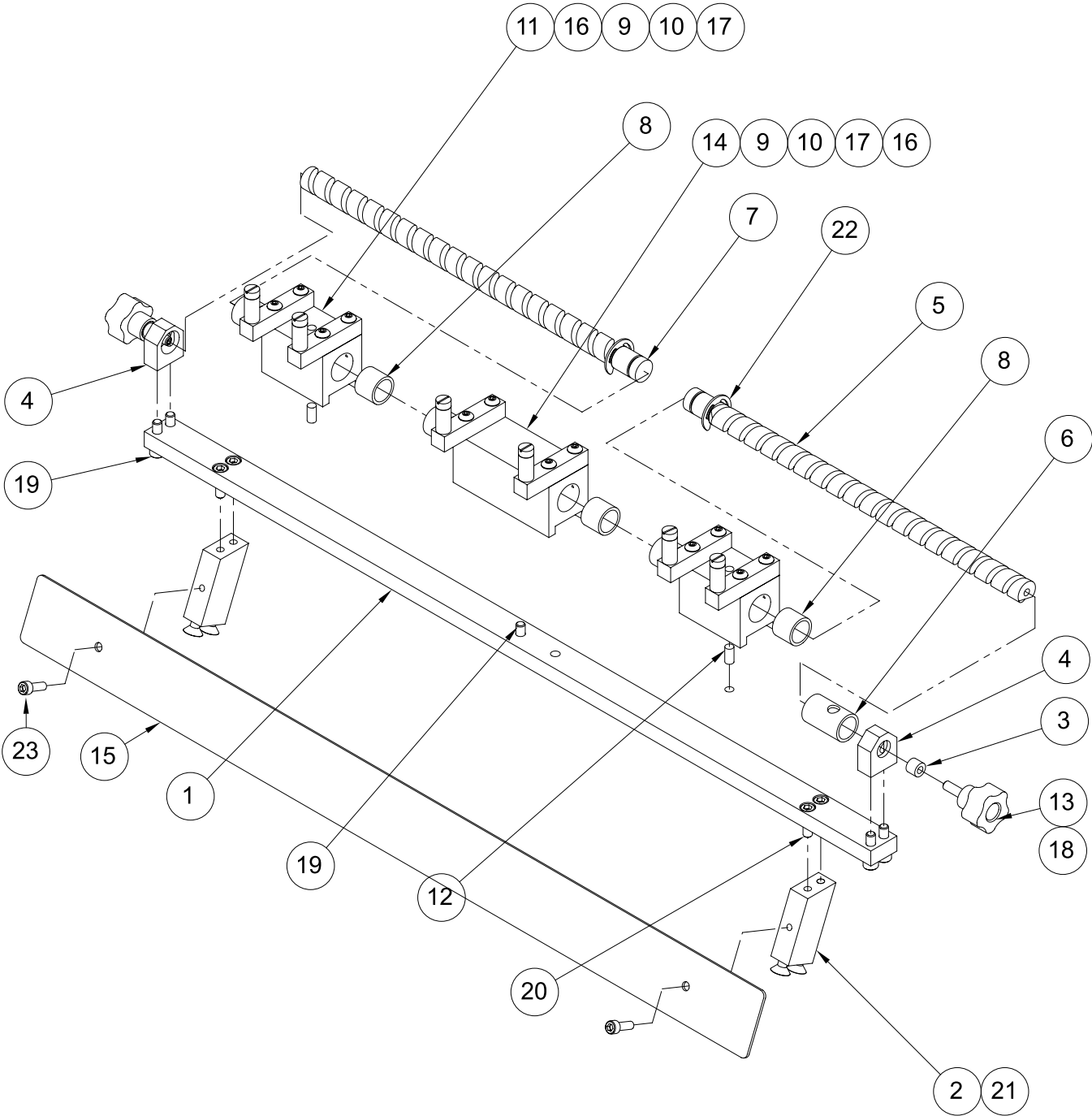


GATE ASSEMBLY
Assembly # : 18051103

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	23500084	LABEL, GATE ADJUSTMENT
2	1	51745079	KNOB, KNURLED CONTROL
3	1	51745080	O-RING
4	1	51277081	KNOB INSERT
5	1	51745073	MOUNTING FLANGE
6	1	44963102	KNOB, 5 LOBE
7	1	51745033	ROD, THREADED
8	1	51745012	BLOCK, GATE SLEEVE
9	1	51745083	SPRING, GATE
10	1	51805015	MOUNT, GATE
11	1	51805014	O-RING SPOOL
12	1	23500095	BEARING, BALL
13	1	51745044	SHAFT, GATE LIFT
14	1	51745020	NUT, T-GATE
15	3	23500089	O-RING, STANDARD GATE
16	1	51805038	KNOCK DOWN
17	2	102912B01	SHCS #5-40 X 1/4
18	1	102689B06	SHCS 1/4-20 X 7/8
19	1	102729B02	SET SCREW, #8-32 X 3/16
20	1	102708B03	BHCS #10-32 X 1/2
21	1	102733B12	SET, SCREW 1/4-28 X 1-1/4
22	1	103240B04	FW #10

BELT ADJUSTMENT ASSEMBLY

Assembly # : 311-0228

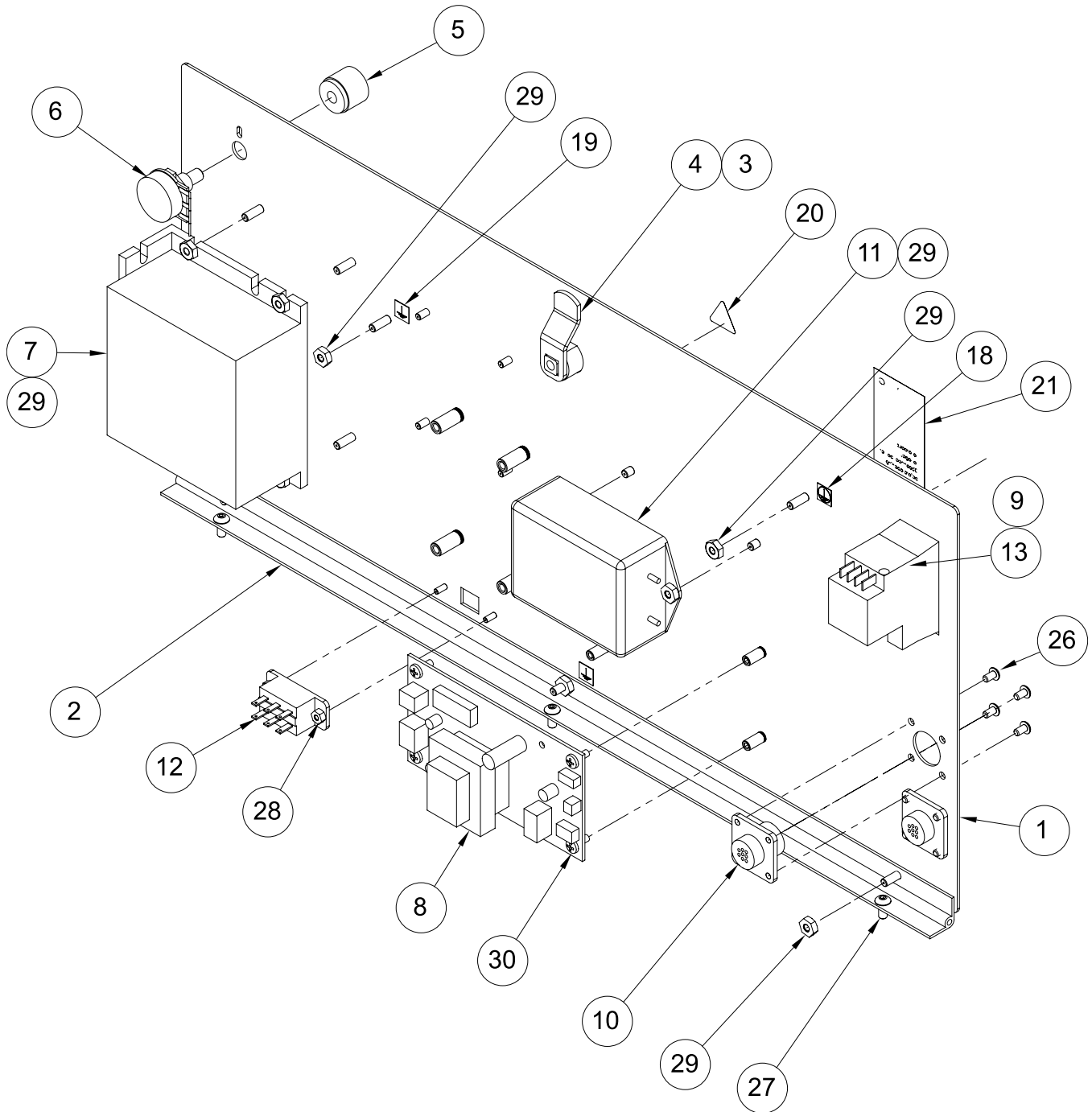


BELT ADJUSTMENT ASSEMBLY

Assembly # : 311-0228

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	51805022	MOUNT, SLIDE
2	2	51805024	BLOCK, STANDOFF
3	2	51745042	SPACER, LEAD SCREW
4	2	51745041	BLOCK, END SHAFT SUPPORT
5	1	51805037	SCREW, LH LEAD
6	1	51745075	BUSHING OILITE
7	1	51805036	SCREW, RH LEAD
8	6	51460088	SLEEVE, IGUS BEARING
9	6	51745065	BRACKET, BELT ADJUSTMENT
10	6	51745064	SPACER, BELT ADJUSTMENT
11	2	51745043	BLOCK, ROLLER SLIDE
12	2	51745067	PIN, DOWEL
13	2	44963102	KNOB, 5 LOBE
14	1	51805023	BLOCK, CENTER SUPPORT
15	1	901025	PROTECTIVE COVER
16	12	102706B03	BHCS #8-32 X 1/2
17	6	44748008	SHOULDER BOLT
18	2	102732B11	SET SCREW, #10-32 X 1
19	5	102688B04	SHCS #10-32 X 5/8
20	4	102688B03	SHCS #10-32 X 1/2
21	4	102637B05	FHCS #10-32 X 3/4
22	2	104308B02	E-CLIP 1/2
23	2	102685B03	SHCS 8-32 X .50

BACK PANEL ASSEMBLY
Assembly # : 311-0229 (115V)
Assembly # : 311-0230 (230V)

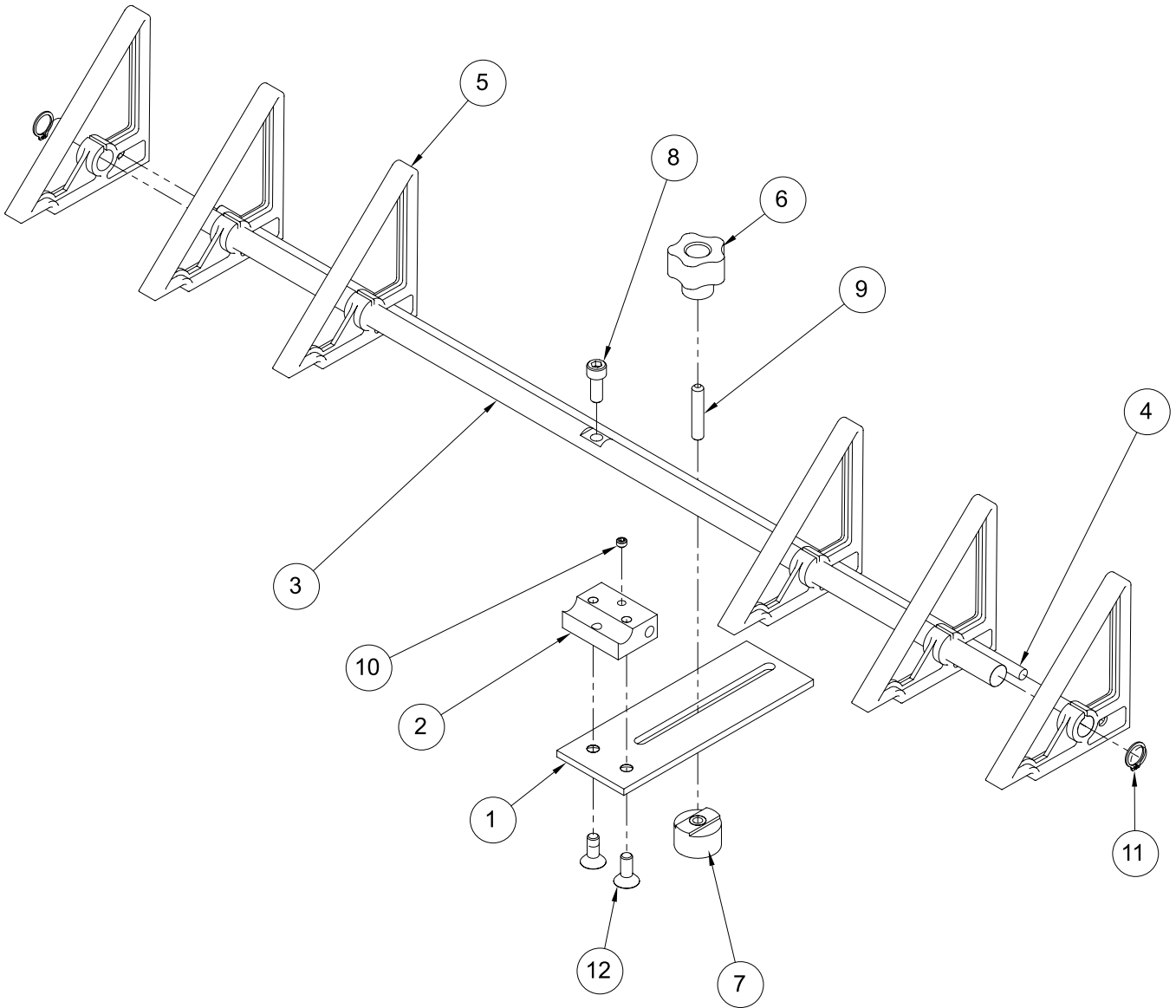


BACK PANEL ASSEMBLY
Assembly # : 311-0229 (115V)
Assembly # : 311-0230 (230V)

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	51805018	PANEL, BACK
2	1	51805019	HINGE
3	1	900769	LATCH, KEYED
4	1	900770	LATCH, CAM
5	1	44675030	KNOB, SPEED POT
6	1	611-0020	SPEED POT ASSY
7	1	51745123	DRIVE, REGEN
8	1	44841015	BOARD, CONTROL IJ 115V
8	1	51050171	BOARD, REGEN CNTL 230V
9	1	44649034	MODULE, POWER ENTRY
10	1	611-0018	HARNESS, V2000 EXTERNAL RUN
11	1	611-0017	HARNESS, V2000 MAIN POWER
12	1	44642026	SWITCH, SLIDE
13	1	53500558	FUSE, 5A
NS	1	53500002	CORD, PWR 115V
NS	1	53500210	CORD, POWER 230V
NS	1	611-0019	HARNESS, V2000 INHIBIT
NS	1	611-0021	GROUND WIRES, V2000
NS	1	311-0090	KIT, EXT RUN RELAYS W/SOLID ST
18	1	51310009	LABEL, GROUND SYMBOL
19	2	900739	LABEL, GROUND EARTH
20	1	900802	LABEL, ELECTRICAL SHOCK
21	1	900801	LABEL HAZARDOUS
NS	8	435SO263	CABLE TIE
NS	1	901113	LABEL SET, V2000 CE
NS	1	611-0023	ELECTRICAL SCHEMATIC
NS	2	53500254	TERMINAL, FEMALE
26	8	102705B01	BHCS #6-32 X 1/4
27	3	102706B02	BHCS #8-32 UNC X .38 LG
28	2	103333B05	KEP NUT #4-40
29	11	103333B07	KEP NUT #8-32
30	4	102760B05	SCREW PHILLIPS HEAD, #6-32 X 3/8

NS = NOT SHOWN

TRIANGLE WEDGE ASSEMBLY
Assembly # : 18051106

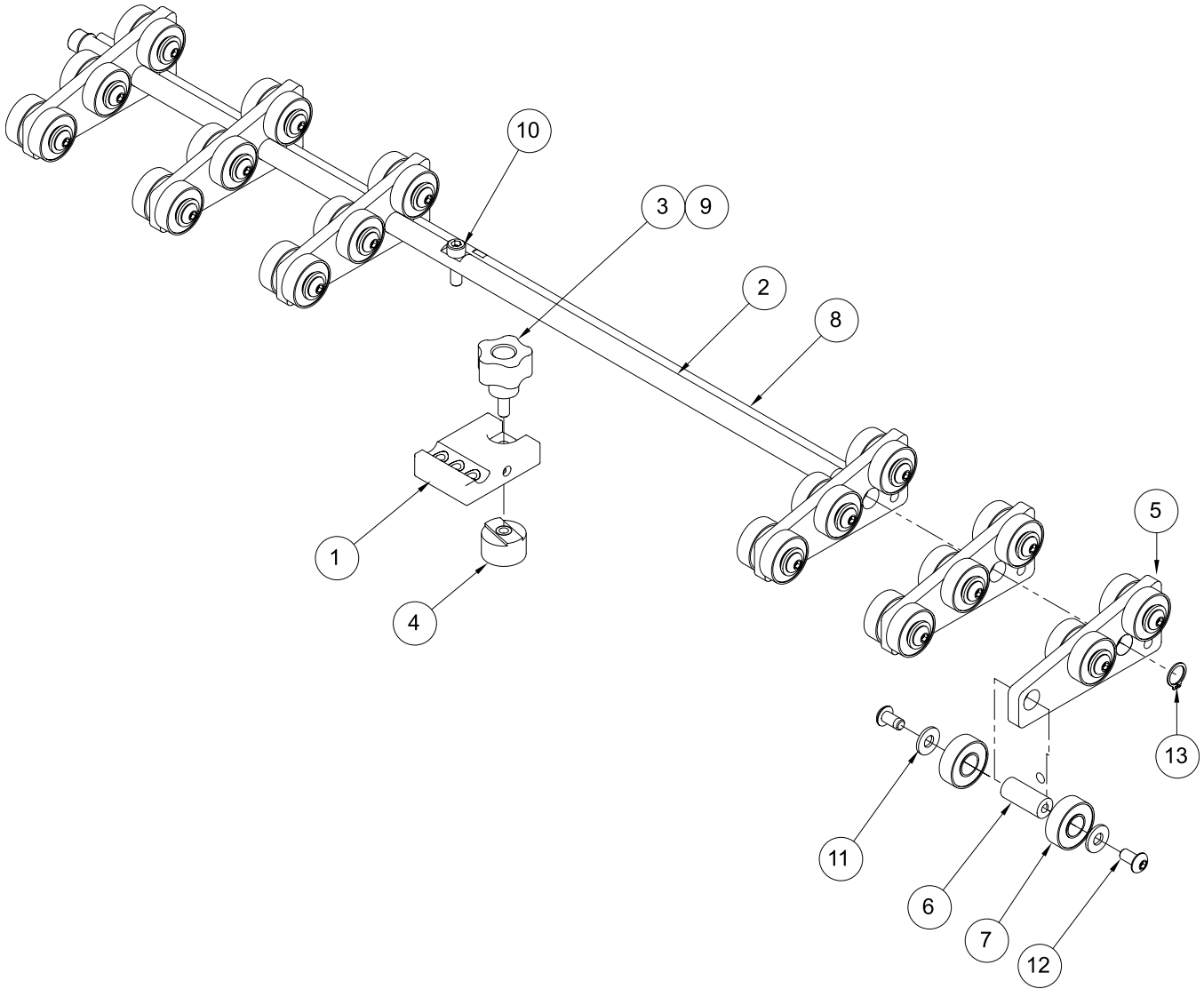


TRIANGLE WEDGE ASSEMBLY

Assembly # : 18051106

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	51745008	PLATE, WEDGE BASE
2	1	51745062	BLOCK, WEDGE
3	1	51805021	WEDGE GUIDE SHAFT
4	1	51805020	WEDGE SUPPORT SHAFT
5	6	44759086	MATERIAL SUPPORT
6	1	44963102	KNOB, 5 LOBE
7	1	44633016	ROUND T-NUT
8	1	102688B03	SHCS #10-32 X 1/2
9	1	102732B11	SET SCREW, #10-32 X 1
10	1	102729B01	SET SCREW, #8-32 X 3/16
11	2	103274B04	SNAP RING 3/8
12	2	102637B03	FHCS #10-32 X 1/2

LOW PROFILE WEDGE ASSEMBLY
Assembly # : 18051107

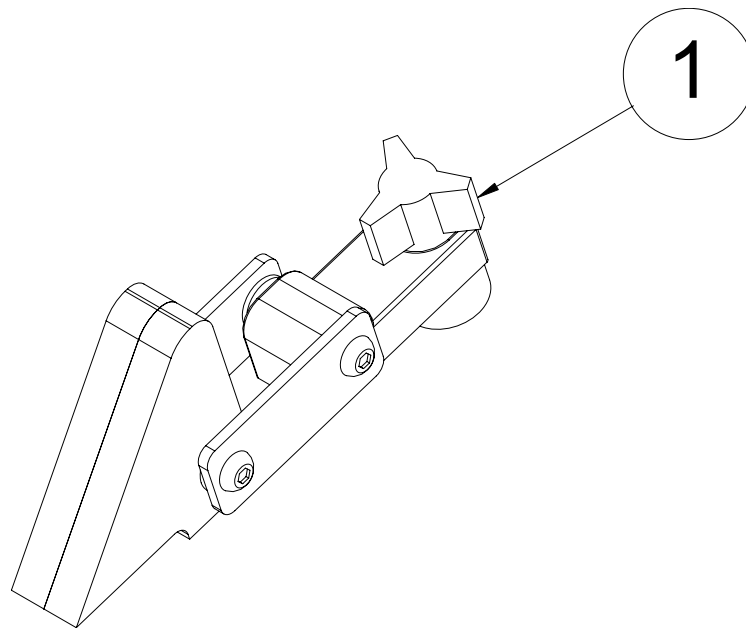


LOW PROFILE WEDGE ASSEMBLY

Assembly # : 18051107

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	44759088	WEDGE BLOCK
2	1	51805021	WEDGE GUIDE SHAFT
3	1	44963102	KNOB, 5 LOBE
4	1	44633016	ROUND T-NUT
5	6	43560050	NARROW ROLLER WEDGE
6	18	33500020	BELT TENSION SHAFT
7	36	23500095	BEARING, BALL
8	1	51805020	WEDGE SUPPORT SHAFT
9	1	102732B11	SET SCREW, #10-32 X 1
10	1	102688B04	SHCS #10-32 X 5/8
11	36	103240B04	FW #10
12	36	102708B02	BHCS #10-32 X 3/8
13	2	103274B04	SNAP RING 3/8

OPTIONAL SMALL PRODUCT WEDGE
Assembly # : 63311212



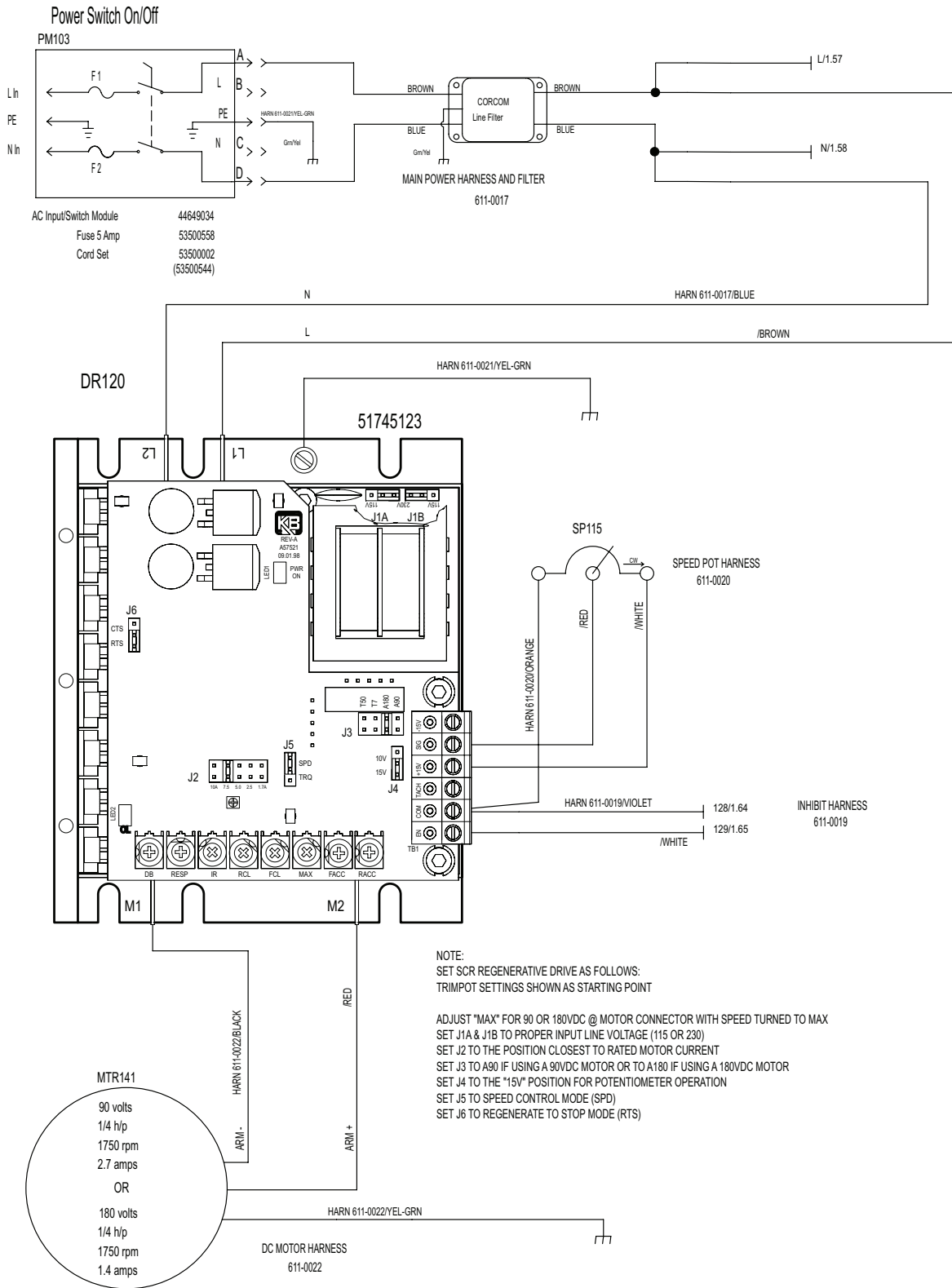
OPTIONAL SMALL PRODUCT WEDGE

Assembly # : 63311212

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	63311212	WEDGE, NARROW EXTENDED

8 Electrical Diagrams

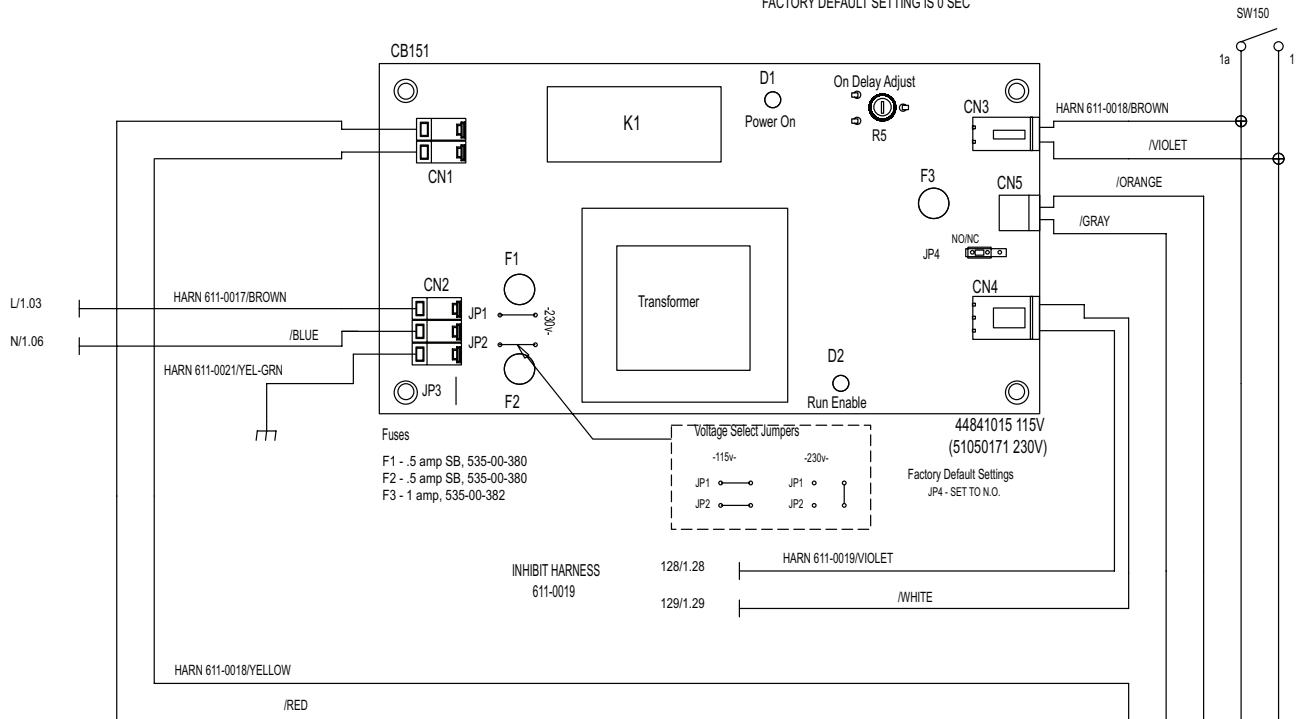
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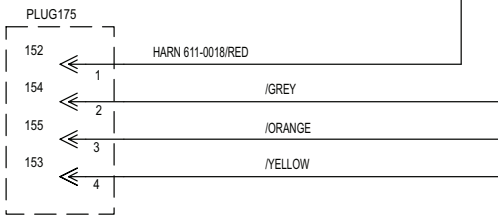
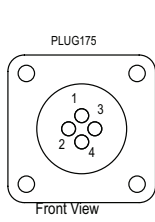
NOTE: PLACE CORRESPONDING COIL RELAY FROM KIT IN SOCKET FOR POWERED EXTERNAL RUN: 5-24VDC, 24VAC, OR 120VAC.

NOTE: R5 ON DELAY ADJUST FOR 0-15 SEC DELAY
FACTORY DEFAULT SETTING IS 0 SEC



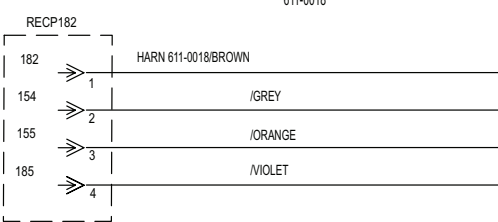
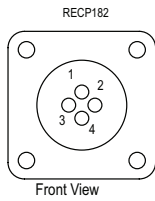
AC/DC EXTERNAL RUN

- PIN 1 - AC/DC (+)
- PIN 2 - STATUS SIGNAL - DRY CONTACT
- PIN 3 - STATUS SIGNAL RETURN - DRY CONTACT
- PIN 4 - AC/DC (-)



DRY CONTACT EXTERNAL RUN

- PIN 1 - DRY CONTACT (+)
- PIN 2 - STATUS SIGNAL - DRY CONTACT
- PIN 3 - STATUS SIGNAL RETURN - DRY CONTACT
- PIN 4 - SIGNAL



POWERED EXTERNAL RUN COIL RELAY KIT (311-0090)
 5-24VDC COIL RELAY - 53500997
 24VAC COIL RELAY - 44841014
 120VAC COIL RELAY - 44841013

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