# K5000L48 PCB Separator

## Users Guide

FKN Systek
115 Pleasant Street
Millis, MA 02054
Tel. (508) 376 2500 Fax (508) 376 2505
http://www.fknsystek.com
e-mail: fkn@fknsystek.com

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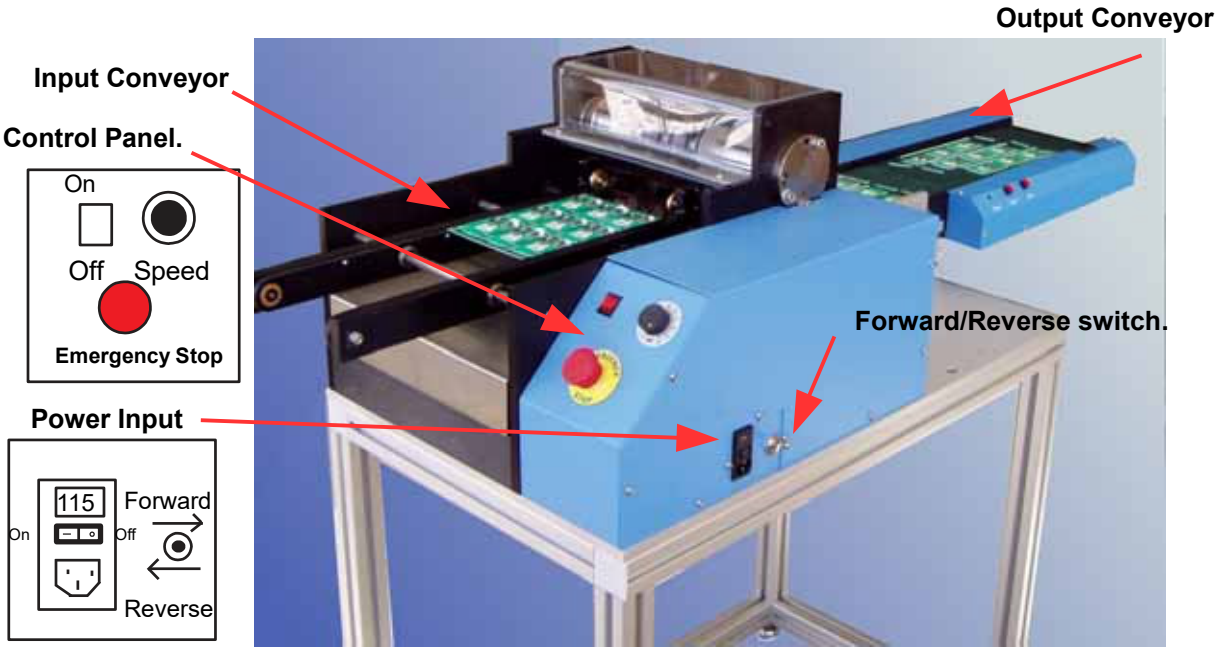
# K5000 Users Guide



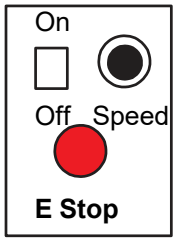

## 1. Introduction

The K5000 is a multiple circular blade PCB depanelizer. Placing a panel to be separated onto the input conveyer will bring it forward to the blades to be cut into separate units. The singulated panels and the scrap strips emerge from the other side onto an output tray or conveyor .

A light beam sensor at the end of the optional conveyor stops forward motion parts with components on them are detected. Scrap side strips pass beneath the beam into a waste bin. The sensor can be put off line to allow all parts to pass to the next position.

The singulation unit control panel features:

1. On off switch to start the motor for the singulation process
2. Emergency Stop Switch
3. Speed Control




A forward and reverse switch next to the singulation unit power input allows a panel to be bought back out to the operator if the emergency stop button is pushed.

The output conveyor has a separate power supply and input on the rear of the machine. Power to the conveyor must be turned on at the power input socket. An additional sensor override switch is also on the back of the conveyor power input panel. This allows the sensor to go off line if the conveyor is intended to input to another conveyor or to a storage container.

The start and stop switch on the front of the flat belt output conveyor allow the operator to control the device.

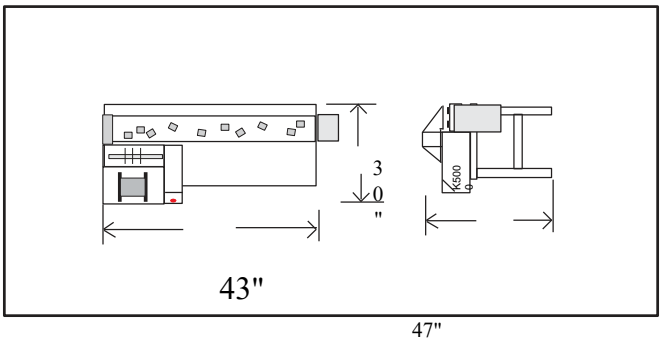
## 2. Contents of Package

K5000 Input Unit with feed in conveyor.
Work table.
Users
Guide

## 3. Technical Specifications

| | |
|---|---|
| Size | : HWD |
| Weight | 47"x43"x30" |
| Power | : 220 lbs |
| Supply | : Universal 115-220. |

Scoreline depth, (Remainder material) :>.012" <.027" (0.3-0.7mm) Angle of Score line: 25O Min

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## 4. Setup

To put the K5000 into operation, unpack the machine from the crate and set it up in the intended work area. Plug the main power cord into a 110 Volt outlet and make sure the PCB panel to be singulated is lined up on the input conveyor . If there is an output conveyor with the machine, plug this in separately. Turn on the output conveyor and the singulation unit and prepare to singulate the PCB panels.

## 5. Operation

Turn on the K5000 and push the start button on the singulation unit. Set the operating speed to mid range. Place the PCB sheet to be singulated onto the input conveyor. The PCB sheet will be fed into the singulation cartridge and separated panels will come out onto the output tray or conveyor. A forward/reverse switch next to the power input plug can be used to bring the panel back out if the emergency stop switch has been used.

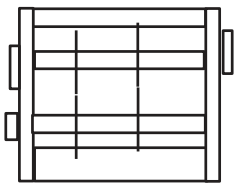
## 6. Input conveyor.

The input conveyor is directly driven by the turning of the lower cutting blade shaft. Two hold down wheels at the front ( blade input end) of the conveyor help drive the PCB panels to the cutting blade. For additional accuracy, some units will have a set of guide channels mounted onto the blade cartridge to assure exact positioning of the PCB scoreline and to prevent movement of the panel for the last few inches of board travel.

## 7. Set up for new blade cartridge.

The blade cartridge consists of 6 elements.

1 Cartridge and drive gear
2 Upper blade shaft
3 Lower Blade Shaft
4 Spacing collets
5 Cutting blades
6. Drive Wheels



**Input Conveyor drive gear**

**1. Remove present cartridge.**
Open acrylic safety cover. Remove *Blade cartridge holding screw* and pull out blade cartridge.

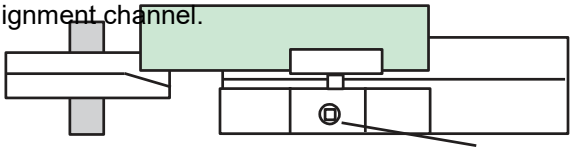
**2. Insert new blade cartridge**
Align cartridge guide wheels with positioning rails and fix in place with the input unit holder screw.

**3. Adjust input conveyor**.
To line up new boards and scoreline with blades.

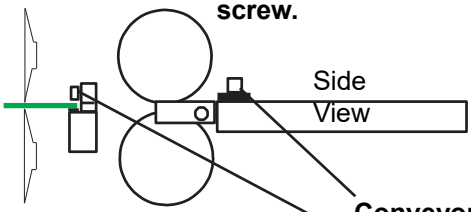
**4. Replace safety cover**
Start operating sequence.

The PCB hold down drive wheels on the end of the input conveyor can be adjusted for hold down tension by turning the flush hex hold down screws on top of the jig.

Top View - Conveyor PCB drive wheel. and alignment channel.

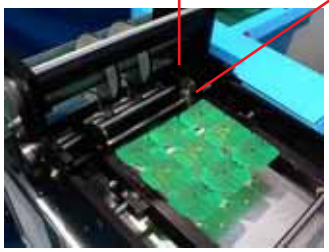


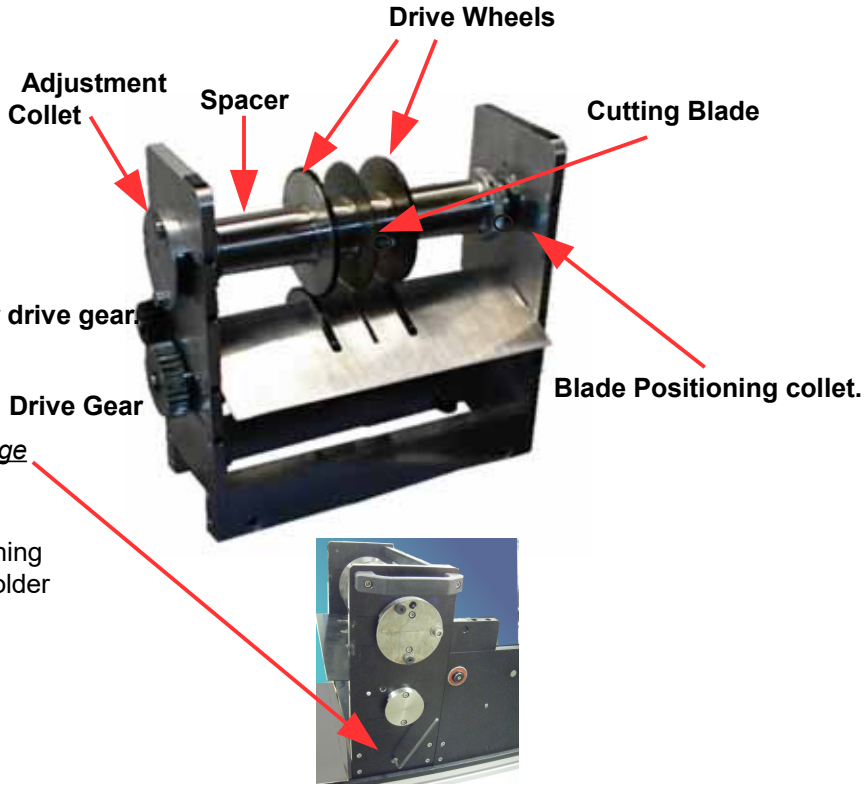
**Tension adjustment screw.**




**Conveyor input Drive Wheels**

**PCB to Blade alignement guides**



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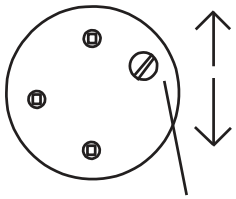
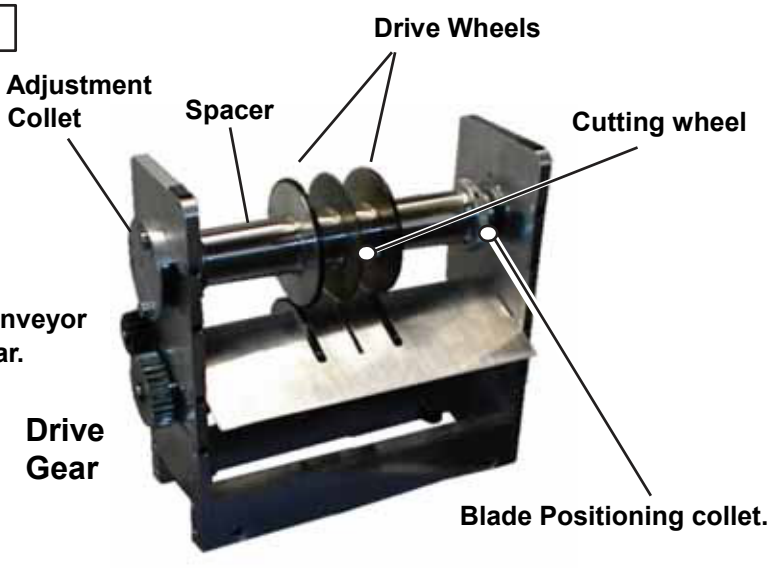
## 8. Blade Adjustment

To remove the blade cartridge from the machine, remove the hold down screw and pull the cartridge out of the holding rails.

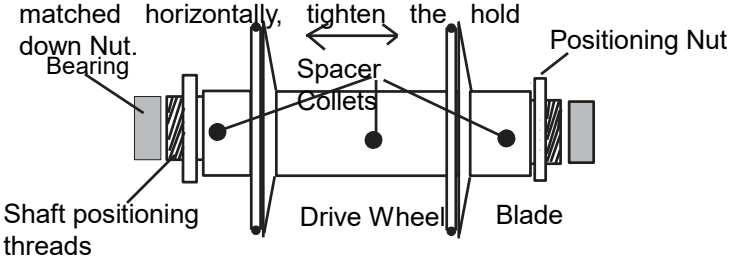
Final adjustment of the cutting gap for the blades can be done by loosening the adjustment collett screws and turning the cam set screw to rotate the shaft up or down on either side.

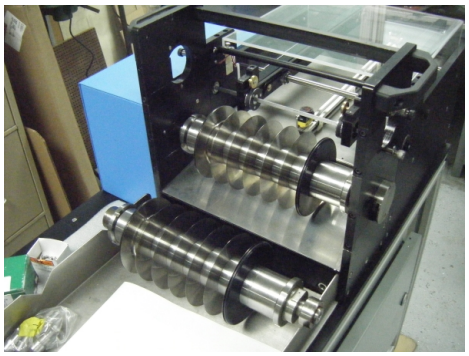


Positioning Cam Screw




Blade set up for positioning top and bottom blades is done by turning the Blade positioning collet so the entire assembly moves right or left. When the blades are matched horizontally, tighten the hold down Nut.

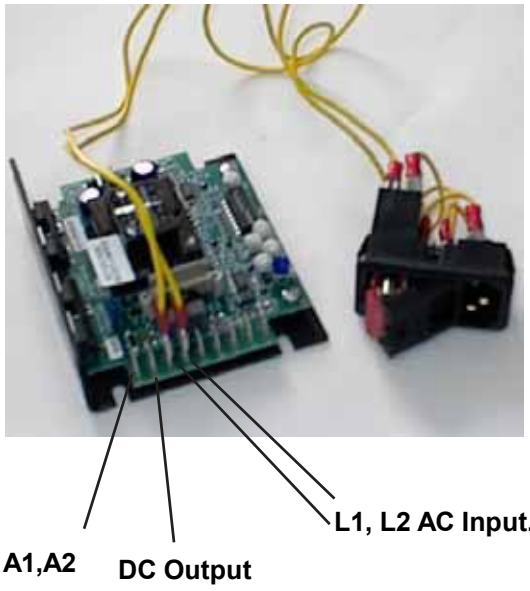


## 9. Drive System

The K5000 motor is driven by a power supply motor controller. Power input is 110 V AC through the Corcom power input plug . Inside this plug are two fuses rated at 2 A each.

If the motor does not respond when the start button is pushed, check the input fuses. If these are OK. Check the power input at L1 and L2 on the controller card and then check the DC output at position A1 and A2. If the AC input is available and the DC output does not register, the problem may lie in the power supply and controller.

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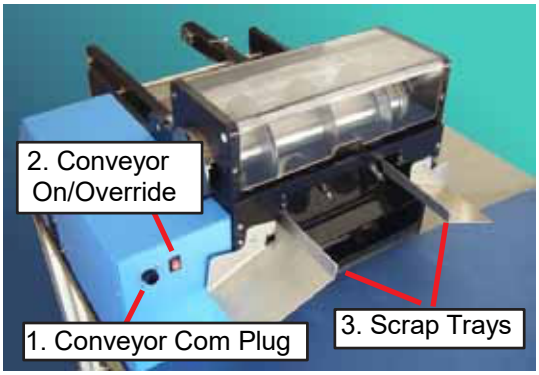
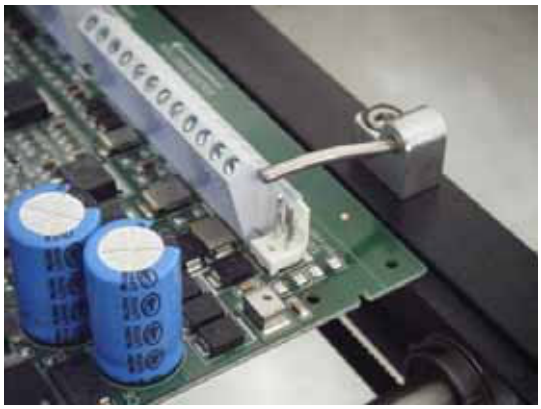
## 10. Output Side and Conveyor Comm Plug




1. Conveyor Input Plug - 24 Volts to internal Relay.

2. Conveyor On - Override Switch.
   When the K5000 is set to receive the "conveyor is on" signal (24 volts), the internal relay will enable the motor to operate. When the conveyor is not connected, setting the switch to the off position will override this circuit and enable the K5000 motor.
3. Scrap Strip Sorting Trays.

## 11. Input Conveyor Orientation Gate



In order to assure that operators place the panels onto the input conveyor in the correct orientation, the blocking pin shown on the left will prevent the panel from moving to the cutting blades. The picture shows the incorrect placement of the panels which will be obvious as the connectors cannot pass underneath the pin. In the correct orientation the components will clear the pin.

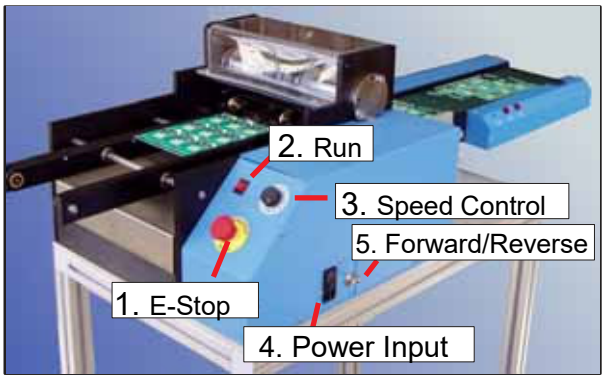
## 12. Safety Precautions.

The K5000 is to be used only for separating prescored printed circuit cards. Use of the equipment for any other purpose may cause damage to the machine and create a safety hazard for the operator. Be sure to follow all safety precautions. When separating panelized PCBs using the K5000. It is recommended that protective gloves be worn by the operator to prevent injury from the sharpened blades. Any repairs or adjustment other than changing the blades or setting the blade and PCB guard gaps as described in this manual, should be made by trained authorize personnel. When operating the machine, be sure that any loose items such as jewelry clothing or hair are kept clear of the rotating blades.

## 13. Replacement Parts List

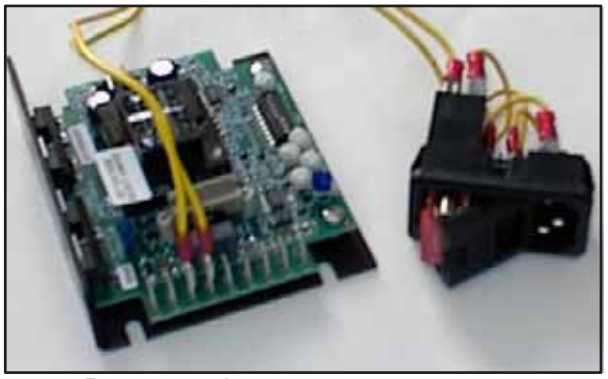
### Parts List Electrical

| | |
|---|---|
| 1 E Stop Switch. | - K5 E22B1 |
| 2 Run - On/Off Switch | - K5 MLW3012-28RC1A |
| 3 Speed Control | - K5 00017SC |
| 4 Power Input - CorCom | - K5PS0SXD000 |
| 5 Forward-Reverse | - K5 SW0001 |
| 6 Conveyor Override Switch | - K5 SW0002 |
| 7 Conveyor Override plug | - K5 A1301-ND |
| 8 Motor | - K5 42A-5N |
| 9 Power supply | - K5 WPM-2137C |
| 10 Idec Relay for Conveyor | - K5 SH1 B05 |



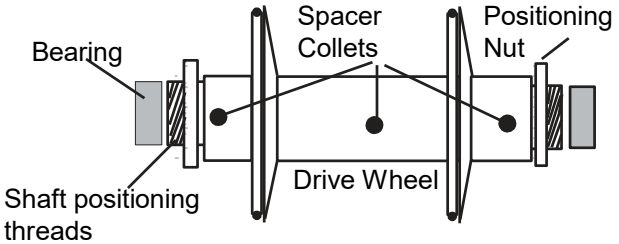

### Parts List Blades and Arbor

| | |
|---|---|
| 1 Blades | - 00 - 5004K |
| 2 Upper Shaft | - 00 50010US |
| 3 Lower Shaft | - 00 50010LS |
| 4 Spacers | - 02 -5011K-xx |
| 5 Drive Wheel | - 02 -5005K |

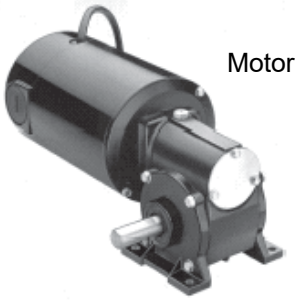


Power supply
K5 WPM-2137C

Power Input
CorCom-
K5PS0SXD000

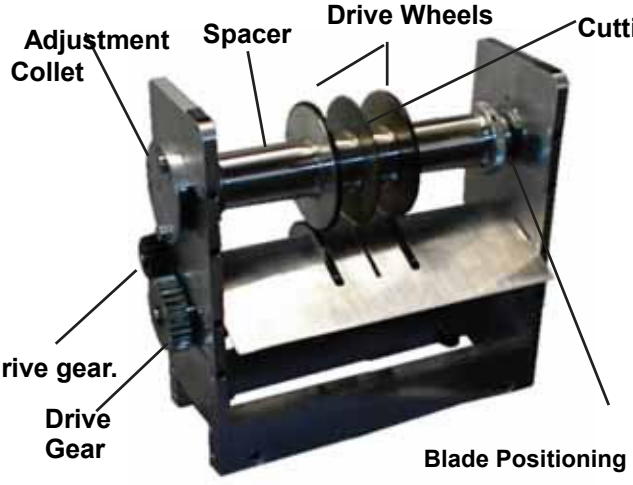



Spacers
02 -5011K-xx



Motor - K5 42A-5N

Blades 00 - 5004K

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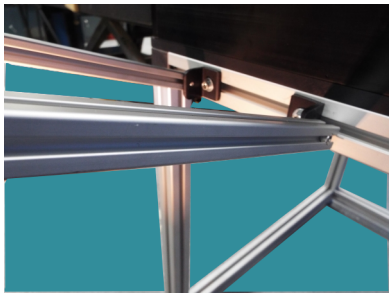
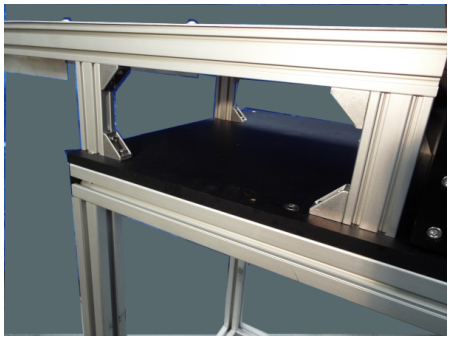
# K5000 L48 Input Rail & Output Tray Set-Up

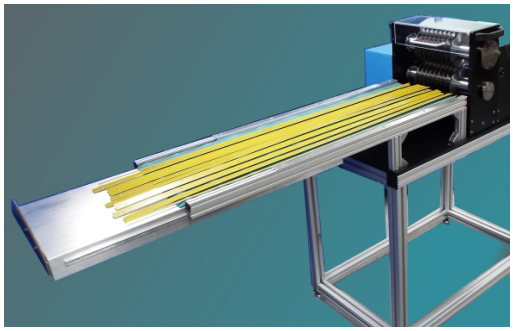
In order to reduce the machine footprint for shipping, the input rail extensions and the output tray are packed separately and placed in the machine stand below the main unit. Shown below are pictures of the K5000 with Input rail extensions and output tray mounted for operation. After receiving the unit you will need to mount the rail extension and output tray as shown.

## Input Rail Extension for 48” Long PCBs



## Output Tray For 48” Long PCBs





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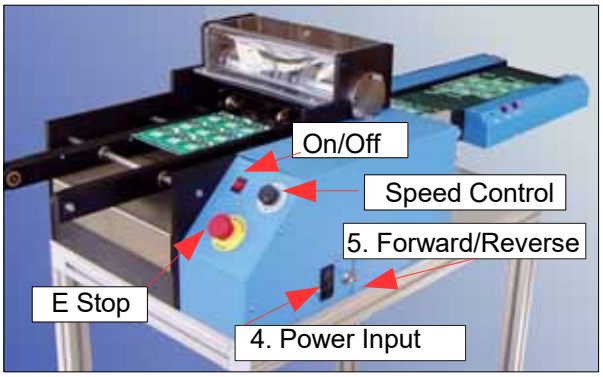
# K5000 Quick Start/Operation



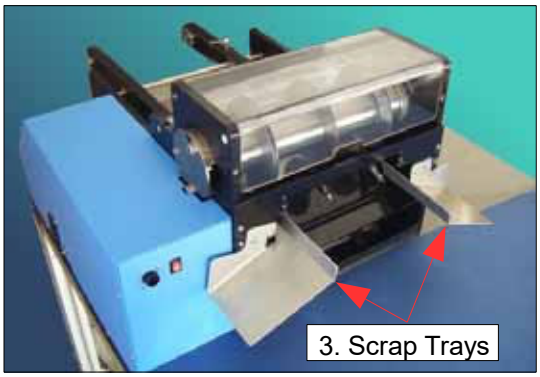

**Input Side and Control Panel**

1. E Stop - Cuts power to machine

2. Operator Control On Off Switch
   (Enables the motor to run. Does not cut power to machine.)
3. Speed Control

4. CorCom Power Input. Main Power Switch

5. Forward and Reverse for Blade and Input Conveyor.

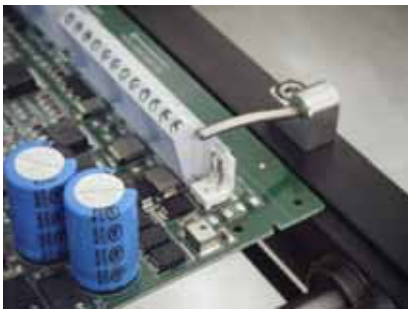



2. Conveyor 1. Conveyor Com Plug

**Output Side and Conveyor Comm Plug**

(Not on all models)

1. Conveyor Input Plug - 24 Volts to internal Relay.
2. Conveyor On - Override Switch.
   When the K5000 is set to receive the "conveyor is on" signal (24 volts), the internal relay will enable the motor to operate. When the conveyor is not connected, setting the switch to the off position will override this circuit and enable the K5000 motor.
3. Scrap Strip Sorting Trays.



**Input Conveyor Orientation Gate** (Optional)

In order to assure that operators place the panels onto the input conveyor in the correct orientation, the blocking pin shown on the left will prevent the panel from moving to the cutting blades. The picture shows the incorrect placement of the panels which will be obvious as the connectors cannot pass underneath the pin. In the correct orientation the components will clear the pin.

**Operation**

The K5000 is a rugged and reliable multiple blade depaneling machine. Models have been in operation at major electronic contract manufacturers for years. To put into operation , simply place the machine in the proper location on your factory floor and plug into 110 V power. The main switch on the CoreCom power input module will turn power on and off for the machine. Make sure the forward - reverse switch is set in the proper position. ( forward for operation - back for reverse). Pushing the start switch will enable the motor, which drives the input conveyor and turns the shaft for the bottom set of blades. If there is no input conveyor connected to the back of the machine, make sure the conveyor switch is set in the "off" position to enable operation without conveyor input.

In the event the E stop is used, and the panel needs to be brought back out to the operator, set the forward reverse switch to reverse and release the E Stop by twisting and pulling.

Test blade alignment and board orientation by pushing a panel up to the blades to make sure the score-lines match the blade settings. Run the first few panels at 1/4 of full speed.

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