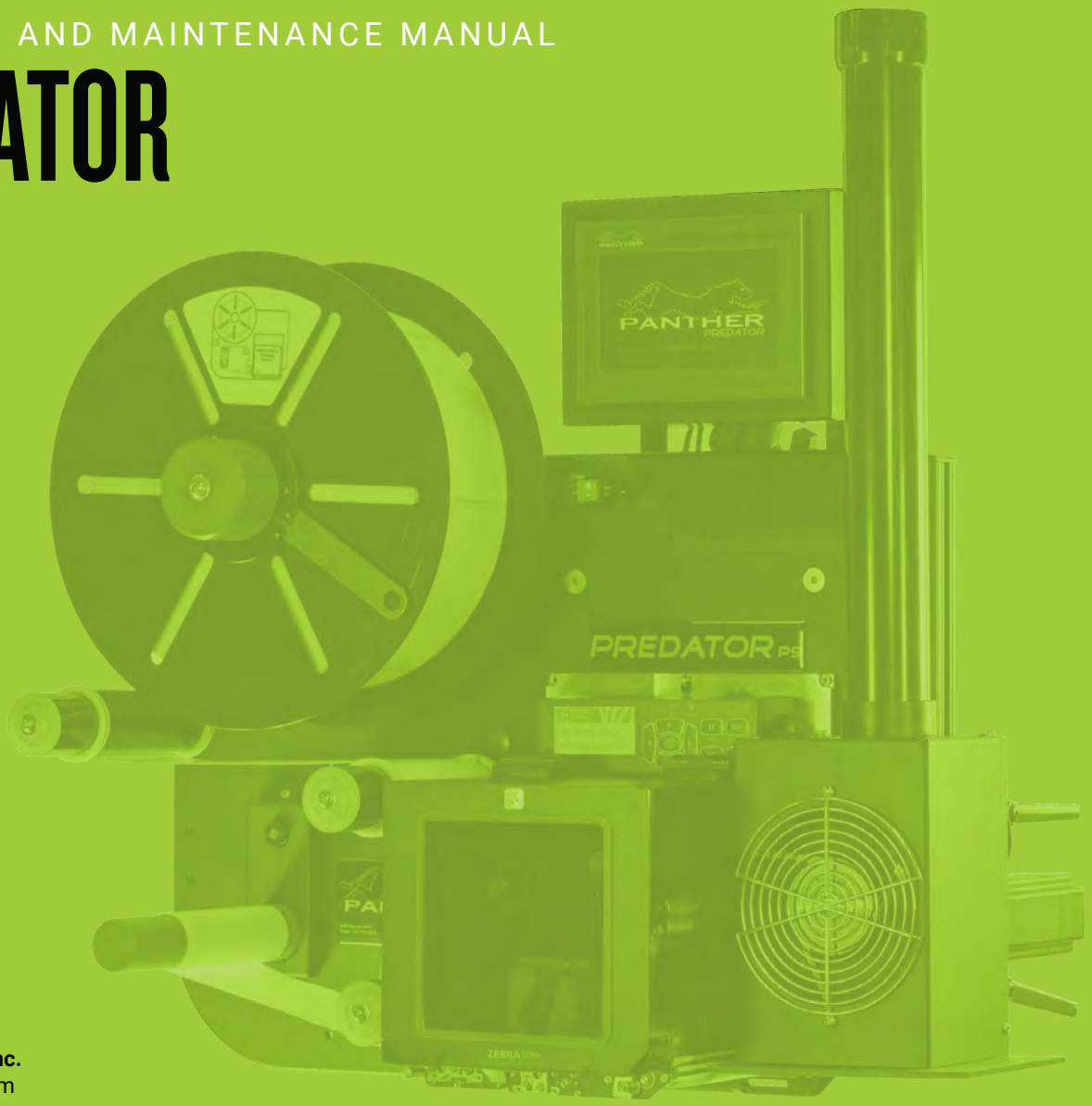
PANTHER
INDUSTRIES

OPERATION AND MAINTENANCE MANUAL

PREDATOR



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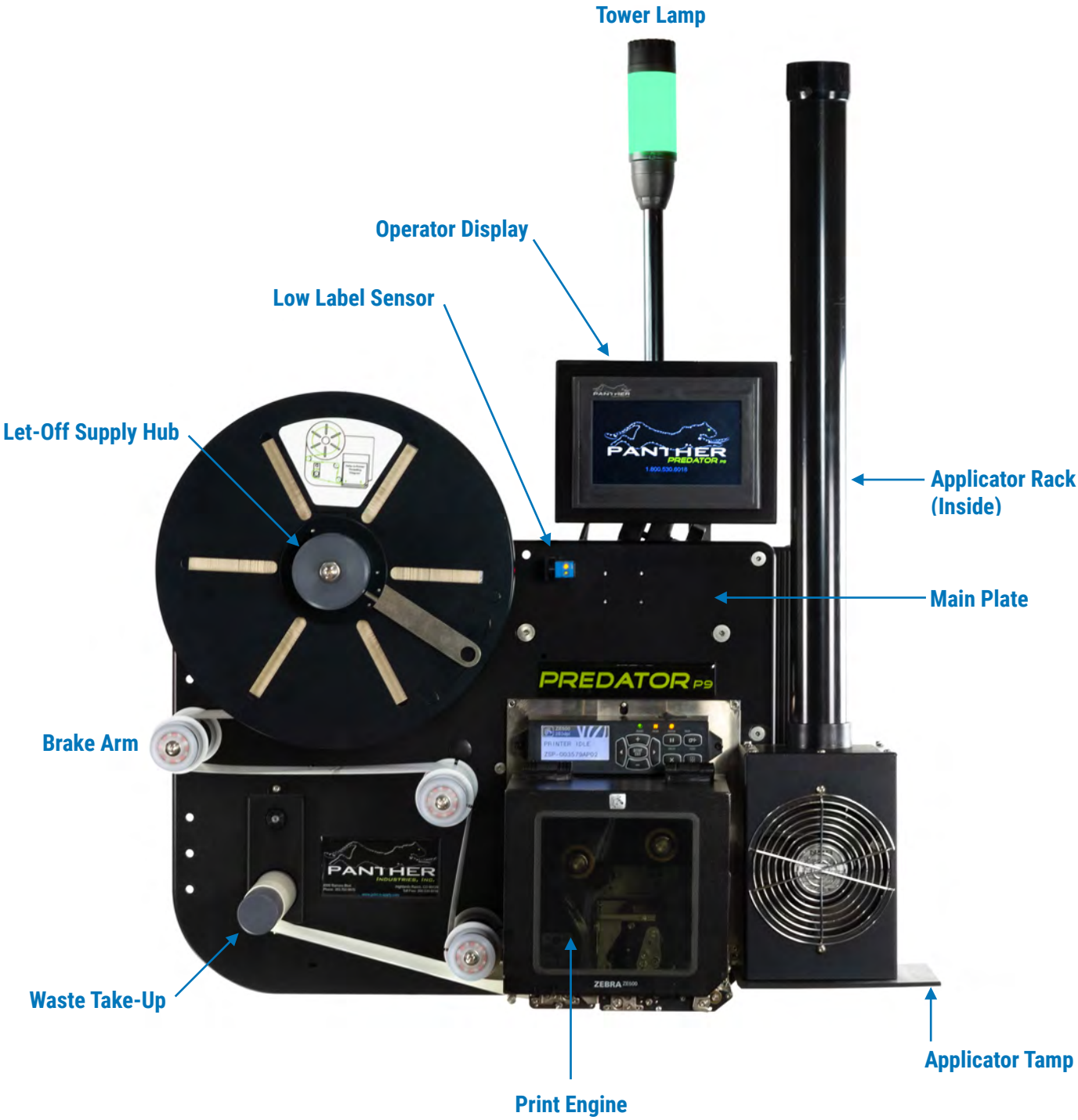
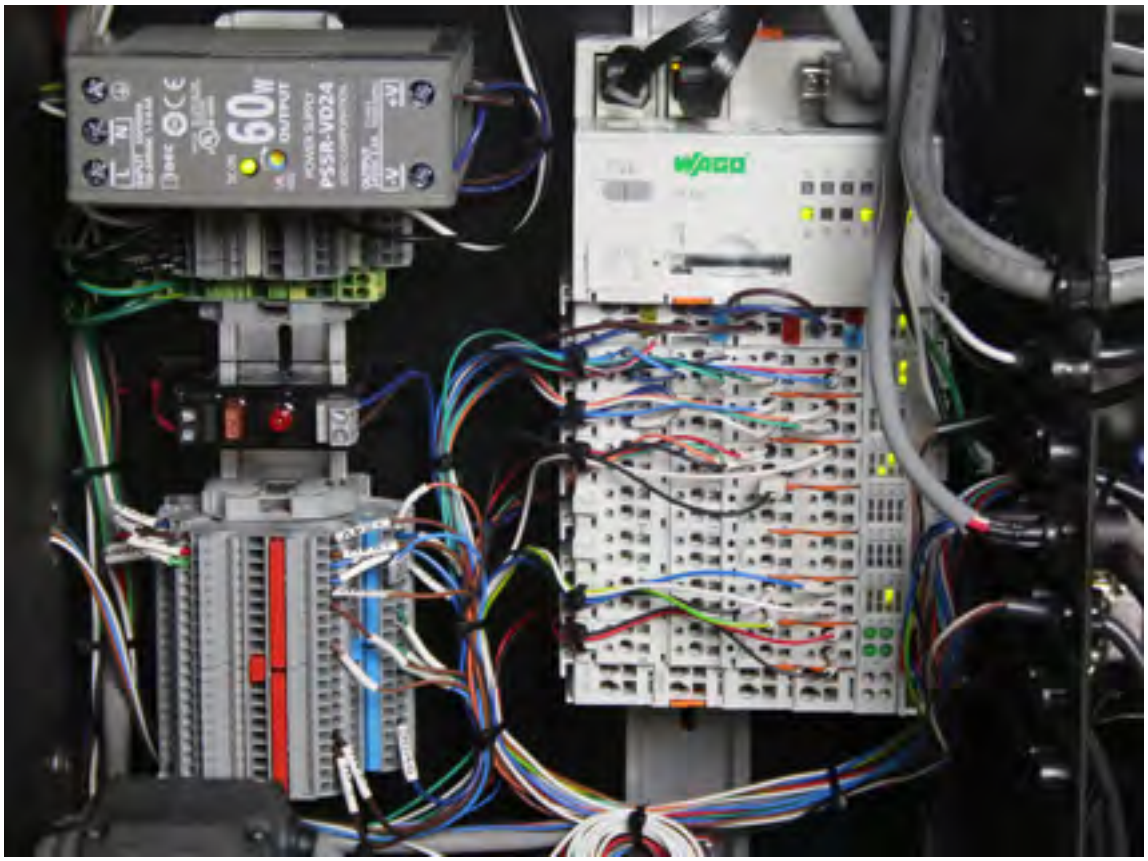
1.0 PREDATOR SYSTEM COMPONENTS

Please familiarize yourself with these main components of your Panther Predator print-and-apply labeling automation system. These will be referred to later in this manual.



2.0 ELECTRICAL SYSTEM

The electrical power requirement for the Panther Predator system is 115 VAC, 60Hz at 5.0 Amps. The system consumes a maximum of 5 amps of current under full load, including the print engine. The power ON-OFF switch is located at the back of the control panel. The fuse drawer is integrated into the power entry module that provides power for the entire system.



The fuse is rated at 250VAC and 5.0Amps. It is a fast blow type. Panther Industries recommends replacement of this fuse with the same type and rating to ensure proper protection of your system. The print engine is also fused independently (Refer to your printer manual for details.)

The Panther Predator print-and-apply system is controlled by a PLC (Programmable Logic Controller). The PLC controls all the I/O (Inputs and Outputs) for the machine. There are 24 inputs and 28 outputs on the body of the PLC. Your system may have more “slices” of I/O based on your system configuration. Check your schematic to determine which I/O points are available for future expansion or for controlling external devices.

When an input signal is received, the PLC decides what outputs to trigger by way of the PLC program that is in memory. All I/O for the Panther Predator is 24VDC. All inputs to the PLC are PNP, which means that the PLC accepts positive or plus (+) voltage signals from the input device(s). There are two types of outputs on the PLC. The main PLC has NPN outputs, while the slice output card with the red tab are PNP.

Since the inputs are all +24VDC, some print engines will need to be configured so that the outputs are of the correct voltage. Please see section **17.0 Print Engine Settings** for specific configuration instructions.

3.0 OPERATOR DISPLAY ORIENTATION

The Panther Predator is supplied with a touch screen operator interface. To access individual screens simply press on the desired screen from the main page. If at any time the operator wishes to return to the main screen, pressing the HOME Key will return them there. Within individual screens the UP and DOWN arrow keys in the bottom right and left-hand corners will scroll through that screens' options.

The Panther Predator is provided with six STANDARD operator and maintenance screens. (Additional or customized data may be displayed at the customer's request.) These screens are all accessible from the Panther Home Screen. The settings screen allows for the option to view the settings as icons or in list fashion.

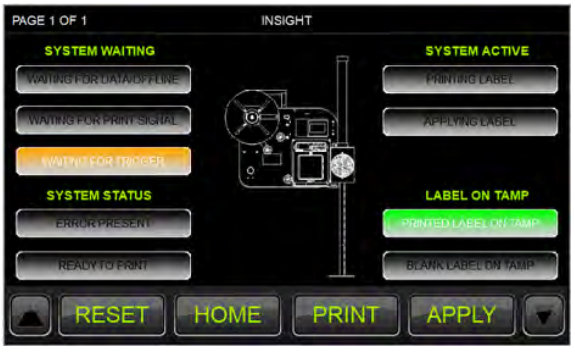
3.1 OPERATOR SCREENS

Main Screen
Home Page: All other pages accessible

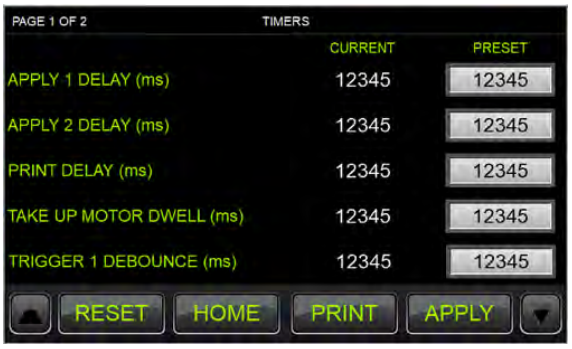
Up/Down arrows provides access to Serial Number or Firmware Information

Insight Screen
Provides real-time machine status

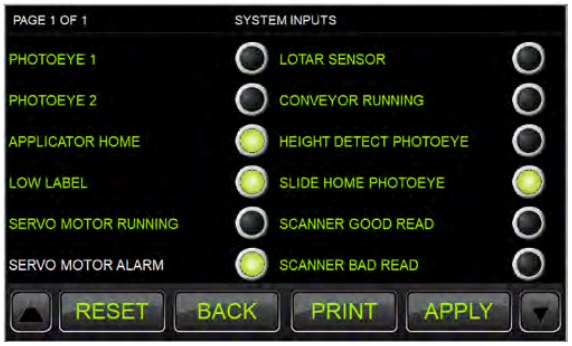
Determine where the Panther Predator is in its process



Timer Adjust Screen
Product Detect Delay
Print Delay
Photoeye Debounce Timer(s)
Take-Up Motor Timeout Timer



Input Check Screen
Displays all machine input points and their status with detailed descriptions. Note active high signals are displayed in green, while active low signals are displayed in white.

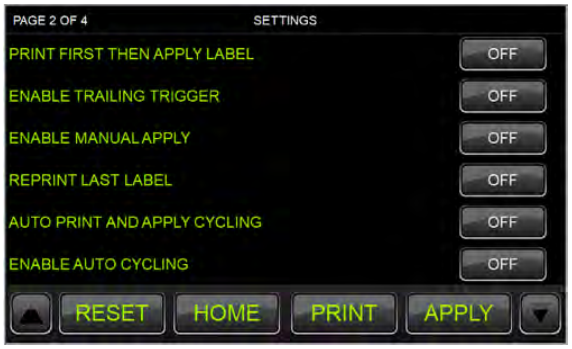


Output Check Screen
Provides real-time machine status

Machine Error Screen
Displays machine errors. May also display error causes and solutions. An error log is also available Showing the most recent errors that have occurred.

Settings (Icon View)
Displays machine settings in an icon format.
– Printer
– Applicator
– Accessory
– Maintenance
– Network
– Security

Settings (List View)
Change machine settings for operation or function.
– Select Printer
– Change Sensor Detection
– Order of Operations, etc.
– Network Settings
– Applicator Settings



System Statistics
Provides current system statistics, along with:
– Cycle Counter
– Products Per Minute
– Cycle Times

NOTE: The screens above are shown for visualization only. Actual screens may appear different from those here and are described in detail below.

4.0 USING THE PANTHER PREDATOR DISPLAY

There are two screens where the operator has the ability to input data or change the functionality of the Panther Predator. These are the “Timers” screen and the “Settings” screen. All other screens are for feedback only. The operator can scroll to other pages within a specified screen by using the UP or DOWN arrow keys. If the operator wishes to switch between screens they will need to press the HOME Key to return to the Main/ Home screen and then select the desired screen.

4.1 Main Screen

The main screen displays all the other screen selections and the Panther Predator Logo. By pressing the Predator logo, a larger view of the logo will appear, retouching the larger logo will return you to the main screen. Pressing the Up/Down arrow keys will take you to the user information screen. This screen will have the manufacturer, model, serial number along with PLC and Display Firmware versions.

4.2 Insight Screen

The insight screen displays what process the system is currently performing. The machine status will highlight when that process is active. This screen is intended to be used as a troubleshooting aid in the event that the machine appears to be stuck. The user can access the screen and determine what the machine is waiting for before proceeding to the next process.

4.3 Timer Adjust Screen

The timer adjust screen is used to adjust delay and time-out time values for machine operations. The timers and their factory default settings are shown below. The space to the right of the preset value is provided for the operator or maintenance personnel to record the settings required for your particular application. Please remember: to properly change a timer, the timer’s PRESET must be changed, not the CURRENT value.

We will use the applicator delay timer as an example:

The time-base for **ALL** timers is .001 seconds (milliseconds).

APPLICATOR 1 DELAY
The APPLICATOR 1 DELAY timer adjusts how long after the product detect photocell (or external trigger) is triggered before the machine will respond by applying the label. This is useful for moving the label either closer to the leading edge (less delay) or closer to the trailing edge (more delay) of the product to be labeled.

APPLICATOR 1 DELAY TIMER	0	
PRESET	0	_____

PRINT DELAY
The PRINT DELAY timer adjusts how long the system will wait before printing the next label. This is useful for allowing a swing arm type applicator to settle at the home position before the next label is printed.

PRINT DELAY	0	
PRESET	0	_____

TAKE UP MOTOR DWELL
The TAKE UP MOTOR DWELL is the amount of time the take up motor will run after a label has been fed or printed. The default is set to 5 seconds.

TAKE UP MOTOR IDLE TIME	0	
PRESET	5000	_____

TRIGGER 1 DEBOUNCE
The TRIGGER 1 DEBOUCE sets the amount of time after the primary photo eye is first triggered to when it will next accept an input. It is useful to prevent double triggering of the photoeye.

TRIGGER 1 DEBOUNCE	0	
PRESET	60	_____

TRIGGER 2 DEBOUNCE
The TRIGGER 2 DEBOUCE sets the amount of time after the secondary photo eye is first triggered to when it will next accept an input. It is useful to prevent double triggering of the photoeye.

TRIGGER 2 DEBOUNCE	0	
PRESET	60	_____

CYCLE COMPLETE DWELL
This timer allows the user to adjust how long the cycle complete signal (given as an output via the AMP connector or Ethernet based signal) stays ON. A cycle is considered complete after a label has been printed, applied and the applicator has returned to the home position. The cycle complete signal will also be given when the RESET Key is pressed.

CYCLE COMP DWELL	0	
PRESET	150	_____

PRODUCT JAM TIMER
The PRODUCT JAM TIMER sets the amount of time the photoeye must be blocked before the system will register a product jam error.

PRODUCT JAM TIMER	0	
PRESET	5000	_____

SCANNER TRIGGER DELAY
The SCANNER TRIGGER DELAY sets the amount of time the Panther Predator will wait before it turns on the external barcode scanner. The delay for the scanner to be turned on begins when the apply dwell timer has timed out. NOTE: In order for this timer to be visible Enable External Barcode Scanner must be turned ON in the SETTINGS menu.

SCANNER TRIG DELAY	0	
PRESET	200	_____

SCANNER DWELL
The SCANNER DWELL sets the amount of time the Panther Predator will turn on the external barcode scanner. If this timer times out and no response is received from the scanner (good or bad read) an error will occur. NOTE: In order for this timer to be visible Enable External Barcode Scanner must be turned on in the SETTINGS menu.

SCANNER DWELL	0	
PRESET	500	_____

MAXIMUM BAD SCANS
The MAXIMUM BAD SCANS sets the maximum allowable number of bad reads from the external barcode scanner before the Panther will go into an error. NOTE: In order for this timer to be visible Enable External Barcode Scanner must be turned on in the SETTINGS menu.

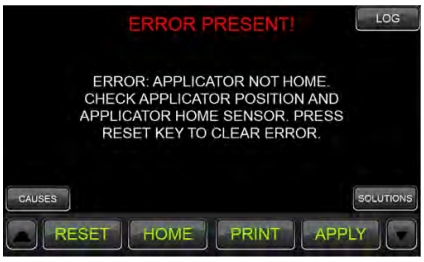
MAXIMUM BAD SCANS	0	
PRESET	3	_____

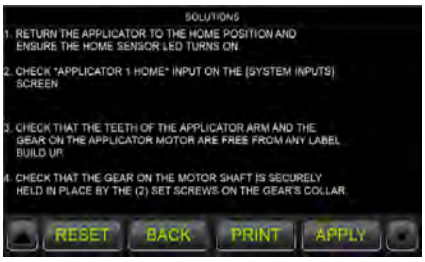
4.4 Timer Setting Procedure

1. Touch the PRESET time display.
2. A Numerical Keypad will appear.
3. Enter in the time desired, press the return arrow key
4. Pressing the DEL key will delete the last entered number.
5. Pressing the X button in the upper right hand corner, it will close the keypad and bring you back to the timers screen
6. The timers in your Panther Predator system are password protected, see section 4.9 for additional information regarding the passwords.

4.5 Error Screens

The errors screen shows the current error the system is experiencing. If there are no errors in the system, the screen will read NO ERRORS DETECTED. To aid in the resolution of errors your system is provided with on-screen error resolution assistance. Pressing the causes button will take you to a screen that shows a list of possible causes for the error. From here you can press the solutions button, pressing this will take you to a list of possible solutions to the error that is present in the system. If you would like to disable the help screens you can do so in the USER MAINTENANCE screen located within the SETTINGS menu.





4.6 Settings Screen

The screen titled “SETTINGS” allows the operator to put the Panther system into different modes of operation. By changing the state of a setting from OFF to ON or ON to OFF, the user has the ability to affect the way the Panther System operates. Think of this screen as a means to set “DIP Switches” that tell the Panther system how to operate. These modes and their Factory Default settings are described in detail in this section. Be sure to fully understand the setting before you make changes to your system. Record your settings in the spaces provided next to each setting for future reference. The setting options are password protected to ensure they are not changed by unqualified personnel. See section 4.09 for additional information regarding the passwords. The settings screen can be viewed in two ways, Icon Mode or List Mode. At the top of the first page, there will be an icon and list button. You can switch between the two views depending on which you prefer. Each setting below designates which sub menu (in parentheses) it is under when viewing in Icon Mode.

SATO MODE (PRINTER SETTINGS)
This mode sets the machine to operate with a Sato print engine. It will automatically disable other printer selections. If the incorrect print engine mode is selected the machine will not function properly

SATO MODE OFF _____

ZEBRA MODE (PRINTER SETTINGS)
This mode sets the machine to operate with a Zebra print engine. It will automatically disable other printer selections. If the incorrect print engine mode is selected the machine will not function properly

ZEBRA MODE OFF _____

DATAMAX MODE (PRINTER SETTINGS)
This mode sets the machine to operate with a Datamax print engine. It will automatically other disable printer selections. If the incorrect print engine mode is selected the machine will not function properly

DATAMAX MODE OFF _____

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DISPENSER MODE (PRINTER SETTINGS)
This mode can be used with any of the printers, but it will not print data onto the label. It will simply dispense blank labels (or preprinted labels onto the head). It will automatically disable other printer selections.

DISPENSER MODE OFF _____

BATCH DATA MODE (PRINTER SETTINGS)
ON=BATCH DATA MODE: This mode enables the BATCH mode option for printing “constant” batch label data formats as opposed to a unique label format or unique data for each product to be labeled. With this option enabled or “ON” the printer will print one label from the batch of labels downloaded and hold the label on the applicator until the product is detected via the product detect photocell. After the label is applied, the applicator moving to the home position causes the next label for the batch to be printed.

OFF=NEXT LABEL OUT: “Next label out” is used when the label format to be printed is downloaded to the printer for each and every product that will pass by the product detect photoeye. The print and apply system PLC system monitors the “ONLINE/DATA READY” bit of the printer. Once this bit is true, the “PRINT NOW” output to the printer is energized causing the label to print. When the product detect photoeye is blocked, this label is then applied.

If data remains in the print engine buffer by the time the applicator returns to the home position an error will occur. This is utilized to help eliminate sequencing problems and ensure the proper label is on the targeted product.

BATCH DATA MODE ON _____

PRINT FIRST THEN APPLY LABEL (APPLICATOR SETTINGS)
Primarily used for batch mode applications where multiple label formats are downloaded to the printer. Turn this mode ON to enable printing, then applying. The system will not print the label until the product detect photoeye is triggered. Once the eye is triggered, the system will print the label and after completing the print cycle, the applicator will apply the label.

OFF: Panther fires APPLY cycle when product photocell is triggered.
ON: Panther fires PRINT signal when product photocell is triggered.

PRINT FIRST THEN APPLY LABEL OFF _____

ENABLE TRAILING TRIGGER APPLICATION (APPLICATOR SETTINGS)
This mode is used in applications where you want the label placed onto the product or carton at a reference distance from the trailing END of the carton and not the leading edge. This causes the PLC to watch for a high to low (on->off) transition instead of a low to high (off -> on) transition of the product detect photo eye.

OFF: Panther activates a machine cycle as soon as the product photo eye changes from “Clear” to “Blocked”.
ON: Panther activates a machine cycle as soon as the product photo eye changes from “Blocked” to “Clear”.

ENABLE TRAILING TRIGGER APPLICATION OFF _____

VIEW SCANNER SETTINGS (ACCESSORY SETTINGS)
This option will allow you to enable or disable an external barcode verification scanner. The Panther will start checking for a response from a barcode scanner after every application. The scanner trigger output will be activated at the end of the apply sequence of the Panther system. This will also enable the SCANNER BAD READ counter. If there is no scanner connected to your Panther system, you will get a "No response from Scanner" error. The scanner screen will also give you immediate access to the Scan Trigger Delay, Scanner Dwell and Maximum Bad Scans timers.

ENABLE EXTERNAL BARCODE SCANNER OFF _____

ENABLE MANUAL APPLY (APPLICATOR SETTINGS)
This function is provided as a means to DISABLE the "APPLY" button on the Panther display. This mode will enable and disable the "APPLY" for manual "jogging" of the Panther applicator mechanism. When this mode is OFF the machine will NOT cycle the applicator when the "APPLY" button is pressed. This is a feature to prevent accidental applicator triggering and possible product damage if the operator should inadvertently press the "APPLY" button while the product is in motion.

ON: "F4 APPLY" button on the display activates applicator mechanism for one cycle
OFF: "F4 APPLY" button on the display does nothing.

ENABLE MANUAL APPLY (F4 ACTIVE) ON _____

CONVEYOR ENABLE (ACCESSORY SETTINGS)
ON= conveyor run request bit is set to ON in the PLC which energizes PLC output for enabling the conveyor as long as there is not an ERROR or FAULT on your Panther system. If you have this option in your system, the conveyor run output and relay will energize whenever there is not an ERROR on the Panther system.
OFF= The conveyor, if connected, will not run.

CONVEYOR ENABLE OFF _____

SLIDE HOME ENABLE (ACCESSORY SETTINGS)
This option is available on systems that are mounted in an 8020 superstructure. The systems can be mounted on a slide that allows the entire system to be accessed easier during label change over and error resolution. The slide home sensor checks to make sure the system is in place above the conveyor and product flow. If this settings is enabled, the system will actively look for the slide home input to be on before it can function normally. If the slide home sensor is not made, the system will go into bypass mode.

SLIDE HOME ENABLE OFF _____

SECONDARY WIPE ENABLE (ACCESSORY SETTINGS)
This setting will enable a secondary pneumatic wipe down system. It is often used when the label is applied hanging over the edge of a box and a brush is needed to wipe the label over the edge. The brush motion is activated after each cycle. This option requires an additional solenoid valve and will introduce the Secondary Wipe Delay and Secondary Wipe Dwell timers to the system.

SECONDARY WIPE ENABLE OFF _____

VIEW ADAPTIVE TAMP SETTINGS (ACCESSORY SETTINGS)
This setting will allow the Panther to use an ultrasonic sensor to detect the height of incoming boxes and dynamically adapt the application to the height. This setting is discussed in further detail in section 4.13. Enabling this setting will allow you to view many additional settings, including the Adaptive Touch Setting and the Adaptive Placement Setting. It will also introduce several parameters needed to make the dynamic application work.

ENABLE ADAPTIVE TAMP TECHNOLOGY OFF _____

AUTO PRINT & APPLY CYCLING (APPLICATOR SETTINGS)
This mode sets the machine to automatically print and apply labels continuously. This mode is used for factory testing and machine adjustment. The unit will continuously print and apply labels until the printer is taken offline, the RESET key is pressed, or the mode is reset to OFF. When testing is complete, this mode must be turned OFF for normal machine operation.

AUTO PRINT + APPLY CYCLING OFF _____

AUTO APPLY CYCLING (APPLICATOR SETTINGS)
This mode sets the machine to automatically cycle the applicator continuously. This mode is used for factory testing and machine adjustment. The unit will continuously cycle the applicator until the RESET key is pressed, or the mode is reset to OFF. When testing is complete, this mode must be turned OFF for normal machine operation.

AUTO APPLY CYCLING OFF _____

VIEW SWING ARM SETTINGS (APPLICATOR SETTINGS)
This will allow you to enable or disable the swing arm type application. This requires a different configuration of the Panther that has a rotary arm to apply a label. Viewing this screen will allow you to enable or disable the swing arm application. Once this setting is enabled you will be able to enable the following settings. Additional explanation on the use of the swing arm and the related settings will be discussed in Appendix A.

Front Apply: Enables the use of the Front Apply Servo settings and will trigger the application off the first photoeye.

Side Apply: Enables the use of the Side Apply Servo settings and will trigger the application off the second photoeye.

Cornerwrap Enable: Enables the use of the Corner Wrap Apply Servo settings. This type of application will trigger of the first photoeye. This type of application is used to wrap the labels around the leading corner of the box.

ENABLE SWING ARM APPLICATION OFF _____
ENABLE FRONT APPLY OFF _____
ENABLE SIDE APPLY OFF _____
ENABLE CORNERWRAP OFF _____

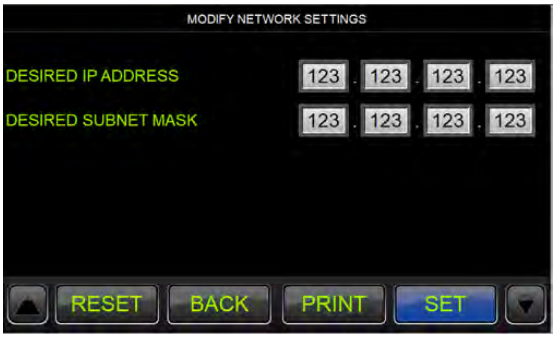
NETWORK SETTINGS (NETWORK SETTINGS)
This option is available to view/modify your Panther's network settings. The network settings include the IP Address and Subnet Mask. Prior to viewing these settings make sure that you have your network cable plugged into the back of the Panther. Your Panther Predator system must be connected to your network before changing these settings. Adjusting your network settings is necessary to interact with the system via Ethernet based protocols (EIP/Modbus).

The HMI is an ethernet based device, but it is on it's own internal subnet and is not accessible via an outside network.

4.7 Changing Network Settings

To change the Network Settings of the Panther system, use the following steps:

1. From the SETTINGS screen press the VIEW button next to the VIEW NETWORK SETTINGS option.
2. Once the View Network page appears, you should be able to see the Panther's IP Address and Subnet Mask.
3. Record the values that are already in the system in case you need to go back to this original setting.
4. Press the MODIFY button in the lower right-hand corner of the screen.
5. Enter your desired IP Address and Subnet Mask into the fields provided.
6. Press and hold the SET key for 1 second.
7. At this point the system will set the Network Settings into the Panther PLC's memory.
8. The system should automatically cycle power (necessary for these settings to take effect). If the system does not cycle power on its own, you will need to cycle power to the Panther unit.



Please record your network settings here. Panther Technical Support cannot help you with your specific network settings.

My Panther (PLC) Network Settings:

IP Address _____ _____ _____ _____

Subnet Mask _____ _____ _____ _____

Default Gateway _____ _____ _____ _____

My HMI Network Settings:

IP Address _____ _____ _____ _____

Subnet Mask _____ _____ _____ _____

Default Gateway _____ _____ _____ _____

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4.8 Maintenance Screen

The MAINTENANCE page is located on the last page of the SETTINGS screen. The following options are available under the MAINTENANCE page:

ENABLE HELP SCREENS
This option allows a user to either enable or disable the help screens that appear when an error occurs. Enabling the HELP SCREENS will display both the causes and solutions to an error when it occurs.

ENABLE BYPASS MODE
This mode is used to disable the functionality of the product detection photoeyes. With this mode enabled, all errors associated with the photoeyes will also be disabled (including product jam and product early). If this mode is enabled a message will appear on the main screen letting the operator know that the Panther is in Bypass Mode. In addition to the text on the screen an output will be turned on letting remote systems know the system is in Bypass Mode.

SET PANTHER DEFAULTS
This option allows the user to return the machine to the factory defaults. These settings are Panther factory defaults and may NOT be the correct settings for your application. This option will reset the current settings of the Panther to the condition shown in green in the preceding section. Any settings that you require for your application will have to be reset once you default the Panther Predator. Refer to the hand-written settings as shown in this manual.

Note: If you return the Panther Predator to its factor default you will need to select a printer and reset any other settings for your application that you had set prior to defaulting the machine. Please ensure that you record all settings after set-up and installation.

ERROR CONTROL SETTINGS
These modes will allow the machine to ignore certain errors when they are detected. It is recommended that these errors remain ON to ensure proper operation of the machine. From the factory, all error trapping on your Panther system is enabled. Please use care when disabling error trapping.

DISABLE ERRORS
When ON, this setting will disable ALL error trapping. The machine will not recognize any errors or problems. BE CAREFULL WHEN CHANGING THIS SETTING. This is not intended for normal operation. This mode is only intended for use when there is a component failure or dire emergencies.

DISABLE ALL ERRORS OFF _____

ENABLE PRODUCT EARLY ERROR
This option allows the user to either enable or disable the product early error. This error is given when the Panther system is triggered for the apply cycle before it has a label ready for application. It is used to notify the user that the product spacing may be too close or that the conveyor speed is operating at a high enough rate that it is not allowing the Panther to complete its processes prior to application. WARNING: Disabling this option may lead to some products not getting labeled.

ENABLE PRODUCT EARLY ERROR ON _____

ENABLE PRODUCT JAM ERROR
This option allows the user to either enable or disable the product jam error. This error is given when the product sensor is blocked for an extended amount of time. It is used to notify the user if their line has become blocked or jammed for longer than the time set in the PRODUCT JAM TIMER in the TIMERS screen.

ENABLE PRODUCT JAM ERROR ON _____

ENABLE APPLICATOR NOT HOME ERROR
This option allows the user to either enable or disable the applicator not home error. This error is given when the applicator is away from the home position (outside of the application cycle) for an extended period of time. It is used to notify the user if the applicator is unable to return to the home position, which will cause errors in the label feeding/printing onto the tamp head. In the event of an applicator home sensor failure, the Panther system will utilize a timer and “assume” that the applicator is at the home position allowing the system to print the next label. Turn this setting back OFF once the sensor is repaired or replaced.

ENABLE APPLICATOR NOT HOME ERROR ON _____

4.9 Password Protection

Password protection is always on. This is a feature that can not be disabled. User levels can be accessed via the Security Settings button within the Settings page.

USER TIERS
There are two levels of password protection:

Account: 1
Password: 1111

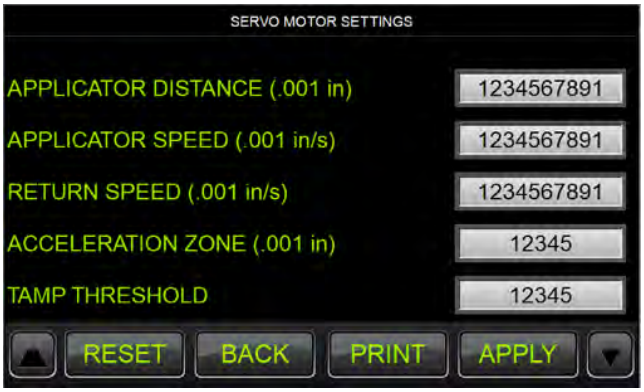
The user1 login allows a user to make changes in the timer screen. This user is not allowed to make changes in the settings screen.

Account: 2
Password: 1234

The user2 login allows a user to make changes in the timer screen AND the settings screen.

4.10 Adjusting Electric Applicator Settings

NOTE: These settings can be viewed by selecting the SETTINGS screen and "scrolling" down to SERVO SETTINGS. Once you view the SERVO SETTINGS.



1. Go to the Main Page and Press the "Settings" Button.
2. Scroll through SETTINGS until you get to SERVO SETTINGS (In Icon View this is located under Applicator Settings). Press the VIEW button.
3. To modify a setting press on the value next the setting you wish to change
4. Enter the value into the keypad that appears. Pressing the X button will close the keypad, pressing the Return key will set the value you have entered.

The settings accessible via this menu include:

Applicator Distance (Set in inches to the maximum length of the applicator assembly)
How far the applicator assembly will extend from the home position.

Apply Speed (Set in inches per second)
How fast the applicator will move away from the home position.

Return Speed (Set in inches per second)
How fast the applicator will return to the home position.

Acceleration Zone (Set in inches)
Defines the distance from the home position in which the applicator is accelerating. The applicator will NOT look for contact in this zone.

Tamp Threshold
The threshold, in counts, that the tamp head will attempt to push past the contact point with the product. This can be equated to the force at which the tamp contacts the product.

NOTE: The minimum and maximum values below may or may not match the values that are obtainable with your system. These min/max values are preset at the factory based on the particular application and machine configuration. For example, if your system is a 36" Stroke, your max value for APPLY DISTANCE would be 36000.

SETTING	MIN	MAX	RANGE	UNIT(S)
APPLY DISTANCE	5000	56000	3” to 56”	Inches
APPLY SPEED	30000	250000	30 IPS to 250 IPS	Inches per Second
RETURN SPEED	5000	250000	30 IPS to 250 IPS	Inches per Second
ACCELERATION ZONE	1000	10000	1” to 10”	Inches
TAMP THRESHOLD	1	1000	1 to 1000	Counts

Your System Settings (Record the settings for your application here)

APPLY DIST _____ ACCELERATION ZONE _____

APPLY SPEED _____ TAMP THRESHOLD _____

RETURN SPEED _____

If the operator enters a parameter value GREATER (or less) than the factory preset maximum (or minimum) value, the keypad will beep and not allow you to enter that value. Reenter an acceptable value. (This is true with minimum values as well.)

If the operator attempts to set the APPLY SPEED to a value greater than 250000 then the keypad will beep and not allow you to enter that value. Reenter an acceptable value.

Valid values for the TAMP THRESHOLD are 1 to 1000 counts. If this value is set too low, the system will NOT stroke to the APPLY DISTANCE value set in the display. The system will SHORT-STROKE. This is because the applicator system “thinks” it has hit a product.

NOTE: It is best to set APPLY FORCE value to the lowest possible setting with the system achieving the desired full stroke length.

4.11 Automatic Product Contact Detection (Auto-Tamp)

The Panther Predator ELECTRIC Applicator will always stroke to the value set in the APPLY DISTANCE setting unless the tamp head comes into contact with a product. This allows the Panther to label products of any height that are within the applicator’s reach without knowing the height of the product. The Panther Predator determines that the applicator has come into contact with the product and returns home immediately.

4.12 Setup of Electric System

1. Enter a Desired Stroke Length in .001 inches for APPLY DISTANCE (A good test would be 10000 or 10”)
2. Enter the APPLY SPEED for the System. (70000 is a good starting point.)
3. Enter the RETURN SPEED for the System. (100000 is a good starting point.)
4. Enter a value for ACCELERATION ZONE. (4000 or 4” is a good setting for the set-up described thus far)
5. Enter a value for TAMP THRESHOLD. (50 is a good setting for the set-up described thus far)

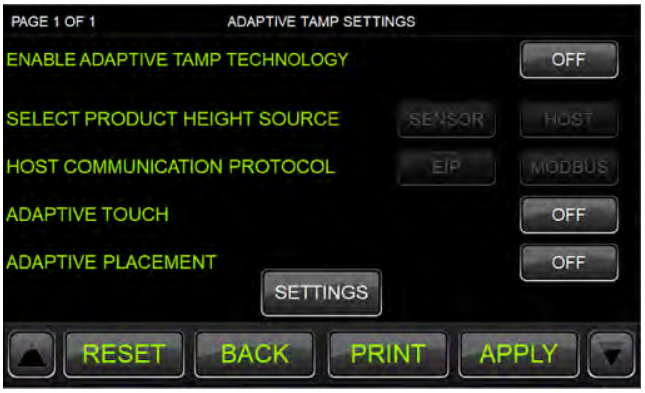
NOTE: Once all the values have been set as described above, press SUBMIT button to enter those changes into the system.The Panther Predator RELOADS all the values in the display whenever the system is reset via the RESET key or an external RESET.

6. Make sure there is nothing under the tamp assembly and APPLY to cycle the applicator.
7. The applicator should move 10” downward, and then return to the home position.

NOTE: The above parameters are known to function for a unit that has no mechanical issues. If the applicator does not move the distance set in the display, the TAMP THRESHOLD could be set too low. Try adjusting the TAMP THRESHOLD value up in 10% increments until the applicator moves the correct distance.

4.13 Adaptive Tamp Settings

This option allows the system to adapt to varying height products. The height of the product can obtained either through purchasing this option, in which case the system will be supplied with an ultrasonic sensor, or through an upstream host sending the height data via ethernet I/O (Ethernet I/P or Modbus). To enable this setting simply turn ON the Adaptive Tamp Technology setting. Once this is enabled a series of options will appear allowing the user to select how the height data will be transmitted to the system.



The user must choose either the sensor or host as the source of the height data. If “host” is chosen the user will be given the option of which protocol will be used to transmit the height. Either EIP or Modbus must be chosen in this case. Once you have selected where the carton height data will come from, you will be able to enable the following settings (note: the settings can be turned on individually or together):

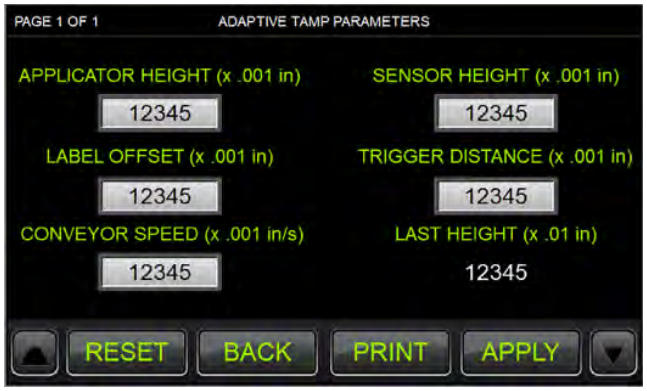
Adaptive Touch
This will cause the system to adapt the stroke length dynamically to the height of the carton. The system will move away from home at the APPLICATOR SPEED set in the SERVO SETTINGS screen. Once it gets to the CONTACT ZONE, the system will decelerate to the SECONDARY SPEED. This allows the system to move quickly for most of the stroke and then slow down prior to contact so that boxes are not contacted so hard.

EXAMPLE:
APPLICATOR SPEED = 100000 (100 IPS), CONTACT ZONE = 2000 (2”), SECONDARY SPEED = 50000 (50 IPS).

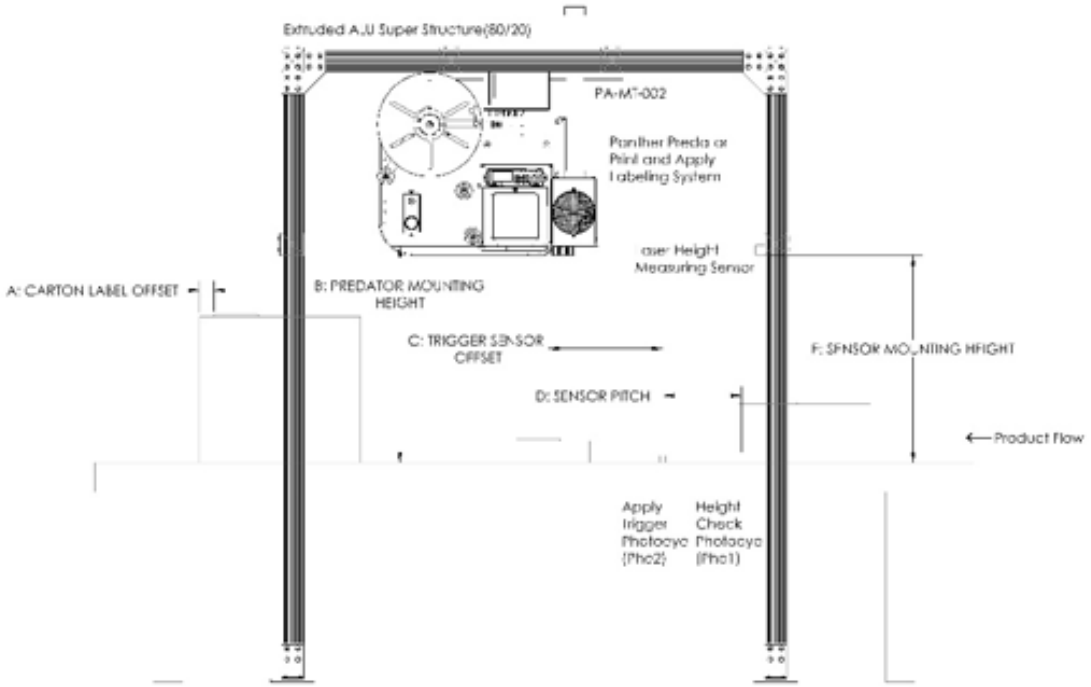
When given the height of the carton, the system will move at 100 inches/second until it is within 2” of the product and then slow down to 50 inches/second until it contacts the product.

Adaptive Placement
This will cause the system to use the height provided (either by sensor or via a host system) to place the label a consistent distance from the leading edge of the carton, independent of the height of that carton. See the diagram on the next page for additional details.

Once you have selected the data acquisition method and what you are going to use this data for (either adaptive touch, adaptive placement or both), a SETTINGS button will appear at the bottom of the page. Press this button to enter the necessary parameters for the system to operate.



The settings page will only show the relevant settings for the application you have selected (for instance, if you are receiving the data from a host system, the sensor height field will not appear, because you do not have a sensor). These parameters are shown in graphic detail in the following diagram and described in detail below.



A. Carton Label Offset
This is the distance from the leading edge of the box where the label will be applied. A Carton Label Offset of 0 will place the leading edge of the label on the leading edge of the box.

B. Predator Mounting Height
This is the height of the machine as measured between the surface of the tamp head and the surface of the conveyor. Your machine needs to be mounted a minimum of 4 inches above the tallest box you plan on applying a label to.

C. Trigger Sensor Offset
This is the distance measured between where the product is first detected by the trigger eye and the point at which the label is applied (such that the entire label is on the box). The trigger eye must be placed a minimum distance away from the application point to allow the applicator to apply to the lowest point (minimum delay time). To calculate this minimum distance you will need to solve the following equation:

With Adaptive Touch disabled:

*Minimum Distance = (α+(MachineHeight-(2α/ApplicatorSpeed))/ApplicatorSpeed)) * ConveyorSpeed*

Where: α = Applicator Speed/6666

With Adaptive Touch enabled:

Minimum Distance = (α+(((MachineHeight-ContactZone)-(2α/ApplicatorSpeed))/ApplicatorSpeed) + β

*+ ((ContactZone-(2β/SecondarySpeed))/SecondarySpeed)) * ConveyorSpeed*

Where: α = Applicator Speed/6666
β = (((ApplicatorSpeed+SecondarySpeed)/2)) / 6666

NOTE: All Speeds are in inches/second and all distances are in inches

NOTE: A formula sheet is located on the Distribution CD provided with your manual. This will automatically perform these calculations for you. Please reference this document when setting up your system.

D. Sensor Pitch
This is the distance between where the product is first detected by the Height Check Photoeye and where the product is first detected by the Apply Trigger Photoeye. This measurement is used to calculate the conveyor speed when this speed is unknown.

E. Sensor Mounting Height
This is the distance between the bottom of the ultra-sonic sensor and the surface of the conveyor. The ultra-sonic sensor needs to be mounted a minimum distance of 8” above the tallest product that will be labeled.

Additional Notes
1. The Height Measurement Photoeye needs to be placed downstream from the Height Measurement Sensor (~2” – 3”). This will ensure that that when the measurement is taken the box is below the sensor.
2. The Apply Trigger Photoeye must be downstream from the Height Measurement Photoeye. This ensures a height is measured and a delay time is calculated prior to the Panther being triggered.
3. If the host system is sending the height, they must first fill the carton height register and then transmit the carton height submit signal via the appropriate register. Once they do this, they can then send the trigger signal.
4. Host triggering will need to be sent at a consistent point upstream of the system, that conforms the minimum distance equations noted above.

The basic operational flow of the Adaptive Placement System is as follows (for simplicity we will assume the height is coming from an ultrasonic sensor connected to the Panther Predator

1. Carton passes underneath ultrasonic sensor.
2. Carton triggers height detection photoeye, ultrasonic sensor measures the distance to the carton.
3. Panther determines the distance it needs to stroke to reach the box.
4. Carton triggers application photoeye.
5. Based upon the parameters entered in the Adaptive Tamp Settings screen, the system calculates the appropriate delay time needed to place the carton on the box in the spot desired.

5.0 DISPLAY INDICATORS

Status Indicators

1. If the labels are low or the ribbon (if used) is low, the respective lamp within the status indicator bar on the home screen will illuminate.
2. If there is a major fault or error on the machine the ERROR indicator on the main screen will illuminate. In addition to the ERROR indicator the RESET key will turn RED on all screens within the Predator display.
3. If all errors are disabled, a warning will appear below the Panther Logo on the home screen.
4. If the machine is placed in Bypass Mode, a warning will appear below the Panther Logo on the home screen.
5. If the machine is placed into Auto Print & Apply Mode or Auto Cycle Mode a warning will appear below the Panther Logo on the home screen.

6.0 DISPLAY BUTTONS

RESET Press to reset a major fault. Also provides cycle reset.

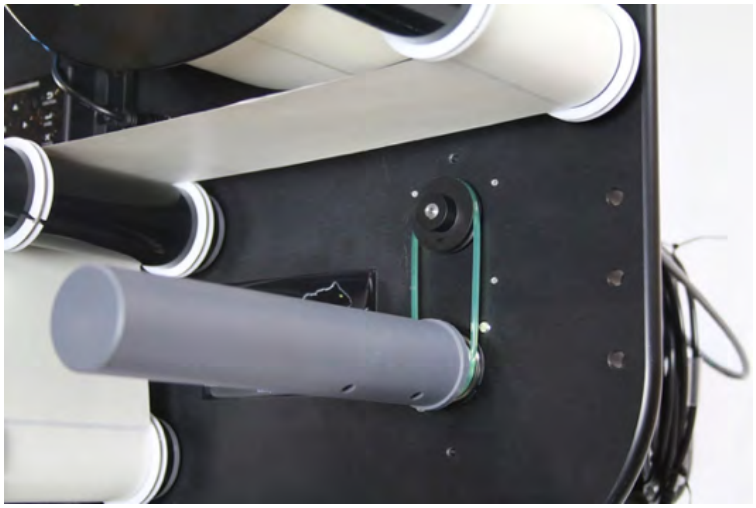
HOME Press to return to the main screen

PRINT FORCES on the “PRINT NOW” signal to the printer regardless of the system condition (Print Engine must have data and ONLINE or not in PAUSE mode to print a label). Also used to stage the initial label for APPLY THEN PRINT MODE printing.

APPLY Cycles the applicator if there are no errors.

7.0 WASTE TAKE-UP SYSTEM

The Panther Predator system utilizes a constant tension waste take up system. The “waste” is the backing liner or carrier for the label stock that is discarded when the label media is changed. This waste take-up system utilizes a 115 VAC electric motor rated for continuous duty. The motor is fused independently by a 5 Amp fuse located on the solid state relay (SSR) located inside the main control box. Using a simple O-ring drive system, the take-up is allowed to “slip” when the printer is not feeding or printing labels. This is accomplished by driving the belt pulley in the following picture.



The take-up motor is activated initially when the Print Engine motor turns on, when it is printing, or feeding a label. The take-up motor is turned off after there is no activity from the printer for an extended period of time. The only wear item in the take-up system is the O-ring belt that is readily available from most any industrial supplier. Changing this drive “belt” requires no tools. It is recommended that the entire system be powered OFF prior to changing the drive belt (the take up assembly is now provided with an aluminum finger guard for safety).

8.0 ERROR RECOVERY

When the Panther Predator encounters an error, the “ERROR” button will light and a buzzer will sound. If the problem is corrected, pressing the RESET key will reset the error and the buzzer will turn off. If the problem has not been corrected and the RESET key is pressed, only the alarm will silence.

Follow the instructions on the screen for solutions to errors. You can also refer to the troubleshooting guide found later in this manual.

9.0 MACHINE OPERATION

In order for the print and apply system to function it must have the following:

1. Power turned ON
2. Label Format Data in printer's memory (unless DISPENSER MODE is active)
3. Printer Online & Ready

Once the conditions are met and the machine has no errors, blocking the product photoeye (trigger signal may also come from a host system) will cause the machine to cycle (you may need to stage the first label onto the applicator head by pressing the PRINT button on the display prior to triggering the product photo cell).

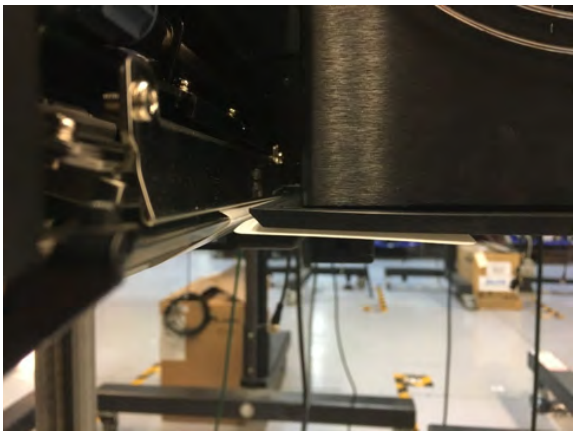
A typical machine cycle is as follows:

1. Data is downloaded to the printer. This can be either one format or a "batch" of formats. (Up to 999999 labels can be downloaded.)
   If being used in dispenser mode, no data will need to be transferred to the printer, simply pressing print key will cause the machine to dispense a blank/pre-printer label.
2. The product to be labeled travels down the conveyor system and blocks the "Product Detect" photocell (or a trigger signal is received from a host PLC).
3. Depending on how your system is configured, the Panther P9 Predator will cycle by either printing the label and then applying it -or- applies the label and then prints the next label.

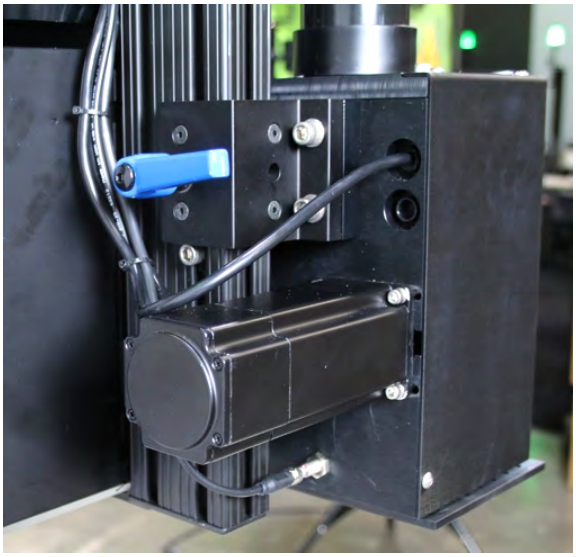
There are several available handshaking status bits provided by the Panther Predator. For a complete list, please see the addendum document that details how to communicate with the Panther via an external host. There should also be a document describing what each status bit means and how to use this bit in an application.

10.0 TAMP HEAD ADJUSTMENT

The below image represents a properly adjusted applicator tamp head. The bracketing that holds the tamp head into place should allow you to adjust the tamp position along the X and Y axes.



X-Axis Adjustment
This adjustment is made by loosening the (2) 5/16 – 18 bolts on the back of the applicator main plate. This will allow you to move the tamp head closer to/away from the peel bar of the print engine. The ideal location for the tamp head is about 1/8" away from the peel point on the print engine.



Y-Axis Adjustment
This adjustment is made by loosening the handle clamp assembly that locks the applicator in place on the 8020 mount. Once the handle is loosened the entire applicator assembly can be raised vertically. This is useful when servicing the print engine or clearing jams.

There is a 5/16-18 bolt attached to a t-nut that is placed in position so that the applicator rack can be repeatedly placed in the correct location for application. This nut should be placed such that the applicator head surface is ~1/16" lower than the peel position of the labels. This will force the labels to break free from the liner when fed onto the tamp head.

10.1 ELECTRIC APPLICATOR RACK CHANGE-OVER

Before doing any kind of maintenance on your Panther P9 Predator, ensure the system is powered off. Please make sure that you are following all your company safety procedures including conveyor lock-out where applicable.

1. Power **OFF** the Panther P9 Predator system!

2. Grasp the TAMP surface and pull it away from the vacuum box until the rack is no longer meshed with the pinion gear (the rack and tamp assembly should now be free). If the conveyor is too close and you cannot remove the applicator from the bottom. Raise the entire applicator assembly, by loosening the blue handle on the back of the 8020 mount arm. Slide the applicator assembly vertical until the tamp arm can be safely removed.

3. Remove the tamp head from the rack assembly if you have not already done so by removing the two #10-32 flat-head screws.

4. Fasten the tamp head to the new rack assembly.

5. Push the rack into the bearing guides and mesh the rack properly with the pinion gear. Physically move the applicator to the HOME position by pressing on the tamp surface until it comes into contact with the vacuum box.

6. Power **ON** the Panther System

7. Check to see that the Applicator HOME Sensor is ON by observing the sensor LED or by utilizing the "SYSTEM INPUT" screen under the I/O menu on the Panther display.

8. Press F1 again to RESET (or "teach") the Panther P9 Predator the HOME position.

9. Ensure parameters for the applicator are set properly.

10. Press F4 to "Cycle-Test" the applicator.

11.0 LOW LABEL SENSOR ADJUSTMENT

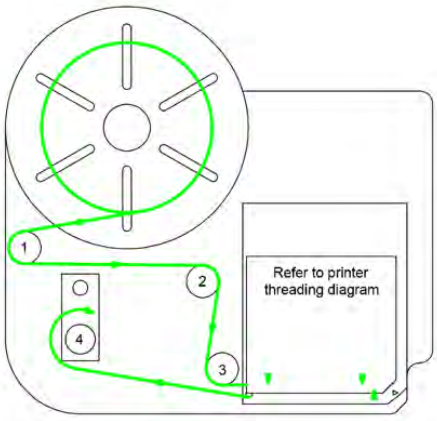
The low label sensor on the Panther Predator System is pre-set from the factory. However there is a sensitivity/gain adjustment for the sensor that allows the user to make the sensor trigger sooner or later based on the roll size.

NOTE: Be VERY careful with this potentiometer. It's is a ¾ turn potentiometer, which means that you can only turn it 270 degrees from minimum to maximum, after that it is broken and will not operate correctly. Multiple rotations will render it virtually useless.

The potentiometer is located on the top of the sensor. By turning the potentiometer clockwise you increase the depth that the sensor sees, making the sensor turn on later (smaller diameter roll). By turning counter-clockwise you decrease the distance it sees, making it come on sooner. The best way to get this distance set is to use a roll of labels that approximately matches the diameter of the roll when you want the sensor to come on. Then use a larger roll to simulate a full roll (does not have to be full, just large enough to trigger the sensor) to verify that the sensor turns off on a larger roll. Adjust the gain so that the status lights on the side of the sensor get just above the red bars on the smaller roll. Then dial it back so that the orange light on top just goes off. Test that placing the larger roll increases the status lights into the yellow or green levels and that the orange light is ON.

12.0 MEDIA CHANGE

The Panther Predator system is supplied with a label media routing label similar to the picture below, (located on the supply hub reel) that shows how to properly route label material through the Panther Predator system. Refer to the printer diagram for instructions on how to properly load media into your specific print engine.



First, remove labels from the first four feet of label stock so that only the label backing or "liner" remains. (We will refer to this backing material as the just the "liner".) The label roll is placed on the let-off supply hub and threaded around the dancer arm/brake (1). From there it continues past the second (2) and third (3) idler roller. Be sure to properly adjust the guide collars on the brake and idler rollers for the label width you are using. The guide collars/idler rollers simply route the paper to the printer; the print engine guides are responsible for actually maintaining proper label registration inside the print engine/dispenser unit.

Secure the paper within the print engine with the stripped liner exposed outside of the printer. From there the liner continues onto the take up spindle (4) where the liner is simply wrapped around the take up spindle. Do NOT use any tape or labels to stick the liner to the spindle. Simply wrapping the liner around the spindle is sufficient to secure the paper. Applying any type of adhesive to this spindle will only make waste removal difficult.

Waste liner removal is accomplished by turning the spindle in the opposite direction of normal rotation when the motor is running. Do this for three or four revolutions or until the center of the roll becomes loose. Pull the roll off and discard the waste.

CAUTION: Backing material (liner) can be very slippery when left lying on the floor. Discard properly to avoid injury.

13.0 PREVENTIVE MAINTENANCE

1. Your Panther system was designed for minimal maintenance and adjustment requirements. Periodically your maintenance staff or equipment operators should do the following:

2. Ensure the equipment's AC power is turned OFF before performing any kind of maintenance on your Panther system. This includes the print engine. (Follow in-plant lock-out/tag-out procedures for safety.)

3. Each time the labels are changed, clean the Print Engine print head/rollers and the applicator tamp head. Cleaning the print head ensures the print quality remains constant. Use isopropyl or denatured alcohol to clean these components. Ensure these chemicals can be used within your facility prior to use! Follow MSDS documentation for use of these and all chemicals for safe handling.

4. Make sure the applicator surface or tamp head is clean and free from any adhesive build-up.

5. Make sure there is no debris in the applicator rack's teeth or fan housing.

6. Clean the Print Engine feed rollers monthly or as necessary when paper dust accumulates on the feed rollers. This affects traction for the paper feed.

7. Check the paper supply, take-up, and dancer arm assembly for unnecessary drag. Too much drag in the label delivery and waste take-up system can shorten the life of the print engine's drive components.

8. Properly follow the print engine manufacturer's recommendations for print engine routine maintenance.

PREVENTATIVE MAINTENANCE SCHEDULE

EVERY LABEL OR RIBBON CHANGE	
Clean Print Head	Use alcohol wipe (denatured or isopropyl) and swipe the print head and printer platen roller.
Check Inside of Print Engine	Make sure rollers are free and clear of debris and paper jams. Make sure gap sensor does not have labels blocking it. Check for adhesive build up on peel bar and nip assembly
Check Applicator Tamp Head/ Applicator Rack	Check to make sure labels are not stuck on the tamp head/in the applicator rack's teeth. Clean with isopropyl alcohol or plastic safe adhesive remover

EVERY SHIFT	
Clean Tamp Head	Use isopropyl alcohol or a plastic safe adhesive remover. Apply to cleaning rag and clear off any adhesive or label remnants left from last shift. Be sure to clean the head on all sides.
Check Rollers Inside Print Engine	With Printer turned OFF check rollers inside print engine for any debris including adhesive build up and label jams. Check for cuts gouges, or wear to the platen rollers. *NOTE: NEVER USE SHARP OBJECTS OR KNIVES TO CLEAR ROLLERS, most paper jams can be cleared by pulling on one end of the jam. Cutting the roller will adversely affect the print quality!*
Clean Take-Up Roller (May be done at label change)	Use cleaner to scrape off labels used to hold waste take-up on reel. If necessary remove roller (via two set screws) and soak in water to remove build up. Do not use labels to affix backing to take-up roller. Simply wrap the backing material around itself until tight.

MONTHLY	
Check Sensors (both on Predator and within the Print Engine)	Make sure label gap sensor (within Print Engine) is free of label buildup/ blockage. Check to make sure low label sensor is functioning/connected to the control box and not blocked. Make sure home sensor is functioning (i.e. causes an error when tamp arm is held away from home) and not blocked by any labels or debris.
Check that the applicator assembly is tightened properly and motor is seated properly with the applicator rack	Make sure applicator arm extends as desired and make sure label vacuum holds label securely by feeding a label onto the tamp head. The vacuum fan may need to be blown out on occasion to ensure too much dust doesn't inhibit fan functionality. Follow the electric applicator preventative maintenance document for ensuring that the applicator guide collar set screws are tight, the motor is properly seated with the applicator rack and that the tamp head is positioned properly.
Check Take-Up Belt	Make sure take-up roller is functioning, and belt is tight and secure with no tears along its surface. Make sure safety guard is securely in place around take-up pulleysSimply wrap the backing material around itself until tight.
Check Tower Lamp	Make sure bulbs are working and are not blown out.
Check Electrical System	Make sure user display is functioning correctly, and that touch screen is reactive to touch and accurate to touch location. Check fuse in fuse tray. Check AC plug and look for frayed or loose connections. Check motor connections that extend from applicator motor to ensure they are secure.
Check Mechanical Positioning	Ensure that labels feed evenly onto tamp head by checking the print head alignment with the peel bar of the printer. Make sure all applicator location adjustment bolts are tight. Make sure mounting bolts are tight and machine has not mechanically shifted. Check pitch and yaw of machine and make sure tamp head aligns with your product properly. Check to make sure all bolts and screws are securely fastened and in place.

MONTHLY OR QUARTERLY BASED ON SYSTEM USAGE	
Swap out Print Engine	Swap print engines before you have a downtime situation. First, record all print engine settings. Remove installed print engine by disconnecting the power cable, communication cable, and the Printer/Panther interface cable from the back of the print engine. Remove the four bolts securing the print engine and pull it out of the machine. Install back-up print engine by reversing the order of these instructions. Make sure the settings of the new print engine match those of the old. Bench inspect the old print engine for wear items like belts, platen/feed rollers. Send the print engine in for service to Panther Industries as needed. Refer to print engine repair documentation for more information.

13.1 Electric Applicator Preventative Maintenance

A separate preventative maintenance document has been created for the electric applicator portion of your system. This document is located on your distribution DVD that came with your system's manual. This maintenance should be performed every 2 – 3 months to ensure the applicator is in good working condition.

14.0 TROUBLESHOOTING

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
1	**WARNING: RIBBON LOW. CHECK OR REPLACE PRINTER RIBBON CLASSIFICATION: W (WARNING)**	1. Indicates that the thermal transfer ribbon inside your print engine is getting low. (The print engine has activated the RIBBON LOW signal which is passed to the Panther via a discrete signal through the applicator interface cable)	1. Replace thermal transfer ribbon inside print engine 2. If error is coming on erroneously check the appropriate print engine maintenance manual for adjustment/ replacement. 3. Check the Panther PRINTER screen to see if the RIBBON LOW input is ON. 4. Check to ensure that the applicator interface cable connecting the Panther Control Box to the print engine is securely connected and not damaged in anyway. 5. Replace the print engine with your backup unit.
2	**WARNING: LABELS LOW. CHECK OR REPLACE MEDIA CLASSIFICATION: W (WARNING)**	1. Labels are getting low and will soon need to be replaced. 2. Low Label Sensor has reached its sensitivity level.	1. Replace labels. 2. Adjust sensitivity of Low Label Sensor to desired proximity. Factory preset to activate when there is approximately 3/8” of labels remaining on the label core.
3	**ERROR: PRINTER ERROR. CHECK PRINTER STATUS. CLASSIFICATION: P (PRINTER)**	1. The print engine has an error. (The print engine has activated the ERROR signal which is passed to the Panther via a discrete signal through the applicator interface cable)	1. Check print engine display for error message. 2. Consult appropriate maintenance manual for solutions. 3. Check Panther PRINTER screen to see if print engine ERROR input is ON (NOTE: print engine Error is usually an active high signal, OFF when error is present). 4. Check applicator interface cable and ensure that it is plugged in correctly to the print engine. 5. Replace the print engine with your back up unit.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
4	**ERROR:** **RIBBON OUT.** **REPLACE PRINTER RIBBON.** **CLASSIFICATION: C (CONSUMABLES)**	1. The print engine indicates your thermal transfer ribbon is out. (The print engine has activated the RIBBON OUT signal which is passed to the Panther via a discrete signal through the print engine interface cable)	1. Replace thermal transfer ribbon inside print engine. 2. If you have recently replaced the thermal transfer ribbon, remove the thermal transfer ribbon and rethread the thermal transfer ribbon through system (be sure to follow print engine ribbon threading diagram located on the inside cover of the print engine). 3. If using DIRECT THERMAL labels, check print engine settings to ensure that you do not have THERMAL TRANSFER selected. 4. Check Panther PRINTER screen to see if the RIBBON OUT input is on. 5. Check applicator interface cable and ensure that it is plugged in correctly to the print engine. 6. Replace the print engine with your backup unit. 7. Consult appropriate print engine Maintenance/Service manual for additional solutions.
5	**ERROR:** **LABELS OUT.** **REPLACE LABELS.** **CLASSIFICATION: C (CONSUMABLES)**	1. The print engine indicates that there are no labels in the system. (The print engine has activated the LABEL OUT signal which is passed to the Panther via a discrete signal through the applicator interface cable)	1. Replace your labels. 2. If you have recently replaced your labels, remove labels and rethread them through the print engine (be sure to follow supplied diagram located on the inside cover of the print engine). 3. Check Panther PRINTER screen to see if the LABEL OUT input is on. 4. Check applicator interface cable and ensure that it is plugged in correctly to the print engine. 5. Consult appropriate maintenance manual for additional solutions.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
6	**ERROR:** **PRINTER POWER OFF.** **CHECK PRINTER POWER AND INTERFACE CONNECTION.** **CLASSIFICATION: P (PRINTER)**	1. The print engine is OFF. 2. Panther is not receiving signal that print engine is ON. (The print engine has de-activated the +VOLTAGE signal which is passed to the Panther via a discrete signal through the applicator interface cable)	1. Turn print engine ON. 2. Check applicator interface cable and ensure that it is plugged in correctly to the print engine. 3. Check Panther PRINTER STATUS screen to see if +24VDC input is ON. 4. Replace the print engine with your back up unit. 5. If print engine does not power on, check print engine fuse, if necessary call Panther Service at 800-530-6018, ext. 120 for replacement part information.
7	**ERROR:** **NO PRINTER MODEL SELECTED!** **GO TO SYSTEM CONTROL TO SELECT PRINTER.** **CLASSIFICATION: S (SYSTEM)**	1. No print engine model is selected in the Panther SYSTEM CONTROL screen.	1. Go to the Panther SETTINGS screen and select the appropriate print engine manufacturer (may be located under PRINTER SETTINGS in icon mode).

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
8	**ERROR: APPLICATOR NOT HOME, CHECK APPL AIR PRESSURE AND APPL HOME SENSOR.** **CLASSIFICATION: S (SYSTEM)**	1. Applicator is not in the HOME position. 2. The applicator has fallen or been pushed away from the HOME position and the APPLICATOR HOME timer has timed out. 3. Applicator HOME SENSOR is not functioning properly. 4. Applicator is jammed away from the HOME position.	1. Return the applicator to the HOME position and ensure that the HOME sensor LED turns ON. 2. Check "Applicator 1 Home input on the SYSTEM INPUTS screen (located under I/O) to see if the signal is getting to the Panther Controller (PLC) 3. Remove any obstructions preventing the applicator from returning HOME. 4. Ensure the motor is seated properly with the applicator rack. 5. Check the set screws on the applicator gear to ensure they are tight and centered on the flat spot on the motor shaft. 6. Check connection to applicator HOME sensor. 7. Repair or replace applicator HOME sensor. 8. Cycle power to the whole system and wait for the applicator to complete the homing process.
9	**ERROR: PRINTING WHILE APPL IS NOT HOME. CHECK PROD SPACING.** **CLASSIFICATION: S (SYSTEM)**	1. The print engine has been signaled to print before the applicator was in the HOME position. *NOTE: This error should never take place with the interlocking that the Panther does. It can happen due to "jogging" the system via the F3 PRINT and F4 APPLY buttons on the Panther display.*	1. Return the applicator to the HOME position then reprint the label. 2. If you applicator appears to be HOME, check your applicator HOME sensor and ensure that it is being made (LED is ON). Check to make sure that the "Applicator 1 Home" input is ON in the Panther SYSTEM INPUTS screen. This signal should be ON prior to the PRINT NOW (PRINTER screen) output being signaled. 3. Check "Enable Applicator Home Error" Status in the Panther SETTINGS screen. 4. Double check the print engine settings to ensure print engine will not print a label unless triggered to do so by the Panther system.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
10	**ERROR: PRODUCT SENSOR TRIGGERED BEFORE LABEL READY TO APPLY. PRESS F1 THEN F3 KEY.** **CLASSIFICATION: E (EXTERNAL)**	1. You have triggered the Panther (either via photoeye or external trigger) to apply a label prior to the print process being complete. 2. If your product is reflective or has been stretch wrapped ensure that your photoeye is not "double triggering" off of the product.	1. Ensure that the product spacing is great enough to allow the print process to finish. This may require physically spacing out the products more or slowing down your conveyor speed. 2. Ensure that the host system has provided data to the print engine so the Panther system can perform the PRINT and APPLY function. 3. Make sure a label is READY and staged on the applicator head (if necessary press the PRINT key to print the label) before running the product (PRINT FIRST THEN APPLY OFF). 4. Increase your print speed in order to lower the printing process time. 5. Check that your data transmission time is fast enough in order to keep up with your product speed. 6. To prevent or compensate for double triggering, increase the PHOTOEYE DEBOUNCE timer in the Panther TIMER screen. 7. If the system is being triggered by an external source (not the product detect photocell) make sure that the signal does not trigger more than once (Can be checked via EXTERNAL TRIGGER input on the Panther INPUT screen). 8. It may be necessary to take corrective actions on your photoeye positioning or your PRINT/APPLY cycle time. Adjustments for the total cycle time can include: Print Speed, Data Transmission Time, PRINT DELAY, APPLY DELAY, APPLY DWELL, and also the Applicator Air Pressure. 9. If the system was working and all of a sudden you encounter this error, look closely at format changes, print speed changes, data transmission time, or air pressure changes.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
12	**ERROR: PRODUCT JAM. PHOTOEYE IS BLOCKED. CLASSIFICATION: E (EXTERNAL)**	1. The photoeye attached to the Panther has been blocked for an extended amount of time.	1. Remove the product blocking the photoeye and press the RESET key. 2. Ensure that the connection to the photoeye is secure. 3. Check the PRODUCT DETECT 1 status on the Panther INPUT screen.
14	**(OPTIONAL HARDWARE REQUIRED) ERROR: BAD OR NO SCAN. MAX BAD SCANS REACHED. PRESS F1 KEY. CLASSIFICATION: S (SYSTEM)**	1. The setpoint for the maximum number of bad scans has been exceeded.	1. Press the RESET key to reset the BAD READ COUNTER to "0". 2. Check the print engine media. Has the print quality suddenly diminished? Replace the thermal transfer ribbon or label stock. 3. Make sure that the scanner is properly mounted and has not been bumped or mis-aligned. 4. If necessary increase the maximum number of bad scans allowed by your system. 5. Ensure that your scanner settings (SCANNER DWELL, SCAN TRIG DELAY) are set appropriately (in the Panther TIMERS screen) for your application. 6. Replace the scanner with your backup unit. 7. Consult your scanner maintenance manual for troubleshooting tips concerning your scanner.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
15	**ERROR:** **NO APPLICATOR MOVEMENT** **CLASSIFICATION: S (SYSTEM)**	1. The applicator motor was triggered but there was no movement of the applicator, or the applicator HOME sensor did not change states from ON to OFF.	1. Check APPLICATOR DISTANCE/ SPEED settings under SERVO MOTOR SETTINGS to ensure they are set properly. 2. Check that applicator moves a sufficient distance when triggered to allow home sensor to switch states. 3. Check the APPL HOME SENSOR on the Panther SYSTEM INPUTS screen and ensure that when the applicator moves the HOME sensor switches between ON and OFF. 4. Check that the motor is properly seated with the applicator rack and that no teeth are damaged. 5. Check that the set screws are tight on the applicator gear and that they are secured on the flat spots on motor shaft.
16	**ERROR:** **PRINT REQUEST WITH PRINT ENGINE OFFLINE OR NO DATA. CHECK STATUS – RESEND DATA.** **CLASSIFICATION: E (EXTERNAL)**	1. This error occurs when the print engine is triggered to print a label when either the print engine was turned offline (paused) or had no data or format to print.	1. Check your print engine status and ensure that the print engine is not paused or offline. 2. Check to see if you have any data in your print engine. You may not have completely transmitted your label format to the print engine. Resend the data and try to print the label again. 3. Check the communication settings on your print engine and the host computer from which you are sending the data. If you are using a serial connection you may need to add a null modem or a crossover cable to ensure proper communication. 4. If you are using a dispenser, make sure that DISPENSER MODE is selected

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
17	**ERROR:** **PRINTER HAS DATA IN BUFFER. CHECK DATA TIMING AND BATCH MODE STATUS** **CLASSIFICATION: S (SYSTEM)**	1. There is still a format in the print engine memory (DATA READY bit from print engine is being signaled) when the applicator returns to the HOME position and the BATCH MODE option is not selected in your SETTINGS screen.	1. You cannot have memory in the buffer when the applicator returns home unless you have BATCH MODE enabled (ON). 2. Your labeling operation may be out of sequence! Clear the line and clear the print engine data buffer. 3. If you are intending to send a batch of labels (more than one format) to the print engine go to the Panther SETTINGS screen and turn BATCH MODE to ON. 4. If you are not intending to send a batch of labels to the print engine ensure that you have printed and applied the label in the print engine's memory prior to sending it the next label's data. Check your data transmission timing to see if something has changed.
18	**ERROR:** **LABEL REQUEST WITH A LABEL ALREADY ON THE APPLICATOR HEAD.** **PRESS F1** **CLASSIFICATION: S (SYSTEM)**	1. The print engine was triggered to print a label and there is already a label on the tamp head, or the PLC believes there is a label on the tamp head.	1. This usually occurs during "jogging" of the machine. Someone has probably pressed the PRINT key while there was already a label on the applicator head. Press RESET to reset this error. 2. If you have a LOTAR (Label on Tamp and Ready) Sensor: You can check the Panther INPUTS screen to see if the LOTAR signal is ON. This signal comes on after the print cycle is complete and remains on until the applicator has cycled.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
19	**ERROR:** **NO RESPONSE FROM PRINT ENGINE. CHECK PRINT ENGINE STATUS AND RESEND DATA** **CLASSIFICATION: P (PRINTER)**	1. This error has been given because the Panther has requested action (print or feed) from the print engine and did not receive a response from the print engine.	1. Make sure that the printer has data in it by looking at the print engine display. 2. Press the PRINT button. If the print engine prints the label and this error still occurs, the signal from the print engine to the Panther is lost. This may be due to the applicator interface cable between the Panther and the print engine, or the printer configuration may be incorrect for use in an applicator. Check the print engine configuration. 3. Check to make sure the applicator interface cable is securely connected to the back of the print engine. 4. Hit FEED (or PRINT key if you have data in the printer) on the printer and watch the PRINTER INPUTS screen. Ensure that PRINTING NOW signal from the print engine turns ON for the duration of the Label Feed or Print. 5. Ensure that you have the correct print engine selected in the SETTINGS screen. 6. Replace the print engine with your spare/backup unit. (If purchased) 7. The print engine may be defective. It may have blown a fuse on the applicator control board. Call Panther Tech Support at 800-530-6018, ext.120

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
20	**(OPTIONAL HARDWARE REQUIRED)** **ERROR: NO RESPONSE FROM SCANNER. CHECK SCANNER CONNECTION OR DISABLE SCANNER.** **CLASSIFICATION: S (SYSTEM)**	1. You have requested action from the scanner and the Panther did not receive a response back from the scanner.	1. Check the LED on the scanner to see if it is powered ON. 2. Check the cable that connects the scanner to the Panther and ensure that the connection is secure and the cable is not damaged in anyway. 3. Check to make sure that you have SCANNER ENABLE turned ON in the Panther SETTINGS screen. If you are NOT using a scanner for your application, or there is no barcode scanner present, turn this feature OFF in the SETTINGS screen. 4. Check that each time you cycle the applicator the scanner turns ON. 5. Check the Panther SYSTEM INPUTS screen and make sure that when the scanner turns ON that you are receiving either a SCAN GOOD READ input or a SCAN BAD READ input. 6. If it is a new or replacement scanner, the configuration of the scanner may be incorrect. Call Panther Tech Support at 800-530-6018 ext120
22	**(OPTIONAL HARDWARE REQUIRED)** **ERROR: LABEL NOT ON TAMP HEAD. CHECK LABEL ON TAMP SENSOR** **CLASSIFICATION: S (SYSTEM)**	1. You have requested the applicator to apply when the Label On Tamp Sensor indicates that there no label on the tamp head.	1. Press the RESET key. Reprint the last label and cycle the applicator. 2. Check the Panther SYSTEM INPUTS screen and see if your LOTAR sensor signal is OFF. 3. While watching the SYSTEM INPUTS screen, Check the LOTAR Sensor by feeding a label onto the applicator head and then removing it by hand. It should changes states from OFF to ON to OFF again in this example. You may need to adjust the vacuum sensor if your machine is so equipped. Call Panther Tech Support at 800-530-6018 ext 120

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
23	**(OPTIONAL HARDWARE REQUIRED)** **ERROR: LABEL IS ON TAMP HEAD. CHECK LABEL ON TAMP SENSOR** **CLASSIFICATION: S (SYSTEM)**	1. The applicator has returned back to the home position and the Label On Tamp Sensor indicates there is still a label on the tamp head.	1. Ensure that you are applying the label to the product and that after each application the Label On Tamp Sensor is no longer made. 2. Check the Panther SYSTEM INPUTS screen and see if your LOTAR (Label On Tamp And Ready) sensor signal is ON. 3. While watching the SYSTEM INPUTS screen, Check the LOTAR Sensor by feeding a label onto the applicator head and then removing it by hand. It should changes states from OFF to ON to OFF again in this example. You may need to adjust the vacuum sensor if your machine is so equipped. Call Panther Tech Support at 800-530-6018 ext 120
24	**ERROR: NO RESPONSE FROM SERVO MOTOR. CHECK MOTOR CONNECTION.** **CLASSIFICATION: S (SYSTEM)**	1. The applicator motor was given a signal to apply and did not return the SERVO RUNNING signal. 2. The applicator motor has been disconnected from the Predator control box.	1. Check the SYSTEM INPUTS screen to see if the SERVO RUNNING input turn on when the applicator is moving. 2. Ensure the cable connecting the applicator motor to the Predator control box is securely connected.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
25	**ERROR: SERVO MOTOR ERROR OR MOTOR HAS MOVED UNEXPECTEDLY CLASSIFICATION: S (SYSTEM)**	1. The applicator has been moved away from the home position by hand. 2. The servo motor has gone into an error	1. Return the applicator to the home position and press the RESET key. 2. Check the status of the SERVO ALARM input in the SYSTEM INPUTS screen. This should be ON when there is no error preset and OFF when a servo motor error occurs. 3. Check that the applicator is in the home position and the home sensor is ON when pressing the RESET to clear this error. 4. Cycle power to the system and let the applicator go through its homing sequence. All errors should be reset. 5. Check servo connections between the motor and the Panther control box. 6. Check I/O connections between servo controller and Panther I/O. 7. Contact Panther technical support at 800-530-6018 ext 120
28	**ERROR: ALL SWING ARM APPLICATION TYPES HAVE BEEN DISABLED. GO TO SWING ARM SETTINGS AND ENABLE ONE OF THE APPLICATION TYPES, OR DISABLE SWING ARM APPLICATION. CLASSIFICATION: S (SYSTEM)**	1. Swing arm type application is enabled, but no application method is selected. 2. A user has disabled front, side and cornerwrap applications.	1. Enable one of the application types in the swing arm settings screen. 2. Disable swing arm type application in the swing arm settings screen.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
29	**ERROR: THE HEIGHT MEASUREMENT SENSOR HAS BEEN DISCONNECTED. CHECK THE SENSOR CONNECTION POINT OR DISABLE PRODUCT HEIGHT MEASURING. PRESS THE RESET KEY TO CONTINUE.** **CLASSIFICATION: S (SYSTEM)**	1. The height sensor has been disconnected from the PLC. 2. The height sensor has failed.	1. Reconnect the height sensor to the Predator system. 2. Disable ADAPTIVE TAMP in the SETTINGS screen. 3. Replace your height sensor.
31	**ERROR: APPLY TRIGGERED BEFORE HEIGHT MEASUREMENT TAKEN. CHECK HEIGHT DETECTION PHOTOEYE OR DISABLE PRODUCT HEIGHT MEASUREMENT. PRESS RESET KEY TO CONTINUE** **CLASSIFICATION: S (SYSTEM)**	1. You have triggered the applicator to apply a label before the height measurement has detected a box. 2. The cables to the height photoeye and the product detect photoeye have been switched. 3. The trigger photoeye or height photoeye is set improperly and is being falsely triggered.	1. Ensure the height photoeye and height sensor are mounted upstream from the panther product detect photoeye. 2. Ensure the correct photoeye cables are plugged into the appropriate photoeye. 3. Ensure the photoeyes' sensitivity levels are set so that they are only seeing products on the conveyor line and not in the background.
33	**ERROR: THE HOST SYSTEM HAS TRANSMITTED AN INVALID CARTON HEIGHT TO THE PANTHER SYSTEM. PRESS THE RESET AND RESUBMIT THE CARTON HEIGHT** **CLASSIFICATION: S (SYSTEM)**	1. The carton height transmitted by the host system was larger than the machine mount height in the ADAPTIVE PLACEMENT settings screen. 2. The carton height submitted by the host system was less than 0.	1. Ensure that you are submitting a carton height that is greater than 0 but less than the machine mount height. 2. If using an ultrasonic sensor to transmit the height, enable SENSOR option in ADAPTIVE TAMP menu. 3. Check to make sure that you have selected the correct communication method in the ADAPTIVE TAMP menu. 4. If not using any height compensation device disable ADAPTIVE PLACEMENT in the SETTINGS screen.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
34	**ERROR: THE APPLICATOR HAS BEEN TRIGGERED TO APPLY BEFORE A CARTON HEIGHT WAS RECEIVED FROM THE HOST SYSTEM. CHECK CARTON HEIGHT TRANSMISSION TIMING AND PRESS RESET.** **CLASSIFICATION: S (SYSTEM)**	1. The applicator was triggered to apply a label and no value has been submitted for the carton height. 2. The carton height submitted was equal to 0.	1. Check carton height transmission timing. a height must be submitted prior to the applicator being triggered to apply. 2. Check communications between the host and the Predator. Ensure network settings allow communication between the two. 3. The carton height value submitted must be greater than 0. Ensure you are transmitting a positive value for the carton height. 4. If you are not transmitting carton heights from a host system, disable HOST in ADAPTIVE TAMP menu.
35	**ERROR: ACTIVE FOLD MECHANISM NOT IN THE HOME POSITION. CHECK AIR PRESSURE SETTINGS AND FOLD HOME SENSOR. PRESS RESET TO CLEAR.** **CLASSIFICATION: S (SYSTEM)**	1. The fold mechanism is not in the home position. 2. The fold home sensor is no longer functioning properly or has become disconnected. 3. The air pressure is insufficient to keep the fold mechanism in the home position. 4. Label material or other debris is preventing the fold mechanism from returning to the home position.	1. Return the fold mechanism to the home position. 2. Ensure that when the fold mechanism is in the home position that the home sensor turns on. 3. Check the SYSTEM INPUTS screen to ensure the PLC is receiving the FOLD HOME input. 4. Check the air pressure at the filter/ regulator to ensure sufficient air pressure is present to return the fold mechanism to the home position.
36	**ERROR: APPLICATOR TRIGGERED DURING FOLD PROCESS. CHECK FOLD DWELL TIME OR PRODUCT SPACING. PRESS RESET TO CLEAR.** **CLASSIFICATION: S (SYSTEM)**	1. The system was triggered to apply a label while the fold mechanism was in motion. 2. There is insufficient space between the products to allow the fold process to complete before the system is triggered. 3. The fold timers are too long and are interfering with the application timing.	1. Change the product spacing to allow more time for the fold process to complete. This may require you to change the gap between products or to slow the conveyor down. 2. Decrease the fold delay or fold dwell timers in the TIMERS screen to speed up the fold process.

ERROR CODE	ERROR SHOWN ON DISPLAY	CAUSE(S)	SOLUTIONS
37	**ERROR: PRINTING PROCESS INITIATED DURING FOLD PROCESS. CHECK FOLD DELAY AND DWELL TIMERS. PRESS RESET TO CLEAR.** **CLASSIFICATION: S (SYSTEM)**	1. The printing process was initiated during the folding application. This is generally initiated by a feed or jog operation from the operator display. 2. If you are in PRINT FIRST THEN APPLY mode, the trigger sequence is happening prematurely. 3. The fold delay/dwell timers are taking too long and the system is being triggered before the fold process can be completed.	1. Change the product spacing to allow more time for the fold process to complete. this may require you to change the gap between products or to slow the conveyor down. 2. Decrease the fold delay or fold dwell timers in the TIMERS screen to speed up the fold process.
38	**ERROR: SERVO COMMUNICATION ERROR. CHECK CAN COMMUNICATION CABLE AND PRESS RESET TO CONTINUE.** **CLASSIFICATION: S (SYSTEM)**	1. The CAN communication cable has become unplugged from the servo controller. 2. The CAN communication cable has been disconnected from the PLC. 3. The connection between the PLC and the servo controller has been interrupted. 4. One of the two devices has lost power.	1. Check that the RJ45 end of the communication cable is securely connected to one of the two can ports on the servo controller. 2. Check the that DB9 end of the communication cable is securely connected to the can port on the PLC. 3. Ensure that the CAN communication cable is not damaged. 4. Check power connections to both the PLC and the servo controller. 5. If there was a brown out, the PLC's communication may have been interrupted. Press RESET to continue.

Further Mechanical and Electrical Troubleshooting

PROBLEM	CAUSE(S)	SOLUTIONS
No Power To Printer *Panther Display does not show an error*	1. The print engine power is not ON.	1. Turn power switch on the print engine to ON position. 2. Check printer power cable from Panther system to the print engine. 3. Check or replace printer fuse, refer to print engine manual. If fuse blows again, replace printer with backup unit. 4. Still No Power: Bypass Panther power by using a "computer" cable and power the printer directly. If this corrects the problem, and the Panther unit is ON and working, there is an electrical problem with the Panther unit. Diagnose power feed to print engine and repair or Call Panther Tech Support at 800-530-6018 ext 120.
No power to entire unit, including print engine *Panther Display does not show an error*	1. The Panther unit is not getting power.	1. Make sure that the plug on the back of the Panther units is fully plugged in. 2. Check the Power switch located next to the plug on the Panther system control box. Switch it to the ON position. 3. Make sure that the outlet that the Panther unit is plugged into is "hot" or "live". Check voltage and polarity. 4. Check or Replace the fuse on the Panther unit. It is located in the "Fuse Drawer" next to the power entry plug that the power cable plugs into. (5 Amp, 120/240VAC Fast Acting).
No Power to Panther system, but print engine is still powered ON	1. The 24VDC Power supply in the Panther system is not providing power to the Panther unit although the 120VAC circuit to the printer is still "hot".	1. Call Maintenance or a qualified electrician. Replace the 24VDC, 2.5A power supply unit with the exact part number and rating as supplied in your Panther system. 2. The Panther Screen is malfunctioning. Check connection between screen and power supply/PLC. 3. Call Panther Tech Support at 800-530-6018 ext 120
Display does not turn on, but there is power to the Predator	1. The ethernet/power cable connecting the PLC to the display has been disconnected. 2. Your display has been damaged.	1. Reconnect the ethernet/power cable extending from the PLC to the back of the display. If cable is damaged replace with a similar cable, or call Panther for a replacement part. 2. Replace display with like part. Call Panther Tech Support for replacement information at 800-530-6018 ext 120.

PROBLEM	CAUSE(S)	SOLUTIONS
Power to the component(s) on the Predator is sporadic. Vibrations cause power to drop out/come on	1. Wiring to component(s) is loose. 2. Terminal block jumpers on +24VDC/0VDC bus are loose.	1. Check wiring to component(s). Reseat as necessary. 2. Reconnect terminal block jumpers on appropriate bus. 3. It may be necessary to replace slice I/O card. Call Panther Tech Support for replacement information at 800-530-6018 ext 120.
Take-Up motor is not running when label feeds/prints	1. END PRINT signal is not being signaled or not being received by the Panther. 2. Power is not connected to the Take-Up motor. 3. Fuse has fallen out of Solid State Relay.	1. Check applicator interface cable from Panther to printer. Ensure that it is securely connected and not damaged. 2. Check appropriate wiring for the Take-Up Motor, both from the PLC and to the SSR Relay. 3. Check AC wiring to the Take-Up Motor. Contact your Panther Tech Support at 800-530-6018 ext 120 for wiring instructions. 4. Replace fuse on SSR Relay with like component. 5. Replace motor with spare motor.
Labels not feeding onto applicator head correctly	1. Applicator is incorrectly positioned.	1. Reposition applicator so that applicator head is lined up evenly with label feed position. Applicator head should be positioned ~1/16th of an inch below the printer peel bar and ~ 1/8th of an inch away from the printer peelbar. 2. Adjust applicator assembly position by loosening the blue handle on the back and sliding assembly vertically.
Labels are falling off of the tamp head after feed/print	1. Vacuum fan is not running. 2. Vacuum fan has debris stuck in it.	1. Check power wires on the vacuum fan and ensure they care connected properly. 2. Check that the spade connector is properly seated on vacuum fan terminals. 3. Check that there is not any debris preventing the fan from turning, blow out fan or turn system off and remove guarding to clear debris.
Labels following liner (not feeding onto tamp head)	1. Labels incorrectly routed through printer. 2. Die strikes on label are too deep.	1. Ensure that your labels are fed through the printer's nip assembly (lower drawer on printer) and wound securely around Take-Up Roller. 2. Replace labels with a new roll. If problem persists contact your label supplier.

PROBLEM	CAUSE(S)	SOLUTIONS
Data is not transferring to printer	1. Communication Settings are incorrect. 2. Label formatting is incorrect	1. Check the printers communication settings and ensure that they match your computer's/network's settings. 2. If you are using a serial cable to communicate you may need a null modem or a crossover cable. 3. Check your label format and ensure that the code/ formatting is correct. 4. Call your Panther Tech Support for help at 800-530-6018 ext 120.
Take-up belts continually breaking	1. Take-up pulleys are misaligned. 2. Take-up pulley is loose. 3. You are using the incorrect take-up belt for your system.	1. Align take-up pulleys. This can be accomplished by loosening the pulley on the motor, turning the motor (allowing pulley to float) the pulleys should self align. Tighten the pulley back in place. 2. Tighten take-up pulleys. 3. Verify that you are using Panther approved take-up belts (P/N: PA-TU-11333.C, PA-TU-11335.C, PA-TU-11337.C).
Labels are not free flowing/over flowing off of the Let-Off Reel	1. Your brake arm is too tight/loose.	1. Adjust the spring connecting the brake arm to the Predator main plate, according to your needs.
Labels are tracking incorrectly	1. Labels are wound incorrectly. 2. Let-Off Cover is not correctly positioned. 3. Printer rollers are out of alignment.	1. Adjust label guides on brake/guide rollers, to correctly position labels for infeed to the printer. 2. Ensure that Let-Off Cover is firmly placed on Let-Off Roller and firmly against labels. 3. Consult the appropriate printer manual for tracking adjustments.
(OPTIONAL HARDWARE REQUIRED) **Tower lamp is not turning on**	1. Bulbs are burned out. 2. Tower lamp is not receiving signals from the Predator.	1. Replace bulb. 2. Check OUTPUT SCREEN on Panther display to see if tower lamp signals are ON. 3. Check tower lamp cable and ensure that it is not damaged or disconnected. 4. Contact Panther Tech Support at 800-530-6018 ext 120.
(ELECTRIC MODELS ONLY) **Vacuum fan is not running**	1. Fan is unplugged. 2. Fan is blocked by debris or label	1. Check wire connectors connecting Panther control box to internal power wires of fan. 2. Ensure that internal power wires are securely connected to power terminal on fan. 3. Clear any debris preventing the fan from spinning (ensure power is off prior to removing debris).

PROBLEM	CAUSE(S)	SOLUTIONS
(ELECTRIC MODELS ONLY) **Applicator rack is "short stroking". Applicator moves away from HOME position and then returns to the HOME position without reaching the DISTANCE setpoint in SERVO SETTINGS menu of the Panther display.**	1. Label Material or Debris is preventing rack from moving by clogging the rack or pinion gear. 2. Servo motor is pressed too tightly against rack. 3. TAMP THRESHOLD setting is too low.	1. Check for label material or debris in the rack "teeth". Clean with wire brush. 2. If this is a new rack/applicator assembly, lower the binding pressure on the rack by moving the servo motor slightly away from the rack. Pressure needs to be snug, just not overly tight. 3. Increase the tamp threshold setting percentage in the SERVO SETTINGS menu of the Predator. Tamp Threshold needs to 20 or greater to ensure proper movement of applicator rack. Settings of 200 or greater may indicate a problem with the rack assembly mechanical system.

14.1 Electric Troubleshooting

Labels falling off of the vacuum box
1. A label could be stuck in the vacuum box restricting air flow.
2. The fan could be “OFF” (The fan is ON whenever the Panther P9 Predator is powered ON)
3. If the FAN is off while the Panther P9 Predator is powered ON, check the wiring and/or replace the fan.

System Always “Short-Strokes”
1. APPLY FORCE could be set too low
2. Debris caught in the rack or pinion gear
3. Re-check APPLY DISTANCE VALUE

Error Display: “No Response From Servo Motor” or “Unexpected Motor Movement”
1. Applicator “home” sensor is not sensing. Check or replace applicator HOME sensor
2. Check connection of stepper motor to controller
3. CAN Connection from Panther Predator PLC to stepper controller is disconnected-check connection
4. Check the pinion gear for loose set-screws
5. Check the applicator rack guide assembly for binding
6. Stepper motor is bad
7. Stepper controller is bad-replace controller

Applicator Strokes, but Stops about 1” away (down) from HOME position
1. Check the pinion gear for loose set-screws

Pressing the APPLY key does NOT make the applicator cycle
1. Make sure the “Manual APPLY Enable” is ON in the “SETTINGS” Screen

15.0 PRINT ENGINE REPLACEMENT

For preventive maintenance, or should you experience problems with your print engine, your Panther system has been designed to provide quick replacement of the supplied print engine. The printer is supported by one pin in the center of the printer and fastened in place with four screws. The pins allows the printer to be "hung" and supported so one person can easily change the printer without additional assistance. The printer is secured into the system with four #8-32x ½" Allen-head socket screws.

The procedure for printer changes is as follows:

1. Record all of the print engine settings. (DIP switches or display setting depending on printer model)
2. Ensure the equipment's AC power is turned OFF before performing any kind of maintenance on your Panther system. This includes the print engine. (Follow in-plant lock-out/tag-out procedures for safety.)
3. Ensure the compressed air is turned OFF to the system by utilizing the supplied air shut-off. (Follow in-plant lock-out/tag-out procedures for safety.)
4. Remove the label (and ribbon) media from the print engine.
5. Remove the power connector from the back of the printer.
6. Remove the printer interface cable from the connector on the back of the printer.
7. Remove the Data Cable (Parallel, Serial, E-Net, etc.) from the back of the printer.
8. Remove the four #8-32 screws that secure the printer. Stow the screws so they are not lost.
9. Carefully slide the printer out toward you by supporting the printer by the frame. (In some systems, the applicator actuator may have to be moved slightly to allow the printer to be removed.)
10. Place the printer on a stable bench or support.
11. Unpack the replacement printer. Ensure the settings for the printer are the same for the replacement unit and the old printer. These settings may be via dip switches or by the operator panel, depending on the printer manufacturer. If you are using a SATO with a serial interface, ensure the serial interface board switch settings are correct also. (Refer to the supplied print engine manual for details.)
12. Place the printer into the system by aligning the upper center hole of the printer with the Panther printer support pin.
13. Replace the four # 8-32 screws that were removed in step 7.
14. Re-connect the power connector to the printer.
15. Re-connect the printer interface (I/F) connector to the back of the printer.
16. Re-connect the Data cable to the back of the printer.
17. Reload the label and ribbon media in the print engine
18. Power up the system and feed a few labels through the printer.
19. Test data communications to the printer and signals to and from the printer from the Panther system.

16.0 SUPPLIED COMPONENT DATA SHEETS

Data Sheets for components used in your Panther system can be found on your Distribution DVD that was provided with your manual inside the front cover. There is a folder on the DVD labeled “Data Sheets”. The data sheets provide the manufacturer’s information about the components used (i.e. Product detect sensor) in your Panther system in much greater detail.

17.0 PRINT ENGINE SETTINGS

Your Predator system “communicates” with the print engine via discrete signals via an interface cable that connects the Panther to the print engine. The Predator system needs to be properly configured to operate correctly with the installed printer. The print engine also needs to be configured properly to operate correctly in your system. The settings outlined in this section of the manual HIGHLIGHT only those settings that are requirements for the Predator system. Your application may have other settings (i.e.: Print Darkness, Print Speed, etc.) that have no affect on the operation of the Panther equipment so they are not mentioned here.

IMPORTANT: Your Panther Predator system requires that the print engine be configured to send +24VDC signals to the Panther system in order for the signals to be received properly. Please refer to the document titled Converting Applicator Voltage on ZE500 Print Engines for instruction on converting the new ZE500 series print engines to +24VDC. This document is located on the distribution DVD supplied with your equipment manual.

If you have a PAX series printers there is a special +24VDC applicator card. The voltage should be noted on the card next to the DB15F plug on the back of the print engine.

17.1 ZEBRA

If your Predator system came with a Zebra print engine, you will have to make these changes to the printer settings to ensure it operates properly with your Panther Predator. There are numerous settings for Zebra printers. The changes outlined here are the ONLY necessary changes from the Zebra Print Engine default settings required for your Zebra print engine to work with the Panther Predator system. Other settings within the print engine are dependent upon your operation and are not covered here.

1. With power off, load labels and ribbon into the printer. (See media threading diagram inside the print engine.)
2. Power on the Panther system, which will also power on your printer. Ensure the power switch on the print engine is in the ON position as well.
3. Once the Printer has finished booting, press the CALIBRATE key. You will have to catch all the labels that are fed out of the printer.
4. Once the Printer has finished calibrating, press the SETUP/EXIT key. This will bring up the setup screen on your printer. (The display will show DARKNESS)
5. Press the NEXT key until you come to PRINT MODE. Use the UP and DOWN keys to change the value. Set the PRINT MODE to APPLICATOR. (Ensure your label formatting software is set to APPLICATOR as well.)
6. Press the NEXT key until you come to BACKFEED. Use the UP and DOWN keys to change the value. Set the BACKFEED to BEFORE. (Ensure your label formatting software is set to BEFORE as well.)
7. Press the next key until you come to APPLICATOR PORT. When you press the UP or DOWN key on this setting, the print engine will prompt you for a password. Use the UP key to change the value of the number, and use the DOWN key to change the position of the cursor. The default Zebra password is 1234. Once this is entered, you can change the value of the APPLICATOR PORT. Set this to MODE 2.
8. Press the SETUP/EXIT key. It will now prompt you to SAVE CHANGES PERMANENTLY. Press the NEXT key to save the changes permanently. Your printer is now setup to use in your Panther Predator system.

Please note that there are other settings which may need to be set in the print engine in order for it to work or communicate properly in your operation. These include Ethernet settings, Com Port Settings, Darkness, Print Speed and other settings that are not specific to the needs of the Panther Predator system. Please refer to the print engine manual for settings specific to your operation.

17.2 SATO

If your Predator system came with a Sato print engine, your settings for the print engine are quite simple. The Sato S84ex print engines have multiple settings that deal with the interface to the Predator. The operator menu can be accessed by pressing the ENTER key and then scrolling to the SETTINGS/ADVANCED SETTINGS menu. In order to operator properly with the Predator system, they printer should be set to default settings. To default the Sato, power it off, press and hold the CANCEL key while powering on the system. This will restore default settings and should be operational with the Predator.

Bear in mind that you will need to set up specific data communications including IP Addresses or baud rates to ensure your data can be received by your system.

17.3 DATAMAX

If you Predator system came with a Datamax print engine the following settings will need to be changed from the default configuration. Your system should ship with these settings already set, however, these are the critical settings needed in order for proper operation with your Predator equipment.

IMPORTANT: Your Predator system requires that the print engine be configured to send +24VDC signals to the system in order for the signals to be received properly. Please refer to the document titled Converting You Datamax A-Class Mark II From +5V to +24V for instruction on converting the A-Class series print engines to +24VDC. This document is located on the distribution DVD supplied with your equipment manual.

1. The GPIO Port needs to be set to Applicator 2.
   – To set this press the MENU button on the main screen from there browse to the following setting:

     PRINTER OPTIONS > GPIO PORT > GPIO DEVICE

18.0 CONTACT INFORMATION

Panther Industries, Inc.
8990 Barrons Blvd.
Highlands Ranch, CO 80129
Ph. 303.703.9876
Fx. 720.283.9462
www.print-n-apply.com

SATO America
10350-A Nations Ford Road
Charlotte, NC 28273
Ph. 408.745.1300
Fx. 408.745.1309
www.satoamerica.com

Zebra Technologies
333 Corporate Woods Parkway
Vernon Hills, IL 60061.3109
Ph. 847.634.6700
Fx. 847.913.8766
www.zebra.com

Honeywell Scanning and Mobility
62408 Collections Center Drive
Chicago, IL 60693-0624
Ph. 1.800.934.3163
www.honeywellaidc.com

Sick, Inc.
6900 W 110th St
Minneapolis, MN 55438
Ph. 800.325.7425
Fx. 952.941.9287
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Wago
262.255.6333
N120 W19129 Freistadt Rd.
Germantown, WI 53022
www.wago.us

Red Lion
20 Willow Springs Circle
York, PA 17406
Ph. 877.432.9908
www.redlion.net

APPENDICES

APPENDIX A – ELECTRIC SWING ARM MODEL

This section details the swing arm model option for the Panther Predator system. If you purchased a swing arm model. Please reference the below information for configuring your system.

The swing arm model looks as follows:

A.1 Mechanical Description and Adjustment

The rotary motor and tamp arm are the main differences between this type of system and the straight tamp. The rotary mounting plate mounts to the extrusion arm and can be loosened to allow the tamp arm to move either closer to or farther from the peel bar of the print engine. As with the straight tamp version, the tamp head should be positioned ~1/8” away from the print engine’s peel bar.

The vacuum fan(s) serve the same function on this model and provide the suction that holds the label on the tamp arm when it is in the home position. Once the arm begins to swing, the momentum of the arm will hold the label in place until it contacts the product being labeled.

The rotary home position of the arm can be adjusted by adjusting the shock absorber in or out. The shock absorber is located on the fan mount bracket directly next to the home sensor.

The home sensor for the tamp arm is also located on the fan mount. This sensor detects when the applicator is in the home position and the next label can begin to print.

A.2 Control Panel and Settings

To enable the swing arm application, go to the SETTINGS screen and select Swing Arm Settings (if you have the Icon mode enabled, this will be located under Applicator Settings). From here you can enabled or disable the swing arm. Once you have enabled it, additional application options will become available.

When the SWING ARM APPLICATOR is first enabled it will automatically enable both FRONT APPLY and SIDE APPLY. Additionally, you can use your system to apply a label around the corner of the box by selecting the corner wrap application type. It is important to distinguish these different cycles.

Front Apply
The front apply application uses only photoeye 1. Once this is triggered, it will count down the Apply 1 Delay time in the TIMERS screen and then apply the label. The speed, force, distance and dwell time are controlled through the FRONT APPLY SERVO SETTINGS. These settings are detailed below.

Side Apply
The side apply application uses only photoeye 2. Once this is triggered, it will count down the Apply 2 Delay time in the TIMERS screen and then apply the label. The side apply is different from the front apply in that once it makes contact with the product, the arm will lower the force it is using to hold the arm in place so that the box can easily pass by while the arm “wipes” the label on. The speed, apply force, wipe force, distance and dwell time are controlled through the SIDE APPLY SERVO SETTINGS. These settings are detailed below.

Corner-Wrap Application
The corner-wrap application uses only photoeye 2. Once this is triggered it will count down the Apply 1 Delay time in the TIMERS screen and then apply the label. The swing arm will swing out to the initial contact angle (with initial speed and force). The arm will then move to the wrap angle and wipe the label down the side of the product for the time specified in the dwell setting. The initial/wipe speed, force, distance and dwell settings can be set in the CORNERWRAP SERVO SETTINGS. These settings are detailed below.

The swing arm motion is dictated through the servo settings screen. This screen can be accessed from the SETTINGS menu (Applicator Settings in Icon Mode). In addition you can find links to this screen on the SWING ARM SETTINGS page and from the TIMERS page. Below is a description of the three motions the system can perform.

FRONT APPLY SETTINGS

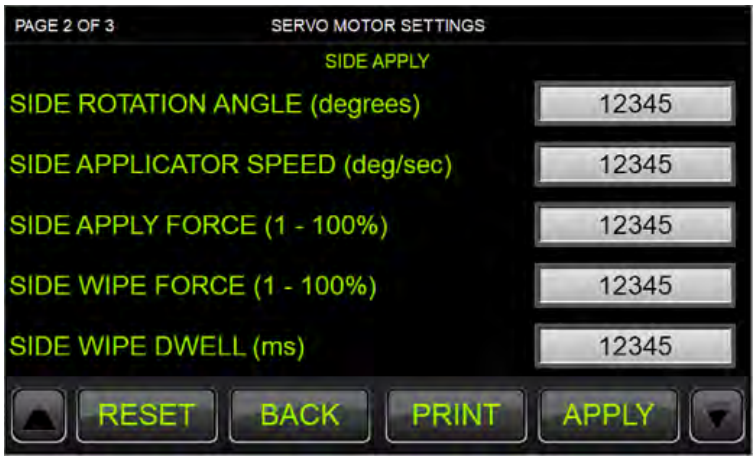
Rotation Angle
This is the angle that the arm will swing out to when the application cycle is initiated. This setting is set in degrees from the home position. The best practice is to set this angle a little higher than you need so that it over strokes and makes flush contact with the surface you are applying to. Therefore if you expect to contact the product at 90 degrees, this should be set to 100 – 110 degrees.

Applicator Speed
This is the speed at which the arm will move. This setting is set in degrees per second. Initial recommended speed for all applications is ~450 deg/second. Adjustments can be made from here depending on your application's needs.

Force
This is the force at which the arm will move and contact the product. The lower the force, the softer the arm will apply. A minimal force is required to move the arm at different speeds (minimal force for 450 deg/sec is ~4%). Panther recommends that you start with a force around 8% and adjust according to your application's needs.

Front Apply Dwell
This setting determines how long the arm will remain at the application angle after it contacts the product. This can be used to "hold" the arm in place for additional contact. This setting is set in milliseconds. For applications in which a label is being applied quickly to a surface and the arm is not "wiping" the label on, it is recommended that this be set to 0 ms.

SIDE APPLY SETTINGS



Side Rotation Angle
This is the angle that the arm will swing out to when the application cycle is initiated. This setting is set in degrees from the home position. The best practice is to set this angle a little higher than you need so that it over strokes and makes flush contact with the surface you are applying to. Therefore if you expect to contact the product at 50 degrees, this should be set to 60 – 70 degrees.

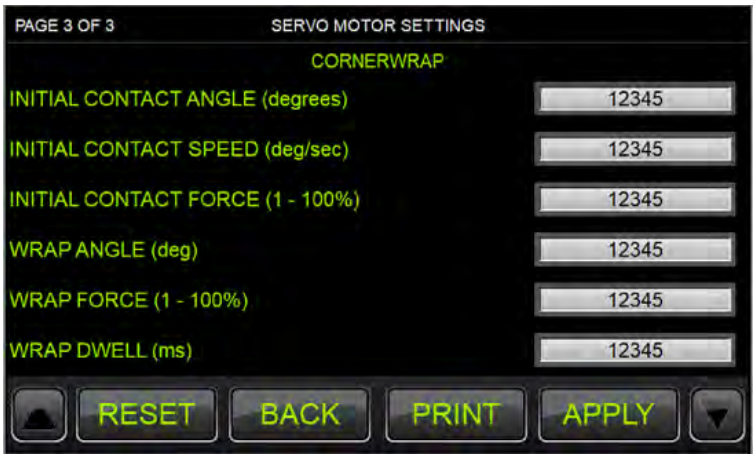
Side Applicator Speed
This is the speed at which the arm will move. This setting is set in degrees per second. Initial recommended speed for all applications is ~450 deg/second. Adjustments can be made from here depending on your application's needs.

Side Apply Force
This is the force at which the arm will move and contact the product. The lower the force, the softer the arm will apply. A minimal force is required to move the arm at different speeds (minimal force for 450 deg/sec is ~4%). Panther recommends that you start with a force around 8% and adjust according to your application's needs.

Side Wipe Force
Once the arm contacts the product it will lower the force to this setting. This is to allow the product to easily pass by the arm and allow the arm to "drag" or "wipe" along the product. This should allow the label to pushed onto the product as it passes by.

Side Apply Dwell
This setting determines how long the arm will remain at the application angle after it contacts the product. This can be used to "hold" the arm in place for wiping the label on. This setting is set in milliseconds. Recommended times will depend on the conveyor speed and the label length. The arm should remain in contact with the product until the entire label has been wiped onto the product.

CORNER-WRAP APPLY SETTINGS



Initial Contact Angle
This is the angle that the arm will swing out to when the application cycle is initiated. This setting is set in degrees from the home position. The best practice is to set this angle a little higher than you need so that it over strokes and makes flush contact with the surface you are applying to. This should be the angle that arm will initially contact the product at.

Initial Contact Speed
This is the speed at which the arm will move. This setting is set in degrees per second. Initial recommended speed for all applications is ~450 deg/second. Adjustments can be made from here depending on your application's needs.

Initial Contact Force
This is the force at which the arm will move and contact the product. The lower the force, the softer the arm will apply. A minimal force is required to move the arm at different speeds (minimal force for 450 deg/sec is ~4%). Panther recommends that you start with a force around 8% and adjust according to your application's needs.

Wrap Angle
Once the arm contacts the product it will move to a secondary angle to wrap/wipe the label around the side of the product. This setting determines the second angle. This angle should be set such that the arm is in contact with the side of the product. This setting is set in degrees. The recommended value of this setting will be determined by how far away the product is from the application home position.

Wrap Force
Once the arm moves to the wrap angle it will lower the force to this setting. This is to allow the product to easily pass by the arm and allow the arm to "drag" or "wipe" along the product. This should allow the label to pushed onto the product as it passes by.

Wrap Dwell
This setting determines how long the arm will remain at the wrap angle. This can be used to "hold" the arm in place for wiping the label on. This setting is set in milliseconds. Recommended times will depend on the conveyor speed and the label length. The arm should remain in contact with the product until the entire label has been wiped onto the product.

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