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Designers and Manufacturers of Pressure Sensitive Labeling Equipment and Custom Product Handling

STANDARD 3600 P/A SERVO TAMP MAINTENANCE & SERVICE MANUAL

REVISION 3600st-3a.1.x.xx

Introduction

The 3600 servo tamp printer applicator is a high-speed labeler used to thermally print and apply pressure sensitive labels to moving products that have varying heights and still hold label placement. A thermal transfer printer is integrated into an applicator to form a self-contained unit that will print variable data onto a label. It is primarily designed to label the top of products but can also handle side labeling.

Labels are supplied on rolls that consist of a liner on which the labels are held with adhesive. The labels may be preprinted with the variable information added by the printer or blank labels with the print engine printing the entire label.

The applicator will support two different types of label pads. The first style is the "Vac-Blow" style where compressed air is used to create vacuum to hold the label and an air blast to blow the label off without contacting the product. The second style is the "E-Tamp" which uses a fan to create vacuum to hold the label and the pad must contact the product to release the label. Along with the different label pad configurations come different labeling sequences or modes:

Normal Tamp
Inverted Tamp
Auto Tamp 1
Auto Tamp 2

In the Normal Tamp mode, the label is printed, dispensed out onto the label pad and held there by vacuum. When the product detect sensor is made, the label and label pad are moved toward the product using a servo driven slide. When the slide is extended, an air blast will blow the label off the pad and onto the product if the vac-blow style pad is used. Otherwise the label pad will contact the product and return home. The tamp length is programmable through the operator interface.

In the Inverted Tamp mode, the label is printed, dispensed onto the label pad and the slide extends. The applicator will wait in this position until the product sensor is made. The label is then blown off the pad onto the product, the label pad returns home and the process starts again. Only the vac-blow label pad will work with this tamp mode.

The Auto Tamp 1 mode is for when the products being labeled have varying heights and you are using the vac-blow style label pad. The tamp will start in the home position with a label on the pad. When the product sensor is made, another sensor will capture the product height. This usually is an ultrasonic sensor with a 0-10 volt analog output. The tamp will now move to a position just above the top of the product and will wait for the label placement distance. Once the product is in position, the label will be blown onto the product and the tamp returns home. Another label is feed out and the process starts again.

Auto Tamp 2 mode is for both vac-blow and e-tamp pads and is also for varying height products. As with the Auto Tamp1, the tamp will start in the home position with a label on the pad and will move to a position just above the product when the product detect sensor turns on. The height is calculated from a 0 to 10 volt signal from the height sensor. The applicator will wait for the label placement distance and once the product is in position, the label pad moves down and comes in contact with the product. The label pad then returns home, another label is feed out and the process starts again.

For safe and trouble free operation, the instructions in this manual must be followed carefully during the set-up, operation, media changes, cleaning and maintenance. Also the specified environmental conditions must be maintained.

GUARDING IS REQUIRED!

Even though there are parameters that can be set so the slide reverses when it hits something, they are not safety rated. At the slide speeds necessary to hit the labeling rate, personal injury could occur if a person got caught in the label pad.

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Definition of Machine Terms

Adhesive Strings
Label adhesive that attaches to the label and liner while the label is dispensing onto the label pad. They can cause the label position on the label pad to become inconsistent.

Air Assist Tube
A small diameter tube with small hole in it mounted under the peel edge. The purpose is to direct a stream of air to help the label onto the label pad.

Air Assist
The stream of air from the Air Assist Tube.

Air Blast
A blast of compressed air that moves the label from the label pad to the product. The duration of the blast is controlled by the Air Blast time accessible through the applicator display.

Air Filter
A device on the inlet of the air supply that removes debris from the air supply.

Belt Drive
This is the linear module that drives the tamp slide up and down. It is usually powered by a servo motor.

Critical Alarm
This is an alarm that will stop the applicator from applying labels. Some critical alarms include end of web, out of labels (from printer) and no ribbon (from printer).

Cycle Time
The amount of time it takes for the applicator to print and apply a label to a product and to be back in the start position, beginning with the product detect signal.

Dancer Arm
The function of the dancer arm is to release the brake on the unwind when labels are being printed and to stop the unwind mandrel when printing stops.

Detector Lockout
Time span after the applicator starts the labeling sequence that will cause the applicator to ignore any additional product signals. This is useful if a product triggers the product detect sensor more than once.

E-Tamp Pad
This pad and manifold arrangement uses a multi-speed fan to create the vacuum needed to hold the label on the pad. There is no blow-off so the assembly must contact the product to release it. Labels should be tested before using this type of label pad. It does not work well with film labels and a ratio between the label feed and width larger than 2 to 1 may have problems. The minimum label feed is 3 inches.

Extended Air Assist
The air assist is always on while the label is being printed (dispensed). Extended air assist allows the air assist to stay on longer to aid in putting the label on the pad.

Inverted Tamp Blow (ITB)
A mode of operation in which the tamp pad is in the extended position waiting for the product detect signal to start the labeling sequence.

Label Feed
The moving of the label stock through the machine.

Label Liner
The backing material that supports the labels before dispensing.

Label Manifold
The aluminum block mounted under the tamp slide. The label pad is mounted to it. Vacuum and/or the air blast are channeled through it to the pad.

Label Pad
Mounted under the manifold and is usually made from white delrin or aluminum. This part supports the label before application. There are two styles of label pad and manifolds for this applicator. The vac-blow style uses compressed air to hold and release the label from the pad. The e-tamp style uses a fan to hold the label and the label will contact the product to release it from the pad.

Label Placement
This the time or distance from when the product sensor is made to when the labeling sequence starts.

Label Size
The width and length (or feed) of a label. Length equals the distance from the leading edge to trailing edge of the label. Width is the distance across the label.

Leading Edge
Refers to the signal sent from a sensor when the first edge of a product or label is detected.

LED
Light Emitting Diode

Long Tamp Length
In Normal and Inverted Tamp modes, this is the distance the tamp slide will travel to apply the label. In Auto Tamp mode, this is the tamp stroke for the shortest product.

Normal Tamp Blow
A mode of operation where a label is dispensed onto the label pad and the applicator waits for the product detect sensor to turn on before starting the labeling sequence.

Peel Edge
A sharpened part just before the label pad that when the liner is wrapped around it, the label is transferred off the liner to the pad. This is located in the print engine.

Rewind
This is the rotating mandrel that takes up the liner after the labels have been removed.

Short Tamp Length
In Normal and Inverted Tamp modes, this variable is ignored. In Auto Tamp mode, this is the tamp stroke for the tallest product.

Static Stack
When labels are applied to a stationary target on top of each other to check repeatability of the applicator.

Trailing Edge
Refers to the signal sent from a sensor when the last edge of a product or a label is detected.

Tamp Speed
This is how fast the tamp will travel during the labeling sequence in Normal and Invert Tamp modes. In Auto Tamp, this is the speed the tamp slide returns home.

Unwind
This is the rotating mandrel where the roll of labels are placed to be printed and applied.

Vac-Blow Pad
This is the label pad and manifold used when a label is blown off. This arrangement uses compressed air to create vacuum and the blow-off pressure.

Valve Bank
The typical valve bank for a servo tamp has two valves in it. Each valve has a built in regulator and gauge. The assembly is made to be bolted on the side opposite the tamp assembly.

Warning Alarm
This alarm serves as a warning that the applicator is low on labels or ribbon.

Web Path
The path the label liner follows leading from the unwind, through the printer and ends at the rewind.

System Requirements

Electrical Requirements

108-132 VAC, 1 Ø
7 AMPS
50/60 Hz

A three-meter long, three-wire cable with 16 AWG (1.00mm ^{2}) conductors rated at 10 amperes (in accordance with CENELEC HD-21) is provided for the electrical connection to the IEC 320 receptacle of the applicator. The end of the power cord is terminated with a NEMA5-15 plug.

Air Requirements

90-100 PSI clean dry air
4 SCFM*
**The E-Tamp model does not use compressed air*

Operating Environment

Operating Temperature: 40-104 degrees F
Humidity: 20-95% RH, non-condensing

NOTE: THE 3600-ST SERVO TAMP IS NOT INTENDED TO BE OPERATED IN AN ENVIRONMENT WHERE FLAMMABLE OR EXPLOSIVE GASSES ARE PRESENT. THE 3600 SERVO TAMP IS NOT TO BE USED IN DIRECT CONTACT WITH FOOD PRODUCTS.

3600 Servo Tamp Display

The following is general information about the display and changing values inside the display. Different screens and options available in the display are explained below as well.

Types of Buttons Used in Display

The following are examples of buttons found in the display and what they represent. Not all buttons are shown.

These buttons will move the operator to another screen. Buttons will be various colors but will be labeled with a destination. The home button will return the operator to the home screen at any point.

This style of buttons performs a function within the applicator. For example, they may jog the web or reset an active alarm. Various colors can be seen but they will be labeled based on their functionality.

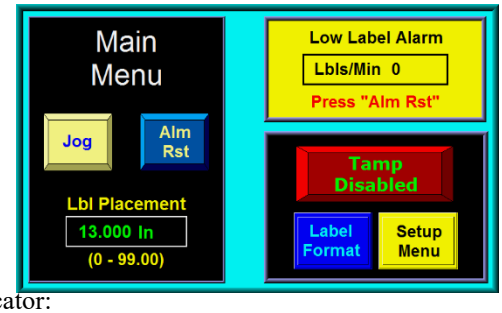
This button will enable and disable the tamp. When enabled it will be green with red letters.

This style button will open a help menu with information pertinent to the section of the display the operator is in.

Alarms

There are two categories of alarms generated by the 3600 Servo Tamp Applicator: warning and critical alarms.

Warning alarms will appear in the upper right hand corner of the main menu in the status box. These alarms are not serious and in most cases the applicator will not stop applying labels. If the applicator has an alarm light, the amber light will turn on and the green light will remain on if the tamp is enabled.



The following are some of the warning alarms monitored by the applicator:

Low Label – Low label sensor detects the unwind roll is getting too small.

Low Ribbon – If the printer sends a low ribbon signal to the controller.

Printer Not Ready – The printer is offline or in pause and will not print.

Conveyor Too Fast – In auto tamp when the tamp cannot get into position to label before the product has traveled the label placement distance.

Product Height Warning – If a product goes through the height station and is out of range between the short and long tamp analog values, the product will not be labeled and the alarm turns on. Next good scan resets the alarm.

Product Rate Warning –There are three rate warnings that can occur; none stop the labeling process:

- ***Label Applied Late*** – This will occur if labeling sequence is too long compared to product rate.
- ***Height Scan Occurred Too Soon*** – A product made the product detect sensor before the product being labeled was far enough along in the labeling process. Product was not labeled.
- ***Past Labeling Position*** – The product passed the labeling position before a label was out on the tamp pad. Product was not labeled.

Critical alarms will stop the applicator (disable the tamp) and turn the red light on in the light stack (if provided). The alarm screen will cover the current screen explaining the alarm type with an alarm reset button at the bottom of the page to clear the alarm.

The following are some of the critical alarms:

No Media Alarm – If the printer cannot find labels or ribbon.

End Of Web – If the end of web sensor detects a break in the web.

Too Many Reprints – If the label reprint option is turned on and too many reprints occur in a row.

Software Limits – If the tamp goes outside the programmed or soft limits.

Limit Switch – This occurs if the tamp slide hits a hardware limit.

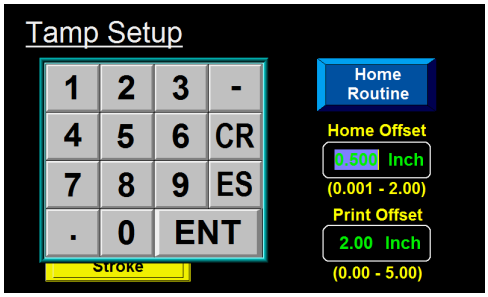
Operator Interface Cleared – This will occur if the display is disconnected from the applicator.

Read or Write Errors – If the applicator has trouble communicating with the display, one of these alarms may occur. Depending whether the connection is intermittent will determine whether the alarm is displayed or not.

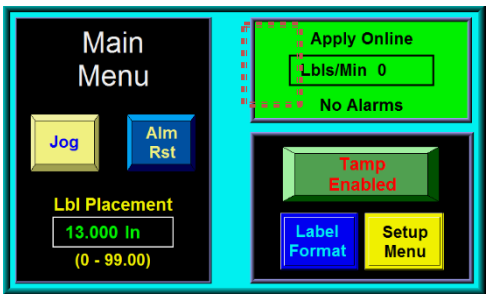
Changing Values

Values that can be changed are in boxes displaying the current value. The box will be labeled with the variable name as well as display the allowed limits of that variable.

To change a value the operator will touch the screen inside the box and a keypad will appear on the screen. As numbers are inputted into the keypad the value will change. Pressing "ENT" will close the keypad and confirm the change. Pressing "ES" will close the keypad and cancel the change. Pressing "CR" will clear the inputted value. If the operator presses "ENT" after inputting a value outside of the limits the value will revert to its' original value.



Main Menu



After the power up sequence the display will come to the main menu. The main menu gives access to the label placement option (if normal mode) or the conveyor speed reading (if auto mode), the jog and alarm reset buttons, the menu to load label formats, enable or disable tamp, and setup menu buttons. It also provides a status box in the right hand corner to display any alarms and the labeling rate if enabled or the applicator information if disabled.

Jog – Cycles the applicator if enabled. In normal / ITB modes this will extend the pad to the long stroke length and blow the label off. In auto modes it will extend the pad to the short stroke length and blow the label off. Jog will not wait for label placement or scan distance.

Alarm Reset – Used to clear alarms from the status box in the top right of the screen. Some alarms, such as low label, do not clear automatically and will need to be cleared by the alarm reset button. If the alarm is not cleared when alarm reset is hit then the condition that is creating the alarm is still present.

Label Placement – Adjusts the label placement value of the applicator while in normal mode. The label placement value is explained in depth in the Applicator Setup section of the manual. If encoder based this value will be in inches.

Conveyor Speed – Displayed instead of label placement if in auto mode. This is not able to be changed and is a readout of the encoder.

Label Format – Opens a menu that allows the operator to load and view formats, but not save or delete.

Setup Menu – Takes you to the password protected setup menus to change the configuration of the applicator. Applicator must be disabled to enter the setup menus.

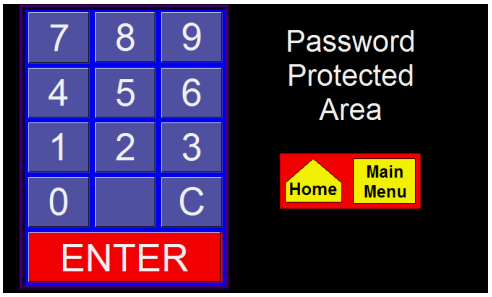
Error Counters

An error counter / feedback screen can be accessed by pressing on the left side of the status box, as shown in the main menu image above. This popup is used to see how many of each alarms the applicator is getting as well as provide motion feedback. The pop up covers the jog buttons and alarm reset buttons when open. It can be closed using the “Close” button and a second page can be accessed with the “Next” button. The reset button can be used to clear all errors to zero. For more information on the alarms shown on the counter screen see the “Alarms” section of the manual.

Password

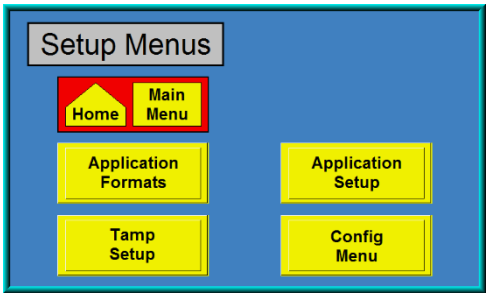
The setup area of the display is password protected. The standard password is “1800.” When you go to the setup menu you will get a popup telling you that the area is password protected. A keypad will appear if the box to the left is touched. Alternatively you may return to the home screen from this screen.

Once the password has been entered you may hit “ENTER” to confirm it. If entered correctly you will advance to your desired screen. If an incorrect password is entered a screen will be shown to notify the operator. In the even that you know you have hit the wrong number pressing “C” will clear the current entry.



Setup Menus

After entering the password the display will show the setup menu screen. The home and main menu keys will take you back to the main menu. While in the setup menus the applicator will be disabled. The following submenus can be found in the setup menu:



Application Formats

Contains the ability to erase, save, view, and load formats. See “Application Formats” section of the manual.

Tamp Setup

Contains tamp modes, tamp stroke settings, and tamp speed options. See “Tamp Setup” section of the manual.

Application Setup

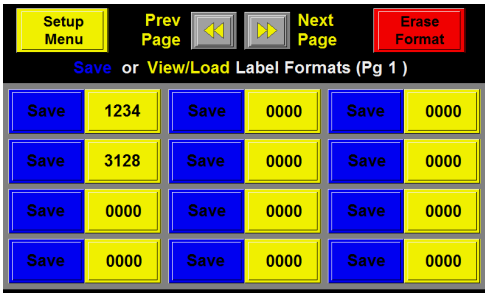
Contains encoder and label application options. See “Application Setup” section of the manual.

Config Menu

Contains applicator options menus. See “Config Menu” section of the manual.

Application Formats

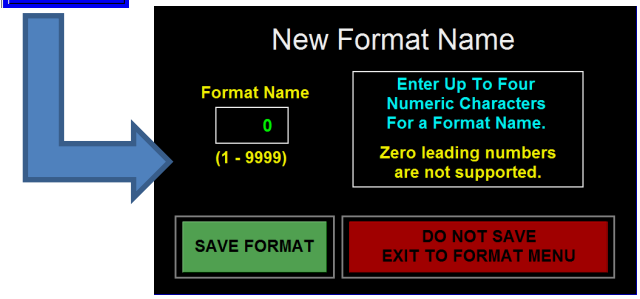
This section allows the operator to save and load different setups for different products and labels. This is useful if a customer is running several different products or labels but runs them over and over. This format key allows the operator to save and erase formats. The setup menu key will return you to the setup menu.



Prev Page / Next Page – The arrows will change the page of formats between 1 and 4. There are 48 total formats with 12 on each page.

Save Format

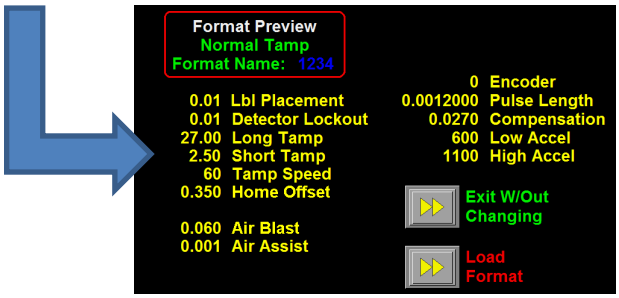
Save the current configuration as a new format. If save is pressed next to a format that already exists it will overwrite the existing format. Once pressed it gives the option to name the format.



Enter a 4 number into the format name box and hit save if you wish to save the current configuration. If overwriting a format a prompt will appear ensuring the operator wishes to continue. If the format you are trying to save is empty no prompt will appear. Hitting the red button will exit back to the format menu.

Preview Format

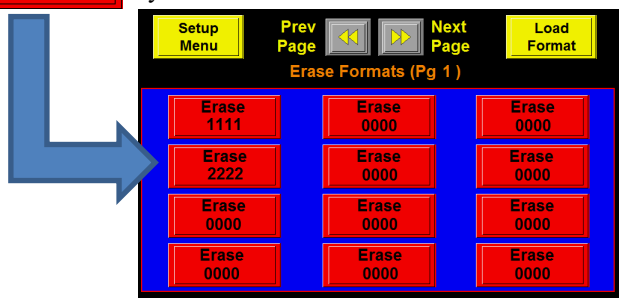
Selecting a specific format will bring up a menu of the settings that are saved to that specific format. This allows the operator to ensure the format is the correct one prior to loading.



This screen shows the settings of some of the variables saved in this format. The format is not loaded until the "Load Format" button is pressed. The exit key will take the operator back to the format screen without loading a format.
The variables shown in the preview are not the only variables saved in a format. For a full list of variables saved with formats contact the factory.

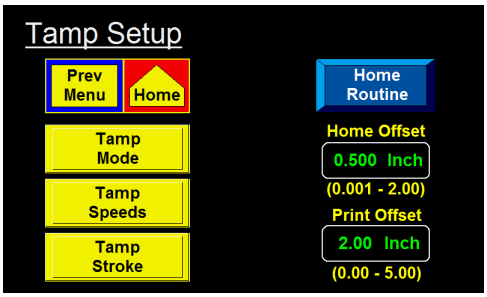
Erasing Formats

When the "Erase Format" button is pressed the screen changes to allow you to select which format you want to erase.



When the operator selects a format to erase will remove the format name to show "0000" instead. There is no second step and formats cannot be retrieved once erased.

Tamp Setup



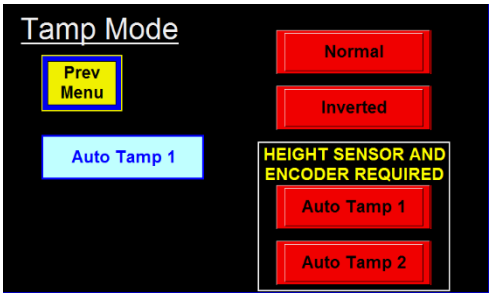
The settings used to control the tamp speed, function, and position of the slide are contained here. From the tamp setup screen you can adjust home offset and print offset. The "Prev Menu" button will return you to the setup menu while the "Home" key will take you to the main menu.

Home Routine – Forces a home routine. During a home routine the tamp will move upward until the home prox sensor turns on and then move downward the home offset distance.

Home Offset – The distance below the home position the pad needs to be to feed a label onto the pad.

Print Offset – The distance below the home offset position the pad must be during retract before the printer begins to print. This can be used to increase labeling rate.

Tamp Mode



This menu allows the operator to change which tamp mode they wish to run. When the red buttons on the right are pressed the white display will change to reflect the current mode. An encoder is required for the auto tamp modes to work. On the other modes, the encoder is optional.

Pressing "Prev Menu" will return the operator to the Tamp Setup screen.

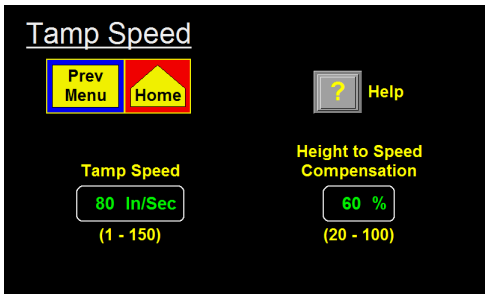
Normal Tamp – Puts applicator into Normal Tamp mode. In this mode, the applicator will get a product detect signal, wait the label placement time/distance, then tamps toward the product. At the end of the long tamp length or the activation of the tamp return sensor the label will be blown off the pad if equipped with the vac-blow pad. At the same time the tamp slide will return home for another label.

Inverted Tamp – ITB mode will have the tamp slide extended, when the tamp is enabled, to the *long tamp length* waiting for a product detect signal. Once received and label placement is satisfied, the label is blown off the pad and the slide returns home.

Auto Tamp 1 – In auto tamp mode 1, the applicator will make adjustments for different height products. The applicator will wait for a product detect signal with the tamp slide sitting in the home position. Once received the applicator will measure the product height for the scan distance and then move to a position above the product at tamp speed. With the slide extended, the applicator will wait for the label placement distance to finish. The label is blown off the pad and the slide returns home to receive another label.

Auto Tamp 2 – Auto Tamp 2 functions the same as auto tamp 1 except instead of the label being blown off, after the label placement distance the pad extends slightly to contact the product.

Tamp Speed

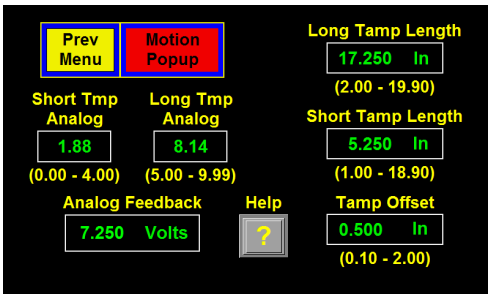


This screen sets the speed of the tamp. The "Prev Menu" button will return the operator to the Tamp Setup menu.

Tamp Speed – The speed the tamp will move during stroke.

Height to Speed Comp – Sets a ratio that the tamp returns at a lower speed for shorter strokes. If set to 50% the short stroke will return at 50% of the speed as the long stroke.

Tamp Stroke



Motion parameters used to set the stroke length. The "Prev Menu" button will return the operator to the Tamp Setup menu. Refer to the Setup Section of the manual for a guide on how to properly set the values in this section.

Analog Feedback – A readout of the current voltage of the ultrasonic sensor.

Short Tamp Analog – The analog feedback that would be expected to be seen if the tallest product was placed under the ultrasonic sensor.

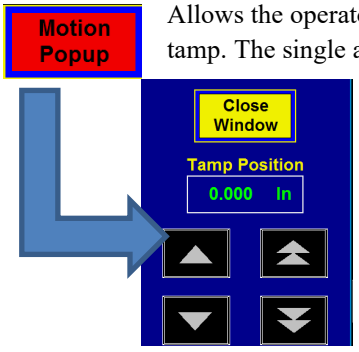
Long Tamp Analog – The analog feedback that would be expected to be seen if the shortest product was placed under the ultrasonic sensor.

Long Tamp Length – The distance the slide must travel to label the shortest product in auto mode. In non-auto mode this is the length of every stroke without a tamp return. Cannot exceed software limit.

Short Tamp Length – In auto mode this is the distance the slide will travel to label the tallest product. Must be at least 1" less than the long tamp length.

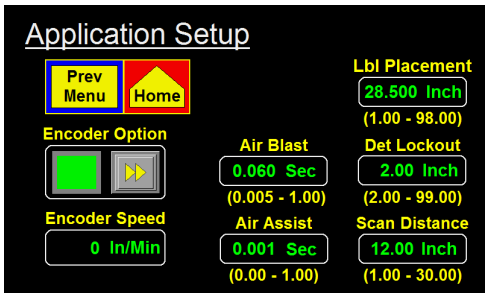
Tamp Offset – In auto modes this is the distance the pad will stop above the product before applying labels.

Motion Popup



Allows the operator to manually move the tamp and displays a readout on the current position of the tamp. The single arrows move the tamp slowly while the double arrows move the tamp faster. After moving the tamp and leaving the Tamp Setup menu the operator will be forced to home the tamp.

Application Setup



The application setup menu contains options to adjust the application of the label to the product. The "Prev Menu" button will take the operator back to the Setup Menu screen.

Encoder Speed – A readout showing the speed of the external encoder, if available.

Air Blast – The time the air blast valve is on for to apply the label as the tamp pad retracts.

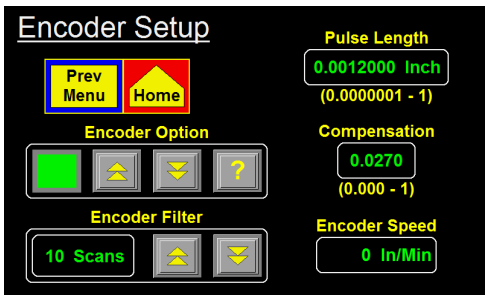
Air Assist – The time the air assist valve will stay on for after the printer stops moving media.

Lbl Placement – The distance (or time) after receiving product detect until the label is applied onto the product. If encoder based it will be in inches.

Det Lockout – A distance (or time) based variable to filter out stray product detect signals. After the product detect sensor is made the detector lockout begins. The applicator will ignore any product detect signals during detector lockout.

Scan Distance – The distance the ultrasonic sensor reading is logged for after product detect is received to determine the height of the product. This only appears in auto mode.

Encoder Option



The indicator inside the encoder option box will be green if the encoder option is on and red if it is off. Pressing the arrows inside the box takes the operator into the menu to setup the encoder. One inside this menu the up and down arrows turn the encoder option on and off.

Encoder Filter – Tells the applicator how many scans of the encoder to average for the speed. Lower scan numbers are more responsive to changing speeds whereas higher scan numbers produce a steadier average.

Pulse Length – The distance the product travels per pulse of the encoder. Pulse length can be calculated using:

Pulse Length = (Distance Product Moves / Rev) / ((Encoder Pulses / Rev) x 4)

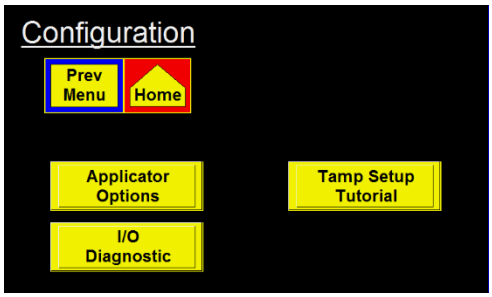
Example: An encoder is mounted to a conveyor drive pulley and the circumference of that pulley is 18.75". Therefore, with one revolution of the encoder, the product on the conveyor will travel 18.75". The encoder is a factory-installed encoder generating 2500 pulses per revolution.

Pulse length = 18.75" / (2500 x 4)
Pulse length = 18.75" / 10000
Pulse length = 0.001875 in/pulse

Compensation – A variable used to adjust the label placement value based on the encoder velocity. The faster the product is moving, the lower the label placement needs to be to compensate for the natural delay in getting the label out onto the product. To test compensation apply labels to a product at a slow speed. Then, increase to production speeds or faster. If the labels are applied late the operator would increase their compensation. If the labels are applied early the operator would decrease their compensation. Once the labels are applied consistently across all speeds the compensation value is correct.

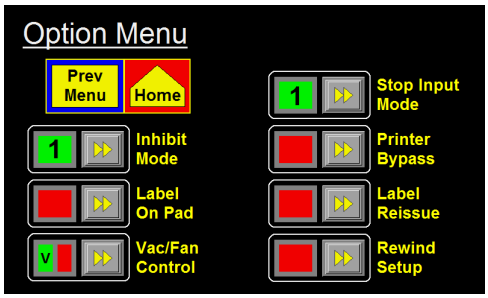
Config Menu

The section allows the operator to turn various options on and off, walkthrough the tamp setup, and manipulate the I/O. The “Prev Menu” button will take the operator back to the Setup Menu Screen.



Applicator Options

In this menu options can be turned on or off, and various settings for those options can be adjusted. The indicator next to each option indicates whether it is on (green) or off (red). Some options have modes and will also display a number in the indicator. To turn the option on or off press the arrow key next to the option name.



Inhibit Mode – Controls the inhibit circuit of the applicator. Has two different modes of operation.
Mode 1 is the standard inhibit circuit where applying inhibit prevents the applicator to not apply labels.
Mode 2 the inhibit will function like external print, where the print engine will not print until this signal is sent.

Label On Pad –This option will require a label presence sensor to be integrated. If a label is present on the pad after the label feed the applicator will turn on this output. The signal will turn off after the label is applied. If the sensor turns off at any point after the label feed the applicator will turn the output off.

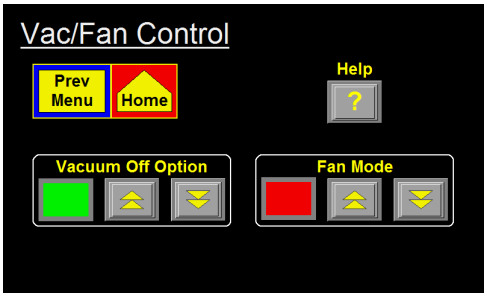
Printer Bypass – When this option is enabled all signals to and from the print engine are ignored. The applicator will dry cycle. The tamp will extend, blow, return home but no label will be printed / applied. Used to verify setup when labels are unavailable.

Label Reissue - With this option on, the operator can send one label format down and the applicator will have the printer reprint it every time it needs a label. There is no extra hardware needed to make this work.

Stop Input Mode - The stop input, when active, will stop the movement of the slide during a labeling sequence. It will also stop the start of a labeling sequence but the input is ignored if the applicator is disabled. The operator can manually move the slide and home the slide while the stop input is active and the applicator is disabled. The stop input has three different modes.
Mode 0 means the applicator will ignore the input.
Mode 1 means a stop alarm occurs when the input is active (N/O configuration).
Mode 2 means a stop alarm occurs when the input is not active (N/C configuration).

This input is not safety rated and should not be used as an e-stop. If the applicator must be integrated into an e-stop circuit, the integrator should remove power to the applicator as well as integrating this input during an e-stop condition.

Vac / Fan Control

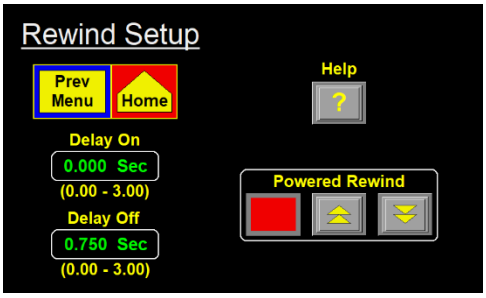


This menu allows the operator to choose how the fan will operate if using an E-Tamp pad and to turn the Vacuum Off Option on and off.

Vacuum Off Option – An option that allows the applicator electronic control of the vacuum valve so that the vacuum is not always on. This option can be turned on but requires a vacuum off valve bank to be able to control the vacuum through the applicator.

Fan Mode – If using an E-Tamp pad the fans have three different modes.
Mode 0 means the fan stays at low speed all the time.
Mode 1 means the fan follows the air assist sequence. Fan goes high during printing and low the rest of the time.
Mode 2 means the fan would be high from the start of the print until the label is applied.

Rewind Setup



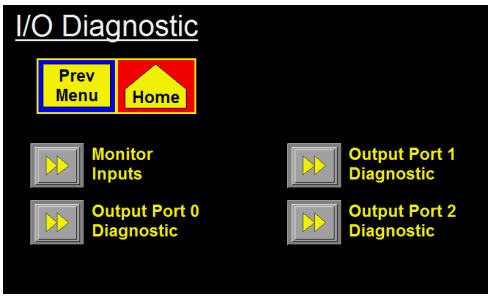
This menu allows the operator to change the settings for the rewind.

Delay On – The amount of time after the printer begins moving media until the rewind starts to collect.

Delay Off – The amount of time after the printer stops moving media until the rewind turns off.

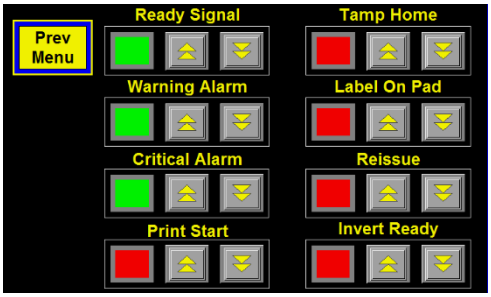
Powered Rewind – Enables the rewind control if the applicator is equipped with a high capacity rewind.

I/O Diagnostics



I/O diagnostics is a tool that can be used to manipulate outputs by forcing them on and off as well as view the status of inputs. You can verify signals are functioning / wired correctly. The inputs have indicators to show when they are on. The outputs have arrows to turn the options on and off.

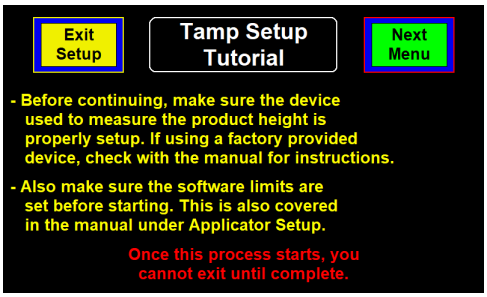
Inputs



Outputs

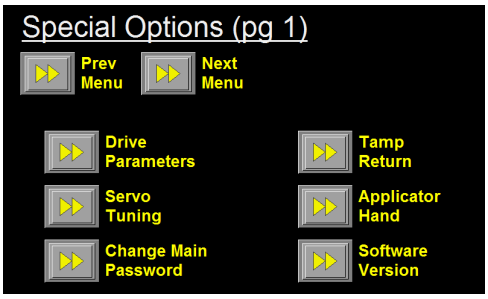
Tamp Setup Tutorial

The tamp setup tutorial is a tool used to walk through the tamp setup step by step. This will allow the operator to change the Tamp Stroke variables while explaining step by step how to adjust each variable properly. The tamp setup tutorial walkthrough is covered in-depth in the "Setup Procedures" section of the manual.



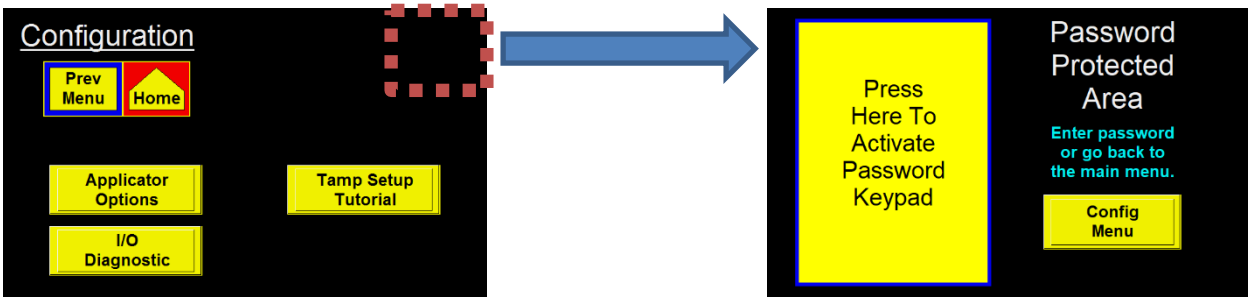
Special Options Menu

The special options menu is a hidden menu that contains parameters that need to be behind a second password. Many of these parameters should only be changed after contacting the factory. The next menu button opens a second page of options.



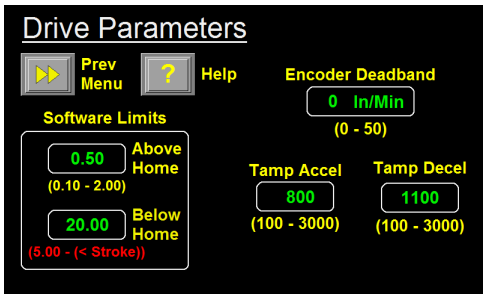
Accessing the Special Options menu

The special options menu is accessed through the Configuration Menu. While in the configuration menu touch the top right corner of the screen (as shown by the red box below) to enter the special options menu. Upon pressing the top right corner the operator will be prompted to enter the special options password.



Drive Parameters

In this section the accel / decel and software limits can be set.



Above Home – The amount of travel allowed by the slide above the home position.

Below Home – The amount of travel allowed by the slide below the home position. This number can be adjusted from 5" to something less than the stroke length. The slide should be labeled to show the stroke length.

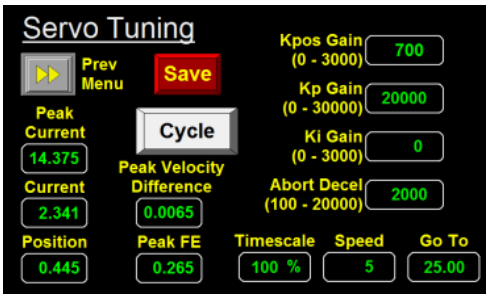
Tamp Accel – The value used when the tamp is ramping up to speed. Higher values allow the slide to get to speed faster but also can cause instability and over-currents.

Tamp Decel – The value used when slowing the slide or applying the brake.

Encoder Deadband – A filter used to eliminate errant encoder signals. If the conveyor is not moving but a sporadic number shows in the conveyor reading encoder deadband can be used. Any encoder reading below the entered number will be ignored by the applicator.

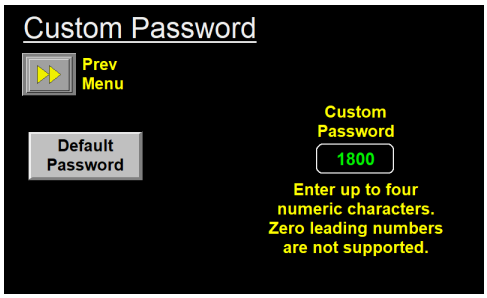
Servo Tuning

The tuning parameters of the servo motor. **The only time any values should be changed are after contacting the factory.** The cycle button can be used to do a test cycle of a stroke. The pad will travel the "Go To" distance at the "Speed" using a "Timescale" that is entered. It will then provide readouts of the current, position, velocity difference and following error.



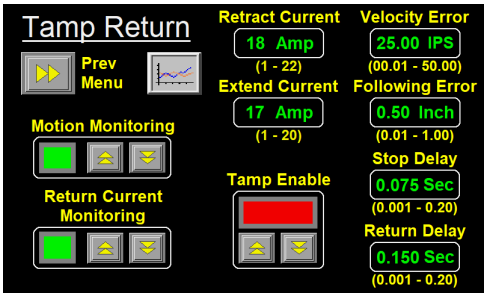
Change Main Password

The operator can change the password for the Setup Menu. If "Default Password" is pressed the password will return to 1800. Otherwise, a custom password from 1-9999 (no leading zeros are counted) can be entered.



Tamp Return

Allows the operator to turn on and set the varriables associated with Return Current Monitoring and Motion Monitoring. Also allows the operator to enable the tamp and hit the "Graph" button to bring up a window that displays feed back. While running product the currents, velocity error and following error can be watched to look for peaks. All values are set by the factory and the factory should be consulted before changing values.



Motion Monitoring – If enabled the applicator will monitor the current, following error and velocity error on the extend portion of the slide sequence. If any of these values exceed their limits, the tamp assembly will stop, blow the label off the label pad and return home.

Motion Monitoring is not to be used as a safety procedure since the force of the tamp assembly will be substantial before the assembly reverses. Because of the speed of application, it is necessary to keep personal away from this applicator while labeling products through machine guarding.

Return Current Monitoring – When enabled, the applicator will monitor the current once the tamp assembly starts to retract. The purpose of this option is to stop the assembly if it gets caught on the product. With this option on, the applicator will stop the tamp assembly when it gets caught and stop all power going to the servo motor. This sequence will also generate a critical alarm. The operator will be prompted through the display as to how to reset the alarm.

Retract Current – The amount of current allowed during a retract move. Only used if ***Return Current Monitoring*** is enabled.

Extend Current – The amount of current allowed during an extend move. Only used if ***Motion Monitoring*** is enabled.

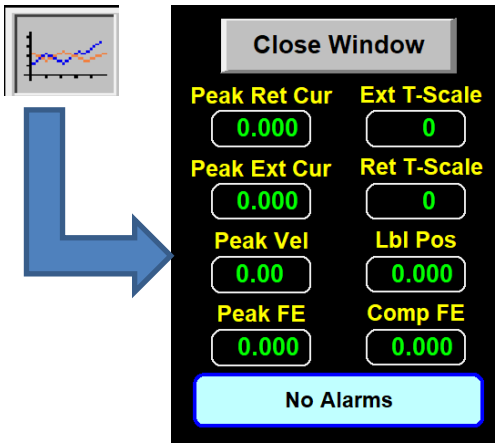
Velocity Error – The allowable difference between actual motor vs expected velocity of the motor. Only monitored during extend if ***Motion Monitoring*** is enabled.

Following Error – The allowable difference between actual position vs expected position of the pad. Only monitored during the extend if ***Motion Monitoring*** is enabled.

Stop Delay – The amount of time the pad dwells after an extend move before transitioning to retract.

Return Delay – The amount of time the pad dwells after a motion-based alarm occurred on extend before retracting.

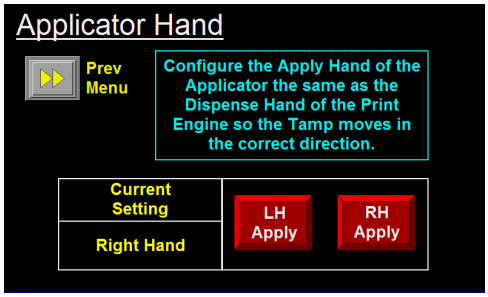
Tamp Return Graph



Opens a window to provide feedback during the labeling sequence. The applicator can be enabled from here and the operator can monitor the values to ensure that nothing is spiking. The T-Scale values represent the timescale used for extend and retract while Lbl Pos represents the position the pad went to.

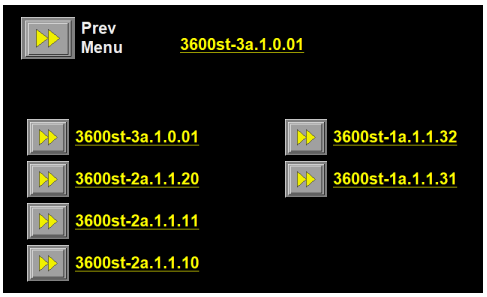
Applicator Hand

The applicator hand must be set correctly so that the tamp slide moves in the correct direction. If the applicator hand is changed the applicator will need reset. Factory default for hand is RH.



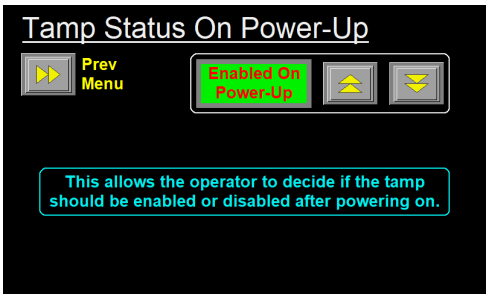
Software Version

The operator can select this option to learn the software version of the program. It also includes any base programs used in it and all revisions for those programs.



Tamp Status On Power-Up

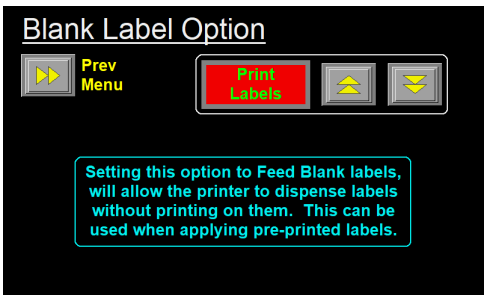
This option allows the operator to choose whether they want the applicator to power up in an enabled or disabled state.



Blank Label Option

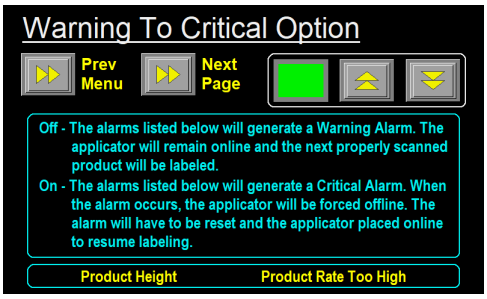
The blank label option will tell the printer to feed a blank label instead of print a label when enabled. This allows the applicator to run preprinted labels or blank labels in a normal cycle.

Note: The print buffer must be empty before feeding blank labels.



Warning to Critical Option

The warning to critical option converts some alarms that would normally be warning alarms and causes them to be critical alarms instead. This increases the likeliness that the applicator will go critical if a box is not going to be labeled. The two alarms affected by this option are “Product Height” and “Product Rate Too High”. Descriptions for the alarms can be found in the “Alarms” section of the manual. The second page of this screen explains the alarms.

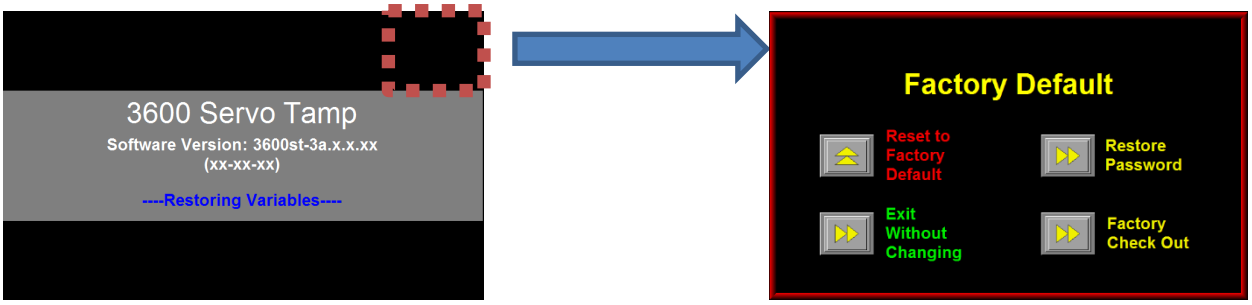


Factory Default Menu

The factory default menu contains the options to factory default the applicator and to restore the original password.

Accessing The Factory Default Menu

The factory default screen can be accessed from the power-up screen. On power-up, the screen shown below will appear for about five seconds. Pressing the upper right hand corner of the display causes the Factory Default Screen to appear.



Reset To Factory Default

Pressing the "Reset to Factory Default" key will reset all variables in the applicator to the factory defaults. There is no second step or way to retrieve an old setup

Note: If applicator is Left Hand you must go in and change the hand of the applicator prior to homing. Do this by pressing the "Bypass Home" button.

Restore Password

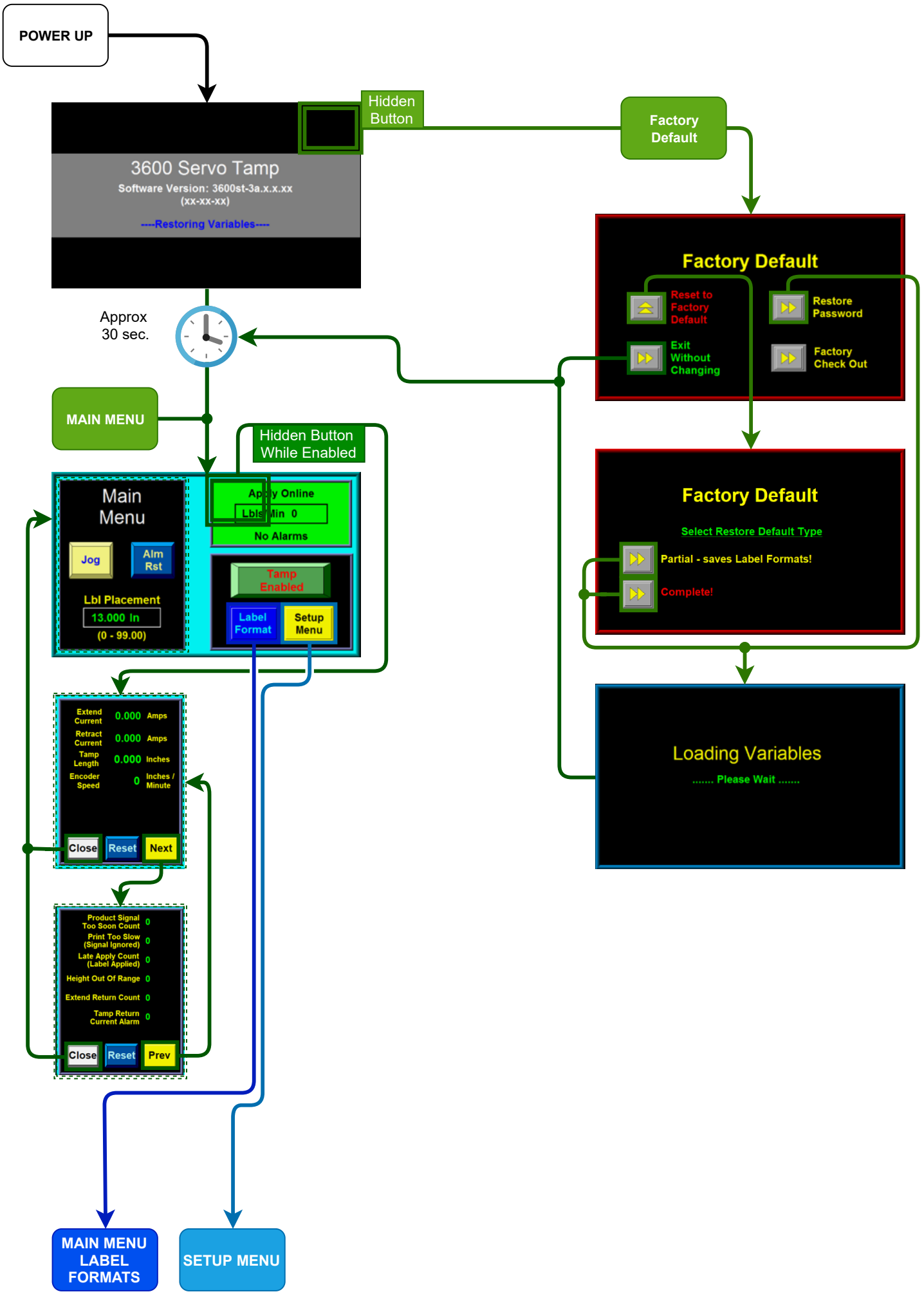
This is used to restore the main Setup Menu password in case it was changed. Pressing restore password will allow you to restore it to "1800".

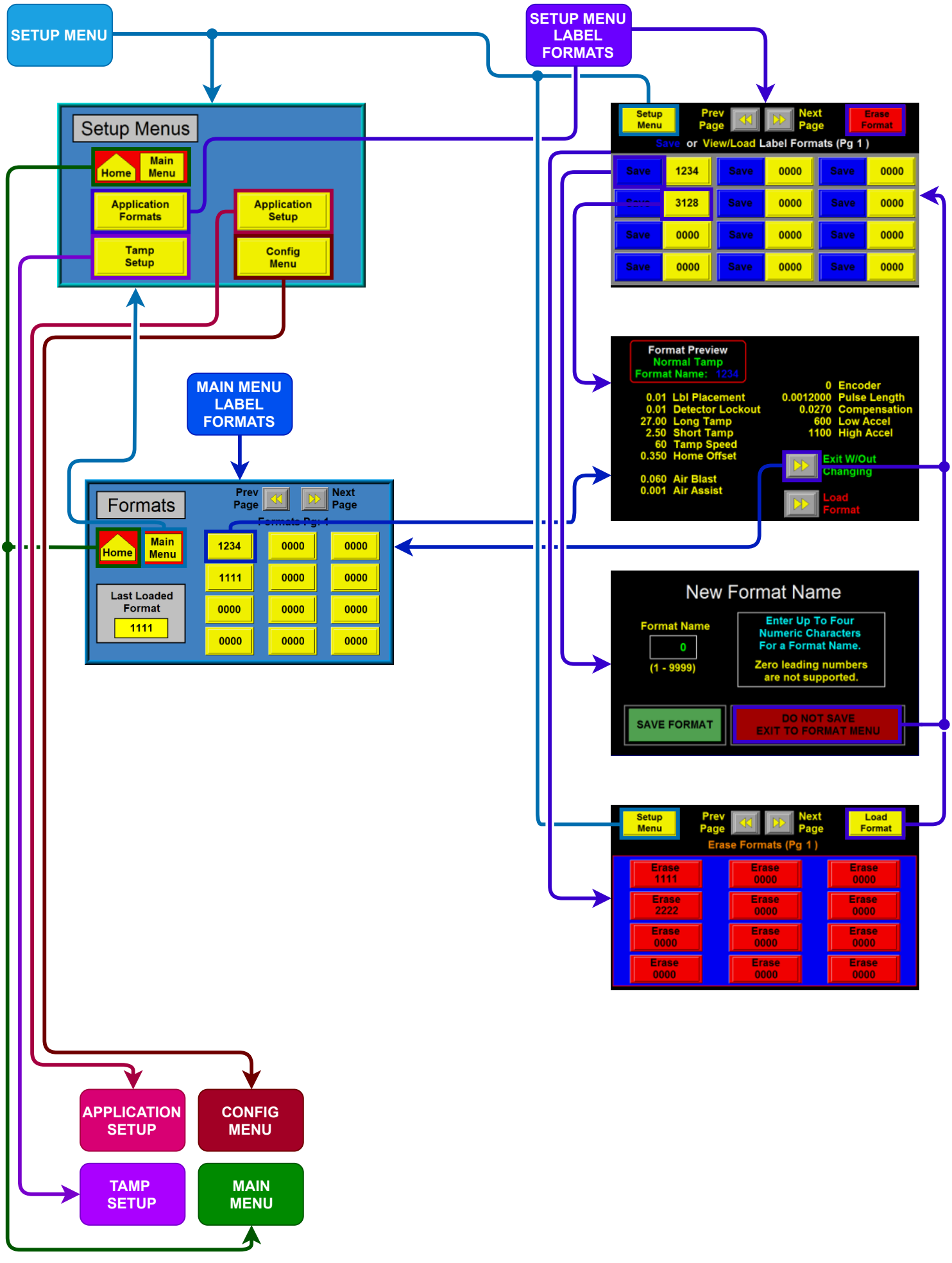
Factory Checkout

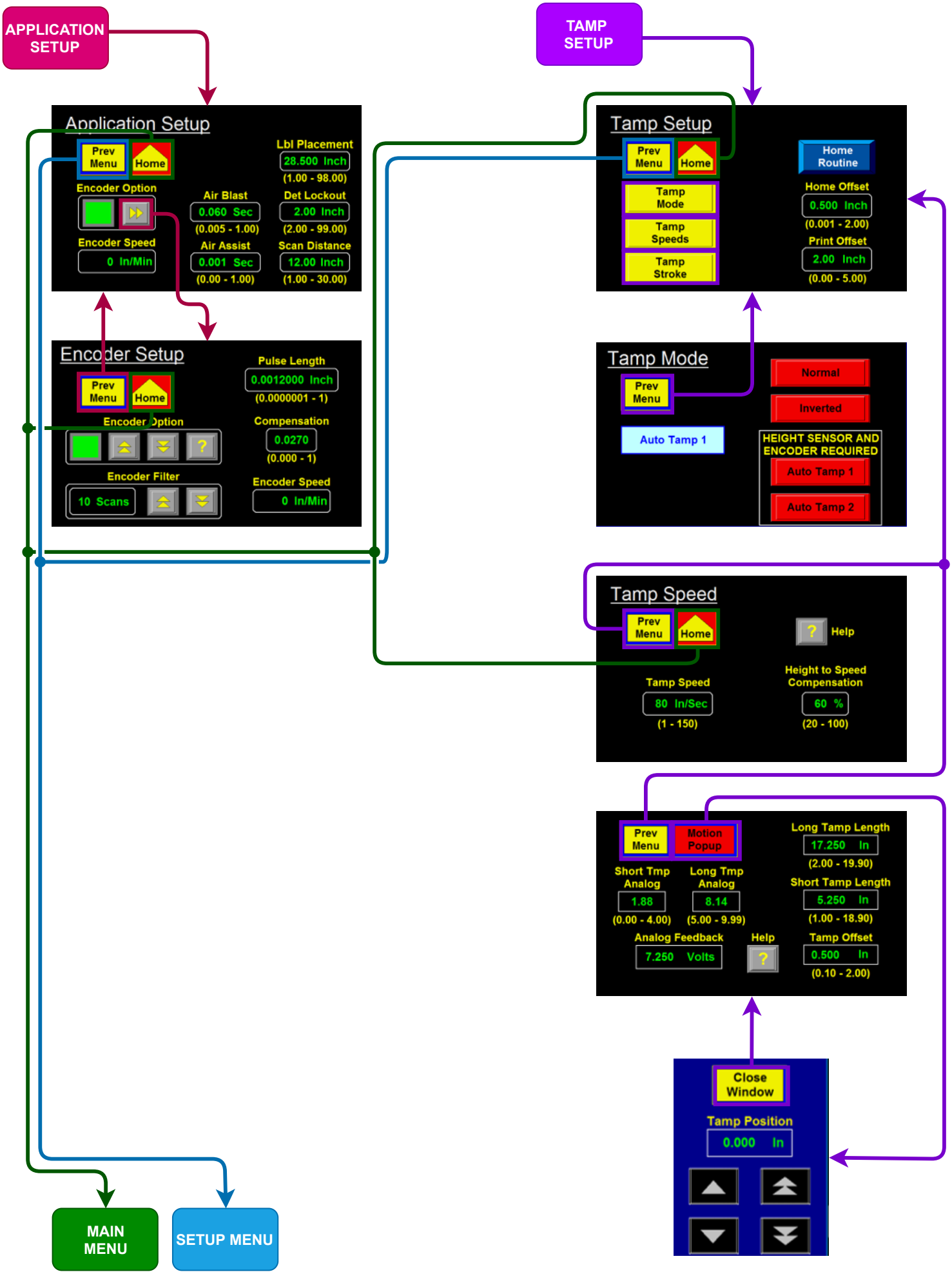
This option is only for factory use.

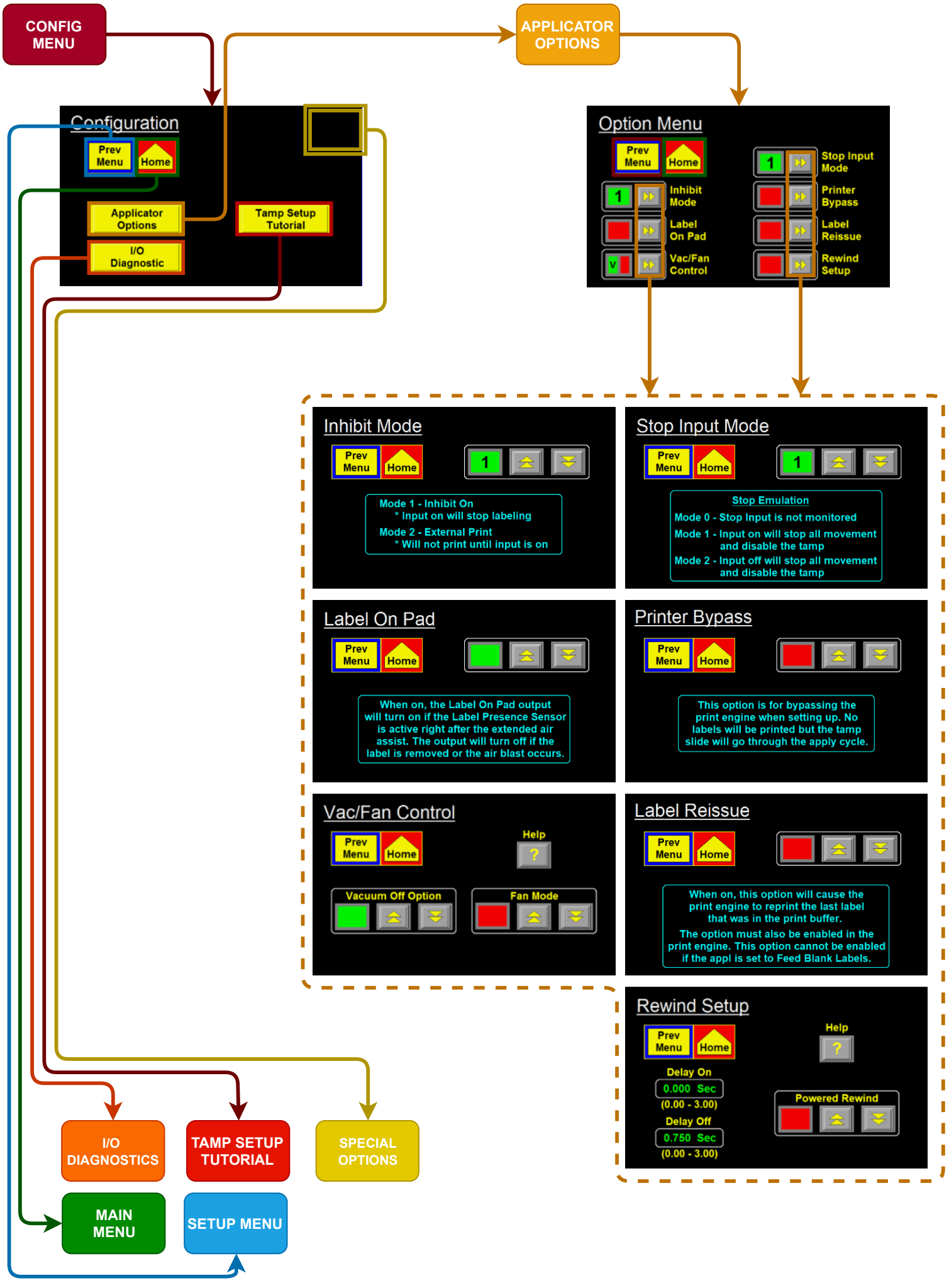
3600ST Display Flow Chart

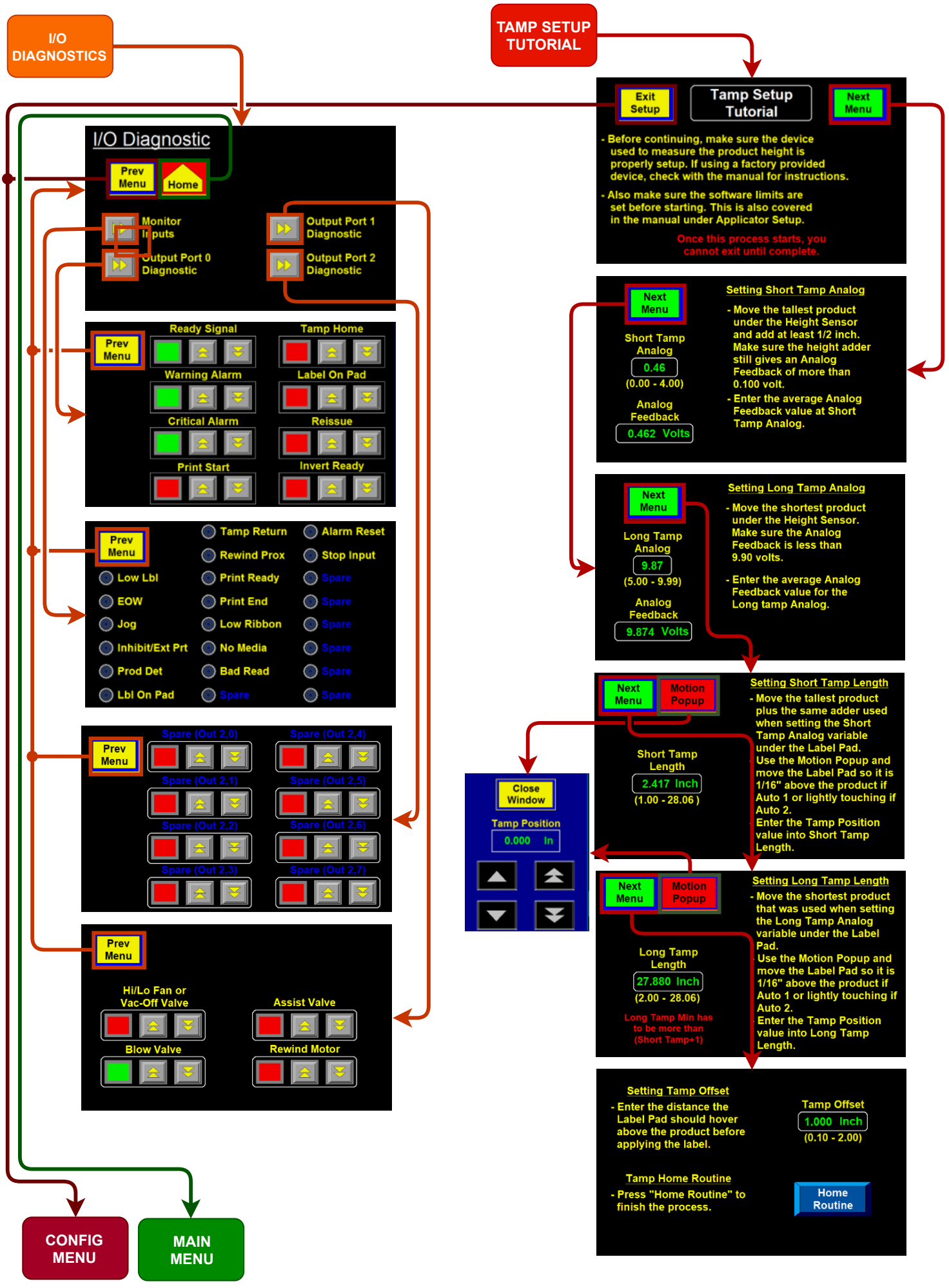
This section contains a flow chart of the display menus of a 3600ST. The flow chart can be scrolled through or navigated by clicking the buttons throughout the flow chart

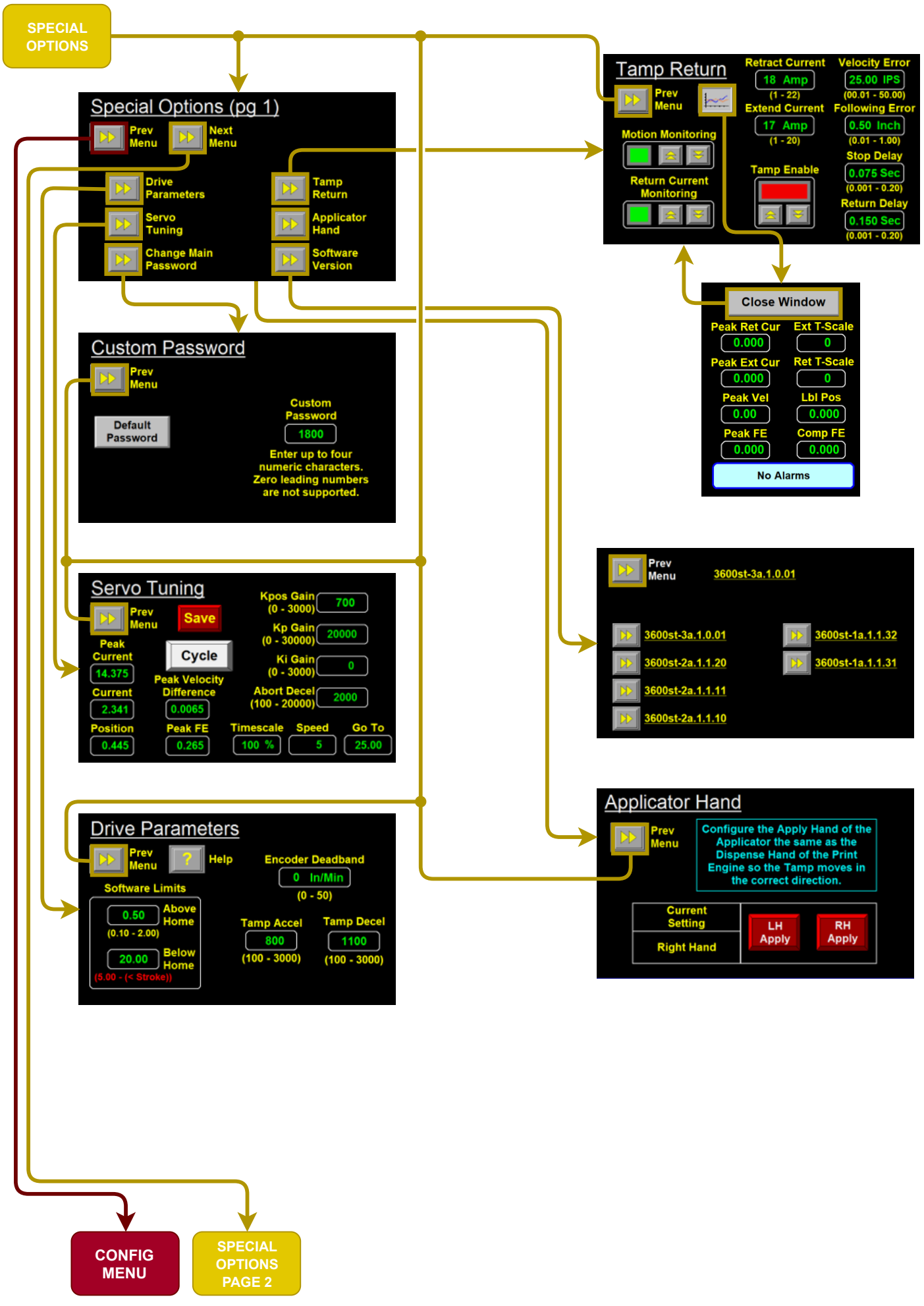

POWER UP
Hidden Button
Factory Default
3600 Servo Tamp
Software Version: 3600st-3a.x.x.xx
(xx-xx-xx)
----Restoring Variables----
Approx 30 sec.
MAIN MENU
Hidden Button While Enabled
Main Menu
Jog
Alm Rst
Lbl Placement
13.000 In
(0 - 99.00)
Apply Online
Lbls Min 0
No Alarms
Tamp Enabled
Label Format
Setup Menu
Extend Current 0.000 Amps
Retract Current 0.000 Amps
Tamp Length 0.000 Inches
Encoder Speed 0 Inches / Minute
Close
Reset
Next
Product Signal Too Soon Count 0
Print Too Slow (Signal Ignored) 0
Late Apply Count (Label Applied) 0
Height Out Of Range 0
Extend Return Count 0
Tamp Return Current Alarm 0
Close
Reset
Prev
MAIN MENU LABEL FORMATS
SETUP MENU
Factory Default
Reset to Factory Default
Restore Password
Exit Without Changing
Factory Check Out
Factory Default
Select Restore Default Type
Partial - saves Label Formats!
Complete!
Loading Variables
..... Please Wait .....

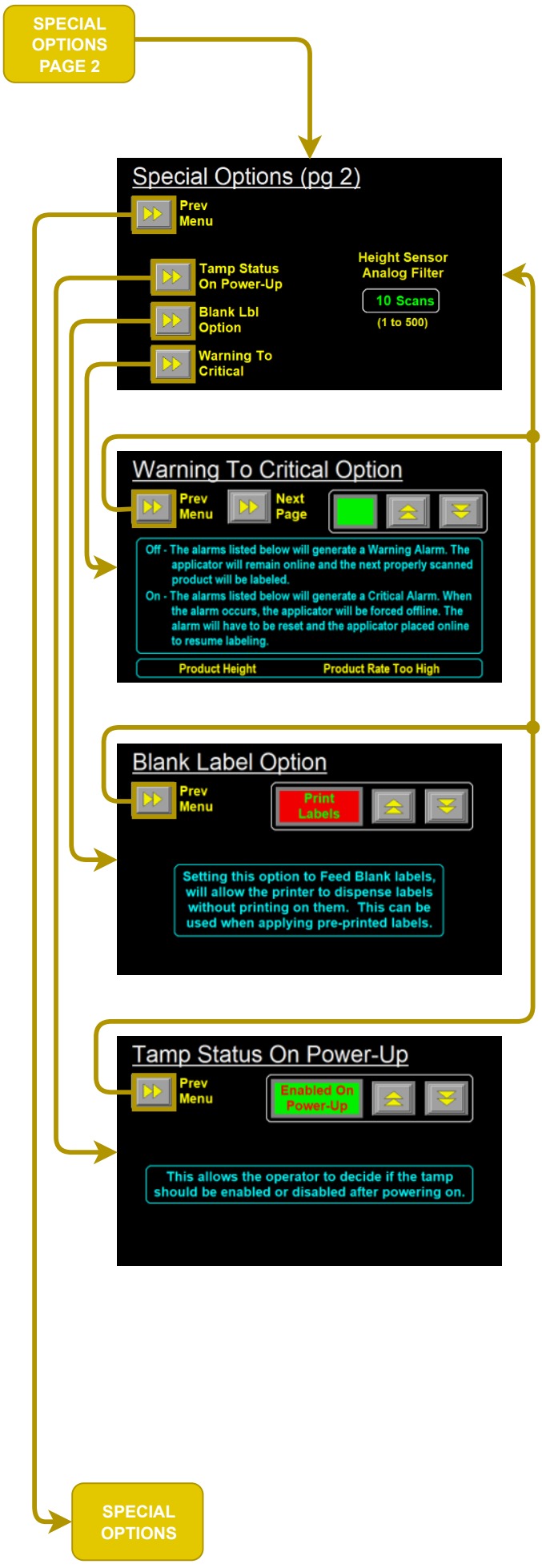

SETUP MENU
SETUP MENU LABEL FORMATS
Setup Menus
Home
Main Menu
Application Formats
Application Setup
Tamp Setup
Config Menu
Setup Menu
Prev Page
Next Page
Erase Format
Save or View/Load Label Formats (Pg 1)
Save 1234
Save 0000
Save 0000
Save 3128
Save 0000
Save 0000
Save 0000
Save 0000
Save 0000
Save 0000
Format Preview
Normal Tamp
Format Name: 1234
0 Encoder
0.01 Lbl Placement
0.0012000 Pulse Length
0.01 Detector Lockout
0.0270 Compensation
27.00 Long Tamp
600 Low Accel
2.50 Short Tamp
1100 High Accel
60 Tamp Speed
0.350 Home Offset
Exit W/Out Changing
0.060 Air Blast
0.001 Air Assist
Load Format
MAIN MENU LABEL FORMATS
Formats
Prev Page
Next Page
Home
Main Menu
1234
0000
0000
1111
0000
0000
0000
0000
0000
0000
0000
0000
Last Loaded Format
1111
New Format Name
Format Name
0
(1 - 9999)
Enter Up To Four Numeric Characters For a Format Name.
Zero leading numbers are not supported.
SAVE FORMAT
DO NOT SAVE EXIT TO FORMAT MENU
Setup Menu
Prev Page
Next Page
Load Format
Erase Formats (Pg 1)
Erase 1111
Erase 0000
Erase 0000
Erase 2222
Erase 0000
Erase 0000
Erase 0000
Erase 0000
Erase 0000
Erase 0000
Erase 0000
Erase 0000
APPLICATION SETUP
CONFIG MENU
TAMP SETUP
MAIN MENU


APPLICATION SETUP
TAMP SETUP
Application Setup
Prev Menu
Home
Encoder Option
Encoder Speed
0 In/Min
Air Blast
0.060 Sec
(0.005 - 1.00)
Air Assist
0.001 Sec
(0.00 - 1.00)
Lbl Placement
28.500 Inch
(1.00 - 98.00)
Det Lockout
2.00 Inch
(2.00 - 99.00)
Scan Distance
12.00 Inch
(1.00 - 30.00)
Encoder Setup
Prev Menu
Home
Encoder Option
Encoder Filter
10 Scans
Pulse Length
0.0012000 Inch
(0.0000001 - 1)
Compensation
0.0270
(0.000 - 1)
Encoder Speed
0 In/Min
Tamp Setup
Prev Menu
Home
Tamp Mode
Tamp Speeds
Tamp Stroke
Home Routine
Home Offset
0.500 Inch
(0.001 - 2.00)
Print Offset
2.00 Inch
(0.00 - 5.00)
Tamp Mode
Prev Menu
Auto Tamp 1
Normal
Inverted
HEIGHT SENSOR AND ENCODER REQUIRED
Auto Tamp 1
Auto Tamp 2
Tamp Speed
Prev Menu
Home
Tamp Speed
80 In/Sec
(1 - 150)
Help
Height to Speed Compensation
60 %
(20 - 100)
Prev Menu
Motion Popup
Short Tmp Analog
1.88
(0.00 - 4.00)
Long Tmp Analog
8.14
(5.00 - 9.99)
Analog Feedback
7.250 Volts
Help
Long Tamp Length
17.250 In
(2.00 - 19.90)
Short Tamp Length
5.250 In
(1.00 - 18.90)
Tamp Offset
0.500 In
(0.10 - 2.00)
Close Window
Tamp Position
0.000 In
MAIN MENU
SETUP MENU


CONFIG MENU
APPLICATOR OPTIONS
Configuration
Prev Menu
Home
Applicator Options
Tamp Setup Tutorial
I/O Diagnostic
Option Menu
Prev Menu
Home
Inhibit Mode
Label On Pad
Vac/Fan Control
Stop Input Mode
Printer Bypass
Label Reissue
Rewind Setup
Inhibit Mode
Mode 1 - Inhibit On
* Input on will stop labeling
Mode 2 - External Print
* Will not print until input is on
Stop Input Mode
Stop Emulation
Mode 0 - Stop Input is not monitored
Mode 1 - Input on will stop all movement and disable the tamp
Mode 2 - Input off will stop all movement and disable the tamp
Label On Pad
When on, the Label On Pad output will turn on if the Label Presence Sensor is active right after the extended air assist. The output will turn off if the label is removed or the air blast occurs.
Printer Bypass
This option is for bypassing the print engine when setting up. No labels will be printed but the tamp slide will go through the apply cycle.
Vac/Fan Control
Help
Vacuum Off Option
Fan Mode
Label Reissue
When on, this option will cause the print engine to reprint the last label that was in the print buffer.
The option must also be enabled in the print engine. This option cannot be enabled if the appl is set to Feed Blank Labels.
Rewind Setup
Delay On
0.000 Sec
(0.00 - 3.00)
Delay Off
0.750 Sec
(0.00 - 3.00)
Powered Rewind
I/O DIAGNOSTICS
TAMP SETUP TUTORIAL
SPECIAL OPTIONS
MAIN MENU
SETUP MENU


I/O DIAGNOSTICS
TAMP SETUP TUTORIAL
Exit Setup
Tamp Setup Tutorial
Next Menu
- Before continuing, make sure the device used to measure the product height is properly setup. If using a factory provided device, check with the manual for instructions.
- Also make sure the software limits are set before starting. This is also covered in the manual under Applicator Setup.
Once this process starts, you cannot exit until complete.
I/O Diagnostic
Prev Menu
Home
Monitor Inputs
Output Port 0 Diagnostic
Output Port 1 Diagnostic
Output Port 2 Diagnostic
Ready Signal
Tamp Home
Warning Alarm
Label On Pad
Critical Alarm
Reissue
Print Start
Invert Ready
Tamp Return
Alarm Reset
Rewind Prox
Stop Input
Low Lbl
Print Ready
EOW
Print End
Jog
Low Ribbon
Inhibit/Ext Prt
No Media
Prod Det
Bad Read
Lbl On Pad
Spare (Out 2,0)
Spare (Out 2,4)
Spare (Out 2,1)
Spare (Out 2,5)
Spare (Out 2,2)
Spare (Out 2,6)
Spare (Out 2,3)
Spare (Out 2,7)
Hi/Lo Fan or Vac-Off Valve
Assist Valve
Blow Valve
Rewind Motor
Setting Short Tamp Analog
- Move the tallest product under the Height Sensor and add at least 1/2 inch. Make sure the height adder still gives an Analog Feedback of more than 0.100 volt.
- Enter the average Analog Feedback value at Short Tamp Analog.
Short Tamp Analog
0.46
(0.00 - 4.00)
Analog Feedback
0.462 Volts
Setting Long Tamp Analog
- Move the shortest product under the Height Sensor. Make sure the Analog Feedback is less than 9.90 volts.
- Enter the average Analog Feedback value for the Long tamp Analog.
Long Tamp Analog
9.87
(5.00 - 9.99)
Analog Feedback
9.874 Volts
Motion Popup
Setting Short Tamp Length
- Move the tallest product plus the same adder used when setting the Short Tamp Analog variable under the Label Pad.
Use the Motion Popup and move the Label Pad so it is 1/16" above the product if Auto 1 or lightly touching if Auto 2.
Enter the Tamp Position value into Short Tamp Length.
Short Tamp Length
2.417 Inch
(1.00 - 28.06)
Close Window
Tamp Position
0.000 In
Setting Long Tamp Length
- Move the shortest product that was used when setting the Long Tamp Analog variable under the Label Pad.
Use the Motion Popup and move the Label Pad so it is 1/16" above the product if Auto 1 or lightly touching if Auto 2.
Enter the Tamp Position value into Long Tamp Length.
Long Tamp Length
27.880 Inch
(2.00 - 28.06)
Long Tamp Min has to be more than (Short Tamp+1)
Setting Tamp Offset
- Enter the distance the Label Pad should hover above the product before applying the label.
Tamp Offset
1.000 Inch
(0.10 - 2.00)
Tamp Home Routine
- Press "Home Routine" to finish the process.
Home Routine
CONFIG MENU
MAIN MENU


SPECIAL OPTIONS
Special Options (pg 1)
Prev Menu
Next Menu
Drive Parameters
Servo Tuning
Change Main Password
Tamp Return
Applicator Hand
Software Version
Tamp Return
Prev Menu
Motion Monitoring
Return Current Monitoring
Retract Current
18 Amp
(1 - 22)
Extend Current
17 Amp
(1 - 20)
Tamp Enable
Velocity Error
25.00 IPS
(00.01 - 50.00)
Following Error
0.50 Inch
(0.01 - 1.00)
Stop Delay
0.075 Sec
(0.001 - 0.20)
Return Delay
0.150 Sec
(0.001 - 0.20)
Close Window
Peak Ret Cur
0.000
Ext T-Scale
0
Peak Ext Cur
0.000
Ret T-Scale
0
Peak Vel
0.00
Lbl Pos
0.000
Peak FE
0.000
Comp FE
0.000
No Alarms
Custom Password
Prev Menu
Default Password
Custom Password
1800
Enter up to four numeric characters. Zero leading numbers are not supported.
Servo Tuning
Prev Menu
Save
Cycle
Peak Current
14.375
Current
2.341
Position
0.445
Peak Velocity Difference
0.0065
Peak FE
0.265
Kpos Gain (0 - 3000)
700
Kp Gain (0 - 30000)
20000
Ki Gain (0 - 3000)
0
Abort Decel (100 - 20000)
2000
Timescale
100 %
Speed
5
Go To
25.00
Prev Menu
3600st-3a.1.0.01
3600st-3a.1.0.01
3600st-2a.1.1.20
3600st-2a.1.1.11
3600st-2a.1.1.10
3600st-1a.1.1.32
3600st-1a.1.1.31
Drive Parameters
Prev Menu
Help
Software Limits
0.50
Above Home
(0.10 - 2.00)
20.00
Below Home
(5.00 - (< Stroke))
Encoder Deadband
0 In/Min
(0 - 50)
Tamp Accel
800
(100 - 3000)
Tamp Decel
1100
(100 - 3000)
Applicator Hand
Prev Menu
Configure the Apply Hand of the Applicator the same as the Dispense Hand of the Print Engine so the Tamp moves in the correct direction.
Current Setting
Right Hand
LH Apply
RH Apply
CONFIG MENU
SPECIAL OPTIONS PAGE 2


SPECIAL OPTIONS PAGE 2
Special Options (pg 2)
Prev Menu
Tamp Status On Power-Up
Blank Lbl Option
Warning To Critical
Height Sensor Analog Filter
10 Scans
(1 to 500)
Warning To Critical Option
Prev Menu
Next Page
Off - The alarms listed below will generate a Warning Alarm. The applicator will remain online and the next properly scanned product will be labeled.
On - The alarms listed below will generate a Critical Alarm. When the alarm occurs, the applicator will be forced offline. The alarm will have to be reset and the applicator placed online to resume labeling.
Product Height
Product Rate Too High
Blank Label Option
Prev Menu
Print Labels
Setting this option to Feed Blank labels, will allow the printer to dispense labels without printing on them. This can be used when applying pre-printed labels.
Tamp Status On Power-Up
Prev Menu
Enabled On Power-Up
This allows the operator to decide if the tamp should be enabled or disabled after powering on.
SPECIAL OPTIONS

Connector Faceplate

This section covers all standard connectors available on the rear-panel of the applicator.

Parallel / Serial / Ethernet

This connector will go directly to the print engine. It is used to send label formats to the print engine. Depending on the communication type of the print engine a blank will be used for the connector not in use.

I/O

A DB-15 connector pre-wired for the operator to tie into to monitor various signals. For more information on the I/O signals and pin numbers see the “I/O Harness” drawing in the “Drawings” section of the manual.

Alarm

A connector to tie in an alarm light stack. Pre-wired to support up to a three light stack where Red is Critical Alarm, Amber is Warning Alarm, and Green is Ready Signal.

Valve

This connector can power up to three valves on one valve bank. The valve bank can be configured to the applicator needs.

Product

A four pin connector to plug the product detect sensor into.

Low Label

A five pin connector to plug the low label sensor into if a low label sensor is being used.

EOW

A different five pin connector to plug an end of web sensor into if it is being used.

Height

The height sensor is plugged into this connector if running in Auto Mode. Multiple different types of sensors can be used but it needs to have a 0-10 VDC Analog output.

Encoder

The encoder is plugged into this connector. Once plugged in the encoder option will need enabled in the Application Setup menu.

Display

The display connects to the applicator here.

3600ST General Setup Procedures

The following procedures detail the setup of various components that can be included with a standard 3600ST.

GUARDING IS REQUIRED!

Even though there are parameters that can be set so the slide reverses when it hits something, they are not safety rated. At the slide speeds necessary to hit the labeling rate, personal injury could occur if a person got caught in the label pad.

Sensors

The following are standard sensors CTM uses on applicators that require setting up. These may or may not be installed on your applicator. If there is a sensor on your applicator that is not covered and you would like more information. Please contact the factory.

Sick WL27-3 Photoelectric Sensor Array

The WL27-3 is an opto-electronic photoelectric sensor for the optical, non-contact detection of objects.
The sensor must be connected in a voltage-free state (V_S = 0 V). Only apply voltage/switch on the power supply (V_S > 0 V) once all electrical connections have been completed. The green LED indicator lights up on the sensor.
The sensing range is a maximum of 1.5m with a minimum object size of 5mm through a 24mm beam.

Standard setting for non-transparent objects:

1. Align the 24mm light array to the reflector.
2. Precision alignment of the light array:

   Fold a white paper, DIN A4, twice into quarters.

   Check to ensure that the entire 24 mm light array is visible on both near and far edge of a conveyor belt. The light array must also be adjusted parallel to the top of a conveyor belt without gap.

   Please note that tightening of sensor and bracket fixturing screws could affect alignment.
3. Press Teach button until the yellow LED indicator switches off and illuminates again (approximately 2 seconds).
4. Confirm alignment:

4a. Turn the conveyor belt ON and check that the sensor does not change state when no product is present.

4b. Turn the conveyor belt ON. Place product on the near and far edges and in the middle of the conveyor belt and check for reliable detection.

5. Alignment is complete if reliable detection occurs after Step 4a and 4b otherwise repeat from step 2 "Precision alignment of the light array".

PNP to NPN converter

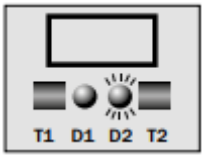
Because this sensor has a PNP output it is necessary to use a PNP to NPN converter inline. The converter plugs between the sensor and the control. The signal from the converter needs to be inverted and if it was purchased from the factory, it should be done. If the converter was not purchased from the factory, with power to the sensor and the sensor looking at only the reflector (no product between), jump output pins 1 (brown wire) and 4 (white wire) for one second. Go to the I/O diagnostic screen and verify that when there is a product between the reflector and sensor, the Sensor Array input is on.

Sick UM30-213113 Ultrasonic Sensor Setup

The UM30-2 is an ultrasonic sensor from Sick. It has a sensing range of 200mm – 1300 mm and outputs an analog signal from 0vdc – 10 vdc.

Standard sensor setup:

Before starting ensure the sensor is positioned far enough away from the tallest product to be in range. This means the sensor needs to be at least 8" from the top of the tallest product. With the sensor looking down at an empty conveyor surface note the reading on the sensor display. That value will be used when setting the max distance in the sensor. In this example we will use "910".



1) Press the **T1** and **T2** buttons at the same time and hold until "Pro" appears in the display. Let go of the keys and wait for "IU" to appear.

2) Press both **T1** and **T2** at the same time and release. The screen that will now appear is the minimum scan distance. Set the value to 200 which is the minimum for this sensor. The **T1** button will decrease the value while **T2** increases.

3) Press both **T1** and **T2** at the same time again and release. The new value in the display is the maximum scan distance and should be set a bit higher than what the value was when looking at the conveyor. We started with a value of 910 and now will use the T1 and T2 keys to set it to 925.

4) Press both **T1** and **T2** at the same time again and release. In this part we set the rise/fall characteristic of the analog signal. Toggle **T2** to change the rise/fall so it looks like the display to the right (⎽‾⎽‾).

5) Press both **T1** and **T2** at the same time and release. The word "End" should appear and when it does press both **T1** and **T2** again to finish the process.

Sensor Filters:

There are additional parameters in the sensor that need changed if the sensor was not purchased from the factory. Hold **T1** + **T2** for approx. 13 seconds until "ADD" appears. Use **T2** to navigate to the A6 parameter and set it to F01. Repeat those steps until you get to the A7 parameter and set it to P01.

To Factory Default the Sick UM30 Ultrasonic Height Sensor:

Press and hold **T1** during the power "on" sequence for approx.15 seconds until the verbiage "rESEt" scrolls through – release the **T1** button and the sensor will be defaulted.

Keyence LR-ZB250CN Setup

The LR-ZB250CN is a CMOS laser sensor. It is used to detect objects up to 200 mm away. This sensor can be configured as a tamp return sensor. To setup the sensor you must set a zero point and then define your "on" point.

Safety Precautions on Laser Product

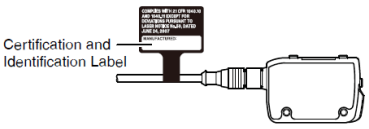
⚠ WARNING	• This product uses a semiconductor laser for the light source. • Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. • Follow the instructions mentioned in this manual. Otherwise, injury to the human body (eyes and skin) may result. • Laser emission from this product is not automatically stopped when it is disassembled.Do not disassemble this product. • Do not stare into the beam.

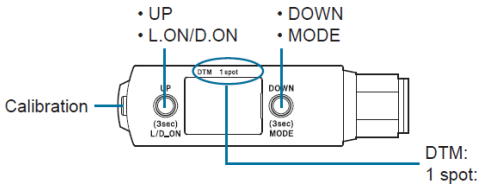
Wavelength/Output	660 nm/145 μW
FDA(CDRH) Part1040.10 *	Class 1 laser product
IEC 60825-1	Class 1 laser product

* The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.

■ **Certification and Identification Label**

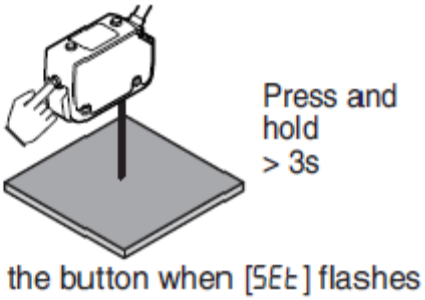
- When using this product in the U.S. affix the Certification and Identification Label included in the package of this product as shown on the right.
(Affix this label in a location that is not splashed with oils or chemicals.)





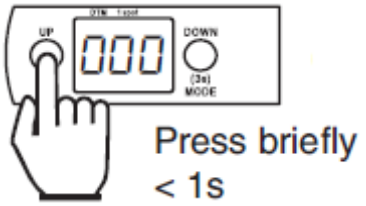
Setting Zero Point of Sensor:

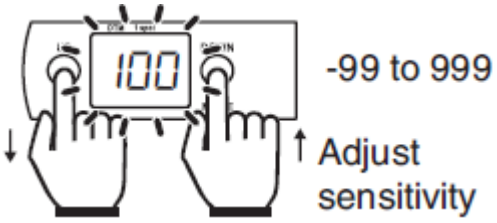
1) Ensure the sensor is aiming at target 8 inches away.
2) Hold the Set / Calibration button for three seconds. The word "Set" will flash on the sensor display.
3) Release the button. If sensor does not show "---" then the teach is successful.



Setting "On" Point of Sensor:

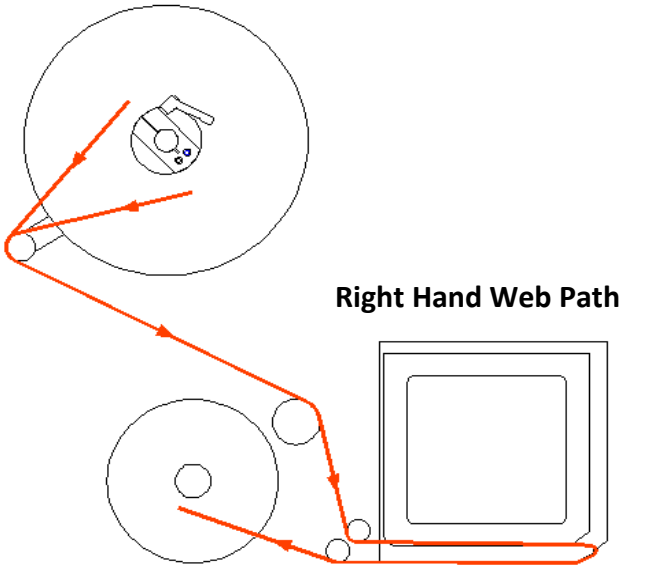
1) Press the up button briefly for less than 1 second.
2) Use Up and Down buttons to adjust sensor to 95.
3) Verify sensor is functioning by using moving the sensor close to the product until it turns on. This should when the tamp is 95mm from the target.

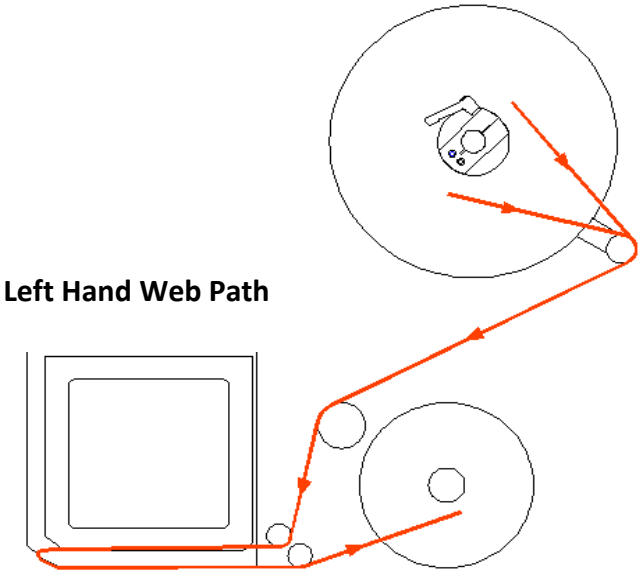




NOTE: When using a tamp return sensor at high tamp speeds the servo tamp may have a higher current draw, potentially leading to increased overcurrent alarms. If you experience excessive overcurrent alarms, try reducing the tamp speed

Web Path Diagrams





Note: Web path diagrams for the print engine can be found inside the print engine or in the print engine manual.

Servo Tamp Setup

The following section will detail the setup procedures for various mechanical components of the servo tamp applicator. The images used are for generic servo tamps and may not exactly reflect your applicator.

The servo tamp consists of an unwind, print engine, media rewind, and tamp slide as the major components. The following section details the setup of these components for standard applicators.

Servo Tamp Slide Setup

The servo tamp slide consists of a belt drive system, aluminum extrusion, and servo motor. This is modularly mounted to the side of the applicator. The speeds and position of the slide must be adjusted on an applicator to applicator basis. The adjustments of the pad height and tamp slide speeds are covered in the "3600 Servo Tamp Display" portion of the manual under the "Tamp Setup" section. This section will cover the mechanical adjustment of the label pad and tamp slide.

Note: Before continuing ensure you have selected the correct "Tamp Mode" in the "Tamp Setup" section of the display.

Setting Home Offset

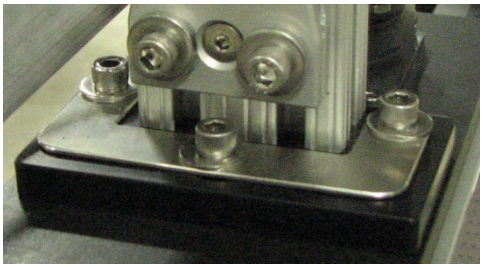
1) Power the applicator on and Home the applicator. Verify that the peel edge of the printer and the label pad will not hit each other. If they are too close or will hit skip to the next section "***Setting Label Pad Gap***" before continuing.

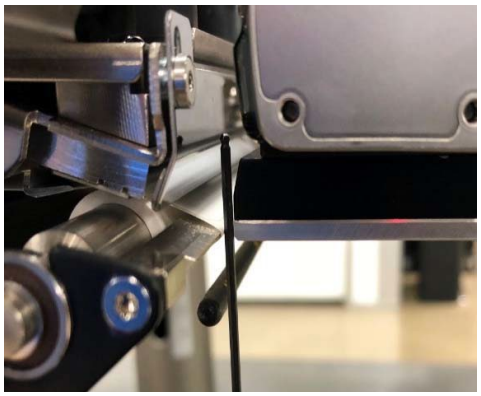
2) Adjust the home offset so that the bottom of the pad is even with the point of the printer peel edge. This is shown in the image to the right. Once the pad is even feed a label and ensure that it is feeding smoothly. Look to ensure that there is not too much of a dip from the label as it feeds out. The label may not stay on the pad if the air assist has not been setup. The home offset height will vary depending on printer and pad type.

Setting Label Pad Gap

1) The pad needs to be positioned so that there is proper spacing between label pad and peel edge. There should be 1/16" gap between the peel edge and the label pad. This can be set with a feeler gauge. To set this gap loosen the socket head bolts holding the pad in place.

2) Adjust the pad and snug the bolts. Ensure the pad is parallel to the peel edge. Re-home the tamp. Continue to make adjustments until the pad position is correct.





A 1/16" allen wrench used as a feeler gauge.

Label Feed Setup

Once the pad is in the correct position the label feed can be setup. This will involve adjusting the vacuum, assist tube, and blow on a vac-blow applicator.

Air Assist Tube Setup

The air assist tube is used on vac-blow applicators to force the label onto the pad so the vacuum can hold it. The follow steps detail adjusting the air assist:

1) Ensure that the air assist is centered on the label. This will vary based on label width. If the air assist tube is off-center and can cause one side of the label to not pull up onto pad.

2) The angle of the assist tube will need adjusted based on the label. Typically, the air assist tube is aimed at the first row of bolt holes in the pad. This will provide a starting point. If the label flutters as it is being fed out the air assist tube can be angled toward the end of the pad. If the label curls downward without pushing against the pad the air assist tube can be rotated toward the printer peel edge.

3) The air assist gauge on the valve should read approx. 30 – 40 PSI. This is a standard setting but some cases may require different settings.

4) If needed, a longer air assist timer can be used by increasing the "air assist" value in the "Application Setup" section of the display.

Vacuum Setup

On vac-blow applicators the vacuum is generated by a venturi generator located on the valve bank. The vacuum should hold the label onto the pad as it feeds out. The vacuum remains on until the label is blown onto the product. If too much vacuum is present the label may flutter as it feeds out. The typical vacuum pressure is 15 – 20 PSI.

Note: It is important to ensure that the label size matches the pad size. If the label is smaller than the pad not all the vacuum holes will be covered and the label may fall off the pad.

In an e-tamp applicator the vacuum is generated by a two speed fan. Refer to the "Vac / Fan Setup" section of the "Applicator Options" portion of the display to learn more about the different fan modes.

Air Blast Setup

On vac-blow applicators the label is transferred from the pad to the product by blasting air through the manifold. The blast is set to 40-50 PSI by default. The time that the air blast blows for can be found as "Air Blast" under the "Application Setup" menu in the display. This adjusts the time the air blast blows after the tamp begins to retract.

Label Static Stack Test

It's important to know if the applicator can consistently place labels in the same place over and over on the product. Without knowing this, you will not know whether label placement problems that occur on the line are due to the machine or to the product being labeled. When the Servo Tamp Slide Setup and "Label Feed Setup" are finished, perform the following steps to ensure the applicator is properly setup.

1) Make sure the labels are consistently stopping in the same place on the label pad or grid. If this is OK go to step 6; if not, go to step 2.

2) Make sure the label pad surface is clean and the pad matches the label. If OK, go to step 3. If not, clean and re-try the static test again.

3) Make sure the vacuum is set right. If the label flutters when feeding across the pad, the vacuum is too high. If the label falls off or moves after the label has left the liner, the vacuum is too low. If the label feed looks smooth, go to the next step.

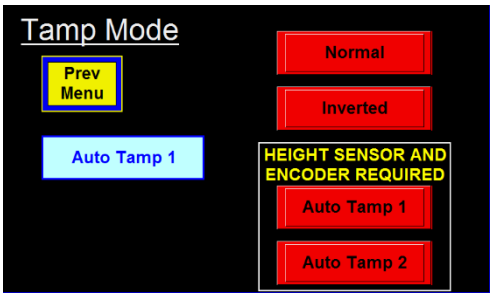
4) Work with the air pressure and the position of the air assist tube until the label feeds more consistently onto the pad. Re-try the static test. If the results are still not good enough, go to step 6. Otherwise go to 6.

5) Make sure you are working with good label stock. Try another roll of labels and see if you get the same results.

6) Next you need to cycle the applicator to see if the label will stack on the product. The easiest way to do that is to set the tamp mode to normal tamp. If you are using a vac-blow type pad and manifold set the long tamp length so the label pad is about a ¼ inch above the product. If you are using an e-tamp pad, set the long tamp length so you barely hit the product. With the product under the tamp, use the jog key to cycle the tamp slide. Apply three or four labels on top of each other and check to see how well the labels stack. If the labels are stacked well the setup is complete. If not and you are using the vac-blow pad, change either the blow distance or air blast pressure and retest until you get a good stack of labels.

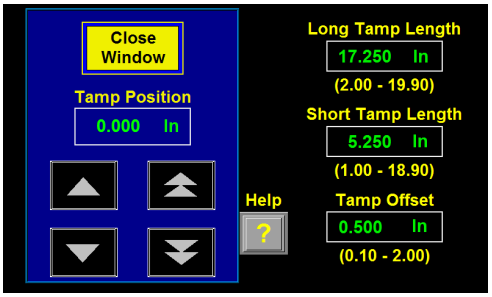
Tamp Mode Setup

The following will describe the setup procedure for each of the four types of tamp actions. Before starting through this part of the setup, make sure the "Servo Tamp Slide Setup" and "Label Feed Setup" are complete.



Normal / Inverted *Tamp*

In ***normal mode***, the applicator will get a product detect signal and wait the label placement time/distance. It then tamps toward the product. At the end of the ***long tamp length*** the label will be blown off the pad. The long tamp length can be overridden by a tamp return sensor. At the same time the tamp slide will return home for another label. The ***inverted mode*** will receive the label from the printer and extend the tamp slide to the ***long tamp position***. From there the applicator will wait for the product detect to blow the label and return home for the next label.



Long Tamp Length –This is the position the label pad will move to apply the labels. The position is relative to the tamp home position. To find the position, put the shortest product you are labeling under the label pad. In the display, enter the "Tamp Setup" menu and select "Tamp Stroke". Select motion popup. Press and hold the fast or slow down key until the label pad is between 1/8" and 1/4" above the product. Be careful not to hit the product with the pad because it can cause an amp fault. Enter the value shown in the "Tamp Position" read out into the "Long Tamp Length" box.
Next, home the tamp. Adjust the "Tamp Speed" variable so that the applicator does not miss any products.

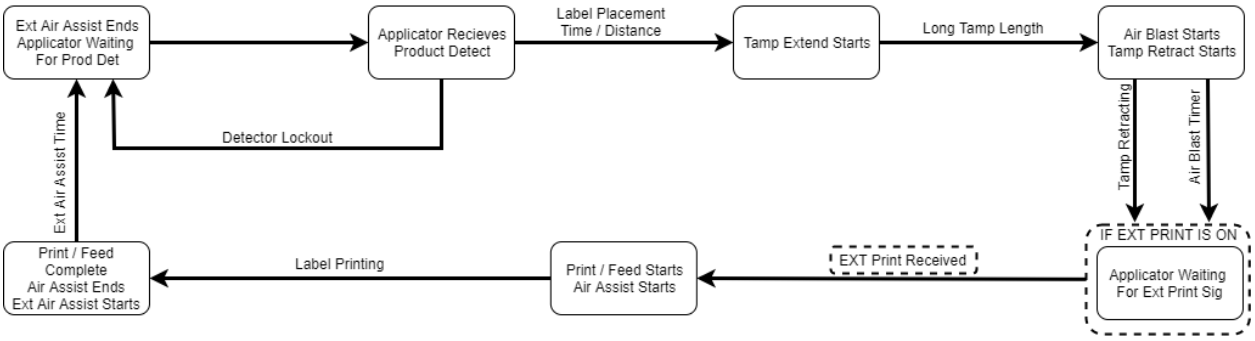
Note: Adjusting the tamp speed too high while using a tamp return sensor can lead to current faults. If using a tamp return sensor, ensure that the tamp return sensor is setup properly before proceeding. A failure to setup the tamp return sensor can cause the applicator to crash into products.
Adjust the label placement value as products are being labeled to ensure the label is applied into the correct position on the product.

Encoder use – An encoder can be used with both normal and inverted tamp modes. The encoder option will make the applicator distance based and if the compensation is setup correctly the applicator will be able to adjust to speed changes properly.

Note: If set to Normal tamp and encoder based the compensation cannot adjust as well. This is because the label placement is higher.

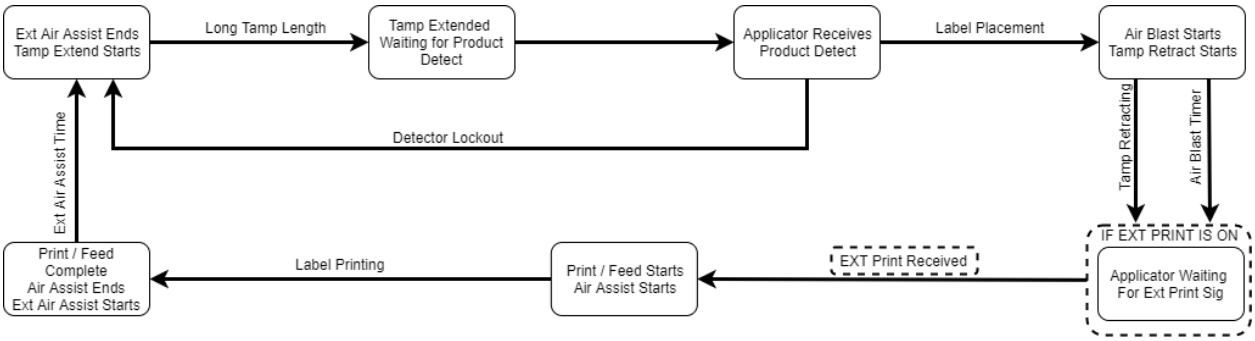
Normal Mode Flow Chart

The below flow chart depicts the sequence of an applicator using Normal Tamp mode. Stages with multiple arrows leading to it implies that all steps prior need to be completed prior to continuing. Dotted lines imply that the portion inside the dotted lines is optional.



Inverted Mode Flow Chart

The below flow chart depicts the sequence of an applicator using Inverted Tamp mode. Stages with multiple arrows leading to it implies that all steps prior need to be completed prior to continuing. Dotted lines imply that the portion inside the dotted lines is optional.



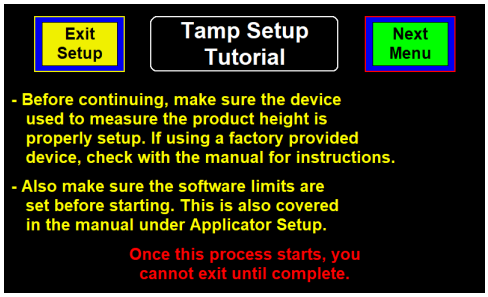
Auto Tamp Modes 1 / 2

The auto tamp modes allow the applicator to label varying height products and still hold a consistent label placement. This is one using a 0v-10vdc signal from an ultrasonic sensor to measure the height of a product. The tamp slide travel is calculated based on a scale created using the analog signal as well as the operator inputted tamp lengths. The product detect happens and the applicator begins scanning the product height. After the scan distance has expired the tamp slide extends to the labeling position and blows the label onto the product. In mode 2, instead of blowing the label onto the product the applicator instead extends slightly more to contact the product.

Note: Before proceeding, ensure the applicator is positioned and squared correctly. The height sensor must be configured properly. Moving the height or position of the applicator will cause the tamp stroke tutorial to need to be completed again.

Tamp Stroke Tutorial

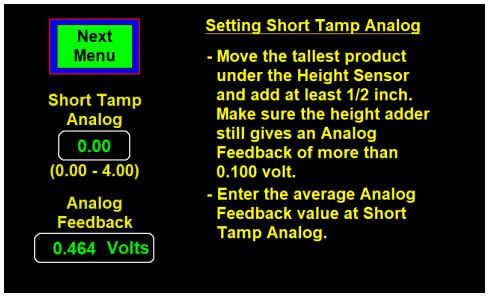
The tamp stroke tutorial menu is in the "Config Menu" on the display. For information on accessing the menu visit the "Config Menu" portion of the "Display" section of the manual. The software limits and height sensor need to be properly configured before continuing.



Note: The values show in screenshots are generic values. Each value will be applicator and setup dependent.

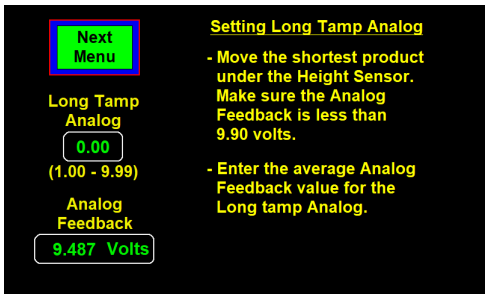
Short Tamp Analog

The short tamp analog can be configured by placing the tallest product underneath the height sensor. A 1/2" "spacer" is used to sit on top of the tallest product and create a buffer. By using the spacer we allow products that are slightly taller than the tallest product to be labeled. With the product and spacer underneath the sensor enter the value shown in "Analog Feedback" into the "Short Tamp Analog" box.



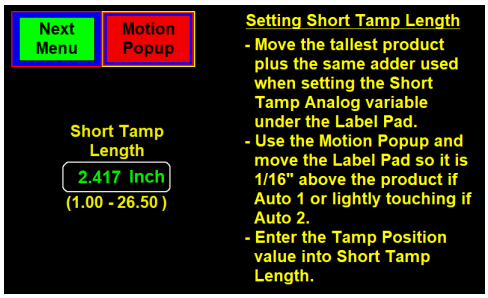
Long Tamp Analog

The long tamp analog can be configured by placing an object 1/2" shorter than the shortest product underneath the sensor. If running on a conveyor you can also set the spacer from the previous section onto the conveyor and use that. This will ensure the tamp cannot read the conveyor belt and therefore cannot hit it. With the short product or spacer under the sensor enter the value shown in "Analog Feedback" into the "Long Tamp Analog" box.



Short Tamp Length

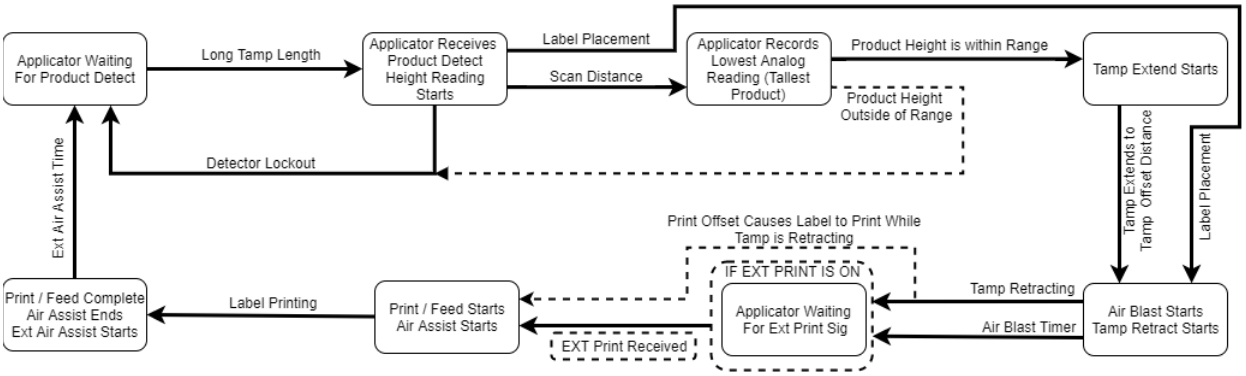
The short tamp length can be configured by using the tall product and spacer from the "short tamp analog" section. Place both objects under the tamp pad. Using the motion popup buttons move the tamp pad until it is 1/16" above the product if auto mode 1, or just touching the product if auto mode 2. Enter the "Tamp Position" value into the "Short Tamp Length" box.



Note: Running the tamp into the product can cause overcurrent faults.

Auto Tamp Mode 1 Flow Chart

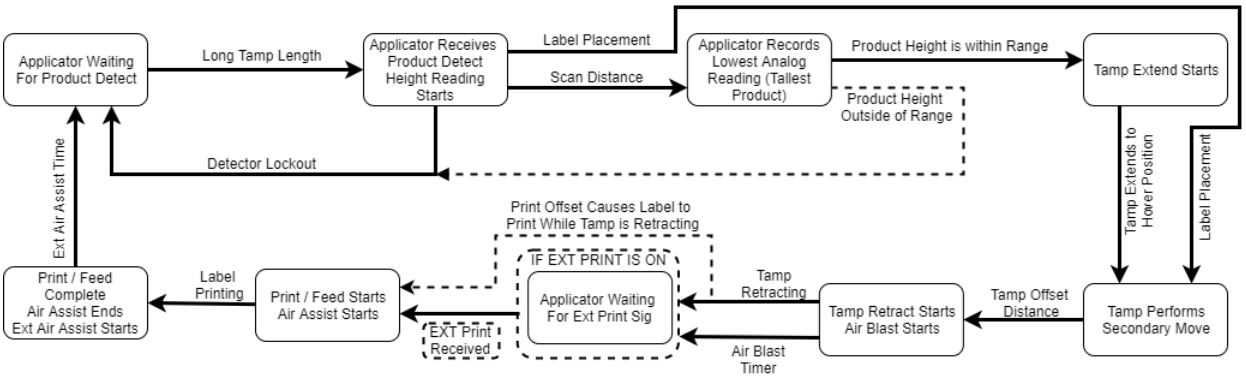
The below flow chart depicts the sequence of an applicator using Auto Tamp Mode 1. Stages with multiple arrows leading to it implies that all steps prior need to be completed prior to continuing. Dotted lines imply that the portion inside the dotted lines is optional.



Note: Other options may have small impacts on the cycle but are not displayed.

Auto Tamp Mode 2 Flow Chart

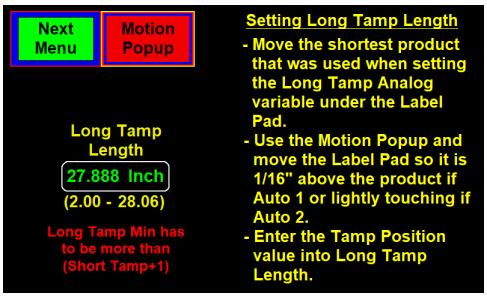
The below flow chart depicts the sequence of an applicator using Auto Tamp Mode 2. Stages with multiple arrows leading to it implies that all steps prior need to be completed prior to continuing. Dotted lines imply that the portion inside the dotted lines is optional.



Note: Other options may have small impacts on the cycle but are not displayed.

Long Tamp Length

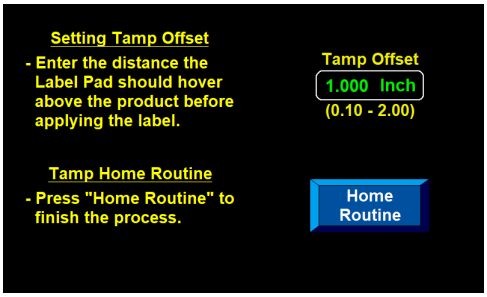
The long tamp length can be configured using the objects used to configure the “Long Tamp Analog”. Place the objects under the tamp pad. Using the motion popup buttons move the tamp pad until it is 1/16” above the product if auto mode 1, or just touching the product if auto mode 2. Enter the “Tamp Position” value into the “Long Tamp Length” box.



Note: Running the tamp into the product can cause overcurrent faults.

Tamp Offset

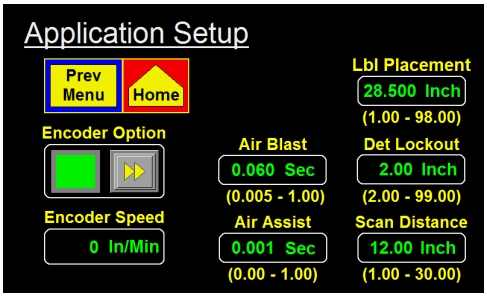
The tamp offset is set by the operator as the value the tamp pad will extend to above the read height value. For example, if the sensor reads a box at 7 inches and the tamp offset is 1 inch the tamp pad will extend to 8 inches.



After the tamp offset is set perform a home routine to go back to the setup menu. The last option to adjust is in the “Application Setup” menu.

Scan Distance

The scan distance is the distance after a product detect that the height sensor will measure the product before calculating a height. If the products have irregular shapes it is advised to have a higher scan distance up to the length of the product. Too high of a scan distance can cause missed products due to the application not starting until after the scan distance is complete.



Once the scan distance is set, test run products and adjust the setup as needed. Ensure the applicator is labeling the tallest product, shortest product, and is hitting rate. Ensure that if the product detect is flagged but nothing passes underneath the height sensor the applicator does not attempt to label the belt.

Note: All values changed in the Tamp Setup Tutorial can also be changed in the “Tamp Stroke” menu in the display. The Tamp Setup Tutorial is used as a walkthrough tool.

Printer Settings

There are a number of settings and functions in these print engines that can be turned on or off. The following are lists of items for several printer that have to be set in order for the applicator control to interface with the printer. Options like backfeed, direct or thermal transfer, etc. will be up to the operator to decide how to set.

An applicator coming from the factory will have these options already turned on. If a print engine is installed from a another source, use the printer manual to navigate the printer menu.

Zebra ZE500 Printer Settings

PARAMETER	SETTING
Print Mode	Applicator
Media Type	Non-continuous
Sensor Type	Web
Applicator Port	Mode 2
Start Print Signal	Pulse Mode
Ribbon Low Output	Active High

Datamax A Class Mark II Printer Settings

PARAMETER	SETTING
GPIO Device	Applicator 2
Error On Pause	App 2

Sato S84ex Printer Settings

PARAMETER	SETTING
Printer Type	Dispenser
External Signal	Enabled
External Signal	Type 4
Ext 9 Pin Select	Mode 2

Note: For information about other printer settings and navigating printer menus consult proper print engine manual.

3600ST General Maintenance Procedures

The following procedures detail the maintenance of various components that can be included with a standard 3600ST.

GUARDING IS REQUIRED!

Even though there are parameters that can be set so the slide reverses when it hits something, they are not safety rated. At the slide speeds necessary to hit the labeling rate, personal injury could occur if a person got caught in the label pad.

‼‼ CAUTION ‼‼

DISCONNECT AIR AND POWER TO THE APPLICATOR BEFORE PERFORMING THE FOLLOWING PROCEDURES. INJURY FROM MOVING PARTS AND/OR ELECTRICAL SHOCK MAY OCCUR.

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Daily Maintenance

1) Clean the printhead and platen roller each time you change ribbon. Refer to the printer manual for the correct procedure and additional daily checks.

2) Examine the air filter for water or oil collection. Drain if necessary.

3) Examine the tamp pad and the rollers used to guide the web for adhesive build up. Clean if needed with alcohol or similar solvent.

4) Look for loose screws, rollers, etc.

Weekly Maintenance

1) Clean peeler bar, rollers, and tamp pad.

2) Examine machine for air leaks.

3) Wipe down the outside of the applicator and product detect lens.

4) Clean belt drive. Manually extend the slide using the motion buttons in the tamp setup section of the display. Once the slide has been extended, remove power to the applicator. Open the stainless guard covering the roller assembly and blow out the dust and wipe down the aluminum extrusion to remove any residue. When finished, turn power back on to the applicator and do a home routine when prompted to bring the label pad back to the peel edge.

Semi-Annual Maintenance

1) Replace filters.

2) Check vacuum pump for an accumulation of debris. Replace if necessary.

3) Examine pulleys, belts and rewind clutch for wear.

Unwind Dancer Arm Adjustment

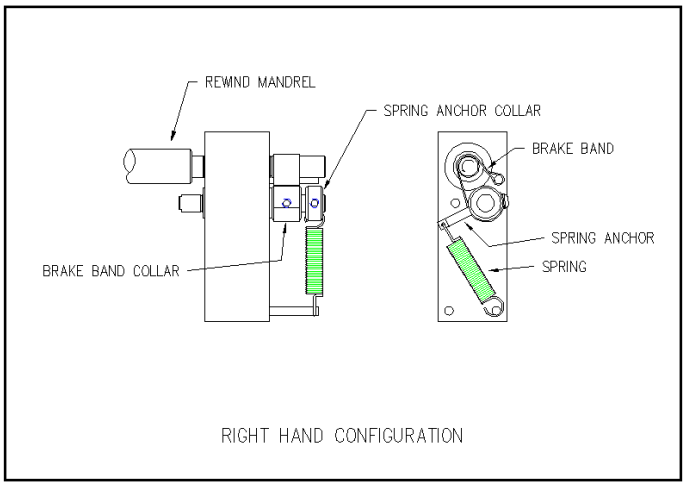
The figure below shows the layout of the unwind brake band. It's important the brake stops the unwind from turning but if it's too tight the printer will have a hard time pulling the web off when the label roll nears the end.

***Note*:** Even if the unwind brake is adjusted properly, it will be of little value if the core of the label roll slips on the unwind hubs. Making sure the unwind disks are tight against the roll of labels will help.

Adjusting the Unwind Brake Band

1) Hold the dancer arm in the position it should be when the brake is on. Loosen the collar that the brake band is anchored to, rotate it so the band is tight and tighten back down. Make sure the brake band is wound in the right direction.

2) Loosen the collar with the spring anchor and tighten so the dancer arm is held up with enough tension to stop the unwind from turning. It should not be so tight as to create too much pull off force when the printer is running. This may cause the printer motor to stall or cause print registration problems.



Drawing showing components of unwind.

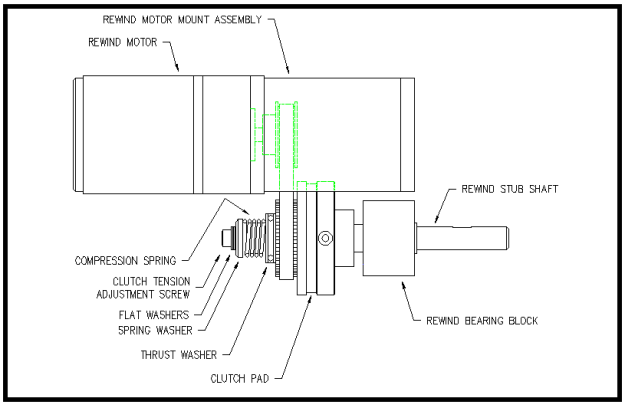
3) Check the performance of the unwind with a full roll of labels and a small diameter roll. Adjust as necessary.

!!! CAUTION !!!

DISCONNECT AIR AND POWER TO THE APPLICATOR BEFORE PERFORMING THE FOLLOWING PROCEDURES. INJURY FROM MOVING PARTS AND/OR ELECTRICAL SHOCK MAY OCCUR.

Rewind Slip Clutch Adjustment

The rewind is used to take-up the liner leaving the printer (after the labels have been dispensed). It's important to set the rewind tension so the liner is taken up even at the end of a roll when the rewind is full. Also, the tension should not be too high so the labels are being pulled through the print head. This will cause poor print quality and label stop will not be consistent



Rewind Slip Clutch Adjustment

1) Remove power and air to the machine.
2) Remove the lower stainless cover.
3) Remove the tension adjustment screw and all washers. Keep track of how many flat washers are on the outboard and inboard sides of the "spring washer".
4) If the rewind tension was too tight, move one or two of the flat washers from the outboard side of the "spring washer" to the inboard side. This will relieve the pressure on the clutch pad. If the tension was too loose, move one or two flat washers from inside the compression spring to the outboard side of the "spring washer". This will increase pressure on the clutch pad.
5) Carefully re-apply the power and air to the machine and test. Re-adjust if necessary.
6) Remove power and air and replace the cover on the machine if everything tests correctly.

Changing Clutch Pads

1) Remove power and air to the machine.
2) Remove the stainless cover on the back of the machine.
3) Carefully remove the tension adjustment screw, flat washers, spring washer, spring and thrush washer. Note how many flat washers are on the outboard and inboard sides of the "spring washer" to maintain the same pressure on the clutch pad when re-assembled.
4) Work the belt off the pulley/pressure plate and slip off the pressure plate.
5) Replace the clutch pad.
6) Re-assemble and adjust the tension for the new clutch pad.

Belt Tension

1) Remove power and air to the machine.
2) Remove the stainless cover on the back of the applicator.
3) Loosen the two ¼" socket head cap screws that bolt through the side of the rewind motor mount assembly to the faceplate of the applicator.
4) Push the rewind motor assembly up and re-tighten the two ¼" socket head cap screws.
5) Replace stainless cover.

Servo Tamp Slide Belt Maintenance

The servo tamp slide belt should be checked and adjusted as needed. It is recommended to check the belt after every crash of the applicator.

Adjusting Belt Tension

Having the proper tension is important because it affects the tuning of the motor. If the belt is too tight the motor works harder and has a hard time finding its position. If the belt is too loose the timing lugs on the back of the belt will jump out of the pinion pulley and the applicator will lose the position of the label pad. After a product crash the belt should be checked because they tend to tighten up.

Checking Tension:

To check the belt tension, lower the slide using the motion popup in the tamp setup section to a position of 12 inches. Grab the midpoint of the exposed belt and pull. The belt should have about ¼ to ½ inch deflection.

Belt pulled away from slide showing 1/2" deflection.

Changing Tension:

Loosen the (2) 1/4-20 SHCS fastening the lower belt clamp to the slide extrusion. Do not remove the screws but loosen them enough so the clamp will slide up and down without resistance. Pull down on the clamp by hand while someone else tightens the bolts. **Do not use a clamping tool to create the tension.**

Belt clamp being pulled down by hand. The bolts that hold it are circled.

Note: Over-tightening drive belts can lead to drive faults.

!!! CAUTION !!!

DISCONNECT AIR AND POWER TO THE APPLICATOR BEFORE PERFORMING THE FOLLOWING PROCEDURES. INJURY FROM MOVING PARTS AND/OR ELECTRICAL SHOCK MAY OCCUR.

Changing Belts

To change the belt, pull the slide down so it is mostly extended and put a support block under the pad so when the belt is disconnected from the extrusion it does not drop.

Belt Removal

Note: Referenced figures are located at bottom of page.

1) Remove the home prox cable from the slide guard by cutting all the wire ties and unscrewing the cable from the sensor. (Figure 1)
2) Remove the four 10-32 SHCS from the base flange of the guard. When done, slide the guard up and over the extrusion and set aside. (Figure 2)
3) Remove the stainless guard covering the pinion pulley. (Figure 3)
4) Remove the lower belt clamp and take it apart so the belt is free. (Figure 4)
5) Pull the belt up and through the drive assembly. Loosen the upper belt clamp. The two 1/4" LHCS hold the clamp to the extrusion and are long enough to go through two locating holes in the extrusion. Back the screws out until they are out of the clearance holes but still attached to the drop-in nuts. Remove the assembly with the belt by sliding it up and out of the extrusion. Once out, dissemble the clamp and remove the belt. (Figure 5)

Figure 1) *Home prox sensor and cable attached to guard.*

Figure 2) *Guard flange and cable ties. Bolts to remove guard flange are circled*

Figure 3) *Stainless steel guard. Bolts to remove are circled.*

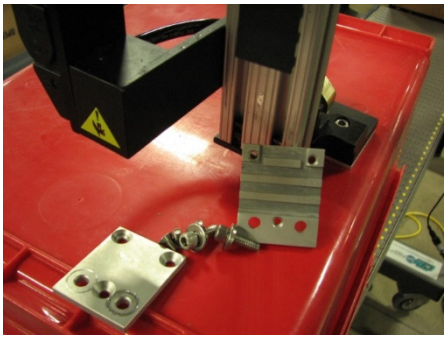


Figure 4) (Left) *Lower belt clamp disassembled*

Figure 5) (Right) *Upper belt clamp with removal bolts circled*

Belt Installation

To install the new belt we will reverse the previous steps.

1) Install new belt into upper belt clamp. Tighten bolts locking upper clamp into position while ensuring the upper clamp stays square to the extrusion.

2) Work the belt back through the drive assembly and down to the lower clamp position. (Figure 6)

3) Install the lower clamp assembly to the end of the belt

4) Install clamp back on to the lower part of the extrusion. Follow the belt tensioning instructions from above to re-tension new belt.

5) Reinstall the slide guard and home prox cable. When finished, power the applicator back on and do a home routine when prompted.

6) Watch the belt on the pinion pulley and make sure it runs mostly in one position. Once home go to the tamp setup and use the motion popup to manually move the slide up and down a couple of times. Again watch the belt on the pinion to make sure it is not wandering across the pulley more than 1/8 inch. If the belt is moving too much, try re-tensioning the lower belt clamp making sure it is square. (Figure 7 shows what to look for if belt is not running straight)

7) Once belt is running straight put the stainless guard back in place and home the assembly.

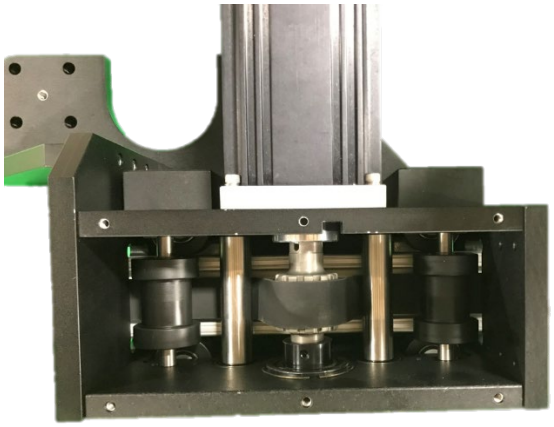


Figure 6) (Above) *Drive belt runs under Delrin and stainless rollers and over the pinion pulley*

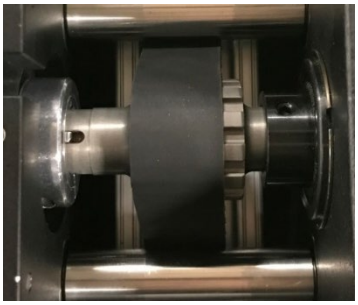


Figure 7a) (Right) *Drive belt runs to left side of pulley*

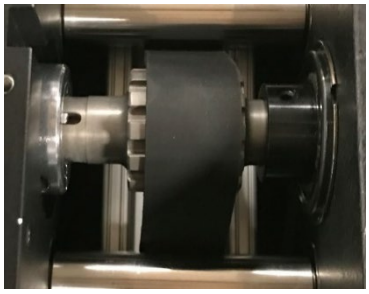


Figure 7b) (Right) *Drive belt runs to right side of pulley*

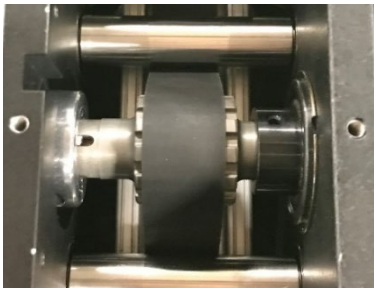


Figure 7c) (Right) *Drive belt runs along center of pulley*

3600 Servo Tamp Troubleshooting Guide

The below chart serves to provide common causes and solutions for common problems.

Troubleshooting Chart

PROBLEM	POSSIBLE CAUSE	SOLUTION
Nothing works	Power cord is loose, defective or not plugged in	Inspect the cord and correct the problem
	A.C. line fuse blown.	Find the cause of the electrical short and correct.
Power switch on, printer is on; no display.	Bad Power Supply.	Check power supply.
	Cables are not plugged into the display.	Make sure cable is plugged in.
Power switch on, display is lit and working; printer not on.	Printer turned off.	Turn the printer on.
	Power cord going to the printer is disconnected.	Inside the applicator, plug the printer power cord in.
Label liner breaking	Labels are not threaded correctly	Re-thread labels.
	Unwind/rewind disks or guide collar not aligned with printer	Adjust disks and collars so the labels flow through the printer
	Adhesive build-up	Clean as necessary.
	Label jammed in printer	Clear jam.
	Bad roll of labels	Replace label roll.
Labels are not consistently stopping on label pad	Vacuum pump not working	Clean or replace pump
	Too little or too much vacuum	Adjust vacuum pressure
	Air assist too high or too low	Adjust air pressure
	Tamp pad not positioned correctly to the peel edge	Check with the applicator setup section on how to position the label pad
	Air assist tube not positioned correctly	Adjust the position of the air assist tube
	Adhesive build-up on the pad	Clean label pad

PROBLEM	POSSIBLE CAUSE	SOLUTION
Labels are consistent on the label pad, but not on product.	Product is not consistently presented to the applicator	Make sure product speed is consistent. Make sure the product is the same distance from the label pad every time.
	Air blast is too high or too low	Adjust the air pressure
	Product detect sensitivity or position	Move and adjust the product detect sensor so it is repeatable
	Labels are blown off before tamp is fully extended	Enter a higher value for the tamp extend time
	Label pad does not match the label.	Install the right label pad.
Valves do not turn on	Air pressure is too low	Turn air pressure up and try again
	Valve bank plug is not connected to the applicator	Connect the valve bank plug
	Valve spool is stuck	Consult factory for the procedure to remove spool
	Bad solenoid	Replace solenoid
	Dwell times to short	Increase dwell times through the applicator display
Machine will not cycle	No label formats in print buffer	Send label formats, check printer manual for parameters
	No product detect signal.	Verify that the product detect sensor works
	Printer I/O cable not plugged in.	Reconnect cable.
	Printer fault.	Correct the printer problem
	The tamp is disabled	Enable tamp
Label application rate is too fast for the applicator to keep up.	Printer is taking too long to process data or to print label.	Check software and compiling time; increase print speed.
	Excessive dwell times for air assist, tamp speed too slow	Go through the setup procedure for proper setting
	The label print and apply cycle may be too long for the product rate	Slow product rate
Applicator cycles at random.	Loose or vibrating product detect sensor	Check and correct
	Product detector alignment is marginal	Refer to product setup on how to set sensor
	Loose wiring connections	Check cables and wiring harnesses inside applicator
	R.F. interference	Isolate and correct
No label feed.	Printer is not configured correctly	Refer to printer manual
	No label data in print buffer	Send label data to printer
	No external print signal sent.	Investigate and correct.

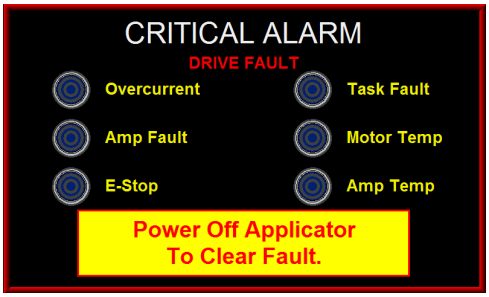
PROBLEM	POSSIBLE CAUSE	SOLUTION
Compressed print on labels	Applicator unwind brake is too tight	Loosen unwind tension
	Worn or damaged platen roller.	Replace the printer platen roller
Printing registration is early	Applicator unwind is not properly tensioned	Adjust unwind tension
Elongated print on labels.	Rewind has too much tension on it.	Re-adjust slip clutch.
Printing registration is late.	Rewind tension is too tight, not allowing a complete back feed	Re-adjust slip clutch
Poor print quality		Refer to printer manual.
Labels print continuously without being applied	Printer configuration is wrong	Refer to printer manual
	Print end signal was not received from printer	Call factory for help
	Lost 24 vdc power supply	Call factory for help
Alarm messages will not clear	Printer turned off	Turn printer on
	The problem was not fixed before telling the applicator to reset	Correct the problem at the source of the alarm signal

Display Faults

The operator interface will display warnings and alarms that pertain to the application. The following are screens that will help diagnose a drive or display problem that is more serious than the standard alarm.

Drive Fault

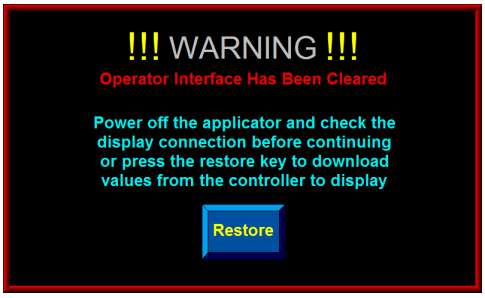
The drive fault screen will list six things that will stop the applicator from running but without this screen, it would be impossible to know why it stopped.



Overcurrent –This fault should not occur but if it does, the drive current has exceeded its configured value. Call factory if this continues.
Amp Fault –If this occurs, there has been a failure on the drive or the label pad is pressing into a product. The factory should be consulted if this occurs.
Stop Input Alarm –If the stop input circuit is active and the option is enabled, this alarm occurs.
Task Fault –This is a programming issue. Call the factory if this occurs.
Motor Temp –This alarm turns on if the motor temperature goes too high. The current motor does not support this but if the alarm occurs, call the factory.
Amp Temp –If the amplifier/drive gets too hot, this alarm will occur. Make sure the cooling fan is running if this occurs.

Cleared Display Variables

On power up, the applicator controller will send all system variables to the display. From then on until the applicator is powered off, the controller will look at the display to see if any of the variables have been changed. If for some reason, the applicator control sees the variables have been reset to zero, it will send this screen to warn the operator the display has lost its variables. Pressing the "*Restore*" key has the same effect as powering the unit off and restarting it.



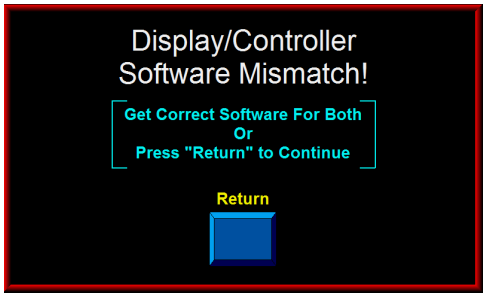
Note: There are several things that can cause this situation but the most common is the display cable was unplugged.

Display Write Error

The applicator controller will try to write to the display or read from the display ten times. If it gets no response at the end of the attempts, it will call this screen up. If this occurs, it likely is a programming problem and the factory should be contacted.

Software Mismatch Error

If the program on the display does not match the program in the drive, this screen appears warning the operator that some screens or functions may not be supported by both devices. This can happen if the drive program is updated and not the display or vise versa.



3600 Servo Tamp Accessories

The following is a partial list of accessories available for the 3600 Servo Tamp.

Low Label Detection

The Low Label Detection accessory is a sensor that generates a signal when the unwind is low on labels. The applicator will display an alarm screen and activate the amber light on the alarm light stack (if purchased) to inform the operator that the unwind is about to run out of labels. This option can be field installed.

Web Break Detection

The Web Break Detection accessory is a sensor that generates a signal when there is a break in the web. The applicator will display an alarm screen and turn on the red light on the alarm light stack (if purchased) to inform the operator that the label web is broken.

Alarm Light Stack

The 3600 Servo Tamp can handle up to 3 alarm lights:

- ***Red*** –Critical Alarm (steady)
- ***Amber*** –Warning Alarm (steady)
- ***Green*** –Ready Signal (steady)

Line Rate Compensation

This kit includes encoder and cable. Splitter cables can be purchased so one encoder will drive up to five applicators.

Vacuum Off

The code for this option is already on the applicator but a special valve bank is needed to control the air going to the vacuum pump.

3600ST Standard Spare Parts

The following drawings detail the spare parts that can be purchased for the 3600ST.

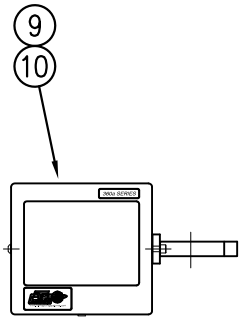
3600 SERVO TAMP
SPARE PARTS LIST

PART NUMBER	DESCRIPTION	RECOMMENDED QTY
PE-TE6000	WIRING TOOL	1
CTM-238STL/R-12/22/32S-12S-X-XX		
ASS-200ST-0126	DISPLAY ASSEMBLY	1
MP-DR1005	DRIVE BOARD	1
MP-PS1024	24 VDC POWER SUPPLY	1
PE-FU2078	10 AMP FUSE	1
PE-FAN1130	HOUSING FILTER	1
PM-BELT1015	REWIND BELT	1
MP-238-0274	REWIND CLUTCH PAD	1
PM-BE1232	REWIND THRUST BEARING	1
PM-FASP30540	REWIND CLUTCH SPRING - MEDIUM DUTY	1
ASS-238-0428	REWIND GEAR MOTOR	1
PM-BB1030	UNWIND BRAKE BAND	1
PM-FASP30434	UNWIND DANCER ARM UNWIND SPRING	1
******	AIR ASSIST TUBE	1
*****when buying air assist tube provide serial number for info on correct tube size*		
ASS-238ST-R0101L/R-12/22/32	SERVO TAMP ASSEMBLY	1
parts below also included in above assembly		
PE-SE10108	PROX SWITCH	1
CP-BELT1058-X	LINEAR BELT	1
PE-MO1082	SERVO MOTOR w/BRAKE	1
ASS-238ST-0106	ROLLER ASSEMBLY	2
ASS-238ST-0107	ROLLER ASSEMBLY	2
ASS-238ST-0104	ROLLER ASSEMBLY	2
PM-FASP30740	STAINLESS WAVE SPRING	10
ASS-238ST-0129M	3 STATION VALVE ASSEMBLY	1
parts below also included in above assembly		
PM-VA2395M	24 VDC VALVE LESS BODY	1
PM-VA2396M	0-30 PSI REGULATOR w/GAUGE	1
PM-VA2397M	0-80 PSI REGULATOR w/GAUGE	1

3600ST Standard Drawings

The following drawings detail the components that can be included with a standard 3600ST.

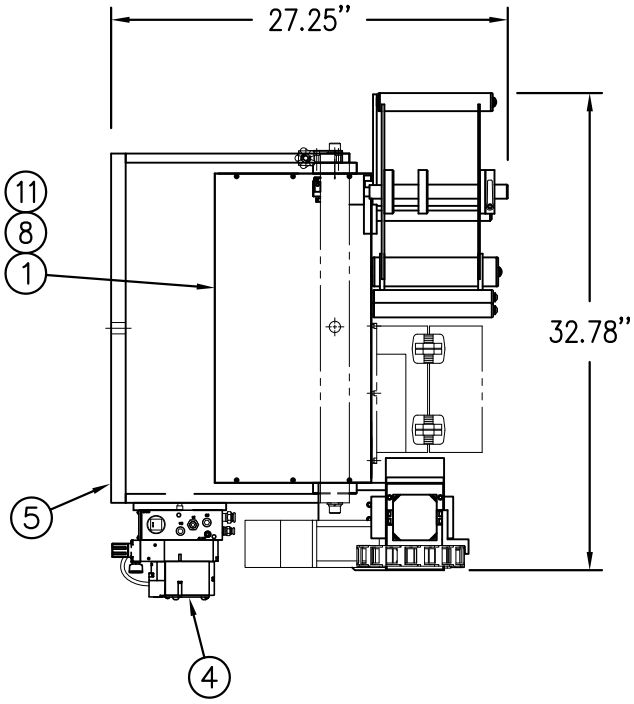
CTM-238STL-12S-12S-A-XX	
-XS	SERIAL
-XP	PARALLEL
-XE	ETHERNET
-SX	SATO
-ZX	ZEBRA
-DX	DATAMAX



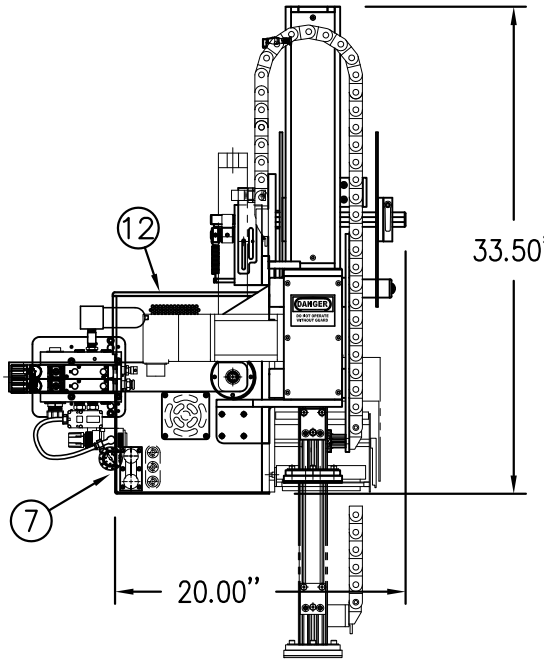
BILL OF MATERIAL

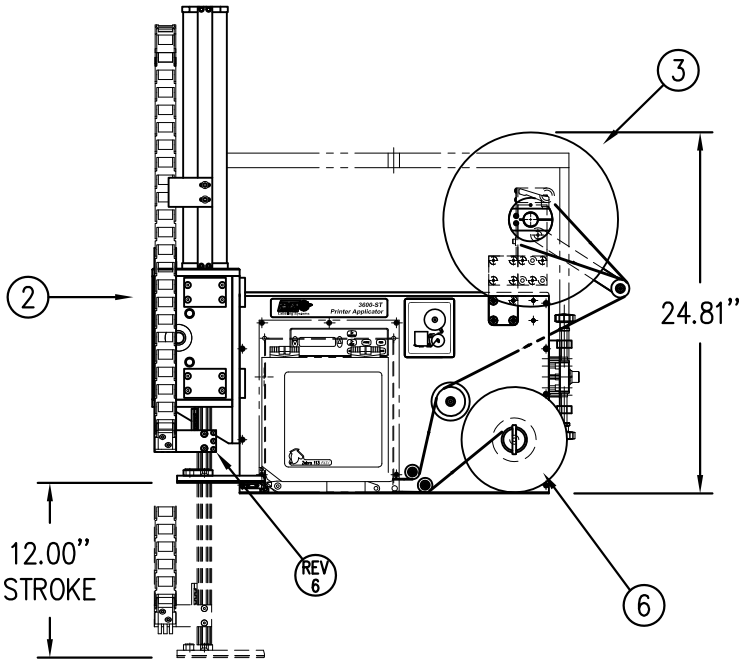
CTM-238STL-12S-12S-A-XX

	ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
	1	1	ASS-238ST-0123L-A	LH 3600ST VAC/BLOW APPLY TYPE CORE UNIT
	2	1	ASS-238ST-0101L-12	12" LH SERVO TAMP NOSE ASSEMBLY
	3	1	MOD-238-0122L	UNWIND MODULE with 12" DISKS - LH
		1	MOD-238-0122AL	UNWIND MODULE with ALUMINUM DISK for "REELS UP" - LH
REV 4	4	1	ASS-238ST-0129M	VALVE BANK ASSEMBLY W/ FILTER FOR 3600-ST & 360a-ST
	5	1	WAS-238-0130	U-ARM WELDMENT for 3600 APPLICATOR
	6	1	ASS-238-0144-12	REWIND SPINDLE ASSEMBLY for 12" UNWIND
	7	1	ASS-238-0228	HOUSING COVER DEBURRED
	8	1	MP-DR1005	DRIVE CONTROL BOARD
REV 3	9	1	ASS-200ST-0126	DISPLAY UNIT
	10	1	ASS-200-0138	DISPLAY UNIT to UPRIGHT MOUNTING BRACKET
	11	1	PE-C01018	SELF-LOCKING APPLICATOR POWER CORD
	12	1	MP-238-0221	ELECTRIC TOP COVER
	13	2	ASS-238-0134	1" ROLLER ASS'Y w/ SHAFT
	14	1	ASS-238-0135	2" ROLLER ASS'Y w/ SHAFT
	15	2	MP-238-0247	2" DIA. GUIDE COLLARS
	16	1	MP-211-0217-1	AIR ASSIST TUBE
	17	1	MP-238-0242	AIR ASSIST TUBE HOLDER
	18	15"	PM-AH1000	AIR ASSIST TUBING
	19	1	MP-238ST-0246	TAMP TO MANIFOLD TRANSITION PLATE
	20	1	PM-238ST-0201	TAMP TO MANIFOLD TRANSITION PL. WASHER PL
SERIAL	21	1	ASS-238a-0405-9	SERIAL ADAPTER ASSEMBLY - 9 Ppin
PARALLEL	22	1	PE-CA2500	PARALLEL CABLE
PARALLEL	23	1	PE-CC1070	PARALLEL PORT CLIP KIT
PARALLEL	24	1	PE-PA1040	FLAT RIBBON CLIP
ETHERNET	25	1	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY
USB	26	1	ASS-238-0465	PARALLEL TO USB ADAPTER ASSEMBLY
	27	1	SEE TABLE BELOW	PRINT ENGINE INTERFACE HARNESS (NOT SHOWN)



(27) APPLICATOR TO PRINT ENGINE INTERFACE HARNESS (ORDER W/ PRINT ENGINE)	
ZEBRA PAX or DATAMAX 'A'	PE-238-0418
SATO SE	PE-238-0420
SATO S86-EX	PE-238-0431





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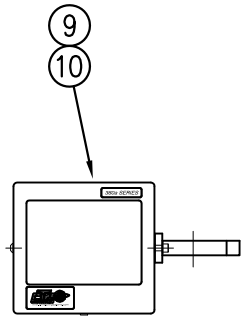
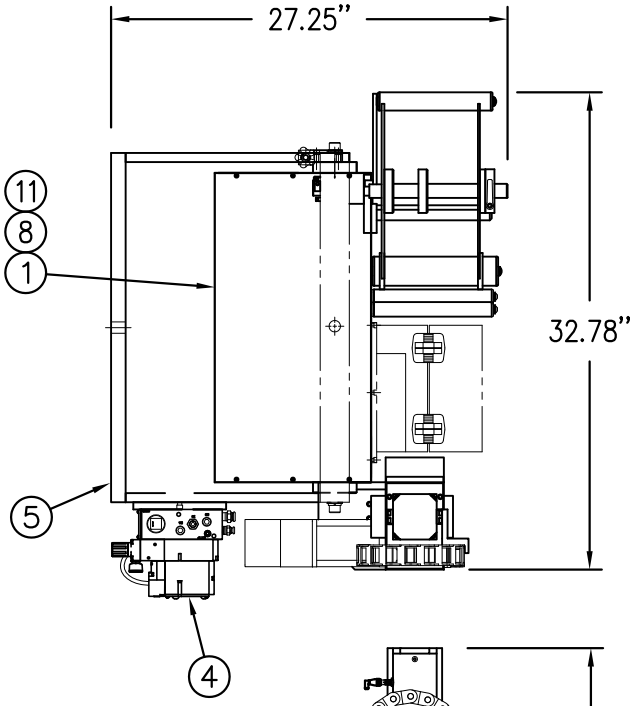
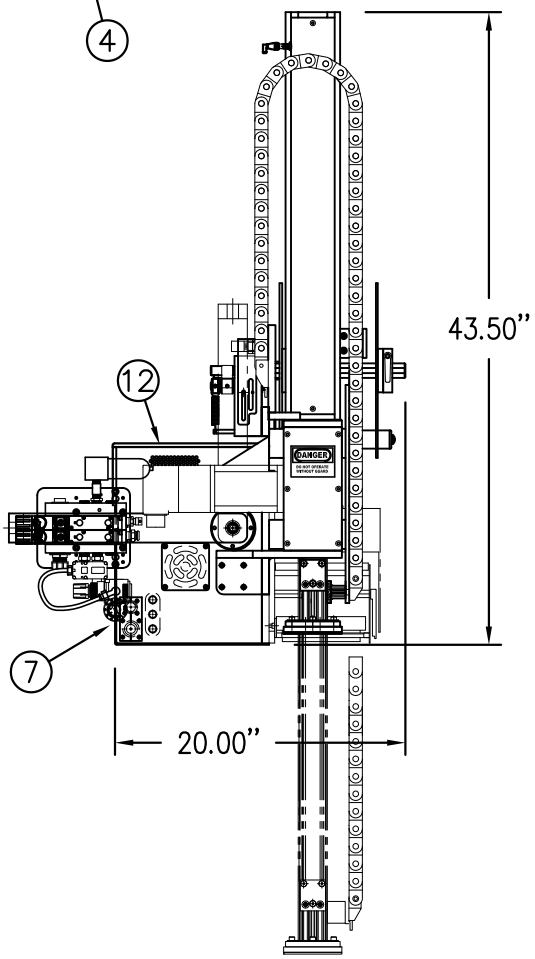
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	REV. BY:	Scale:	Date:	DRAWN BY:	Dept. Code
3600-ST	N/A	3600 SERVO TAMP	CTM ASSEMBLY FOR LH 3600ST, 12" SERVO TAMP, 12" UNWIND & VACUUM BLOW STYLE APPLY	BNT	1=14	10/01/2012	ERIC SANOR	70

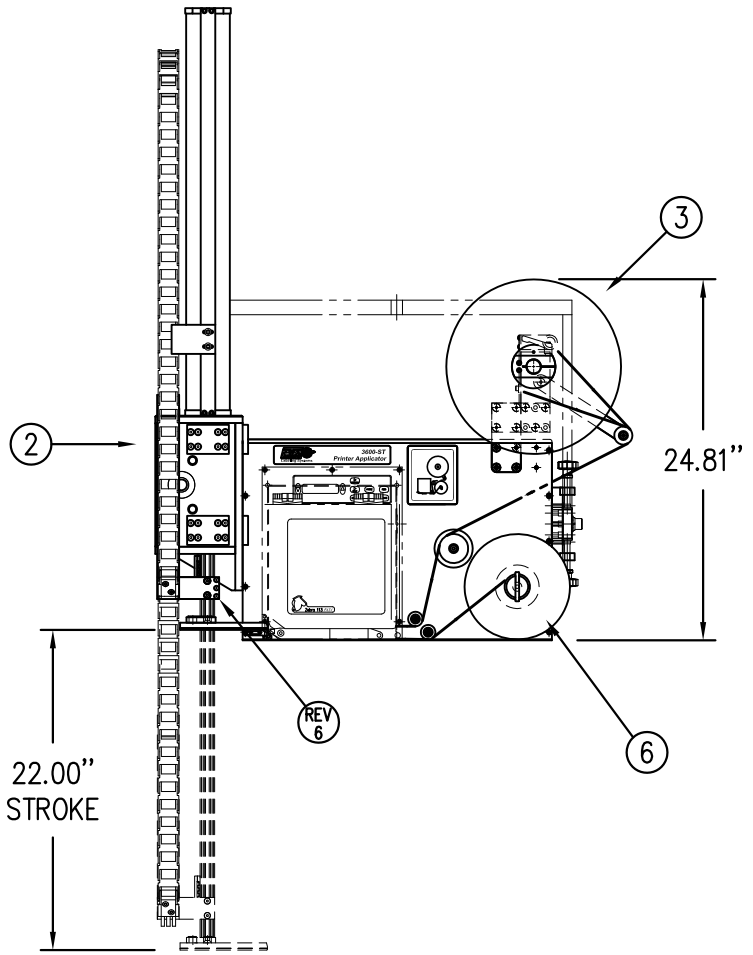
REV.	REV. DESCRIPTION	REV. DATE	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
7	REVISED TO SHOW NEW LOW LABEL SENSOR AND MOUNTING	03/18/19	3600-ST\CTM\CTM-238STL-12S-12S-A-XX

CTM-238STL-22S-12S-A-XX	
-XS	SERIAL
-XP	PARALLEL
-XE	ETHERNET
-SX	SATO
-ZX	ZEBRA
-DX	DATAMAX









BILL OF MATERIAL

CTM-238STL-22S-12S-A-XX

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	ASS-238ST-0123L-A	LH 3600ST VAC/BLOW APPLY TYPE CORE UNIT
②	1	ASS-238ST-0101L-22	22" LH SERVO TAMP NOSE ASSEMBLY
③	1	MOD-238-0122L	UNWIND MODULE with 12" DISKS - LH
	1	MOD-238-0122AL	UNWIND MODULE with ALUMINUM DISK for "REELS UP" - LH
REV 4 ④	1	ASS-238ST-0129M	VALVE BANK ASSEMBLY W/ FILTER FOR 3600-ST & 360a-ST
⑤	1	WAS-238-0130	U-ARM WELDMENT for 3600 APPLICATOR
⑥	1	ASS-238-0144-12	REWIND SPINDLE ASSEMBLY for 12" UNWIND
⑦	1	ASS-238-0228	HOUSING COVER DEBURRED
⑧	1	MP-DR1005	DRIVE CONTROL BOARD
REV 3 ⑨	1	ASS-200ST-0126	DISPLAY UNIT
⑩	1	ASS-200-0138	DISPLAY UNIT to UPRIGHT MOUNTING BRACKET
⑪	1	PE-C01018	SELF-LOCKING APPLICATOR POWER CORD
⑫	1	MP-238-0221	ELECTRIC TOP COVER
⑬	2	ASS-238-0134	1" ROLLER ASS'Y w/ SHAFT
⑭	1	ASS-238-0135	2" ROLLER ASS'Y w/ SHAFT
⑮	2	MP-238-0247	2" DIA. GUIDE COLLARS
⑯	1	MP-211-0217-1	AIR ASSIST TUBE
⑰	1	MP-238-0242	AIR ASSIST TUBE HOLDER
⑱	15"	PM-AH1000	AIR ASSIST TUBING
⑲	1	MP-238ST-0246	TAMP TO MANIFOLD TRANSITION PLATE
⑳	1	PM-238ST-0201	TAMP TO MANIFOLD TRANSITION PL. WASHER PL
SERIAL ㉑	1	ASS-238a-0405-9	SERIAL ADAPTER ASSEMBLY - 9 Ppin
PARALLEL ㉒	1	PE-CA2500	PARALLEL CABLE
PARALLEL ㉓	1	PE-CC1070	PARALLEL PORT CLIP KIT
PARALLEL ㉔	1	PE-PA1040	FLAT RIBBON CLIP
ETHERNET ㉕	1	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY
USB ㉖	1	ASS-238-0465	PARALLEL TO USB ADAPTER ASSEMBLY
27	1	SEE TABLE BELOW	PRINT ENGINE INTERFACE HARNESS (NOT SHOWN)

㉗ APPLICATOR TO PRINT ENGINE INTERFACE HARNESS (ORDER W/ PRINT ENGINE)	
ZEBRA PAX or DATAMAX 'A'	PE-238-0418
SATO SE	PE-238-0420
SATO S86-EX	PE-238-0431

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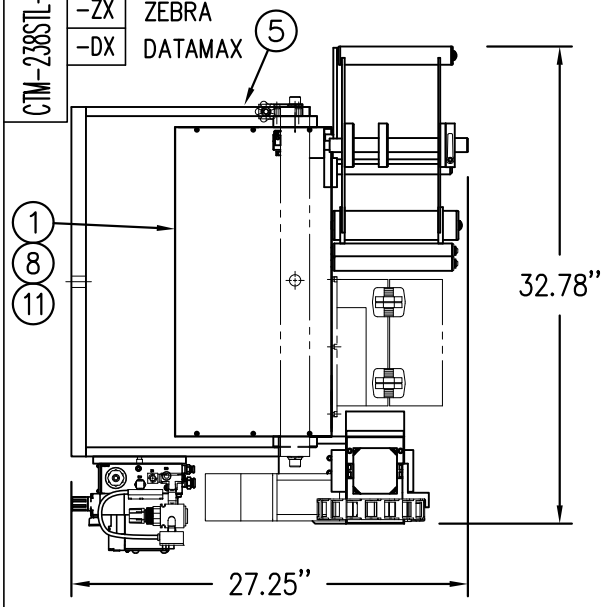
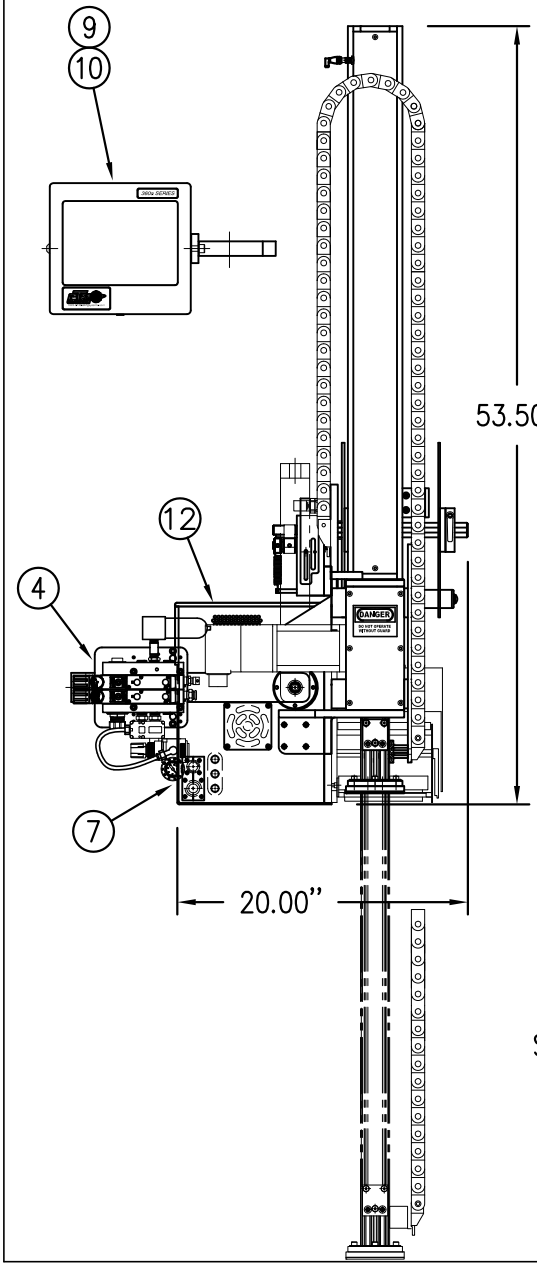
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	REV. BY:	Scale:	Date:	DRAWN BY:	Dept. Code
3600-ST	N/A	3600 SERVO TAMP	CTM ASSEMBLY FOR LH 3600ST, 22" SERVO TAMP, 12" UNWIND & VACUUM BLOW STYLE APPLY	ES	1=14	10/08/2012	ERIC SANOR	70

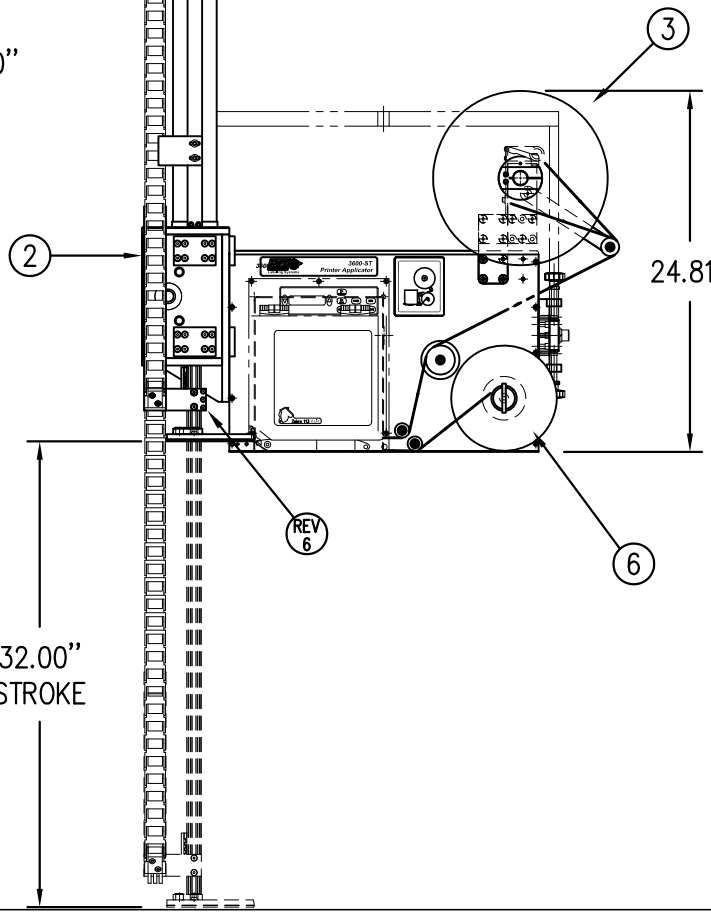
REV.	REV. DESCRIPTION	REV. DATE	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
6	WIREWAY TO SLIDE MOUNTING REVISIONS SHOWN	02/09/2018	3600-ST\CTM\CTM-238STL-22S-12S-A-XX

CTM-238STL-32S-12S-A-XX

-XS	SERIAL
-XP	PARALLEL
-XE	ETHERNET
-SX	SATO
-ZX	ZEBRA
-DX	DATAMAX







BILL OF MATERIAL

CTM-238STL-32S-12S-A-XX

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
1	1	ASS-238ST-0123L-A	LH 3600ST VAC/BLOW APPLY TYPE CORE UNIT
2	1	ASS-238ST-0101L-32	32" LH SERVO TAMP NOSE ASSEMBLY
3	1	MOD-238-0122L	UNWIND MODULE with 12" DISKS - LH
	1	MOD-238-0122AL	UNWIND MODULE with ALUMINUM DISK for "REELS UP" - LH
REV 4	1	ASS-238ST-0129M	VALVE BANK ASSEMBLY W/ FILTER FOR 3600-ST & 360a-ST
5	1	WAS-238-0130	U-ARM WELDMENT for 3600 APPLICATOR
6	1	ASS-238-0144-12	REWIND SPINDLE ASSEMBLY for 12" UNWIND
7	1	ASS-238-0228	HOUSING COVER DEBURRED
8	1	MP-DR1005	DRIVE CONTROL BOARD
REV 3	1	ASS-200ST-0126	DISPLAY UNIT
10	1	ASS-200-0138	DISPLAY UNIT to UPRIGHT MOUNTING BRACKET
11	1	PE-C01018	SELF-LOCKING APPLICATOR POWER CORD
12	1	MP-238-0221	ELECTRIC TOP COVER
13	2	ASS-238-0134	1" ROLLER ASS'Y w/ SHAFT
14	1	ASS-238-0135	2" ROLLER ASS'Y w/ SHAFT
15	2	MP-238-0247	2" DIA. GUIDE COLLARS
16	1	MP-211-0217-1	AIR ASSIST TUBE
17	1	MP-238-0242	AIR ASSIST TUBE HOLDER
18	15"	PM-AH1000	AIR ASSIST TUBING
19	1	MP-238ST-0246	TAMP TO MANIFOLD TRANSITION PLATE
20	1	PM-238ST-0201	TAMP TO MANIFOLD TRANSITION PL. WASHER PL
SERIAL 21	1	ASS-238a-0405-9	SERIAL ADAPTER ASSEMBLY - 9 Ppin
PARALLEL 22	1	PE-CA2500	PARALLEL CABLE
PARALLEL 23	1	PE-CC1070	PARALLEL PORT CLIP KIT
PARALLEL 24	1	PE-PA1040	FLAT RIBBON CLIP
ETHERNET 25	1	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY
USB 26	1	ASS-238-0465	PARALLEL TO USB ADAPTER ASSEMBLY
27	1	SEE TABLE BELOW	PRINT ENGINE INTERFACE HARNESS (NOT SHOWN)

27 APPLICATOR TO PRINT ENGINE INTERFACE HARNESS (ORDER W/ PRINT ENGINE)	
ZEBRA PAX or DATAMAX 'A'	PE-238-0418
SATO SE	PE-238-0420
SATO S86-EX	PE-238-0431

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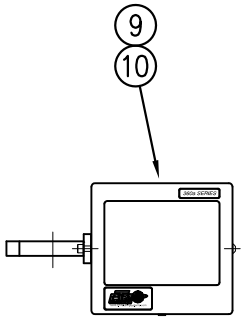
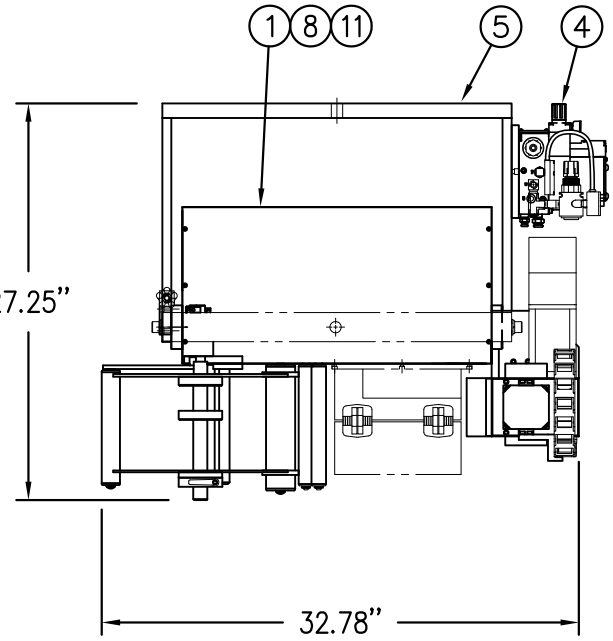
APPLICATOR SERIES:	3600-ST
APPLICATOR WIDTH(S):	N/A
GROUP:	3600 SERVO TAMP
TITLE:	CTM ASSEMBLY FOR LH 3600ST, 32" SERVO TAMP, 12" UNWIND & VACUUM BLOW STYLE APPLY
REV. BY:	BNT
Scale:	1=14
Date:	10/08/2012
DRAWN BY:	ERIC SANOR
Dept. Code	70
F:\Engineering\Standard Parts\Applicator\3600 SERIES\	3600-ST\CTM\CTM-238STL-32S-12S-A-XX

REV.	REV. DESCRIPTION	REV. DATE
7	REVISED TO SHOW NEW LOW LABEL SENSOR AND MOUNTING	03/18/19

CTM-238STR-12S-12S-A-XX	
-XS	SERIAL
-XP	PARALLEL
-XE	ETHERNET
-SX	SATO
-ZX	ZEBRA
-DX	DATAMAX



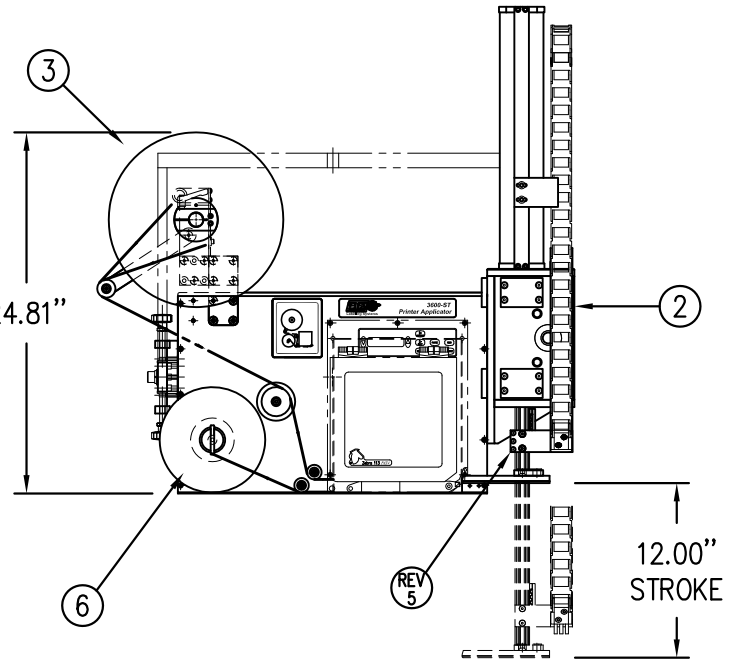


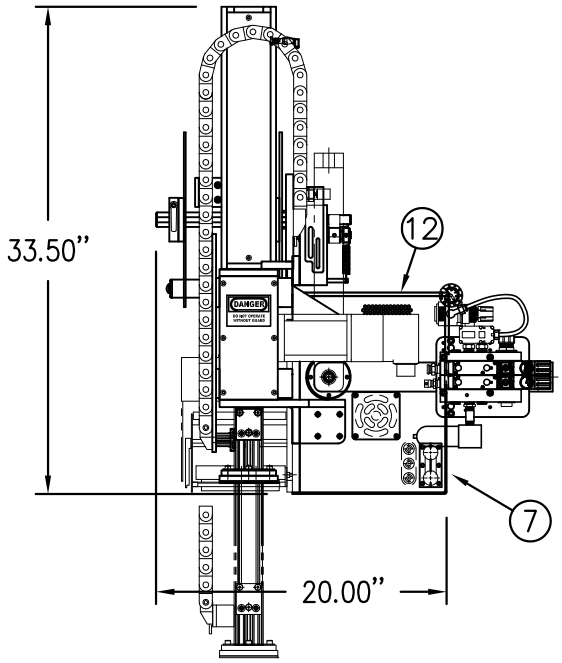
BILL OF MATERIAL

CTM-238STR-12S-12S-A-XX

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	ASS-238ST-0123R-A	RH 3600ST VAC/BLOW APPLY TYPE CORE UNIT
②	1	ASS-238ST-0101R-12	12" RH SERVO TAMP NOSE ASSEMBLY
③	1	MOD-238-0122R	UNWIND MODULE with 12" DISKS - RH
	1	MOD-238-0122AR	UNWIND MODULE with ALUMINUM DISK for "REELS UP" - RH
REV 3 ④	1	ASS-238ST-0129M	VALVE BANK ASSEMBLY W/ FILTER FOR 3600-ST & 360a-ST
⑤	1	WAS-238-0130	U-ARM WELDMENT for 3600 APPLICATOR
⑥	1	ASS-238-0144-12	REWIND SPINDLE ASSEMBLY for 12" UNWIND
⑦	1	ASS-238-0228	HOUSING COVER DEBURRED
⑧	1	MP-DR1005	DRIVE CONTROL BOARD
REV 2 ⑨	1	ASS-200ST-0126	DISPLAY UNIT
⑩	1	ASS-200-0138	DISPLAY UNIT to UPRIGHT MOUNTING BRACKET
⑪	1	PE-C01018	SELF-LOCKING APPLICATOR POWER CORD
⑫	1	MP-238-0221	ELECTRIC TOP COVER
⑬	2	ASS-238-0134	1" ROLLER ASS'Y w/ SHAFT
⑭	1	ASS-238-0135	2" ROLLER ASS'Y w/ SHAFT
⑮	2	MP-238-0247	2" DIA. GUIDE COLLARS
⑯	1	MP-211-0217-7	AIR ASSIST TUBE
⑰	1	MP-238-0242	AIR ASSIST TUBE HOLDER
⑱	15"	PM-AH1000	AIR ASSIST TUBING
⑲	1	MP-238ST-0246	TAMP TO MANIFOLD TRANSITION PLATE
⑳	1	PM-238ST-0201	TAMP TO MANIFOLD TRANSITION PL. WASHER PL
SERIAL ㉑	1	ASS-238a-0405-9	SERIAL ADAPTER ASSEMBLY - 9 Ppin
PARALLEL ㉒	1	PE-CA2500	PARALLEL CABLE
PARALLEL ㉓	1	PE-CC1070	PARALLEL PORT CLIP KIT
PARALLEL ㉔	1	PE-PA1040	FLAT RIBBON CLIP
ETHERNET ㉕	1	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY
USB ㉖	1	ASS-238-0465	PARALLEL TO USB ADAPTER ASSEMBLY
27	1	SEE TABLE BELOW	PRINT ENGINE INTERFACE HARNESS (NOT SHOWN)

㉗ APPLICATOR TO PRINT ENGINE INTERFACE HARNESS (ORDER W/ PRINT ENGINE)	
ZEBRA PAX or DATAMAX 'A'	PE-238-0418
SATO SE	PE-238-0420
SATO S86-EX	PE-238-0431





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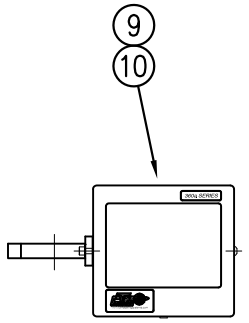
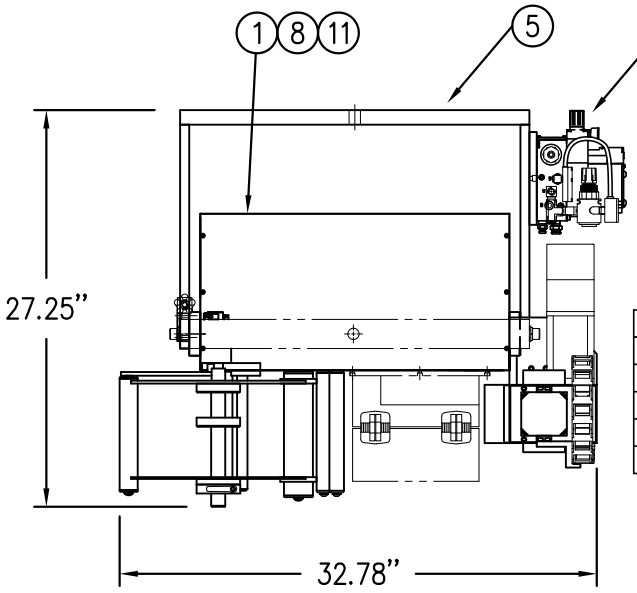
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	REV. BY:	Scale:	Date:	DRAWN BY:	Dept. Code
3600-ST	N/A	3600 SERVO TAMP	CTM ASSEMBLY FOR RH 3600ST, 12" SERVO TAMP, 12" UNWIND & VACUUM BLOW STYLE APPLY	BNT	1=14	10/01/2012	ERIC SANOR	70

REV.	REV. DESCRIPTION	REV. DATE	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
7	REVISED TO SHOW NEW LOW LABEL SENSOR AND MOUNTING	03/18/19	3600-ST\CTM\CTM-238STR-12S-12S-A-XX

CTM-238STR-22S-12S-A-XX	
-XS	SERIAL
-XP	PARALLEL
-XE	ETHERNET
-SX	SATO
-ZX	ZEBRA
-DX	DATAMAX



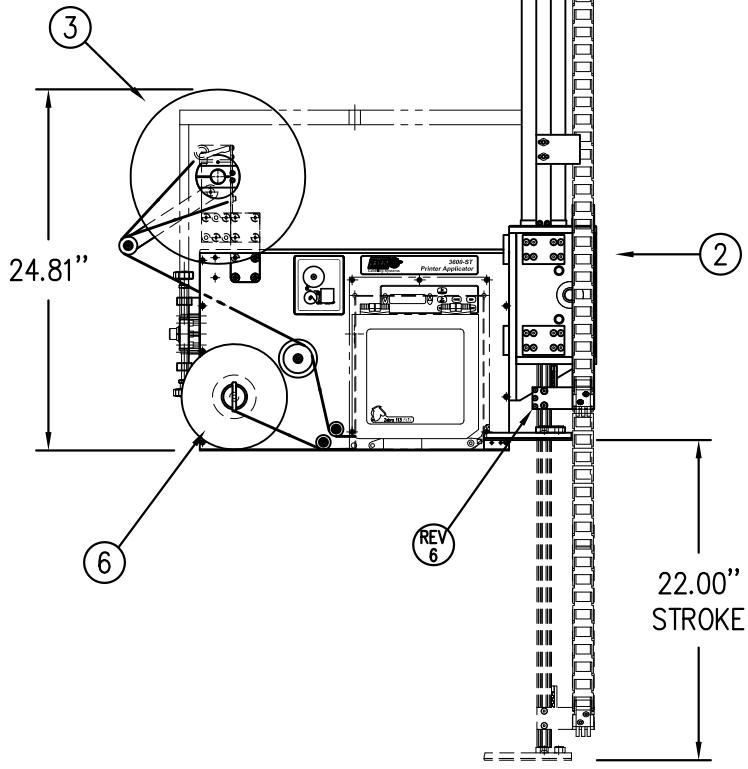


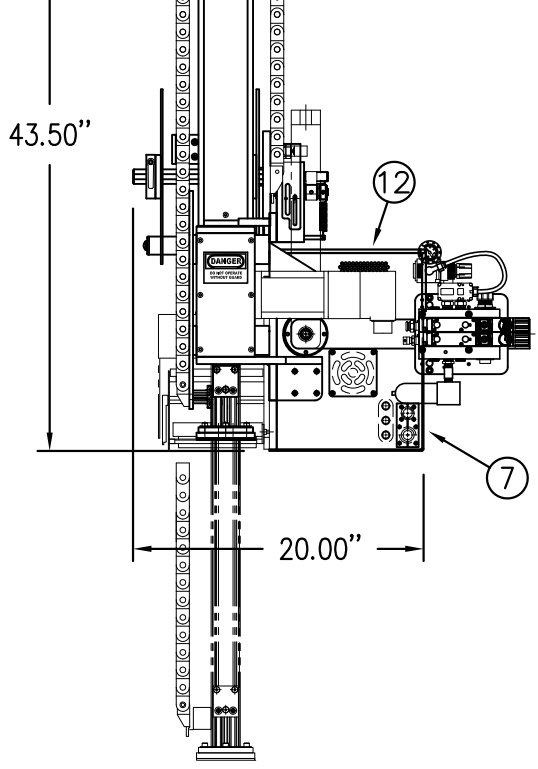
BILL OF MATERIAL

CTM-238STR-22S-12S-A-XX

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
1	1	ASS-238ST-0123R-A	RH 3600ST VAC/BLOW APPLY TYPE CORE UNIT
2	1	ASS-238ST-0101R-22	22" RH SERVO TAMP NOSE ASSEMBLY
3	1	MOD-238-0122R	UNWIND MODULE with 12" DISKS - RH
	1	MOD-238-0122AR	UNWIND MODULE with ALUMINUM DISK for "REELS UP" - RH
4 (REV 4)	1	ASS-238ST-0129M	VALVE BANK ASSEMBLY W/ FILTER FOR 3600-ST & 360a-ST
5	1	WAS-238-0130	U-ARM WELDMENT for 3600 APPLICATOR
6	1	ASS-238-0144-12	REWIND SPINDLE ASSEMBLY for 12" UNWIND
7	1	ASS-238-0228	HOUSING COVER DEBURRED
8	1	MP-DR1005	DRIVE CONTROL BOARD
9 (REV 3)	1	ASS-200ST-0126	DISPLAY UNIT
10	1	ASS-200-0138	DISPLAY UNIT to UPRIGHT MOUNTING BRACKET
11	1	PE-C01018	SELF-LOCKING APPLICATOR POWER CORD
12	1	MP-238-0221	ELECTRIC TOP COVER
13	2	ASS-238-0134	1" ROLLER ASS'Y w/ SHAFT
14	1	ASS-238-0135	2" ROLLER ASS'Y w/ SHAFT
15	2	MP-238-0247	2" DIA. GUIDE COLLARS
16	1	MP-211-0217-1	AIR ASSIST TUBE
17	1	MP-238-0242	AIR ASSIST TUBE HOLDER
18	15"	PM-AH1000	AIR ASSIST TUBING
19	1	MP-238ST-0246	TAMP TO MANIFOLD TRANSITION PLATE
20	1	PM-238ST-0201	TAMP TO MANIFOLD TRANSITION PL. WASHER PL
SERIAL 21	1	ASS-238a-0405-9	SERIAL ADAPTER ASSEMBLY - 9 Ppin
PARALLEL 22	1	PE-CA2500	PARALLEL CABLE
PARALLEL 23	1	PE-CC1070	PARALLEL PORT CLIP KIT
PARALLEL 24	1	PE-PA1040	FLAT RIBBON CLIP
ETHERNET 25	1	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY
USB 26	1	ASS-238-0465	PARALLEL TO USB ADAPTER ASSEMBLY
27	1	SEE TABLE BELOW	PRINT ENGINE INTERFACE HARNESS (NOT SHOWN)

27	APPLICATOR TO PRINT ENGINE INTERFACE HARNESS (ORDER W/ PRINT ENGINE)	
	ZEBRA PAX or DATAMAX 'A'	PE-238-0418
	SATO SE	PE-238-0420
	SATO S86-EX	PE-238-0431





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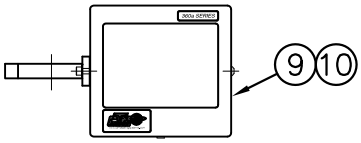
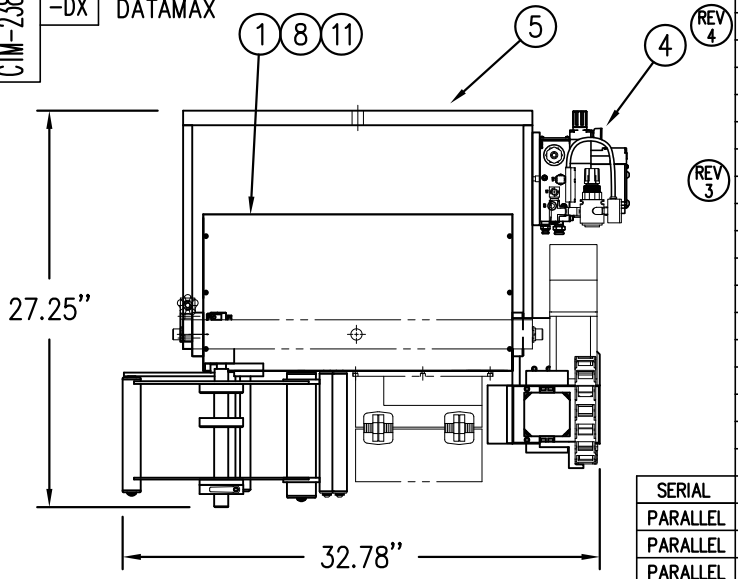
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	REV. BY:	Scale:	Date:	DRAWN BY:	Dept. Code
3600-ST	N/A	3600 SERVO TAMP	CTM ASSEMBLY FOR RH 3600ST, 22" SERVO TAMP, 12" UNWIND & VACUUM BLOW STYLE APPLY	BNT	1=14	06/28/2012	ERIC SANOR	70

REV.	REV. DESCRIPTION	REV. DATE	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
7	REVISED TO SHOW NEW LOW LABEL SENSOR AND MOUNTING	03/18/19	3600-ST\CTM\CTM-238STR-22S-12S-A-XX

CTM-238STR-32S-12S-A-XX	
-XS	SERIAL
-XP	PARALLEL
-XE	ETHERNET
-SX	SATO
-ZX	ZEBRA
-DX	DATAMAX



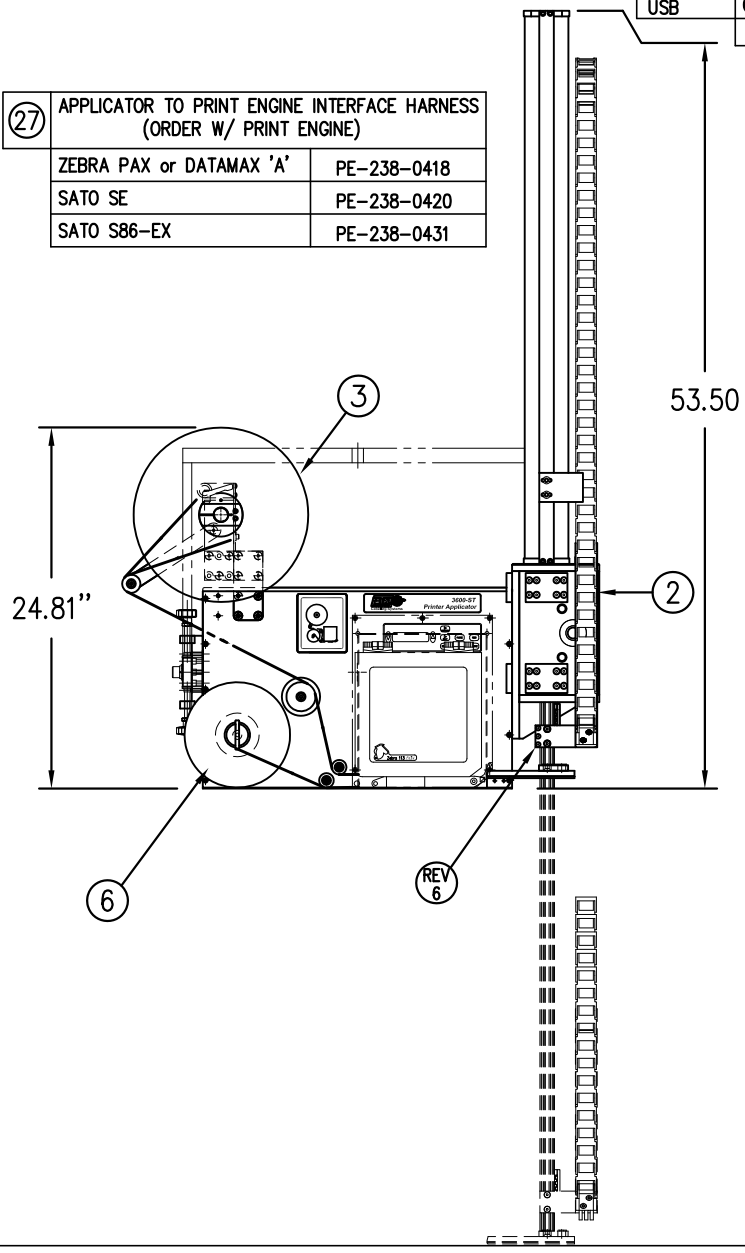


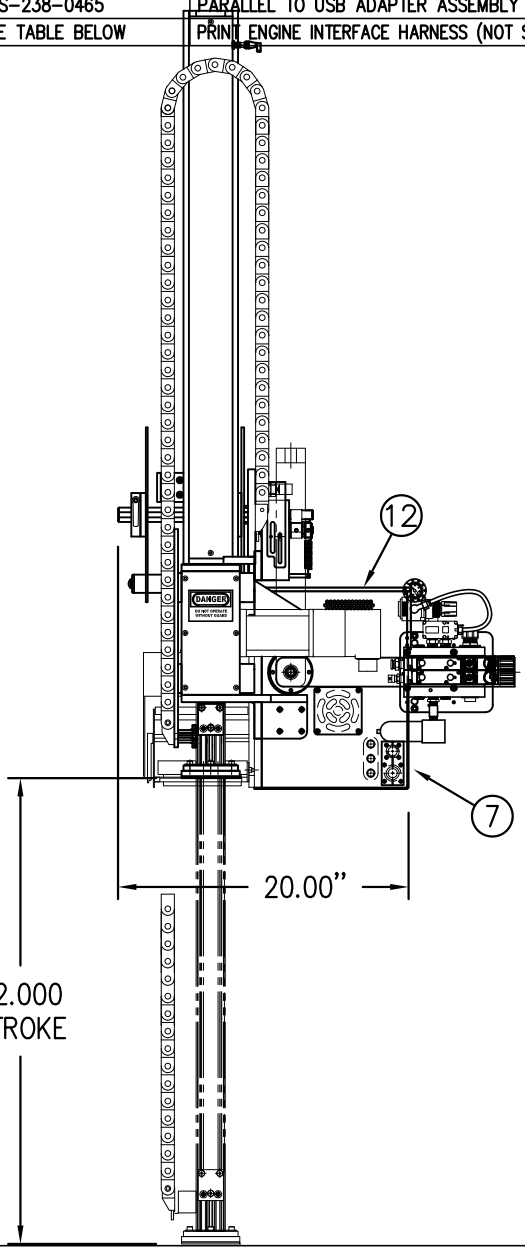
BILL OF MATERIAL

CTM-238STR-32S-12S-A-XX

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
1	1	ASS-238ST-0123R-A	RH 3600ST VAC/BLOW APPLY TYPE CORE UNIT
2	1	ASS-238ST-0101R-32	32" RH SERVO TAMP NOSE ASSEMBLY
3	1	MOD-238-0122R	UNWIND MODULE with 12" DISKS - RH
	1	MOD-238-0122AR	UNWIND MODULE with ALUMINUM DISK for "REELS UP" - RH
4	1	ASS-238ST-0129M	VALVE BANK ASSEMBLY W/ FILTER FOR 3600-ST & 360a-ST
5	1	WAS-238-0130	U-ARM WELDMENT for 3600 APPLICATOR
6	1	ASS-238-0144-12	REWIND SPINDLE ASSEMBLY for 12" UNWIND
7	1	ASS-238-0228	HOUSING COVER DEBURRED
8	1	MP-DR1005	DRIVE CONTROL BOARD
9	1	ASS-200ST-0126	DISPLAY UNIT
10	1	ASS-200-0138	DISPLAY UNIT to UPRIGHT MOUNTING BRACKET
11	1	PE-C01018	SELF-LOCKING APPLICATOR POWER CORD
12	1	MP-238-0221	ELECTRIC TOP COVER
13	2	ASS-238-0134	1" ROLLER ASS'Y w/ SHAFT
14	1	ASS-238-0135	2" ROLLER ASS'Y w/ SHAFT
15	2	MP-238-0247	2" DIA. GUIDE COLLARS
16	1	MP-211-0217-1	AIR ASSIST TUBE
17	1	MP-238-0242	AIR ASSIST TUBE HOLDER
18	15"	PM-AH1000	AIR ASSIST TUBING
19	1	MP-238ST-0246	TAMP TO MANIFOLD TRANSITION PLATE
20	1	PM-238ST-0201	TAMP TO MANIFOLD TRANSITION PL. WASHER PL
SERIAL 21	1	ASS-238a-0405-9	SERIAL ADAPTER ASSEMBLY - 9 Ppin
PARALLEL 22	1	PE-CA2500	PARALLEL CABLE
PARALLEL 23	1	PE-CC1070	PARALLEL PORT CLIP KIT
PARALLEL 24	1	PE-PA1040	FLAT RIBBON CLIP
ETHERNET 25	1	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY
USB 26	1	ASS-238-0465	PARALLEL TO USB ADAPTER ASSEMBLY
27	1	SEE TABLE BELOW	PRINT ENGINE INTERFACE HARNESS (NOT SHOWN)

27	APPLICATOR TO PRINT ENGINE INTERFACE HARNESS (ORDER W/ PRINT ENGINE)	
	ZEBRA PAX or DATAMAX 'A'	PE-238-0418
	SATO SE	PE-238-0420
	SATO S86-EX	PE-238-0431





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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	REV. BY:	Scale:	Date:	DRAWN BY:	Dept. Code
3600-ST	N/A	3600 SERVO TAMP	CTM ASSEMBLY FOR RH 3600ST, 32" SERVO TAMP, 12" UNWIND & VACUUM BLOW STYLE APPLY	BNT	1=14	10/01/2012	ERIC SANOR	70

REV.	REV. DESCRIPTION	REV. DATE	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
7	REVISED TO SHOW NEW LOW LABEL SENSOR AND MOUNTING	03/18/19	3600-ST\CTM\CTM-238STR-32S-12S-A-XX

BILL OF MATERIAL

MOD–238–0122XR/L–X

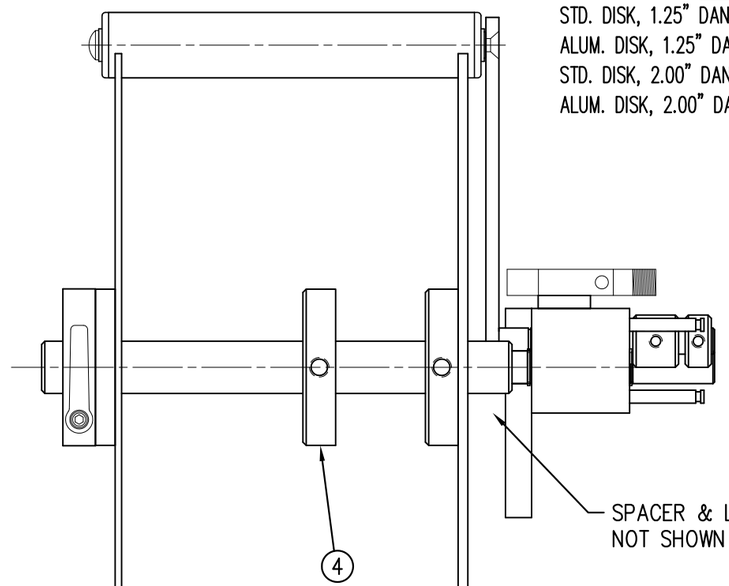
ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	SAS–238–0122R/L	UNWIND SHELF ASS'Y w/ 1.25" DIA. DANCER	3600 & 3600–ST
	1	SAS–238–0122R/L–2	UNWIND SHELF ASS'Y w/ 2" DIA. DANCER	3600–AF
②	1	ASS–200–0132	12" INSIDE UNWIND DISK ASS'Y	STD.
	1	ASS–200–0132PA	12" ALUMINUM INSIDE UNWIND DISK ASS'Y	REELS UP
③	1	ASS–200–0133	OUTSIDE UNWIND DISK ASS'Y	
④	1	MP–200–0267CS	CORE SUPPORT	
⑤	1	MP–238–0236	MOUNTING PLATE	
	4	PM–FAFH50619	FHCS, 1/4"–20 UNC x 3/4" Lg. S.S.	

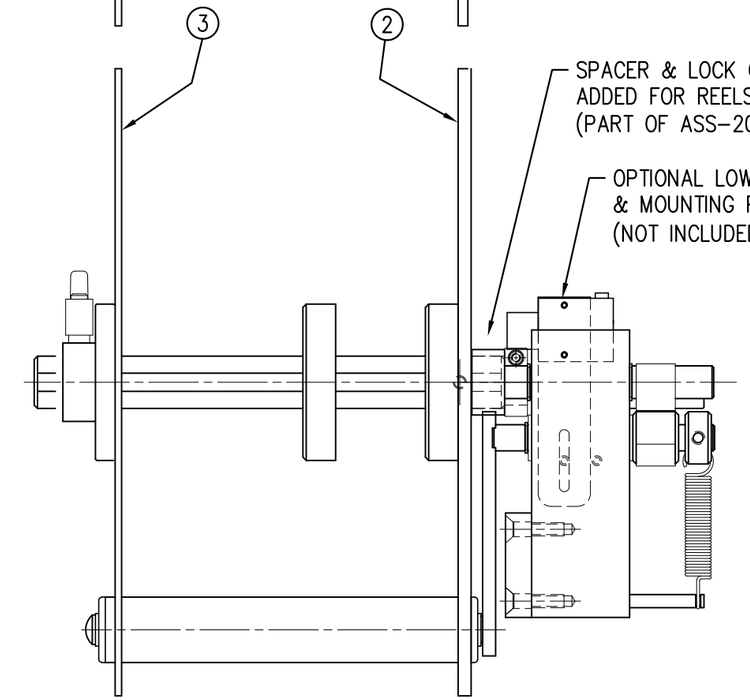
RH & LH ASSEMBLIES AVAILABLE
–RH ASSEMBLY SHOWN–

NOTE:
1.25" DIA. DANCER SHOWN (FOR STD. 3600 & 3600–ST)
2" DIA. DANCER OPTION (FOR 3600–AF)

MOD–238–0122XR/L–X

STD. DISK, 1.25" DANCER	–0122R/L
ALUM. DISK, 1.25" DANCER	–0122AR/L
STD. DISK, 2.00" DANCER	–0122R/L–2
ALUM. DISK, 2.00" DANCER	–0122AR/L–2





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APPLICATOR SERIES: 3600	APPLICATOR WIDTH(S): 7.5"	GROUP: UNWIND ASSEMBLY	TITLE: 12" UNWIND ASSEMBLY w/ UNWIND DISK MODULES	Dept. Code 70		
REV. 6	REV. DESCRIPTION FIXED PICTURE OF SPACER & LOCK COLLAR FOR RU	REV. DATE 01/21/19	REV. BY: TDR	Scale: 1=3	Date: 12/09/13	DRAWN BY: T. KELLY

F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600a\MOD\MOD–238–0122XRL

BILL OF MATERIAL

SAS-238-0122R/L-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	ASS-238-0137	1.25" DIA. DANCER ROLL	OMIT (3600 & 3600-ST)
	1	ASS-200-0131	2" DIA. DANCER ROLL	-2 (3600-AF)
②	1	ASS-238-0180	UNWIND BLOCK ASSEMBLY	
③	1	MP-238-0210	MOUNT ARM	
④	1	MP-238-0218	DANCER ARM	
⑤	1	MP-238-0219	UNWIND HUB SHAFT	
⑥	1	MP-238-0212	UNWIND STUD SHAFT	
⑦	2	PM-FASR1010	5/8" DIA. SNAP RING	
⑧	1	MP-238-0217	DANCER ARM SHAFT	
⑨	1	PM-FASR1005	1/2" DIA. SNAP RING	
⑩	1	MP-238-0215	INNER COLLAR	
⑪	1	MP-238-0216	OUTER HUB	
⑫	1	MP-238-0213	UNWIND BELT PIN	
⑬	1	MP-238-0214	UNWIND SPRING PIN	
⑭	1	PM-FASP30434	TENSION SPRING	
⑮	1	PM-FASP30500	SPRING ANCHOR	
⑯	1	PM-BB1030	BELT	

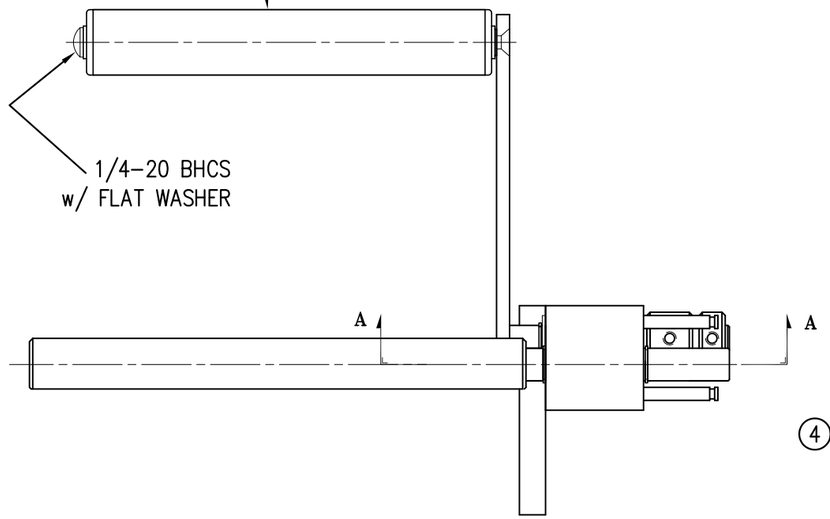
SAS-238-0122R/L-X

1.25" DIA. DANCER -0122R/L
2.00" DIA. DANCER -0122R/L-2

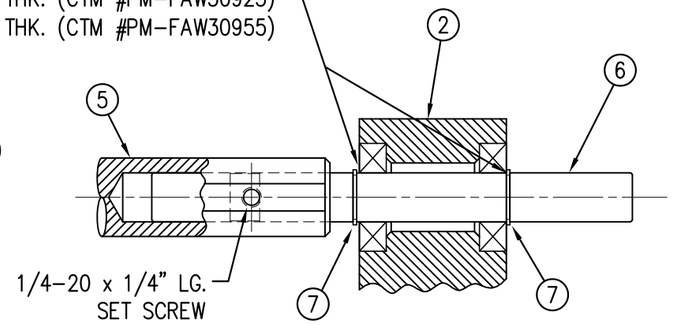
RH & LH ASSEMBLIES AVAILABLE
-RH ASSEMBLY SHOWN-

NOTE:
① 1.25" DIA. DANCER SHOWN (FOR STD. 3600 & 3600-ST)
2" DIA. DANCER OPTION (FOR 3600-AF)

1/4-20 BHCS
w/ FLAT WASHER



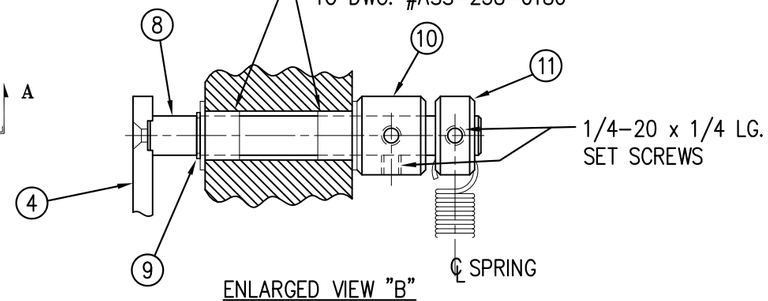
ADD SHIMS AS REQ'D.
0.015 THK. (CTM #PM-FAW30925)
0.030 THK. (CTM #PM-FAW30955)



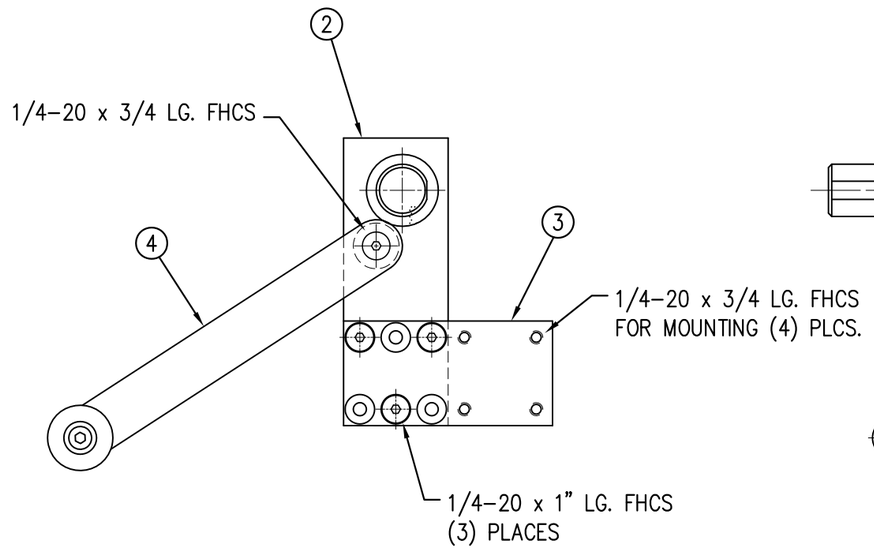
1/4-20 x 1/4" LG.
SET SCREW

ENLARGED SECTIONAL VIEW "A-A"
SCALE: 6"=1'-0"

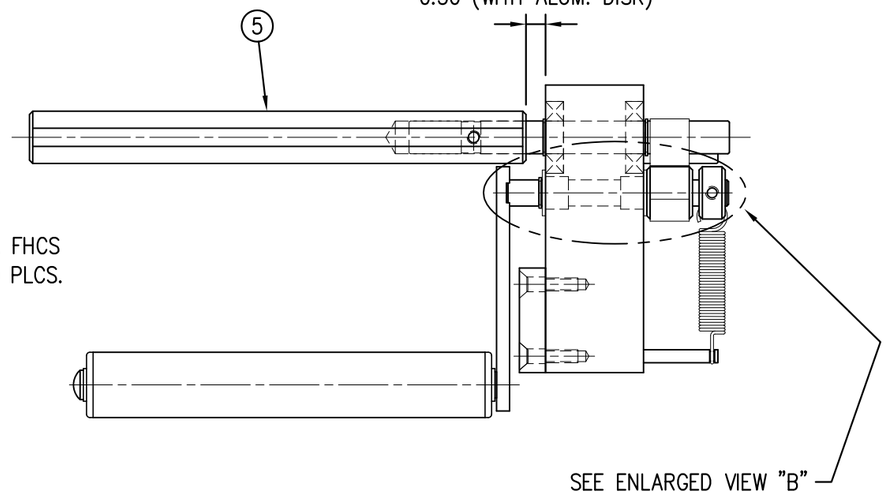
FLANGE BUSHING REFER
TO DWG. #ASS-238-0180

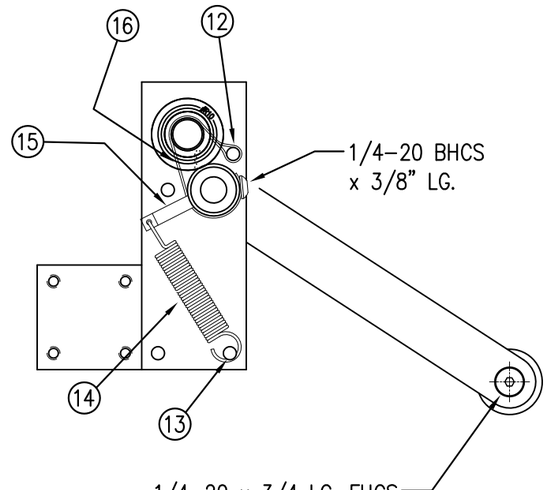


ENLARGED VIEW "B"
SCALE: 6"=1'-0"



0.38 SHOWN (WITH LEXAN DISK)
0.50 (WITH ALUM. DISK)





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APPLICATOR SERIES: 3600	APPLICATOR WIDTH(S): 7.5"	GROUP: UNWIND	TITLE: UNWIND ASSEMBLY	Scale: 1=3	Dept. Code 70
REV. 2	REV. DESCRIPTION DRAWING UPDATES	REV. DATE 02/28/19	REV. BY: TDR	Date: 12/09/13	DRAWN BY: T. KELLY

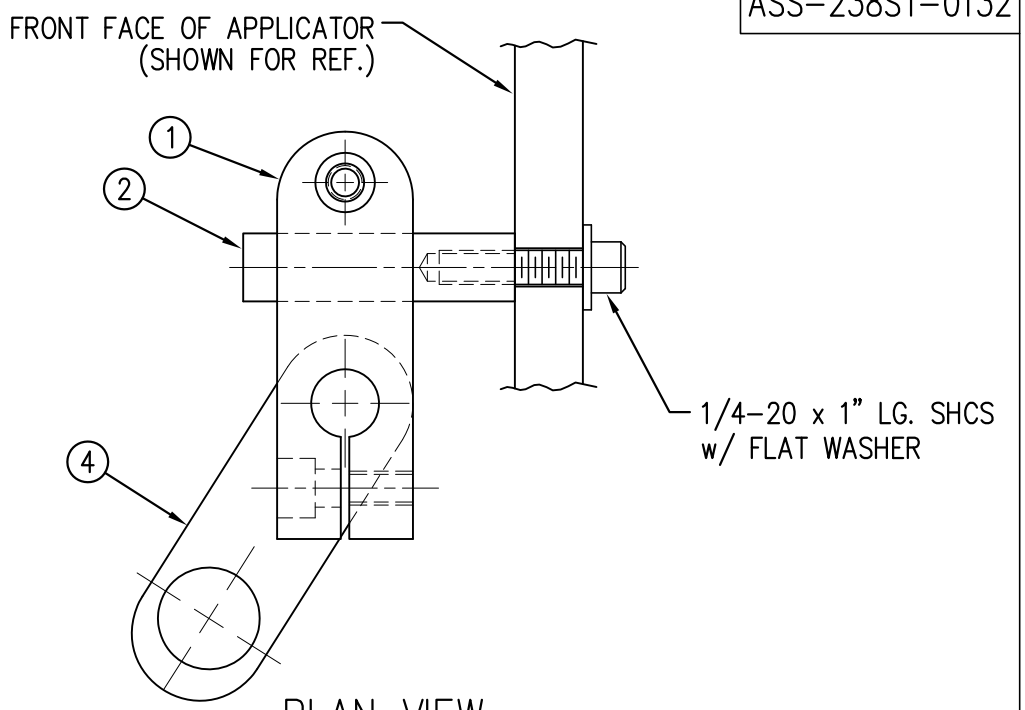
F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600a\SAS\SAS-238-0122RL-X

BILL OF MATERIAL

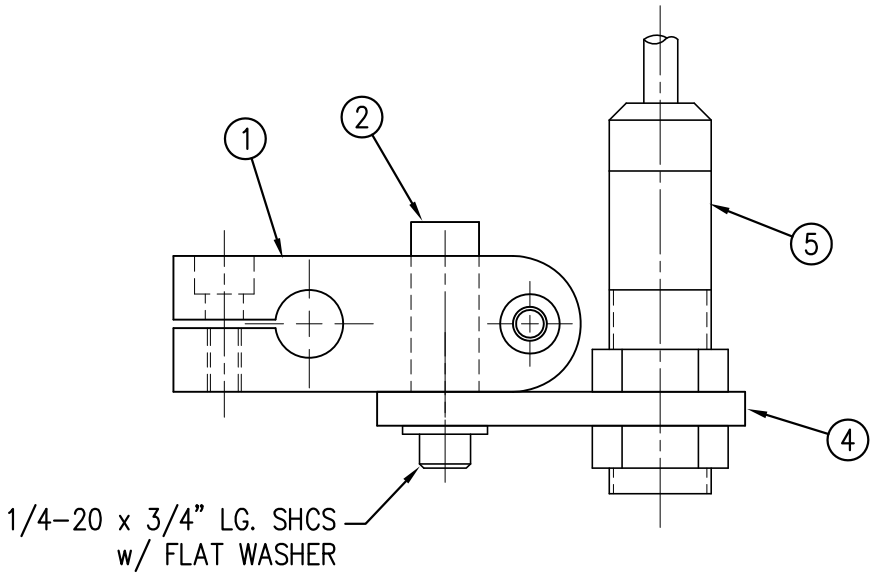
ASS-238ST-0132

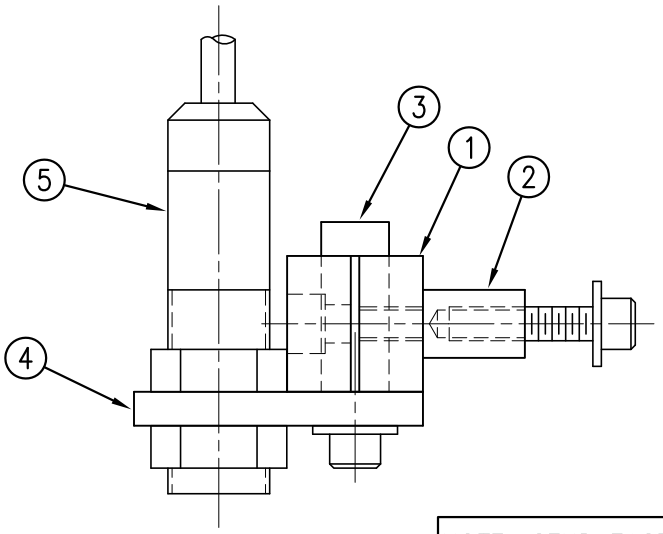
ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-CL1010	3" LG. CLAMP BLOCK ~ LH
②	1	MP-PD2020-2	2" LG. SENSOR MOUNT SHAFT
③	1	MP-238-0279	END OF WEB MOUNTING SHAFT
④	1	MP-200-3303	3" SENSOR MOUNT for 18mm SENSOR
⑤	1	ASS-200-0423	END OF WEB SENSOR ASSEMBLY

ASS-238ST-0132



PLAN VIEW





NOTE: SEND FASTENERS TO BOLT ASSEMBLY TO THE APPLICATOR IF FIELD KIT.

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
360ST, 3600ST/AF	5.0"/7.5"	SERVO TAMP APPLICATOR: SENSORS	END OF WEB SENSOR ASSEMBLY w/ MOUNTING BRACKETRY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	NEW RELEASE for 360-ST, 3600-ST & 3600-AF	02/06/14	TK	1=1	02/06/14	T. KELLY	3600-ST\ASS\ASS-238ST-0132

BILL OF MATERIAL

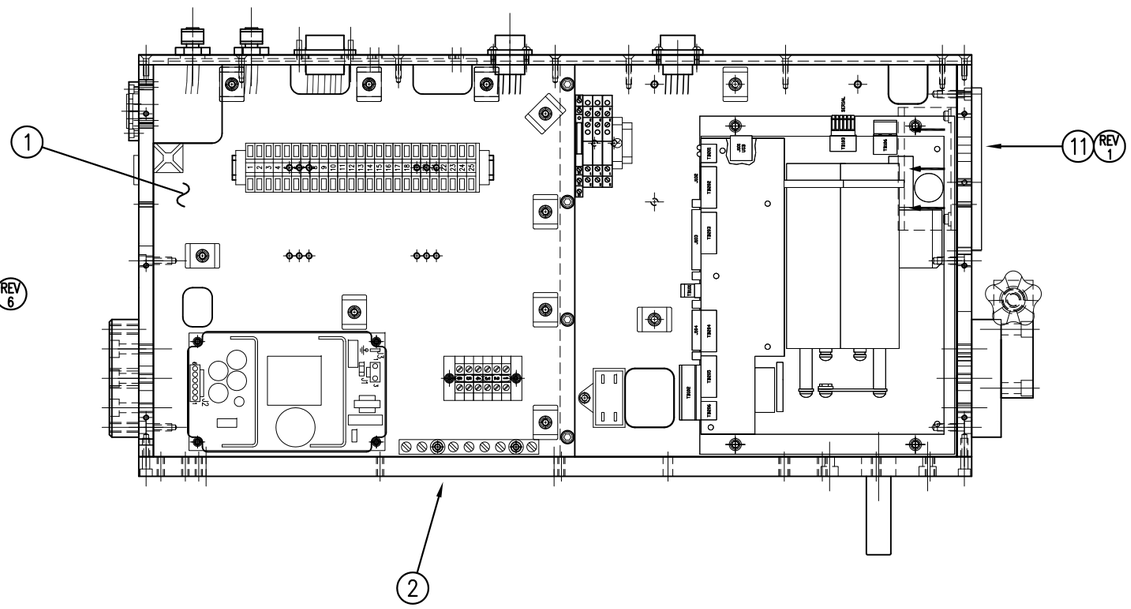
ASS-238ST-0123L-X

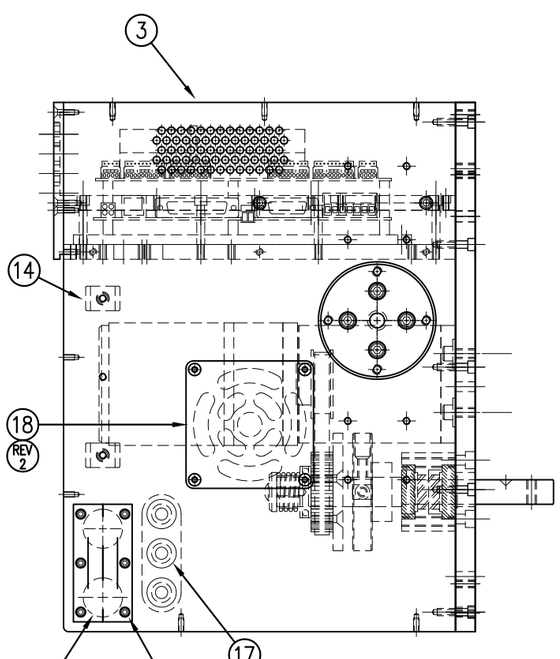
ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	ASS-238ST-0127L-A	WIRED BOARD ASSEMBLY FOR VAC BLOW STYLE-LH
	1	ASS-238ST-0127L-B	WIRED BOARD ASSEMBLY FOR FAN STYLE-LH
②	1	MP-238ST-0201	SERVO TAMP PRINTER APPLICATOR FACEPLATE — REV 3
③	1	MP-238ST-0202L	LEFT HAND HOUSING SIDE FRAME- DISPENSE SIDE
④	1	MP-238ST-0203L	LEFT HAND HOUSING SIDE FRAME- UNWIND SIDE
⑤	1	MP-200-0273	U-ARM / APPLICATOR PIVOT MOUNT
⑥	1	ASS-238ST-0407	AC POWER HARNESS & FILTER ASSEMBLY
⑦	2	MP-238ST-0247	GROMMET PLATE (FOR SERVO MOTOR CABLES)
⑧	1	ASS-238-0133	REWIND MOTOR & PULLEY ASSEMBLY
⑨	1	ASS-238-0120C	REWIND CLUTCH ASSEMBLY
⑩	1	ASS-238ST-0429	FAN ASSEMBLY
⑪	1	PE-FAN1130	FAN FILTER KIT
⑫	1	PE-238-0429	REWIND MOTOR WIRING HARNESS
⑬	1	PM-BELT1015	TIMING BELT FOR REWIND — REV 5, REV 6
⑭	4	PE-PA1083	BOLT ON MOUNT (BLACK)
⑮	1	ASS-200-0149	PIVOT MICRO-ADJUST ASSEMBLY
⑯	2	PE-C02018	RUBBER GROMMET
⑰	3	PE-C02019	RUBBER GROMMET
⑱	1	MP-238ST-0255	COVER PLATE
19	1	PE-238ST-0405	SERVO DRIVE ENCODER FEEDBACK CABLE
20	1	PE-238ST-0406	SERVO MOTOR POWER TO TB102 DRIVE CABLE
21	1	ASS-C01025	POWER CORD FOR PRINT ENGINE (not shown)
㉒	1	PM-LB1009	3600ST FACEPLATE DECAL
㉓	1	PM-LB1027	3600a WEB PATH DECAL - LH — REV 4

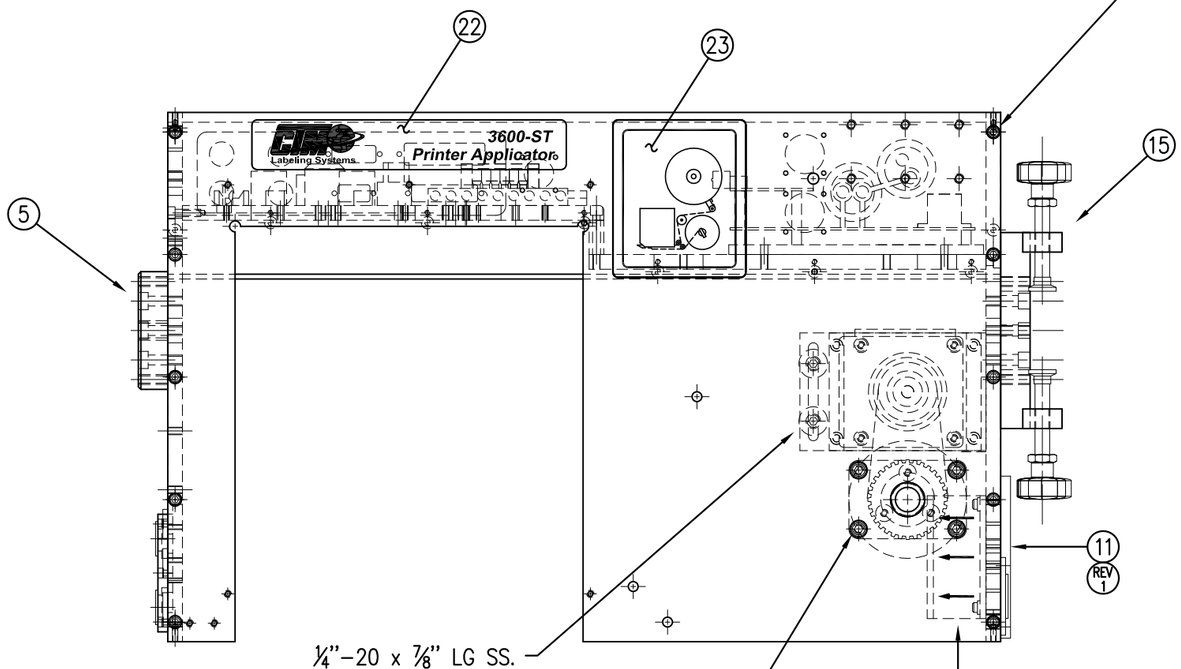
ASS-238ST-0123L-X

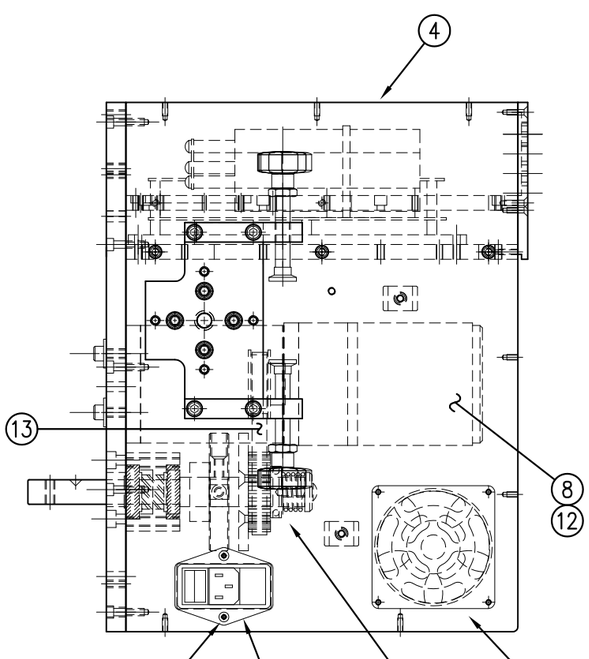
VACUUM BLOW STYLE -A

FAN STYLE -B









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TITLE: 3600 SERVO TAMP PRINTER APPPLICATOR CORE UNIT - LH

Dept. Code 70

F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0123L-X

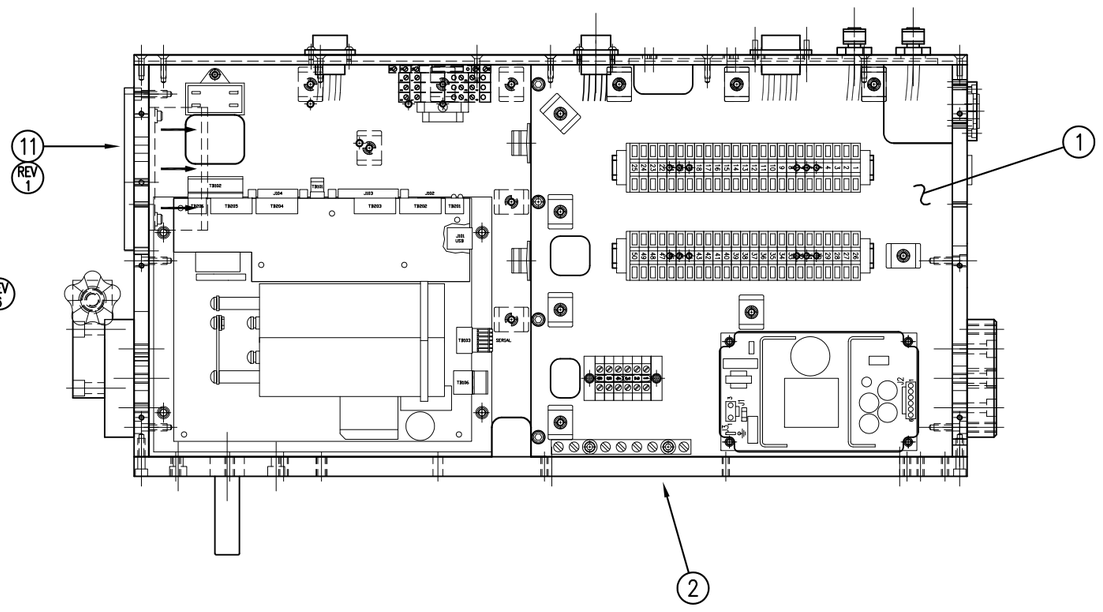
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	DRAWN BY:	Date:	Scale:	REV. BY:	REV. DATE
3600	7.5"	SERVO TAMP APPLICATOR: HOUSING	ERIC SANOR	07/25/2012	1=4	TDR	01/24/19

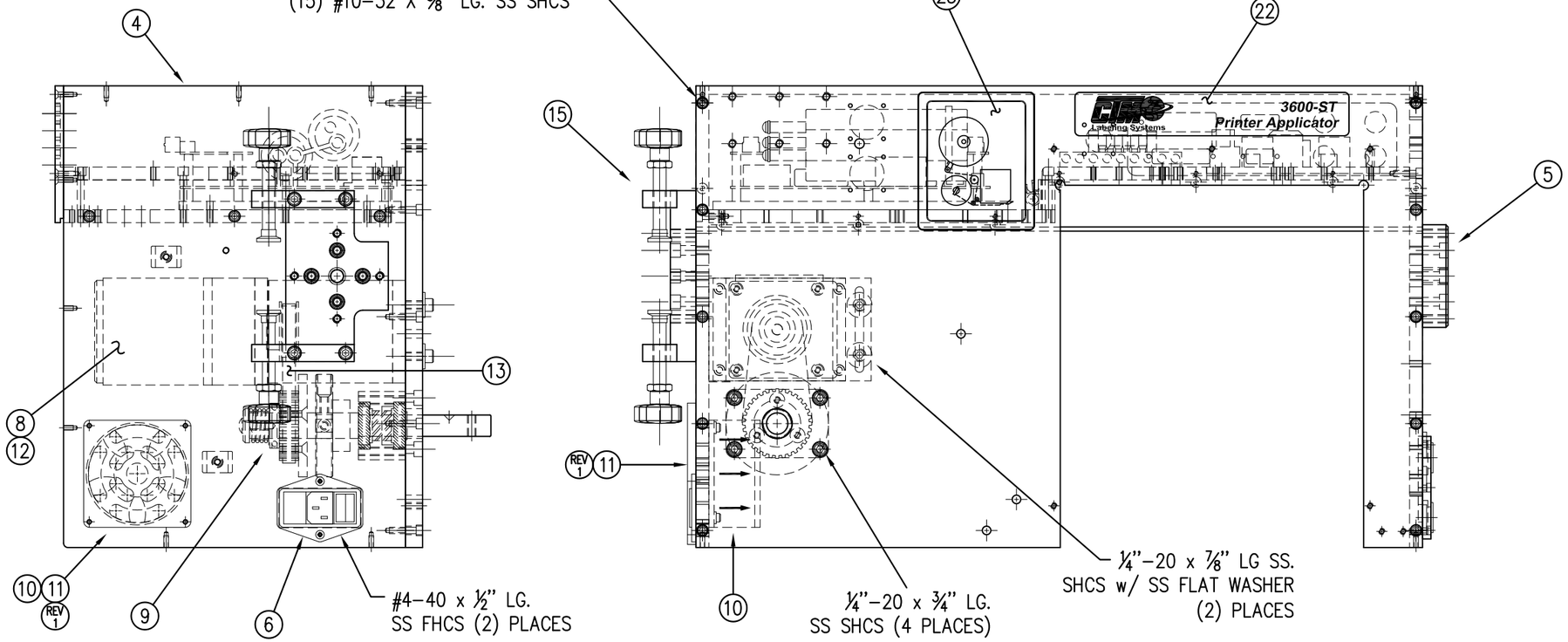
REV.	REV. DESCRIPTION
7	UPDATED THE WIRED BOARD ASSEMBLY

BILL OF MATERIAL

ASS-238ST-0123R-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	ASS-238ST-0127R-A	WIRED BOARD ASSEMBLY FOR VAC BLOW STYLE-RH	
	1	ASS-238ST-0127R-B	WIRED BOARD ASSEMBLY FOR FAN STYLE-RH	
②	1	MP-238ST-0201	SERVO TAMP PRINTER APPLICATOR FACEPLATE	REV 4
③	1	MP-238ST-0202R	RIGHT HAND HOUSING SIDE FRAME- DISPENSE SIDE	
④	1	MP-238ST-0203R	RIGHT HAND HOUSING SIDE FRAME- UNWIND SIDE	
⑤	1	MP-200-0273	U-ARM / APPLICATOR PIVOT MOUNT	
⑥	1	ASS-238ST-0407	AC POWER HARNESS & FILTER ASSEMBLY	
⑦	2	MP-238ST-0247	GROMMET PLATE (FOR SERVO MOTOR CABLES)	
⑧	1	ASS-238-0133	REWIND MOTOR & PULLEY ASSEMBLY	
⑨	1	ASS-238-0120C	REWIND CLUTCH ASSEMBLY	
⑩	1	ASS-238ST-0429	FAN ASSEMBLY	
⑪	1	PE-FAN1130	FAN FILTER KIT	
⑫	1	PE-238-0429	REWIND MOTOR WIRING HARNESS	
⑬	1	PM-BELT1015	TIMING BELT FOR REWIND	REV 7, REV 6
⑭	4	PE-PA1083	BOLT ON MOUNT (BLACK)	
⑮	1	ASS-200-0149	PIVOT MICRO-ADJUST ASSEMBLY	
⑯	2	PE-C02018	RUBBER GROMMET	
⑰	3	PE-C02019	RUBBER GROMMET	
⑱	1	MP-238ST-0255	COVER PLATE	
19	1	PE-238ST-0405	SERVO DRIVE ENCODER FEEDBACK CABLE	
20	1	PE-238ST-0406	SERVO MOTOR POWER TO TB102 DRIVE CABLE	
21	1	ASS-C01025	POWER CORD FOR PRINT ENGINE (not shown)	
㉒	1	PM-LB1009	3600ST FACEPLATE DECAL	REV 5
㉓	1	PM-LB1029	3600a WEB PATH DECAL - RH	





ASS-238ST-0123R-X

VACUUM BLOW STYLE -A -B

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TITLE: 3600 SERVO TAMP PRINTER APPPLICATOR CORE UNIT - RH

Dept. Code 70

F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0123R-X

APPLICATOR SERIES: 3600

APPLICATOR WIDTH(S): 7.5"

GROUP: SERVO TAMP APPLICATOR: HOUSING

Scale: 1=4

Date: 05/01/2012

DRAWN BY: ERIC SANOR

REV. 8

REV. DESCRIPTION: UPDATED WIRED BOARD ASSEMBLY

REV. DATE: 01/24/19

REV. BY: TDR

BILL OF MATERIAL
ASS-238ST-0101L-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
-	1	SAS-238ST-0111	TAMP BOX ASSEMBLY	
-	1	SAS-238ST-0112-XX	3600 SERVO TAMP SLIDE GUARD SHELF ASSEMBLY	
⑤	1	MP-238ST-0210L	LH TAMP MODULE SHELF MOUNTING PLATE	
⑥	1	MP-238ST-0211L	LH TAMP MODULE MOUNTING PLATE	
⑦	1	MP-238ST-0212	GUSSET	
⑧	1	MP-238ST-0213	TOP PLATE	
⑨	1	PM-238ST-0202	FRONT COVER	
⑩	2	MP-238ST-0220	BELT CLAMP BOTTOM	
⑪	2	MP-238ST-0221	BELT CLAMP TOP	
⑫	1	PM-FAW32200	FLANGED C'SUNK WASHER (for sensor target)	REV 18
⑬	1	MP-238ST-0225-X	MAIN BEAM EXTRUSION FOR 12", 22" OR 32"	
⑭	1	MP-238ST-0256	DRIVE SHAFT/PULLEY	REV 6
⑮	2	MP-238ST-0257	WIREWAY SUPPORT SPACER	REV 7
⑯	1	PM-C01021	3/4" ID LOCK COLLAR	REV 8
⑲	1	PM-WL1025	DO NOT OPERATE W/O GUARD LABEL	
⑳	2	ASS-238ST-0105	OUTBOARD ROLLER ASSEMBLY	
㉑	2	ASS-238ST-0106	INBOARD ROLLER ASSEMBLY	
㉒	2	ASS-238ST-0107	REAR ROLLER ASSEMBLY	
㉓	1	CP-BELT1058-XX	Timing Belt LL100L 29" FOR 12" STROKE Timing Belt LL100L 39" FOR 22" STROKE Timing Belt LL100L 49" FOR 32" STROKE	
㉔	1	MP-238ST-0215	WIREWAY TO SLIDE MOUNTING PLATE	REV 11
㉕	1	MP-238ST-0216	WIREWAY TO SLIDE MOUNTING PLATE	REV 7
㉖	1	MP-238ST-0217-X	WIREWAY VERTICAL BACK UP PLATE FOR 12", 22" OR 32"	
㉗	1	MP-238ST-0243	INBOARD WIREWAY RETAINER BRACKET MOUNTING PLATE	
㉘	1	MP-238ST-0214-X	INBOARD WIREWAY RETAINER BRACKET FOR 12", 22" OR 32"	
㉙	1	MP-238ST-0218	OUTBOARD WIREWAY RETAINER BRACKET MOUNT	
㉚	1	MP-238ST-0219-X	OUTBOARD WIREWAY RETAINER BRACKET	
㊱	XX	PE-CA1033	IGUS CABLE CARRIER 37 LINKS FOR 12" STROKE IGUS CABLE CARRIER 52 LINKS FOR 22" STROKE IGUS CABLE CARRIER 67 LINKS FOR 32" STROKE	REV 15
㊲	1	PE-CA1035	IGUS MOUNTING BRACKETS (1) PAIR	
㊳	2	MP-238ST-0245	WIREWAY HOLD DOWN (SEE SHEET 2)	REV 7
㊴	7	PM-FATN1005	#10-32 "DROP IN" T-NUT	
㊵	1	PE-MO1082	AEROTECH SERVO MOTOR with BRAKE	
㊶	1	ASS-238ST-0432	HOME LIMIT SENSOR (SEE SHEET 2)	REV 5
㊷	1	ASS-238ST-0109	ANTI-STATIC BRUSH ASSEMBLY (SEE SHEET 2)	REV 10
㊸	4	PM-FATN1020	1/4" DROP IN T-NUT	
㊺	1	MP-238ST-0244	PULLEY KEY (SEE SHEET 3)	
○	96"	PM-PT1080	3/8" OD SMC TUBING	

BILL OF MATERIAL
SAS-238ST-0111 (TAMP BOX ASSEMBLY)

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
-	1	SAS-238ST-0110	SIDE PLATES SHELF ASSEMBLY PAIR
⑰	2	MP-238ST-0230	BELT WRAP ROLLER
⑱	2	ASS-238ST-0104	2" ROLLER ASSEMBLY W/BELT CLEARANCE

BILL OF MATERIAL
SAS-238ST-0110 (SIDE PLATES SHELF ASSEMBLY PAIR)

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-238ST-0208	OUTBOARD SIDE PLATE
②	4	PM-BE1250	R-8 NSK BALL BEARING
③	1	PM-BE1210	ER-12 BEARING W/90° SET SCREW OFFSET
④	1	MP-238ST-0209	INBOARD SIDE PLATE

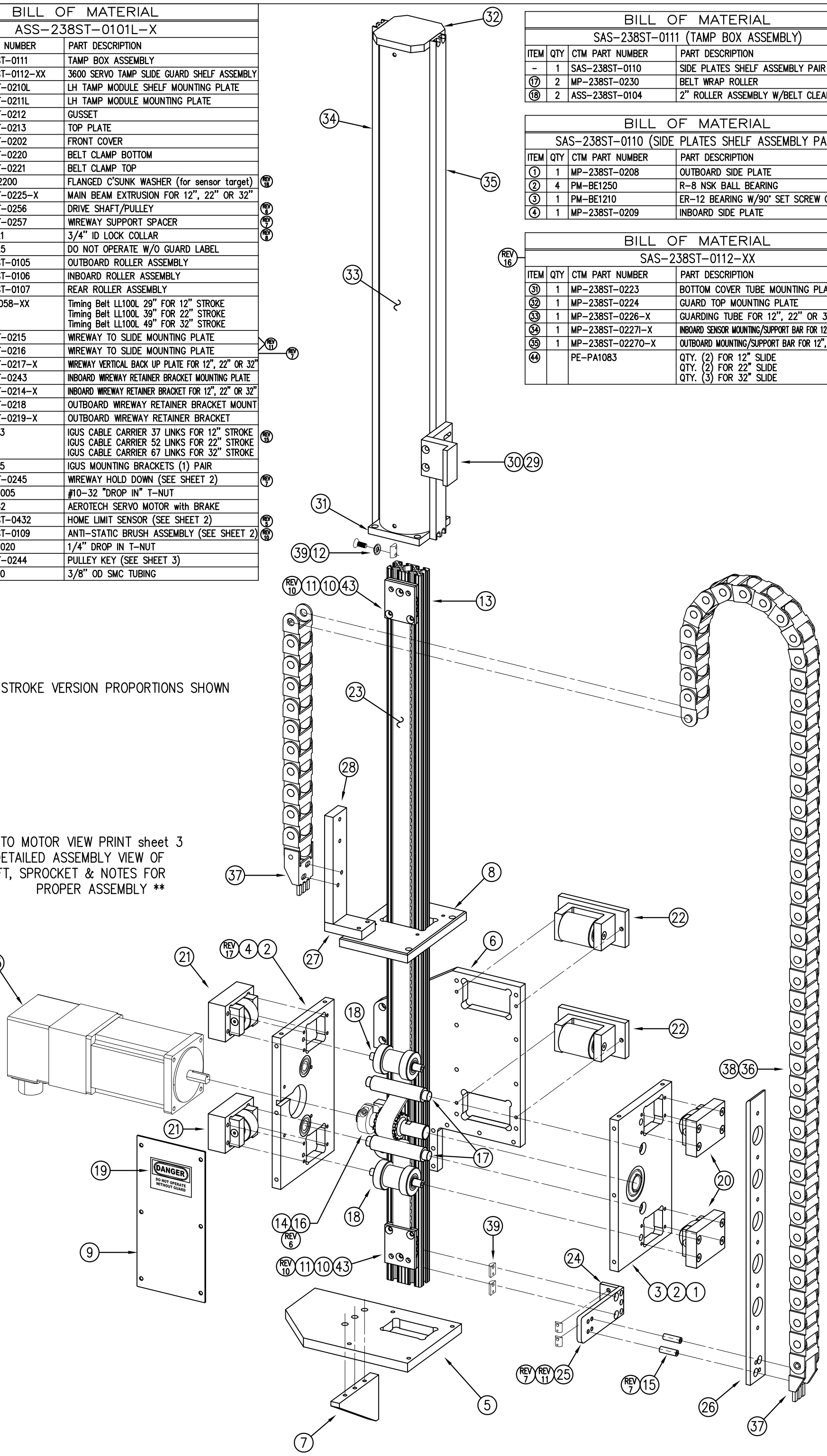
BILL OF MATERIAL
SAS-238ST-0112-XX

REV 16

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
㉛	1	MP-238ST-0223	BOTTOM COVER TUBE MOUNTING PLATE
㉜	1	MP-238ST-0224	GUARD TOP MOUNTING PLATE
㉝	1	MP-238ST-0226-X	GUARDING TUBE FOR 12", 22" OR 32"
㉞	1	MP-238ST-0227I-X	INBOARD SENSOR MOUNTING/SUPPORT BAR FOR 12", 22" OR 32"
㉟	1	MP-238ST-0227O-X	OUTBOARD MOUNTING/SUPPORT BAR FOR 12", 22" OR 32"
㊹		PE-PA1083	QTY. (2) FOR 12" SLIDE QTY. (2) FOR 22" SLIDE QTY. (3) FOR 32" SLIDE

NOTE: 32" STROKE VERSION PROPORTIONS SHOWN

** REFER TO MOTOR VIEW PRINT sheet 3 FOR DETAILED ASSEMBLY VIEW OF SHAFT, SPROCKET & NOTES FOR PROPER ASSEMBLY **



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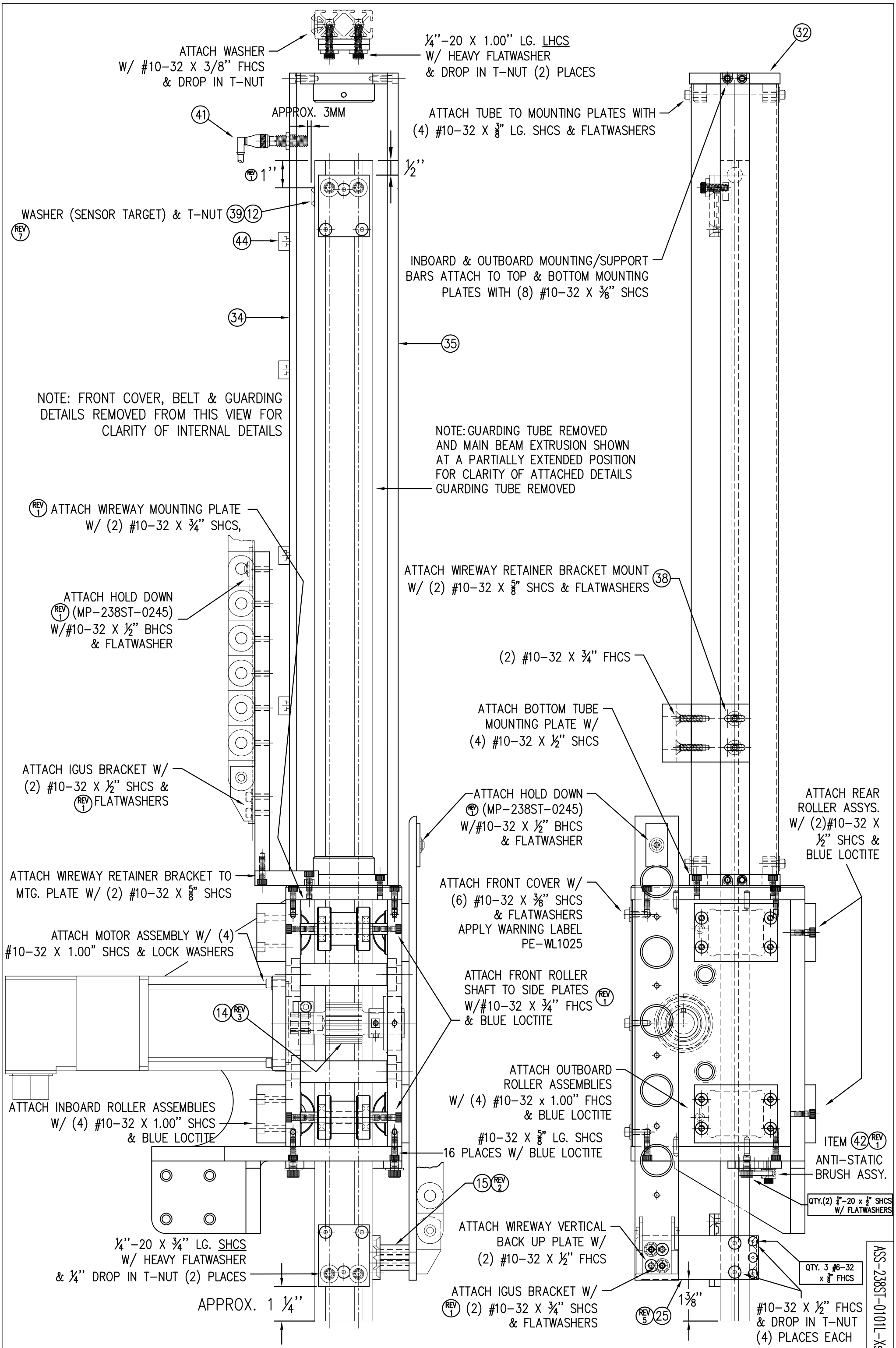
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	LH 3600 SERVO TAMP ASSEMBLY sheet 1	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
18	CHANGED ITEM #12 (was MFG PART MP-238ST-0222)	09/24/19	TDR	NTS	05/25/2012	ERIC SANOR	3600-ST\ASS\ASS-238ST-0101L-Xs1

ASS-238ST-0101L-Xs1



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	LH 3600 SERVO TAMP ASSEMBLY SHEET 2	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
7	SENSOR TARGET was MFG PART now PURCHASED WASHER	09/24/2019	TDR	1=3	10/01/2012	ERIC SANOR	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0101L-Xs2

BILL OF MATERIAL
SAS-238ST-0111 (TAMP BOX ASSEMBLY)

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
-	1	SAS-238ST-0110	SIDE PLATES SHELF ASSEMBLY PAIR
⑰	2	MP-238ST-0230	BELT WRAP ROLLER
⑱	2	ASS-238ST-0104	2" ROLLER ASSEMBLY W/BELT CLEARANCE

BILL OF MATERIAL
SAS-238ST-0110 (SIDE PLATES SHELF ASSEMBLY PAIR)

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-238ST-0208	OUTBOARD SIDE PLATE
②	4	PM-BE1250	R-8 NSK BALL BEARING
③	1	PM-BE1210	ER-12 BEARING W/90° SET SCREW OFFSET
④	1	MP-238ST-0209	INBOARD SIDE PLATE

BILL OF MATERIAL
SAS-238ST-0112-XX

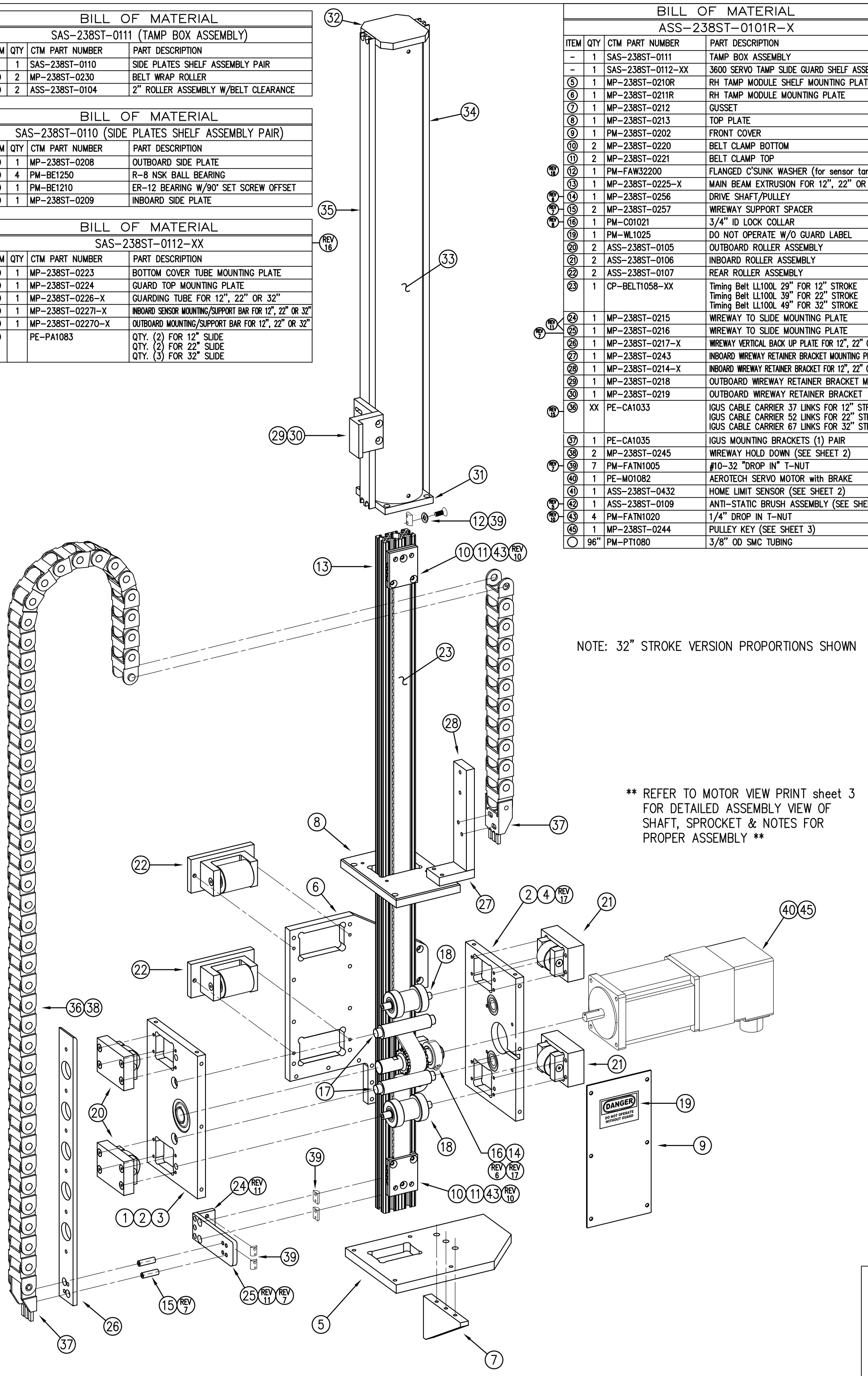
ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
㉛	1	MP-238ST-0223	BOTTOM COVER TUBE MOUNTING PLATE
㉜	1	MP-238ST-0224	GUARD TOP MOUNTING PLATE
㉝	1	MP-238ST-0226-X	GUARDING TUBE FOR 12", 22" OR 32"
㉞	1	MP-238ST-0227I-X	INBOARD SENSOR MOUNTING/SUPPORT BAR FOR 12", 22" OR 32"
㉟	1	MP-238ST-0227O-X	OUTBOARD MOUNTING/SUPPORT BAR FOR 12", 22" OR 32"
㊹		PE-PA1083	QTY. (2) FOR 12" SLIDE QTY. (2) FOR 22" SLIDE QTY. (3) FOR 32" SLIDE

BILL OF MATERIAL
ASS-238ST-0101R-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
-	1	SAS-238ST-0111	TAMP BOX ASSEMBLY
-	1	SAS-238ST-0112-XX	3600 SERVO TAMP SLIDE GUARD SHELF ASSEMBLY
⑤	1	MP-238ST-0210R	RH TAMP MODULE SHELF MOUNTING PLATE
⑥	1	MP-238ST-0211R	RH TAMP MODULE MOUNTING PLATE
⑦	1	MP-238ST-0212	GUSSET
⑧	1	MP-238ST-0213	TOP PLATE
⑨	1	PM-238ST-0202	FRONT COVER
⑩	2	MP-238ST-0220	BELT CLAMP BOTTOM
⑪	2	MP-238ST-0221	BELT CLAMP TOP
REV 18 ⑫	1	PM-FAW32200	FLANGED C'SUNK WASHER (for sensor target)
⑬	1	MP-238ST-0225-X	MAIN BEAM EXTRUSION FOR 12", 22" OR 32"
REV 6 ⑭	1	MP-238ST-0256	DRIVE SHAFT/PULLEY
REV 7 ⑮	2	MP-238ST-0257	WIREWAY SUPPORT SPACER
REV 8 ⑯	1	PM-C01021	3/4" ID LOCK COLLAR
⑲	1	PM-WL1025	DO NOT OPERATE W/O GUARD LABEL
⑳	2	ASS-238ST-0105	OUTBOARD ROLLER ASSEMBLY
㉑	2	ASS-238ST-0106	INBOARD ROLLER ASSEMBLY
㉒	2	ASS-238ST-0107	REAR ROLLER ASSEMBLY
㉓	1	CP-BELT1058-XX	Timing Belt LL100L 29" FOR 12" STROKE Timing Belt LL100L 39" FOR 22" STROKE Timing Belt LL100L 49" FOR 32" STROKE
REV 11 ㉔	1	MP-238ST-0215	WIREWAY TO SLIDE MOUNTING PLATE
REV 11 REV 7 ㉕	1	MP-238ST-0216	WIREWAY TO SLIDE MOUNTING PLATE
㉖	1	MP-238ST-0217-X	WIREWAY VERTICAL BACK UP PLATE FOR 12", 22" OR 32"
㉗	1	MP-238ST-0243	INBOARD WIREWAY RETAINER BRACKET MOUNTING PLATE
㉘	1	MP-238ST-0214-X	INBOARD WIREWAY RETAINER BRACKET FOR 12", 22" OR 32"
㉙	1	MP-238ST-0218	OUTBOARD WIREWAY RETAINER BRACKET MOUNT
㉚	1	MP-238ST-0219	OUTBOARD WIREWAY RETAINER BRACKET
REV 15 ㊱	XX	PE-CA1033	IGUS CABLE CARRIER 37 LINKS FOR 12" STROKE IGUS CABLE CARRIER 52 LINKS FOR 22" STROKE IGUS CABLE CARRIER 67 LINKS FOR 32" STROKE
㊲	1	PE-CA1035	IGUS MOUNTING BRACKETS (1) PAIR
㊳	2	MP-238ST-0245	WIREWAY HOLD DOWN (SEE SHEET 2)
REV 7 ㊴	7	PM-FATN1005	#10-32 "DROP IN" T-NUT
㊵	1	PE-M01082	AEROTECH SERVO MOTOR with BRAKE
㊶	1	ASS-238ST-0432	HOME LIMIT SENSOR (SEE SHEET 2)
REV 5 ㊷	1	ASS-238ST-0109	ANTI-STATIC BRUSH ASSEMBLY (SEE SHEET 2)
REV 10 ㊸	4	PM-FATN1020	1/4" DROP IN T-NUT
㊺	1	MP-238ST-0244	PULLEY KEY (SEE SHEET 3)
○	96"	PM-PT1080	3/8" OD SMC TUBING

NOTE: 32" STROKE VERSION PROPORTIONS SHOWN

** REFER TO MOTOR VIEW PRINT sheet 3 FOR DETAILED ASSEMBLY VIEW OF SHAFT, SPROCKET & NOTES FOR PROPER ASSEMBLY **



ASS-238ST-0101R-Xs1

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	RH 3600 SERVO TAMP ASSEMBLY sheet 1	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
18	CHANGED ITEM #12 (WAS MFG PART MP-238ST-0222)	09/24/19	TDR	NTS	03/10/2012	ERIC SANOR	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0101R-Xs1

(32)

¼"–20 X 1.00" LG. LHCS
W/ HEAVY FLATWASHER
& DROP IN T–NUT (2) PLACES

ATTACH WASHER
W/ #10–32 X 3/8" FHCS
& DROP IN T–NUT

ATTACH TUBE TO MOUNTING PLATES WITH
(4) #10–32 X 3/8" LG. SHCS & FLATWASHERS

APPROX. 3MM

(41)

½"

1" (REV 1)

INBOARD & OUTBOARD MOUNTING/SUPPORT
BARS ATTACH TO TOP & BOTTOM MOUNTING
PLATES WITH (8) #10–32 X 3/8" SHCS

(12)(40) WASHER (SENSOR TARGET) & T–NUT (REV 6)

(34)

(35)

(44)

NOTE: FRONT COVER, BELT & GUARDING
DETAILS REMOVED FROM THIS VIEW FOR
CLARITY OF INTERNAL DETAILS

NOTE: GUARDING TUBE REMOVED
AND MAIN BEAM EXTRUSION SHOWN
AT A PARTIALLY EXTENDED POSITION
FOR CLARITY OF ATTACHED DETAILS
GUARDING TUBE REMOVED

ATTACH WIREWAY MOUNTING PLATE
W/ (2) #10–32 X 5/8" SHCS (REV 1)

(38) ATTACH WIREWAY RETAINER BRACKET MOUNT
W/ (2) #10–32 X ½" SHCS & FLATWASHERS

ATTACH HOLD DOWN
(MP–238ST–0245) (REV 1)
W/#10–32 X ½" BHCS
& FLATWASHER

(2) #10–32 X ¾" FHCS

ATTACH BOTTOM TUBE
MOUNTING PLATE W/
(4) #10–32 X ½" SHCS

ATTACH IGUS BRACKET W/
(2) #10–32 X ½" SHCS &
FLATWASHERS (REV 1)(REV 5)

ATTACH REAR ROLLER
ASSEMBLIES W/ (2)
#10–32 X ½" SHCS
& BLUE LOCTITE

ATTACH HOLD DOWN
(MP–238ST–0245) (REV 1)
W/#10–32 X ½" BHCS
& FLATWASHER

ATTACH WIREWAY RETAINER BRACKET TO
MTG. PLATE W/ (2) #10–32 X 5/8" SHCS

ATTACH FRONT COVER W/
(6) #10–32 X 3/8" SHCS
& FLATWASHERS
APPLY WARNING LABEL
PE–WL1025

ATTACH MOTOR ASSEMBLY W/ (4)
#10–32 X 1.00" SHCS & LOCK WASHERS

ATTACH FRONT ROLLER
SHAFT TO SIDE PLATES (REV 1)
W/#10–32 X ¾" FHCS
& BLUE LOCTITE

(REV 3)(14)

ATTACH OUTBOARD
ROLLER ASSEMBLIES
W/ (4) #10–32 x 1" FHCS (REV 1)
& BLUE LOCTITE

ATTACH INBOARD ROLLER ASSEMBLIES
W/ (4) #10–32 X 1.00" SHCS
& BLUE LOCTITE

(REV 1)(42) ITEM
ANTI–STATIC
BRUSH ASSY.

(15) (REV 2)

QTY.(2) ¼"–20 x ½" SHCS
W/ FLATWASHERS

¼"–20 X ¾" LG. SHCS
W/ HEAVY FLATWASHER
& ¼" DROP IN T–NUT (2) PLACES

QTY. 3 #6–32 x 3/8" FHCS

ATTACH WIREWAY VERTICAL
BACK UP PLATE W/
(2) #10–32 X ½" FHCS

(REV 2)

1 3/8"

ATTACH IGUS BRACKET W/
(2) #10–32 X ¾" BHCS
& FLATWASHERS (REV 1)

#10–32 X ½" FHCS
& DROP IN T–NUT
(4) PLACES EACH

(25) (REV 5)

APPROX. 1 ¼"

ASS–238ST–0101R–Xs2

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	RH 3600 SERVO TAMP ASSEMBLY SHEET 2	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
6	CHANGED MFG PART to PURCHASED PART	09/24/19	TDR	1=3	04/10/2012	ERIC SANOR	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600–ST\ASS\ASS–238ST–0101R–Xs2

ASS-238ST-0101s3

VIEW PRINT

(REV 2)(REV 3)(REV 4) SECTION BB ENLARGED 1.5X

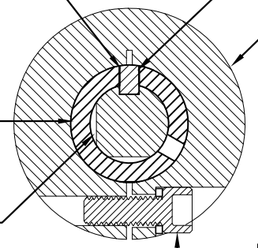
(REV 9) KEY NOW OPPOSITE LOCK COLLAR SCREW

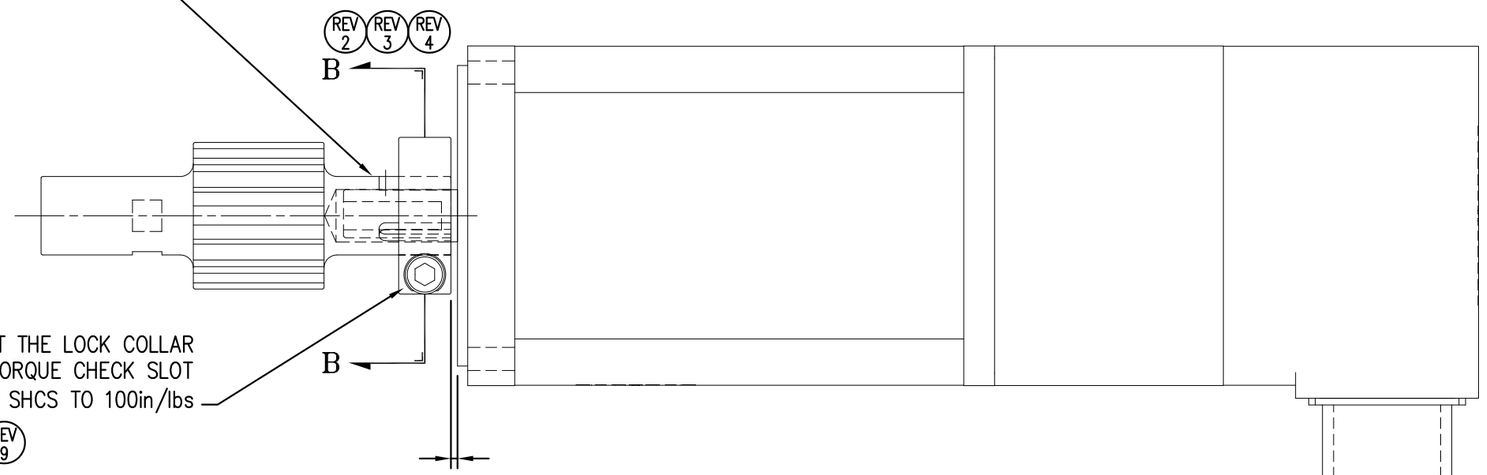
(REV 8)(REV 12) MP-238ST-0244 NEW MOTOR KEY DIMENSIONS —⅛"(W) X 3⁄16"HIGH X ½" LG.

(REV 11) PM-C01021 LOCK COLLAR

(REV 7) MP-238ST-0256 DRIVE SHAFT

MOTOR SHAFT





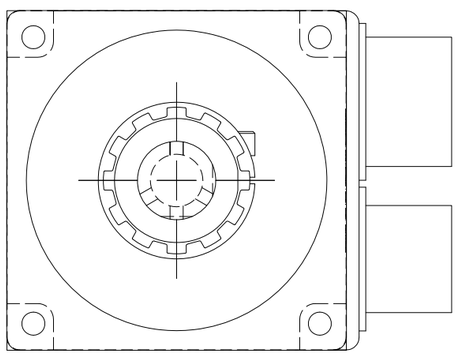
IMPORTANT NOTE: ORIENT THE LOCK COLLAR THIS WAY FOR TORQUE CHECK SLOT TORQUE LOCK COLLAR SHCS TO 100in/lbs (REV 8)(REV 9)

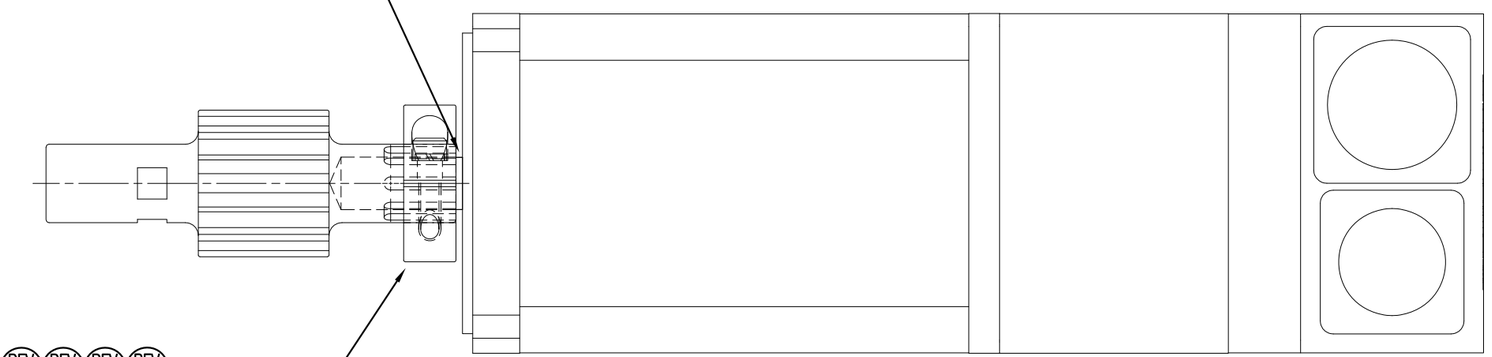
.063"

NOTE: USE MP-238ST-TOOL TO SET A CONSISTENT GAP BETWEEN THE SHAFT AND THE MOTOR FLANGE FACE.

REPLACE LOCK COLLAR SHCS w/ ¼"-28 x ¾" LG. BLK. SHCS (PM-FASH30690HC)
ADD ¼" HIGH LOCKWASHER (PM-FAW30690HC) TO ABOVE MENTIONED SHCS
BLUE LOCTITE THE SCREW THREADS (REV 8)(REV 9)

COAT MOTOR SHAFT WITH C5-A ANTI-SEIZE LUBRICANT BEFORE ASSEMBLING DRIVE SHAFT ONTO IT.





(REV 2)(REV 3)(REV 4)(REV 11) LOCK COLLAR (PM-C01021)
THE ASSEMBLER IS TO INSTALL THE LOCK COLLAR SO THAT IT IS EVEN WITH THE END OF THE DRIVE SHAFT AND ROTATED IN POSITION TO CORRESPOND WITH SECTION BB

SERVO MOTOR & BRAKE

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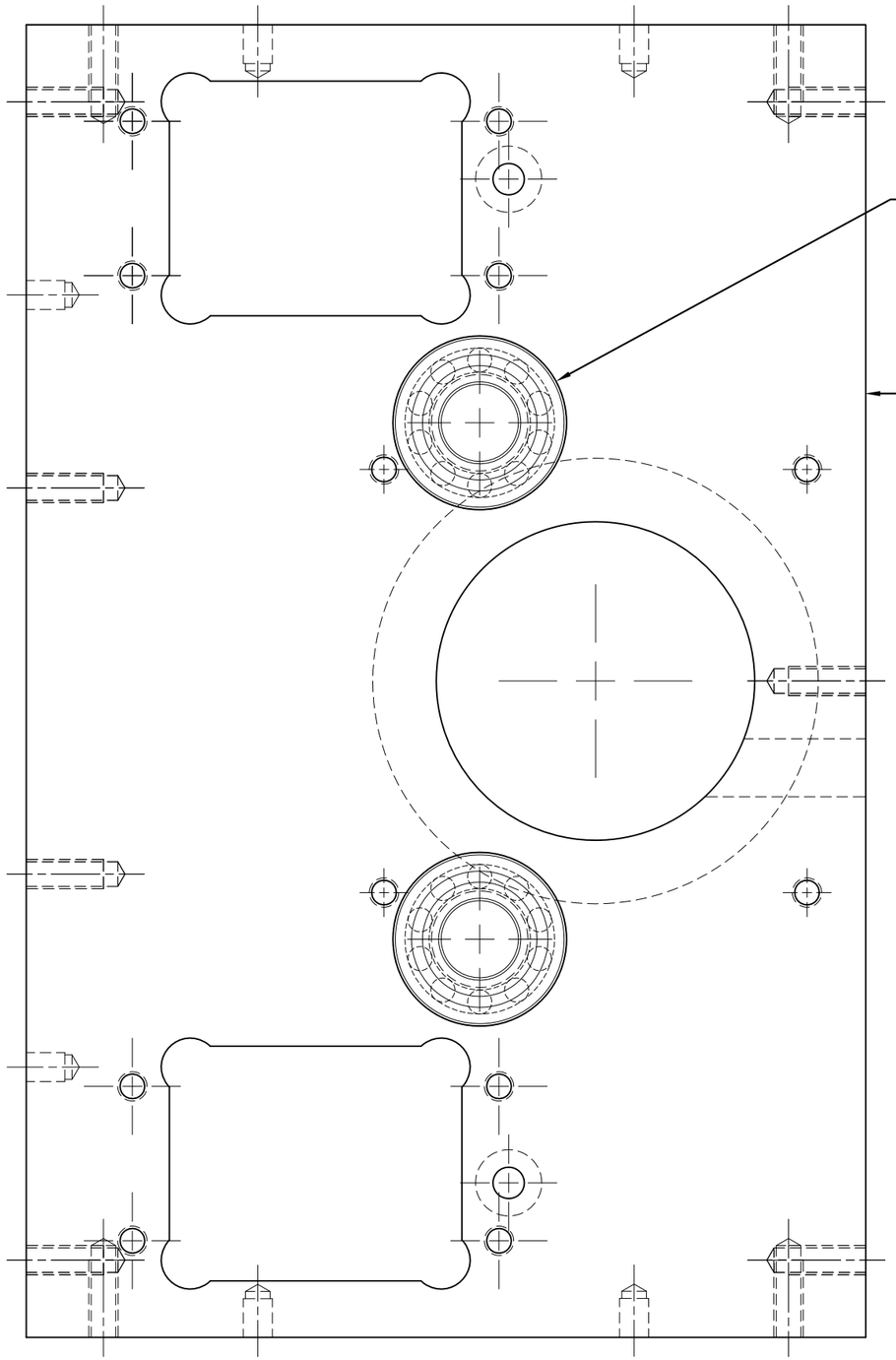
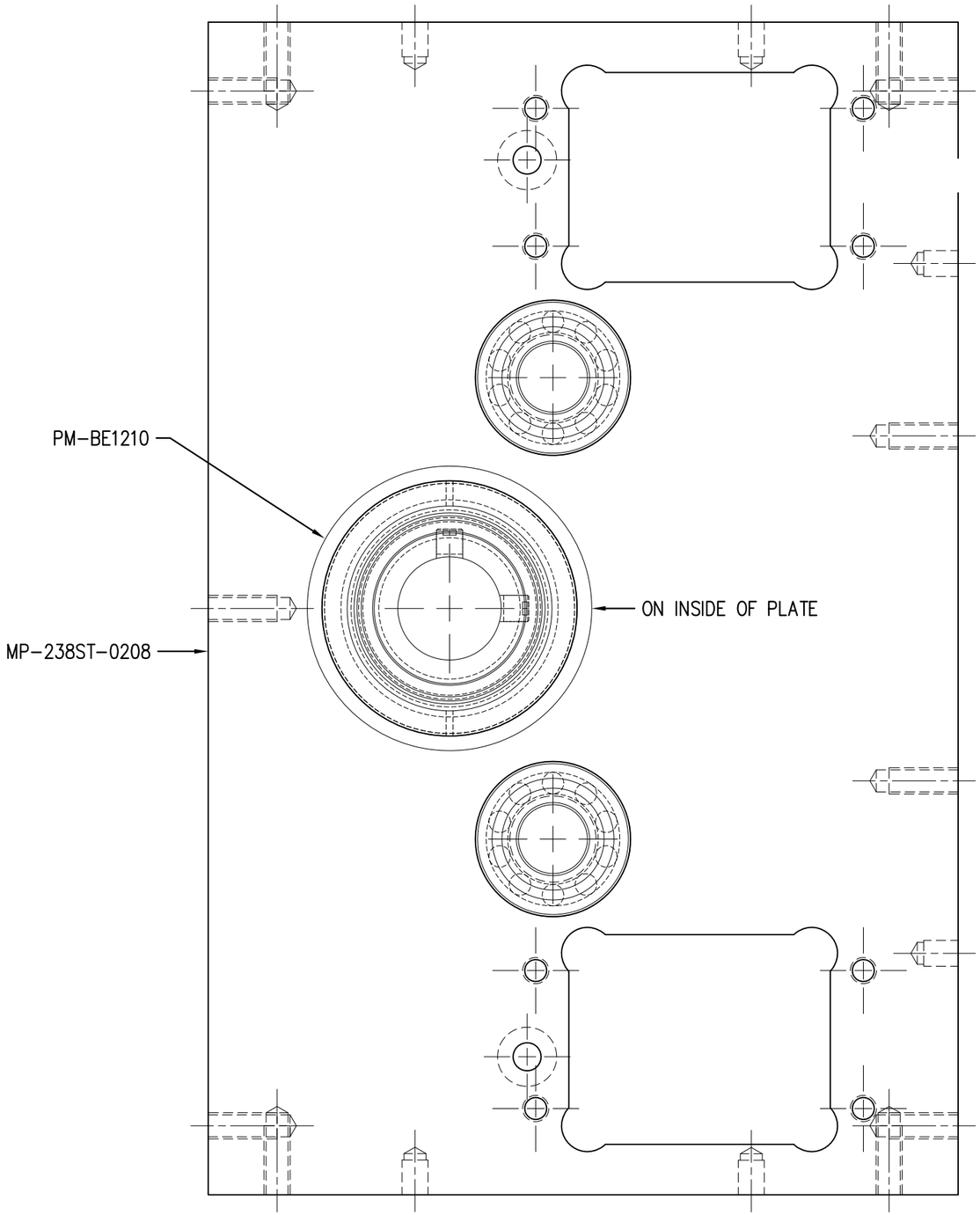
APPLICATOR SERIES: 3600	APPLICATOR WIDTH(S): N/A	GROUP: SERVO TAMP	TITLE: 3600 SERVO TAMP ASSEMBLY SHEET 3 MOTOR AND SHAFT DETAIL		Dept. Code 70
REV. 13	REV. DESCRIPTION REMOVED FEELER GUAGE NOTE FOR LOCK COLLAR GAP	REV. DATE 09/24/2018	REV. BY: ES	Scale: NTS	Date: 04/09/2012	DRAWN BY: ERIC SANOR	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0101s3

SAS-238ST-0110

NOTE: USE RED LOCTITE IN BEARING BORES





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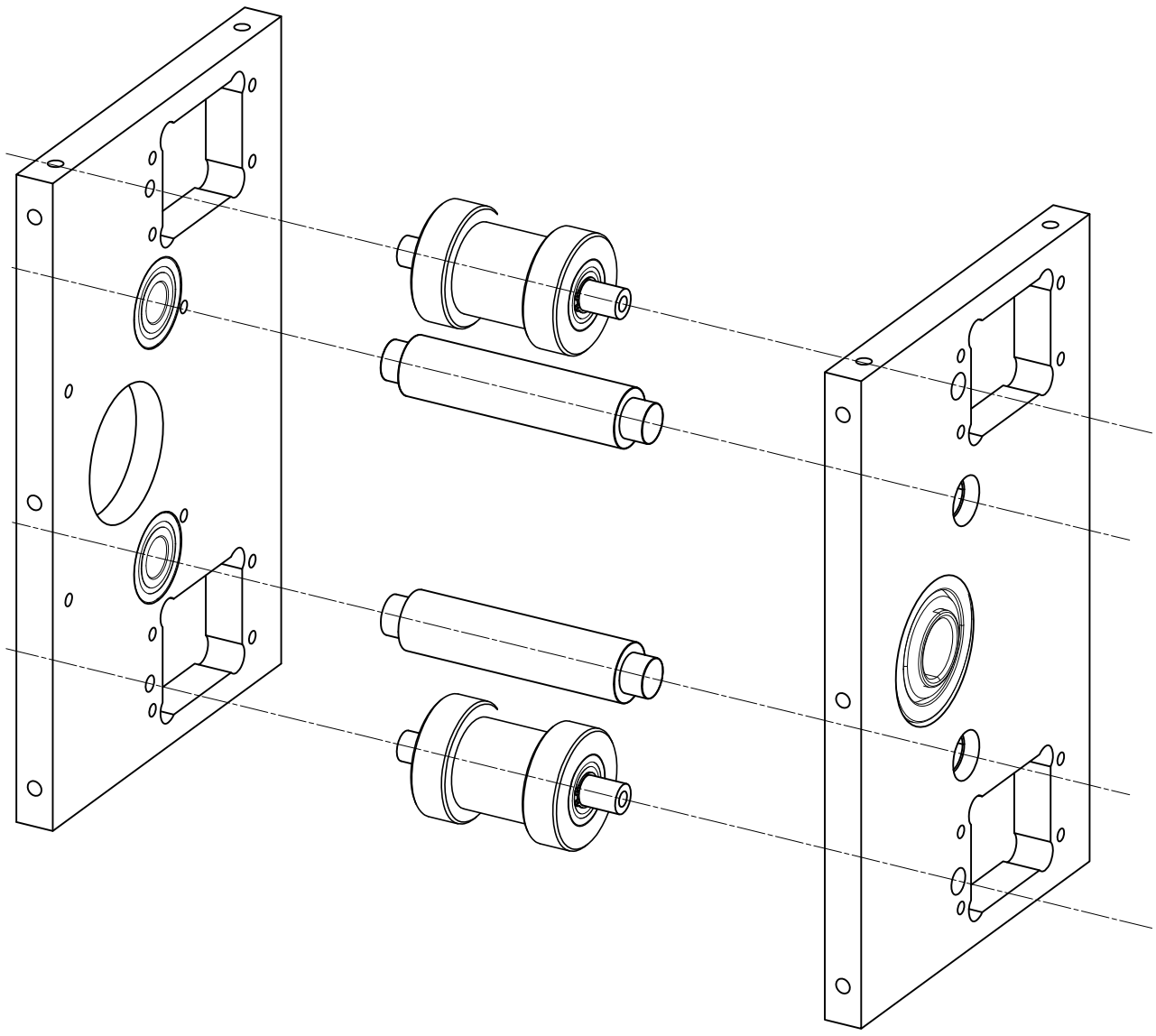
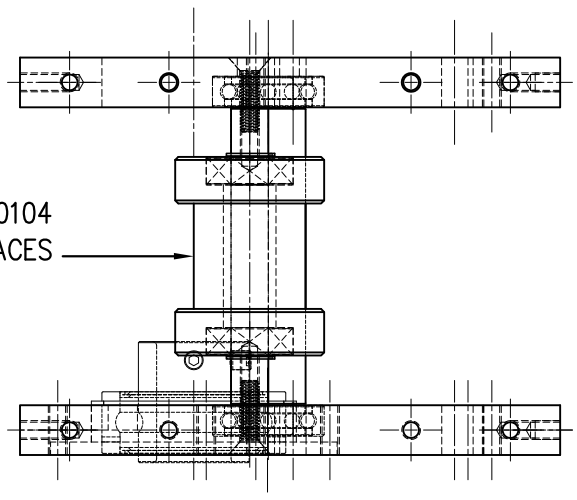
APPLICATOR SERIES: 3600	APPLICATOR WIDTH(S): N/A	GROUP: SERVO TAMP	TITLE: SIDE PLATES SHELF ASSEMBLY PAIR	Scale: 1=1	Dept. Code 70
REV. 0	REV. DESCRIPTION NEW DRAWING FOR ASSEMBLY RE-ORGANIZATION/EFFICIENCY IMPROVEMENTS	REV. DATE 06/19/2018	REV. BY: ES	Date: 06/12/2018	DRAWN BY: ES

F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\SAS\SAS-238ST-0110

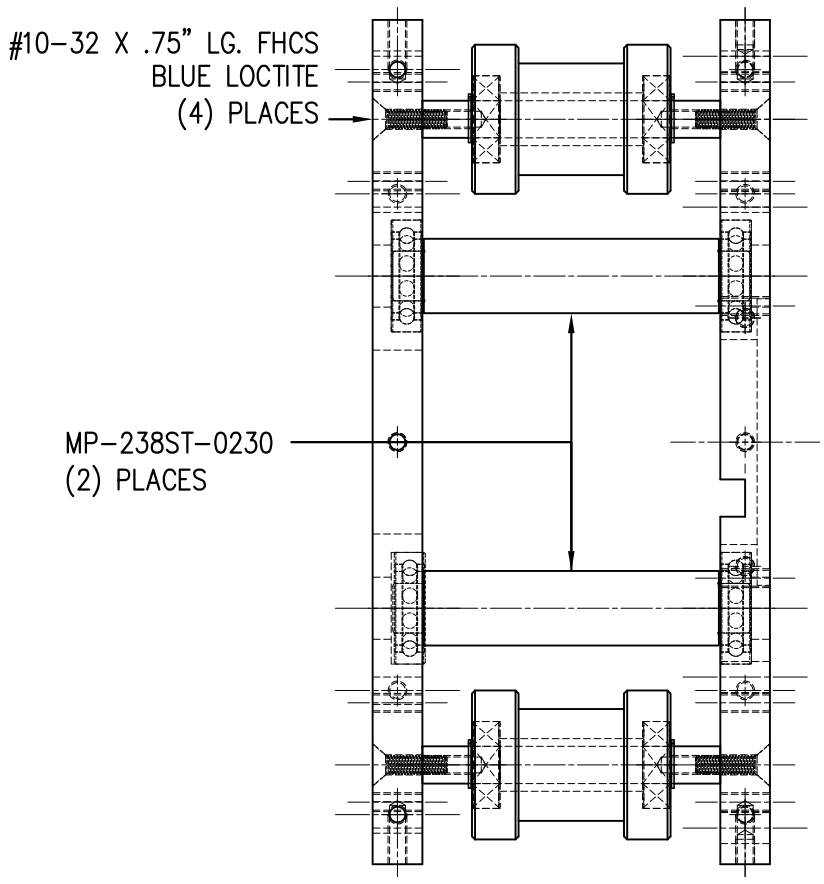


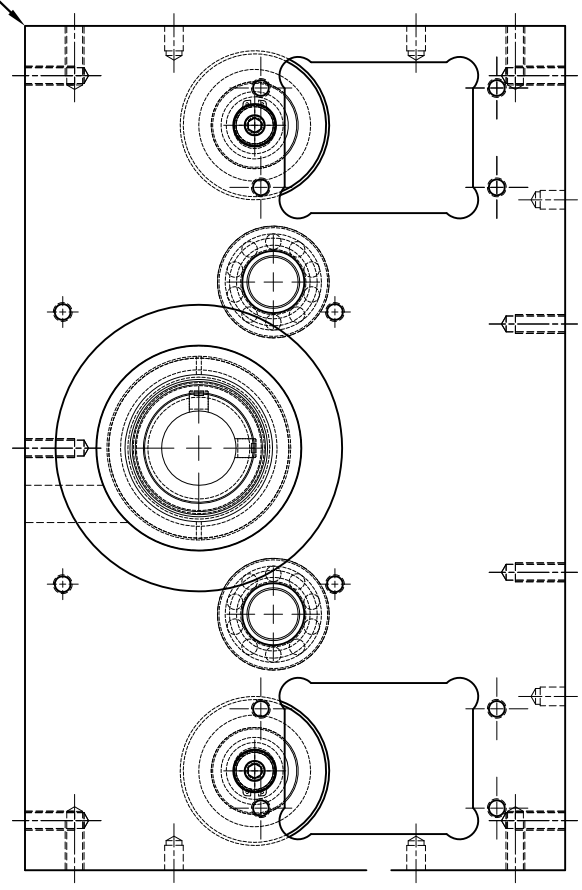


SAS-238ST-0110
SIDE PLATES
SHELF ASSEMBLY

#10-32 X .75" LG. FHCS
BLUE LOCTITE
(4) PLACES

MP-238ST-0230
(2) PLACES





SAS-238ST-0111

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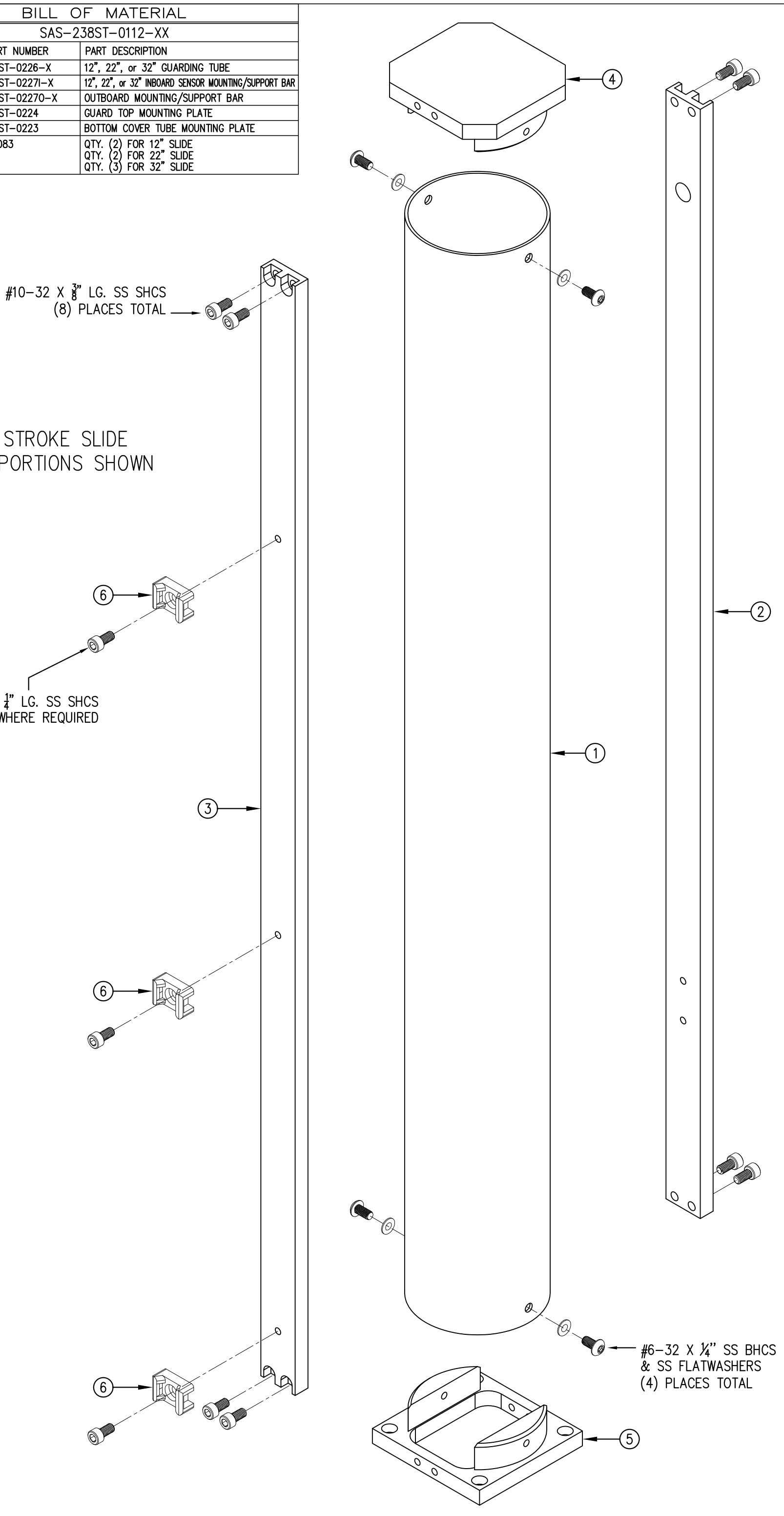
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	TAMP BOX SHELF ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	–	1=1	06/12/2018	ES	3600-ST\SAS\SAS-238ST-0111

BILL OF MATERIAL

SAS-238ST-0112-XX

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-238ST-0226-X	12", 22", or 32" GUARDING TUBE
②	1	MP-238ST-0227I-X	12", 22", or 32" INBOARD SENSOR MOUNTING/SUPPORT BAR
③	1	MP-238ST-0227O-X	OUTBOARD MOUNTING/SUPPORT BAR
④	1	MP-238ST-0224	GUARD TOP MOUNTING PLATE
⑤	1	MP-238ST-0223	BOTTOM COVER TUBE MOUNTING PLATE
⑥		PE-PA1083	QTY. (2) FOR 12" SLIDE QTY. (2) FOR 22" SLIDE QTY. (3) FOR 32" SLIDE



SAS-238ST-0112-XX

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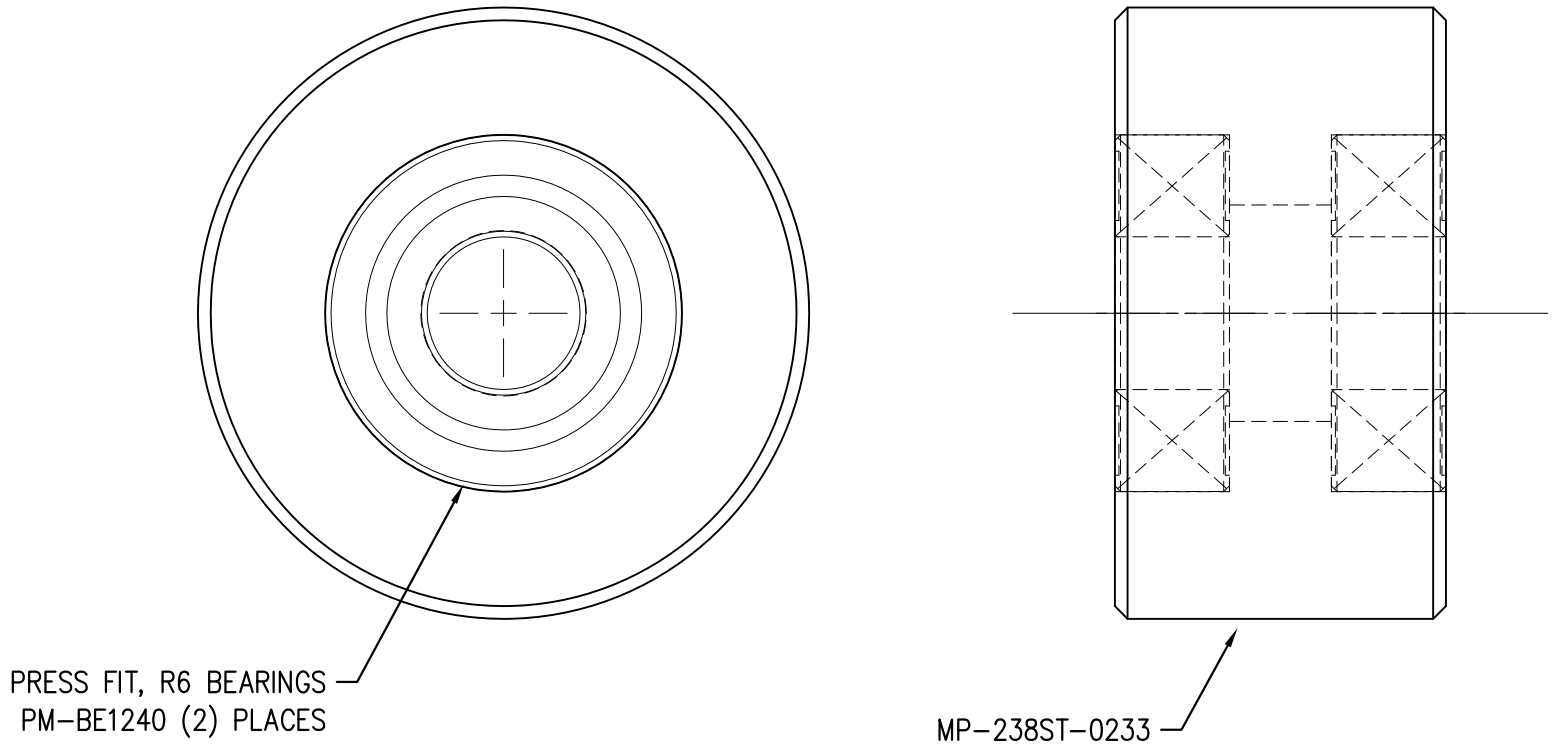
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	N/A	SERVO TAMP	3600 SERVO TAMP SLIDE GUARD SHELF ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	XXX	1=2	09/10/2018	ES	3600-ST\SAS\SAS-238ST-0112-XX

(4) ASSEMBLIES REQUIRED PER TAMP MODULE



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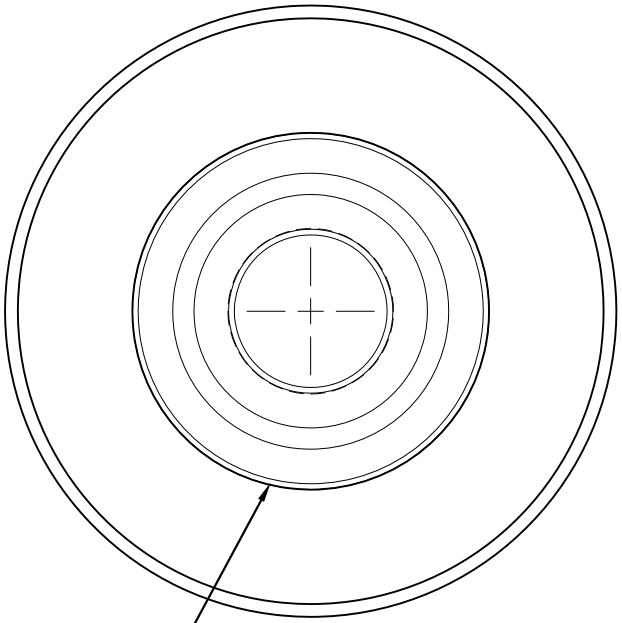
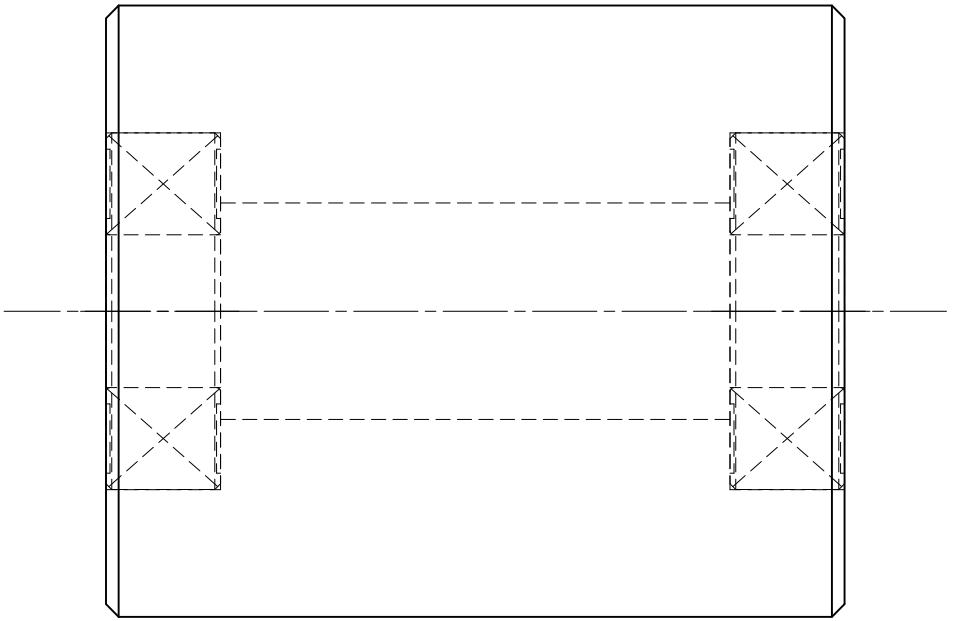
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	1" ROLLER ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	XXX	2=1	01/13/2012	ERIC SANOR	3600-ST\ASS\ASS-238ST-0102

(2) ASSEMBLIES REQUIRED PER TAMP MODULE



PRESS FIT, R6 BEARINGS
PM-BE1240 (2) PLACES



MP-238ST-0234

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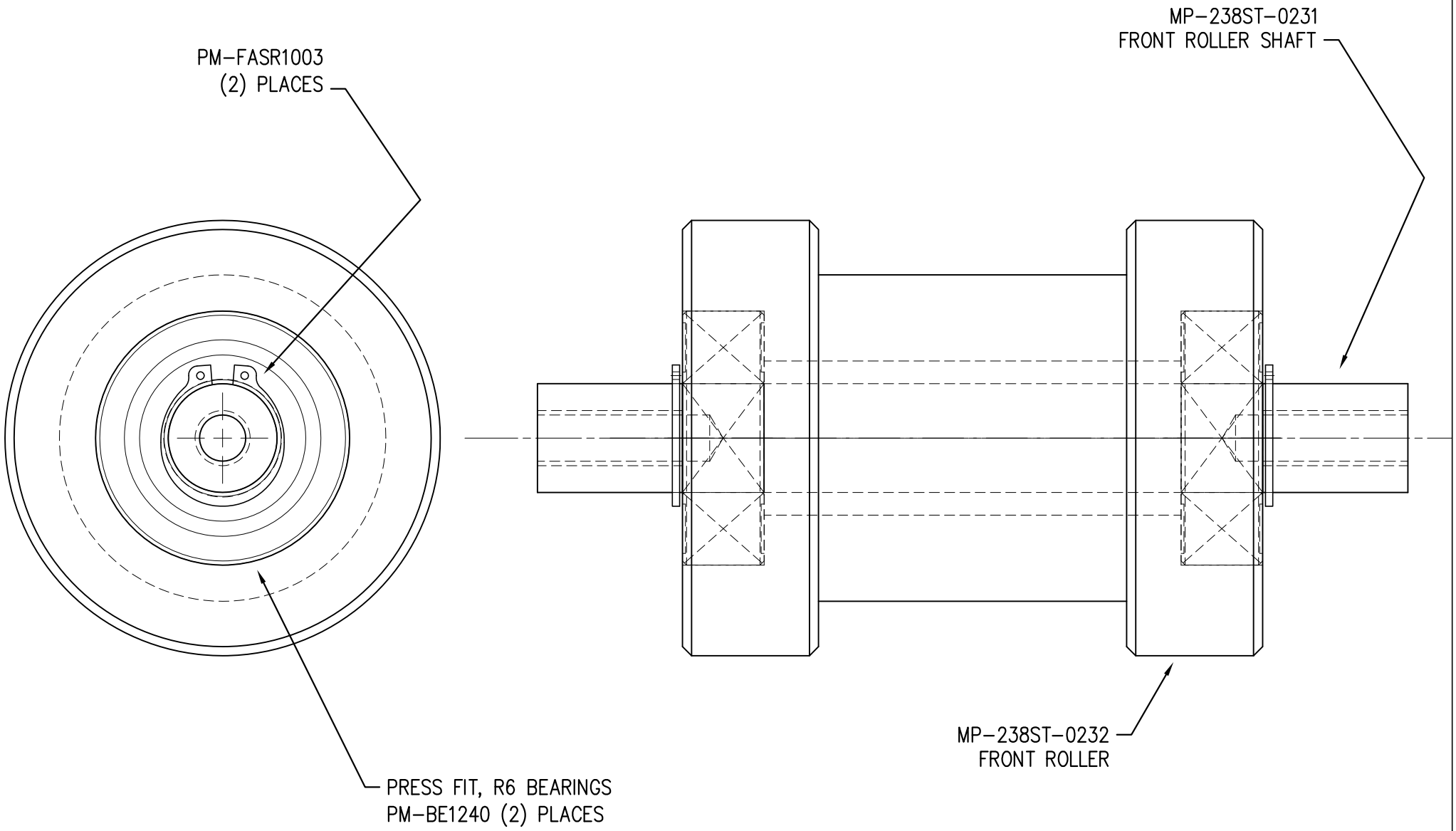
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	2" ROLLER ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	XXX	2=1	01/13/2012	ERIC SANOR	3600-ST\ASS\ASS-238ST-0103

ASS-238ST-0104

(2) ASSEMBLIES REQUIRED PER TAMP MODULE



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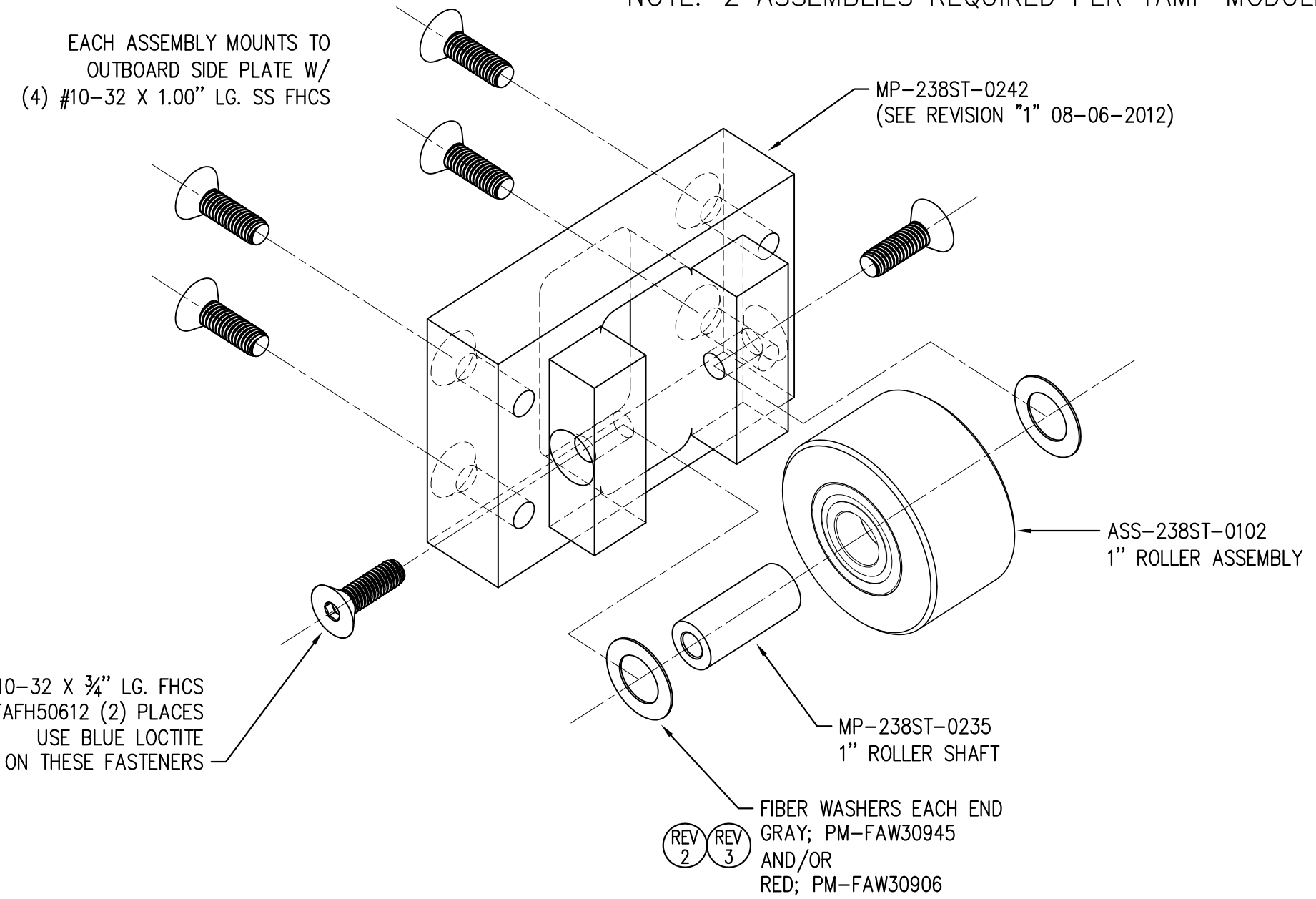
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	2" ROLLER ASSEMBLY W/BELT CLEARANCE	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
1	ADDED SHAFT AND SNAP RINGS TO ASSEMBLY	06/04/2012	ES	2=1	01/13/2012	ERIC SANOR	3600-ST\ASS\ASS-238ST-0104

ASS-238ST-0105

NOTE: 2 ASSEMBLIES REQUIRED PER TAMP MODULE



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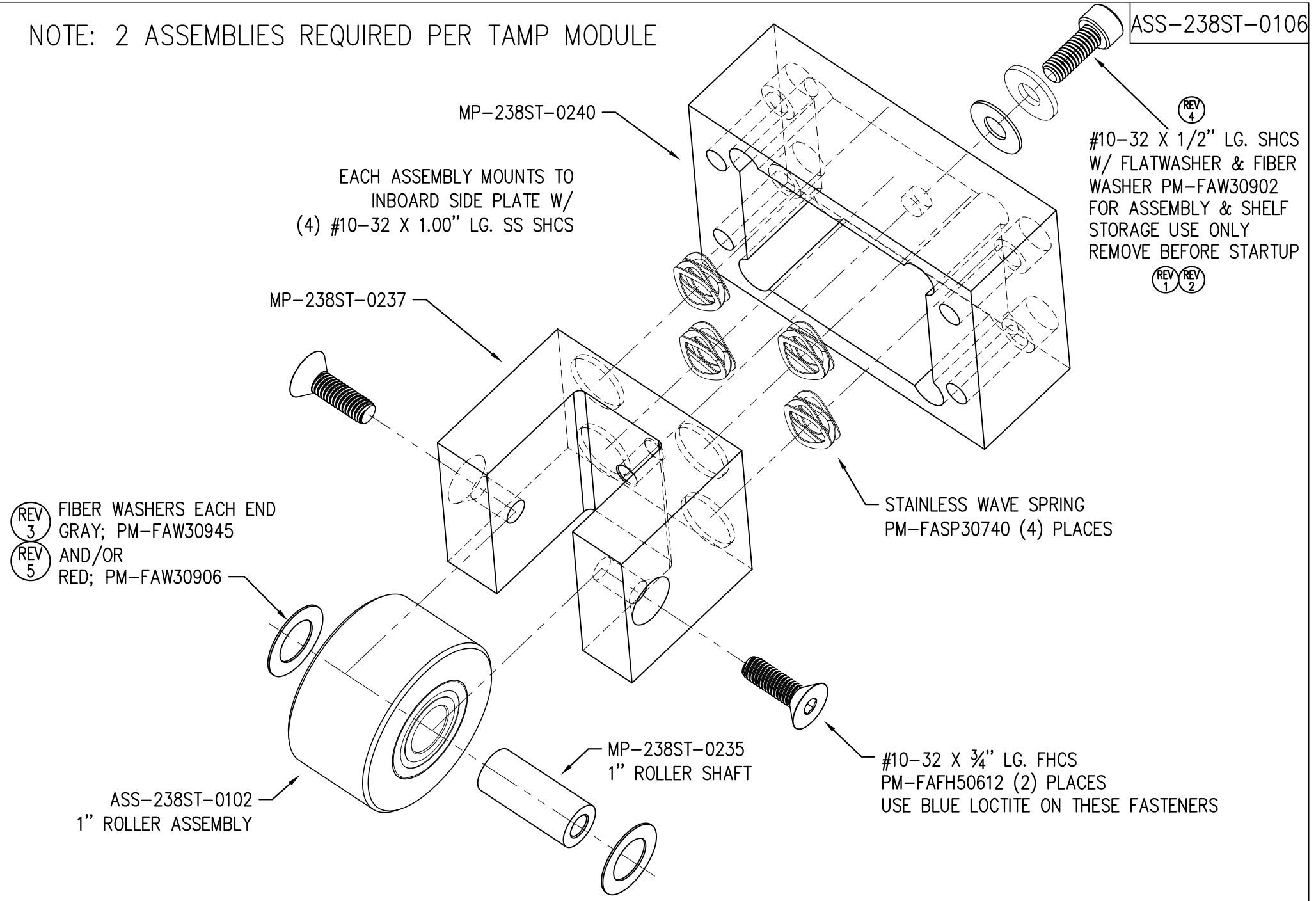
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	OUTBOARD ROLLER ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
3	RED FIBER WASHER PART NUMBER CHANGED IT WAS PM-FAW30946	01/15/2019	ES	1=1	01/13/2012	ERIC SANOR	3600-ST\ASS\ASS-238ST-0105

ASS-238ST-0106

NOTE: 2 ASSEMBLIES REQUIRED PER TAMP MODULE



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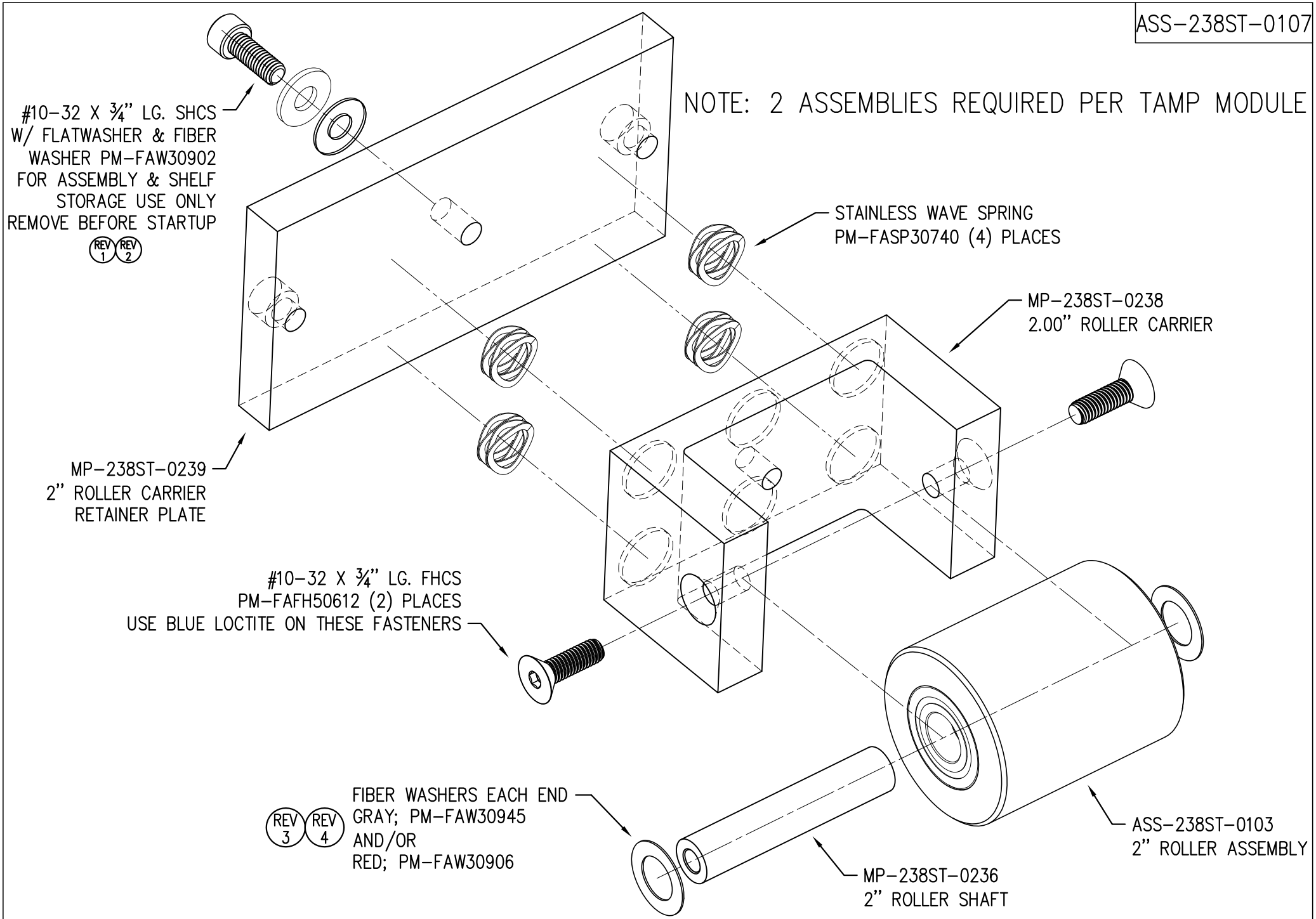
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	INBOARD ROLLER ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
5	RED FIBER WASHER PART NUMBER CHANGED IT WAS PM-FAW30946	01/15/2019	ES	1=1	01/13/2012	ERIC SANOR	3600-ST\ASS\ASS-238ST-0106

ASS-238ST-0107



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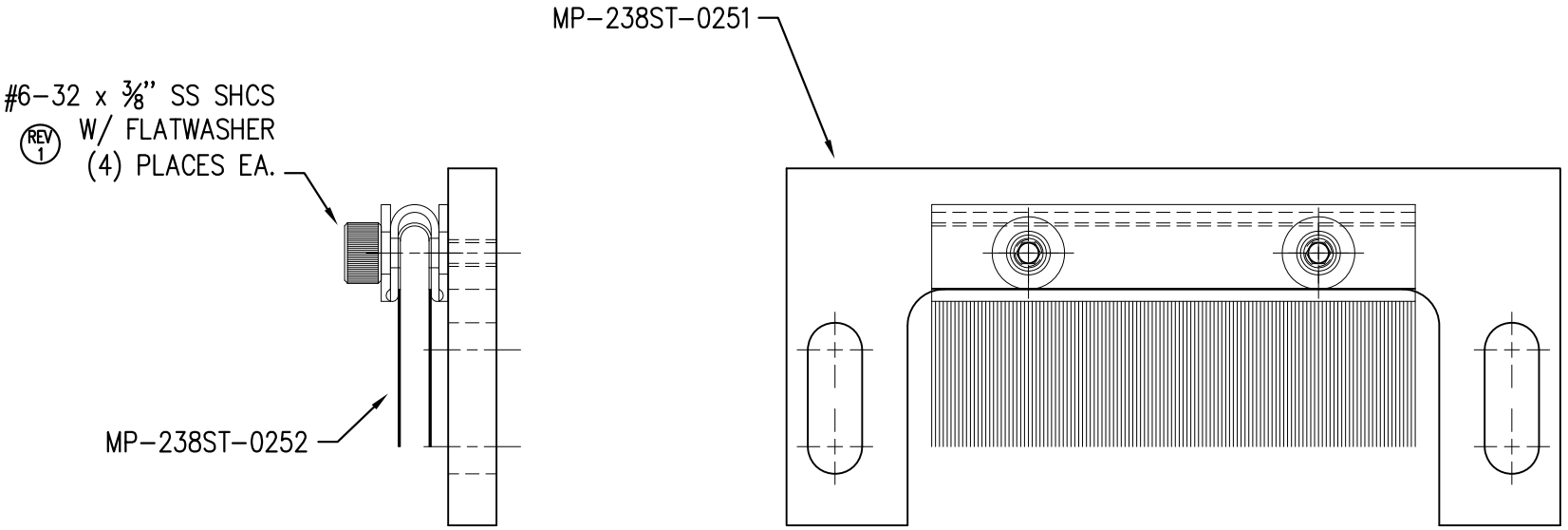
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	REAR ROLLER ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
4	RED FIBER WASHER PART NUMBER CHANGED IT WAS PM-FAW30946	01/15/2019	ES	1=1	01/13/2012	ERIC SANOR	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0107



NOTE: WHEN REQUIRED THIS BRUSH ASSEMBLY WILL MOUNT TO THE BOTTOM OF THE SHELF PLATE (MP-238ST-0210R/L WITH (2) 1/4"-20 x 1/2" SS SHCS AND FLATWASHERS

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	N/A	SERVO TAMP	ANTI-STATIC BRUSH ASSEMBLY	70

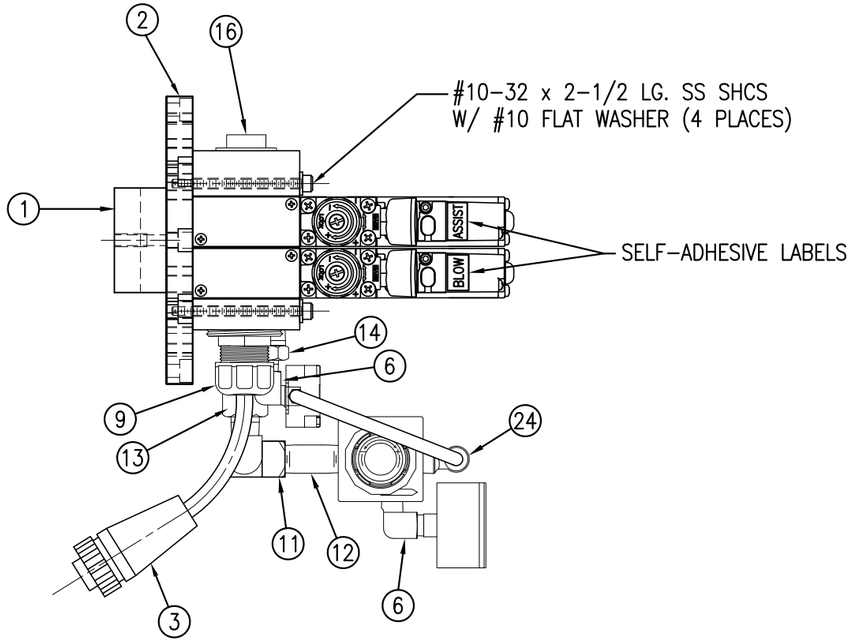
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
1	ADDED ANOTHER FLATWASHER BETWEEN BRUSH AND MOUNTING BRACKET	03/06/2013	ES	1=1	11/21/2012	ERIC SANOR	3600-ST\ASS\ASS-238ST-0109

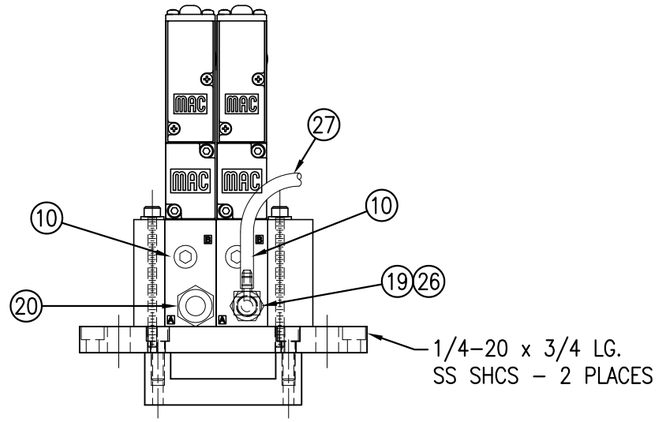
ASS-238ST-0129M

BILL OF MATERIAL

ASS-238ST-0129M

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-200-0285	DISPLAY UNIT (U-ARM) MOUNTING BRACKET
②	1	MP-214-0206	VALVE MOUNTING PLATE
③	1	ASS-200-0452M	VALVE CABLE
④	1	PM-REG1500	REGULATOR
⑤	1	PM-VA2384	0-160 PSI PRESSURE GUAGE
⑥	2	PM-PF1180	NPT 90° STREET ELBOW 1/8" FEMALE TO 1/8" MALE
⑦	1	PM-PUMP1010	VACUUM PUMP, 55 PSI FEED PRESSURE, MUFFLED EXHAUST
⑧	1	PM-VA2358M	2 STATION MAC VALVE BANK
⑨	1	PE-CO2000	CORD GRIP
⑩	3	PM-FT1200	1/4" NPT SOCKET HEAD PLUG
⑪	1	PM-PF1200	TEE 1/4" NPT FEMALE 3 ENDS
⑫	1	PM-PF1143	NIPPLE, 1/4" NPT X 1 1/2" LG.
⑬	1	PM-PF1220	ADAPTOR, 3/8" NPT FEMALE TO 1/4" NPT MALE
⑭	1	PM-PF1157	REDUCER, 3/8" NPT TO 1/8" NPT
⑮	1	PM-PF1159	FITTING, 3/8" NPT MALE BOTH ENDS
⑯	1	PE-EN9125	1 1/4" BLACK PLASTIC THREADED PLUG
⑰	1	PE-COND1084	STEEL REDUCER
⑱	1	PM-PF1110	BUSHING, 1/4" NPT FEMALE TO 3/8" NPT MALE
⑲	1	PM-PF1105	BUSHING, 1/8" NPT female to 1/4" NPT male
⑳	1	PM-PF1020	FITTING, 3/8" TUBE w/ 1/4" NPT STRT
㉑	3	PM-PF1167	3/8" NPT SOCKET HEAD PLUG
㉒	10.5"	PM-PT1070	1/4" OD TUBING
㉓	1	ASS-214-0106	AIR FILTER
㉔	1	PM-PF1055	90° ELBOW 1/4" TUBE TO 1/4" NPT MALE
㉕	1	PM-PF1185	90° STREET ELBOW, 1/4" NPT
㉖	1	PM-PF1169	HOSE BARB ELBOW, 1/4" TUBE to 1/8" NPT MALE
㉗	36"	PM-AH1000	AIR ASSIST TUBING
◯	2	PM-FASH430079	1/4"-20 UNC x 7/8" LG. SS SHCS
◯	2	PM-FAW30275	1/4" SS FLAT WASHER
◯	2	PM-FASH430078	1/4"-20 UNC x 3/4" LG. SS SHCS
◯	4	PM-FASH429088	10-32 X 2 1/2" LG. SS SHCS
◯	4	PM-FAW30265	#10 SS FLAT WASHER



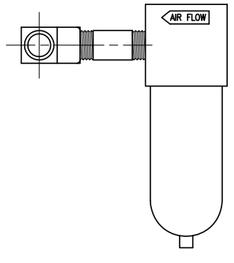


VIEW "A"
(VALVE BANK & MTG. ONLY)

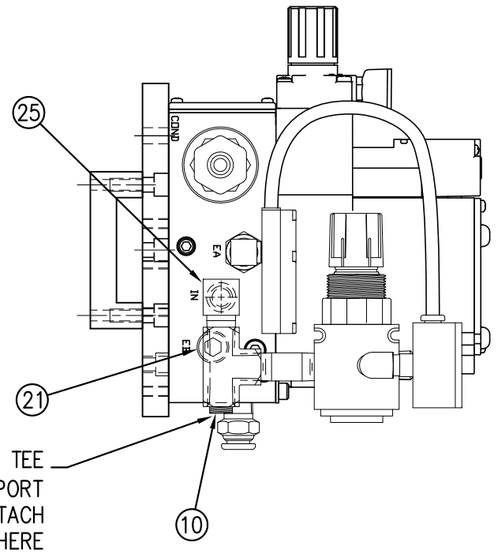
BLOW VALVE:
PRESSURE GAUGE - 0-100 PSI
AIR ASSIST VALVE:
PRESSURE GAUGE - 0-60 PSI

GENERAL VALVE BANK SPARE PARTS:

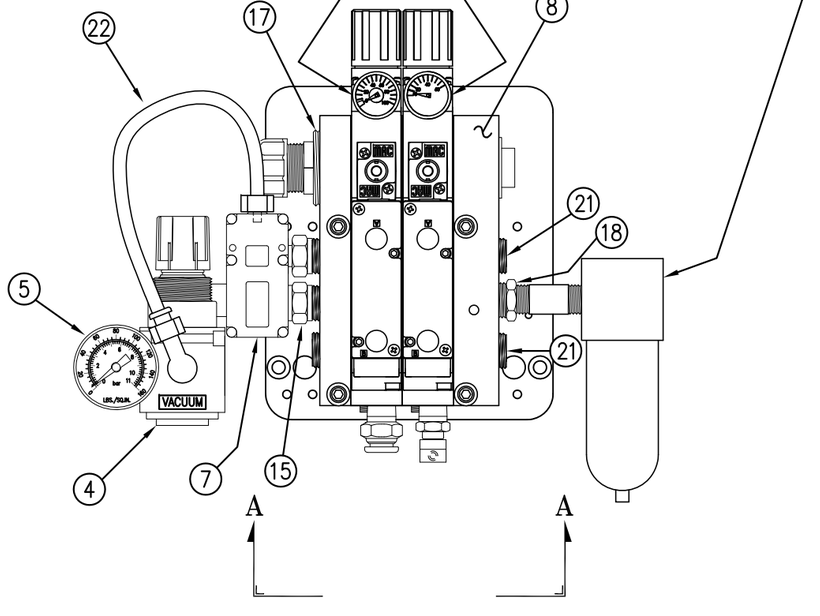
SOLENOID: #PM-VA2395M
AIR ASSIST REGULATOR W/GUAGE: #PM-VA2396M
BLOW/TAMP/IMPRINTER REGULATORS W/GUAGE: #PM-VA2397M
AIR ASSIST REGULATOR GUAGE: #PM-VA2382M
BLOW/TAMP/IMPRINTER REGULATOR GUAGES: #PM-VA2380M



㉓ AIR FILTER
SHIP LOOSE
-CUSTOMER TO INSTALL -



MOVE PLUG FROM TEE
ON THIS SIDE TO "IN" PORT
ON OPPOSITE SIDE & ATTACH
AIR FILTER ASSEMBLY HERE
(TO TEE) FOR RH APPLICATORS



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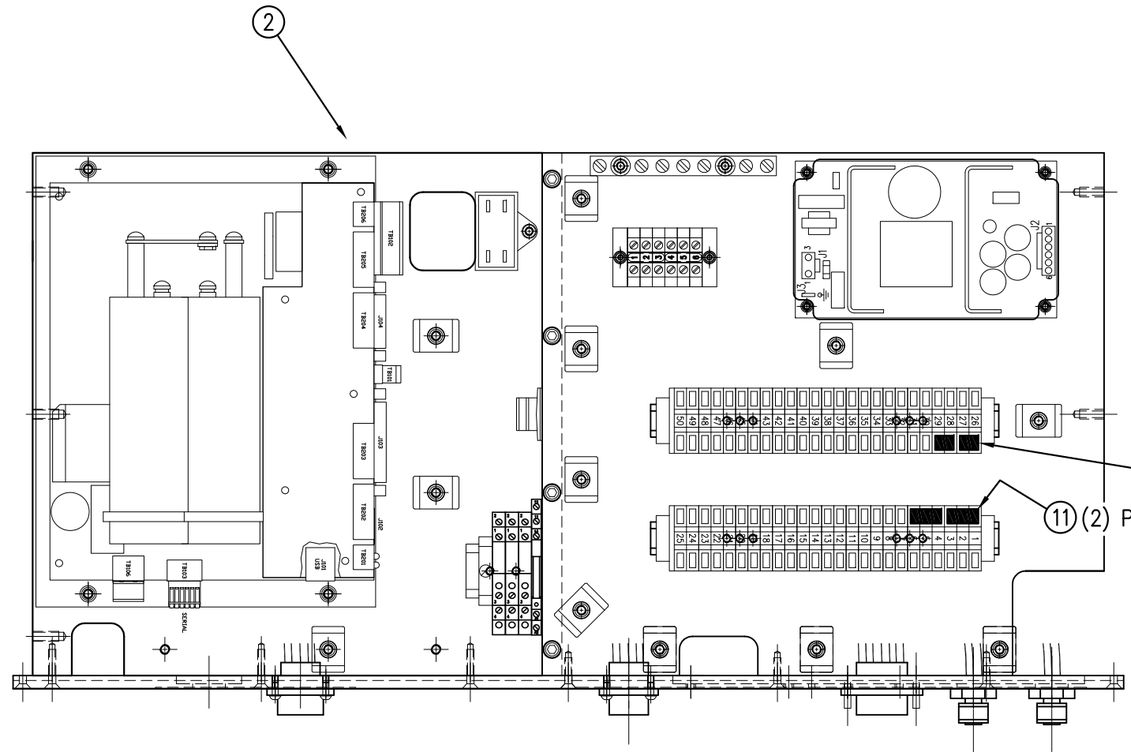
TITLE: VALVE BANK ASSEMBLY with FILTER FOR 3600-ST OR 360a-ST
Dept. Code 70
F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST/ASS\ASS-238ST-0129M
APPLICATOR SERIES: 360/3600
APPLICATOR WIDTH(S): 7.5"
GROUP: VALVE BANKS
Scale: 1=3
Date: 11/15/2016
DRAWN BY: ES
REV. BY: BNT
REV. DATE 12/20/18

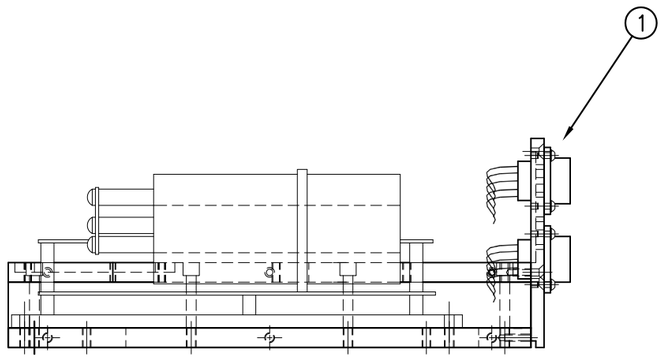
REV.	REV. DESCRIPTION
1	REPLACED 0-160 GAUGE WITH 0-100 GAUGE

BILL OF MATERIAL

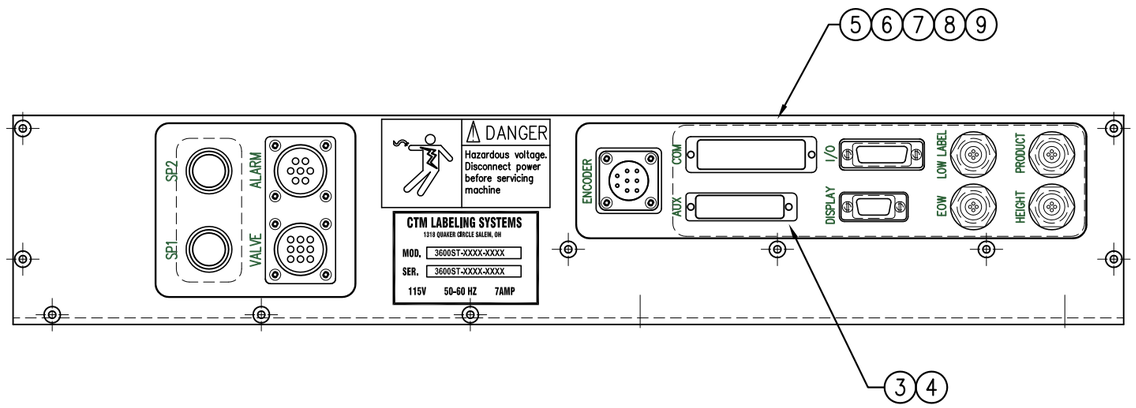
ASS-238ST-0127L-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	SAS-238ST-0127aL	CONNECTOR PLATE SHELF ASSEMBLY - LH	REV 2
②	1	SAS-238ST-0127bL-A	ELECTRIC SHELF ASSEMBLY FOR VAC BLOW STYLE-LH	
	1	SAS-238ST-0127bL-B	ELECTRIC SHELF ASSEMBLY FOR FAN STYLE-LH	
③	1	PE-238-0405	SERIAL PRINTER PORT	SERIAL
	0			PARALLEL
	0			ETHERNET
④	0	MP-238-0277	SERIAL PORT BLANK	SERIAL
	1			PARALLEL
	1			ETHERNET
⑤	0	PE-CA2500	PARALLEL CABLE	SERIAL
	1			PARALLEL
	0			ETHERNET
⑥	0	PE-CC1070	PARALLEL PORT CLIP KIT	SERIAL
	1			PARALLEL
	0			ETHERNET
⑦	0	PE-PA1040	FLAT RIBBON CLIP	SERIAL
	1			PARALLEL
	0			ETHERNET
⑧	1	MP-238-0276	PARALLEL PORT BLANK	SERIAL
	0			PARALLEL
	0			ETHERNET
⑨	0	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY	SERIAL
	0			PARALLEL
	1			ETHERNET
	10	PM-FAFH50110	FHCS, #6-32 x 1/2" Lg.	
⑩	2	PE-TE1150	2 POLE SCREWLESS JUMPER	REV 1
⑪	2	PE-TE1152	3 POLE SCREWLESS JUMPER	





NOTE: TERMINAL STRIPS & POWER SUPPLY
AND RELAYS OMITTED FROM THIS VIEW



ASS-238ST-0127L-X

VACUUM BLOW STYLE -A

FAN STYLE -B

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APPLICATOR SERIES: 3600	APPLICATOR WIDTH(S): 7.5"	GROUP: SERVO TAMP APPLICATOR: HOUSING	REV. DATE 12/14/2017
REV. 2	REV. DESCRIPTION DECAL VERSION CONNECTOR PLATE REPLACES SILKSCREEN TYPE		

TITLE: 3600 SERVO TAMP TYPE: WIRED BOARD ASSEMBLY - LH			Dept. Code 70
REV. BY: ES	Scale: 1=3	Date: 07/25/2012	DRAWN BY: ERIC SANOR

F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0127L-X

BILL OF MATERIAL

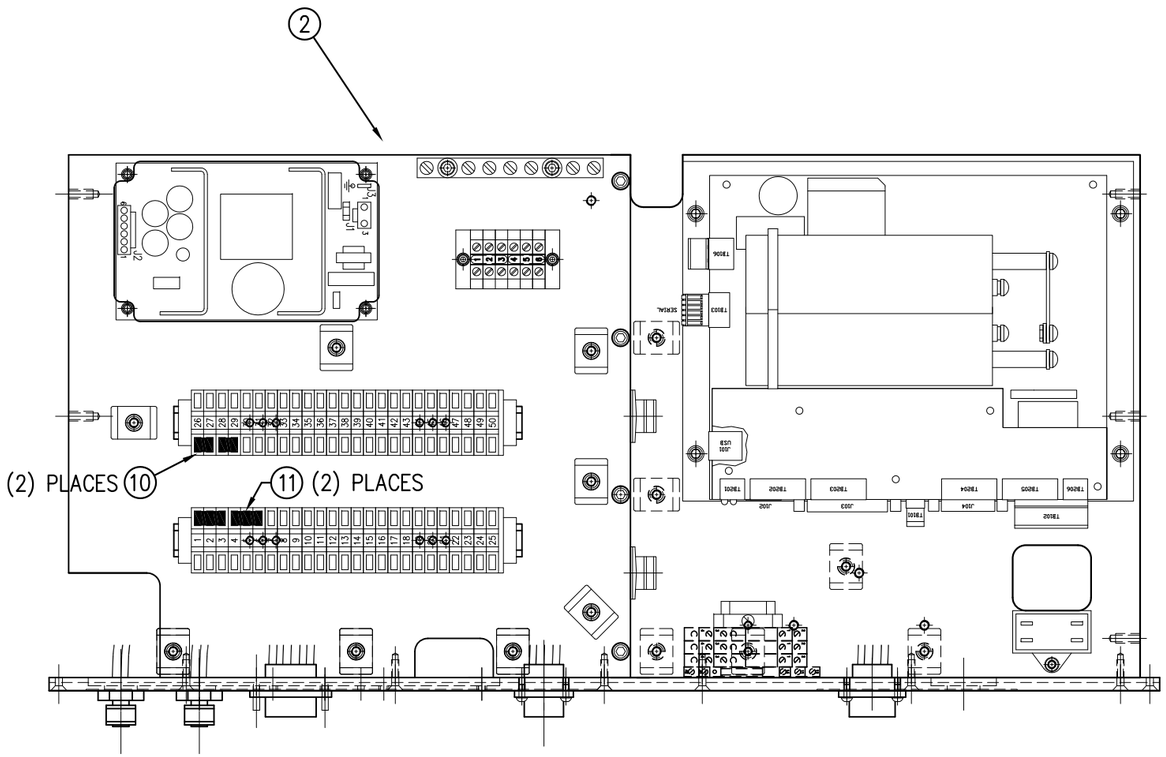
ASS-238ST-0127R-X

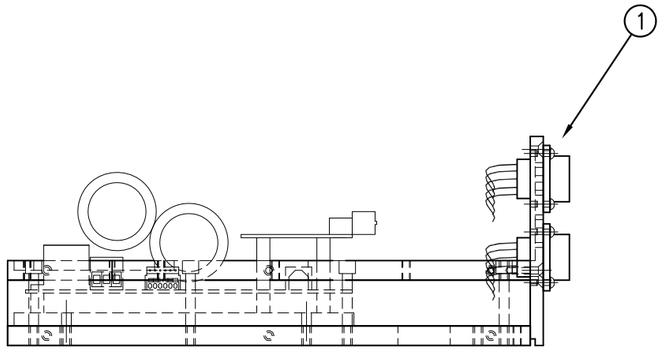
ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	SAS-238ST-0127aR	CONNECTOR PLATE SHELF ASSEMBLY	REV 2
②	1	SAS-238ST-0127bR-A	ELECTRIC SHELF ASSEMBLY FOR VAC BLOW STYLE	
	1	SAS-238ST-0127bR-B	ELECTRIC SHELF ASSEMBLY FOR FAN STYLE	
③	1	PE-238-0405	SERIAL PRINTER PORT	SERIAL
	0			PARALLEL
	0			ETHERNET
④	0	MP-238-0277	SERIAL PORT BLANK	SERIAL
	1			PARALLEL
	1			ETHERNET
⑤	0	PE-CA2500	PARALLEL CABLE	SERIAL
	1			PARALLEL
	0			ETHERNET
⑥	0	PE-CC1070	PARALLEL PORT CLIP KIT	SERIAL
	1			PARALLEL
	0			ETHERNET
⑦	0	PE-PA1040	FLAT RIBBON CLIP	SERIAL
	1			PARALLEL
	0			ETHERNET
⑧	1	MP-238-0276	PARALLEL PORT BLANK	SERIAL
	0			PARALLEL
	0			ETHERNET
⑨	0	ASS-238-0460	PARALLEL TO ETHERNET ADAPTER ASSEMBLY	SERIAL
	0			PARALLEL
	1			ETHERNET
	10	PM-FAFH50110	FHCS, #6-32 x 1/2" Lg.	
⑩	2	PE-TE1150	2 POLE SCREWLESS JUMPER	REV 1
⑪	2	PE-TE1152	3 POLE SCREWLESS JUMPER	

ASS-238ST-0127R-X

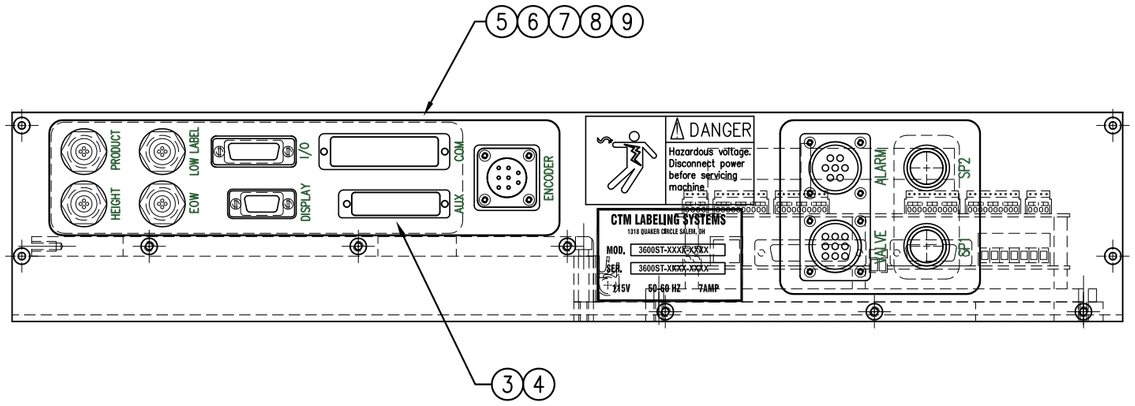
VACUUM BLOW STYLE -A

FAN STYLE -B





NOTE: TERMINAL STRIPS & POWER SUPPLY
AND RELAYS OMITTED FROM THIS VIEW



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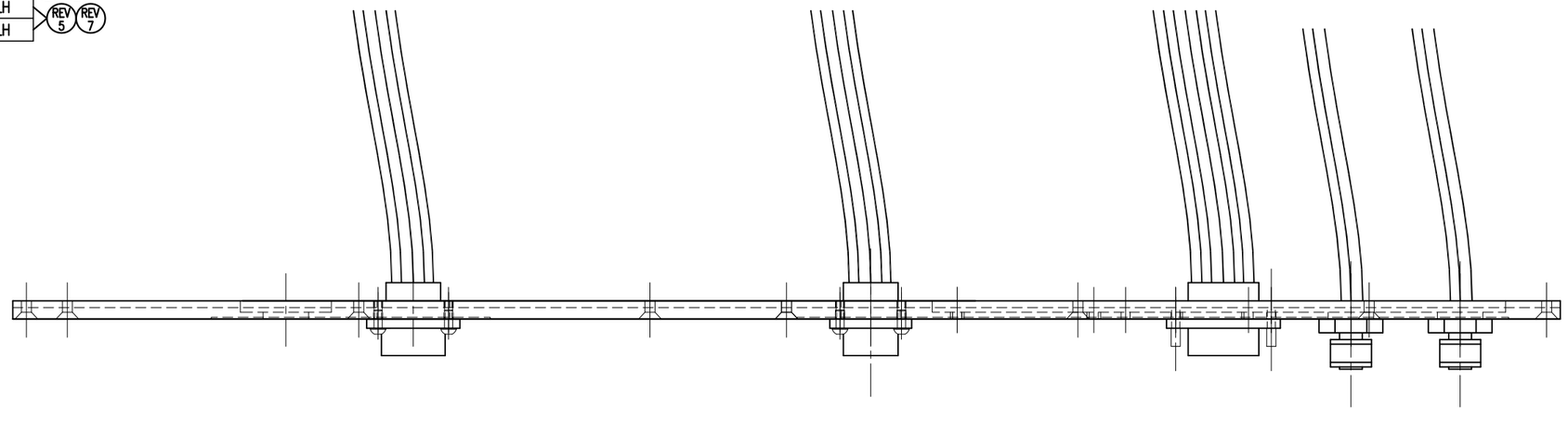
APPLICATOR SERIES: 3600	APPLICATOR WIDTH(S): 7.5"	GROUP: SERVO TAMP APPLICATOR: HOUSING	TITLE: 3600 SERVO TAMP TYPE: WIRED BOARD ASSEMBLY - RH
REV. 2	REV. DESCRIPTION: DECAL VERSION CONNECTOR PLATE REPLACES SILKSCREEN TYPE	REV. DATE 12/14/2017	REV. BY: ES
		DRAWN BY: ERIC SANOR	Date: 04/30/2012
			Scale: 1=3
			Dept. Code 70
			F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0127R-X

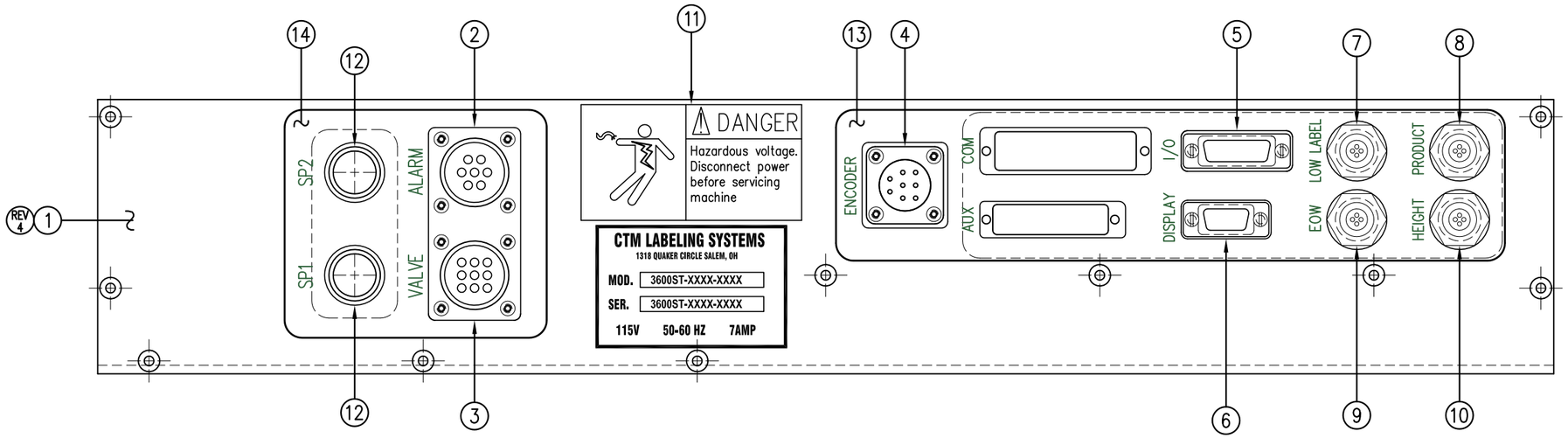
BILL OF MATERIAL

SAS-238ST-0127aL

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-238ST-0204L	SERVO TAMP CONNECTOR FACEPLATE-LH (REV.2) (REV 4)
②	1	ASS-238ST-0415	ALARM CONNECTOR HARNESS
③	1	ASS-238ST-0414	VALVE CONNECTOR HARNESS
④	1	ASS-238ST-0417	DRIVER TO ENCODER PORT HARNESS
⑤	1	PE-238ST-0419	I/O HARNESS (REV 2)
⑥	1	PE-238ST-0416	TB103 WIRING HARNESS (DISPLAY PORT) (REV 3)
⑦	1	ASS-238ST-0422	LOW LABEL SENSOR PORT
⑧	1	PE-CON1019	PRODUCT DETECT SENSOR PORT (REV 8)
⑨	1	ASS-238ST-0421	END OF WEB SENSOR PORT
⑩	1	ASS-238ST-0423	HEIGHT SENSOR PORT
⑪	1	PM-WL1055	DANGER HAZARDOUS VOLTAGE LABEL
⑫	2	PE-EN9056	5/8" DIA. HOLE PLUG (REV 1) (REV 6)
⑬	1	PM-LB1002	3600-ST CONNECTOR PLATE LARGE LABEL-LH (REV 5) (REV 7)
⑭	1	PM-LB1005	3600-ST CONNECTOR PLATE SMALL LABEL-LH

SAS-238ST-0127aL





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APPLICATOR SERIES: 3600ST	APPLICATOR WIDTH(S): 7.5"	GROUP: SERVO TAMP APPLICATOR: HOUSING	
REV. 8	REV. DESCRIPTION REPLACED ITEM 8 W/ PE-CON1019	REV. DATE 06/24/19	REV. BY: BNT

TITLE: CONNECTOR PLATE SHELF ASSEMBLY -RH

Scale: 1=2 | Date: 04/26/2012 | DRAWN BY: ERIC SANOR

F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\SAS\SAS-238ST-0127aL

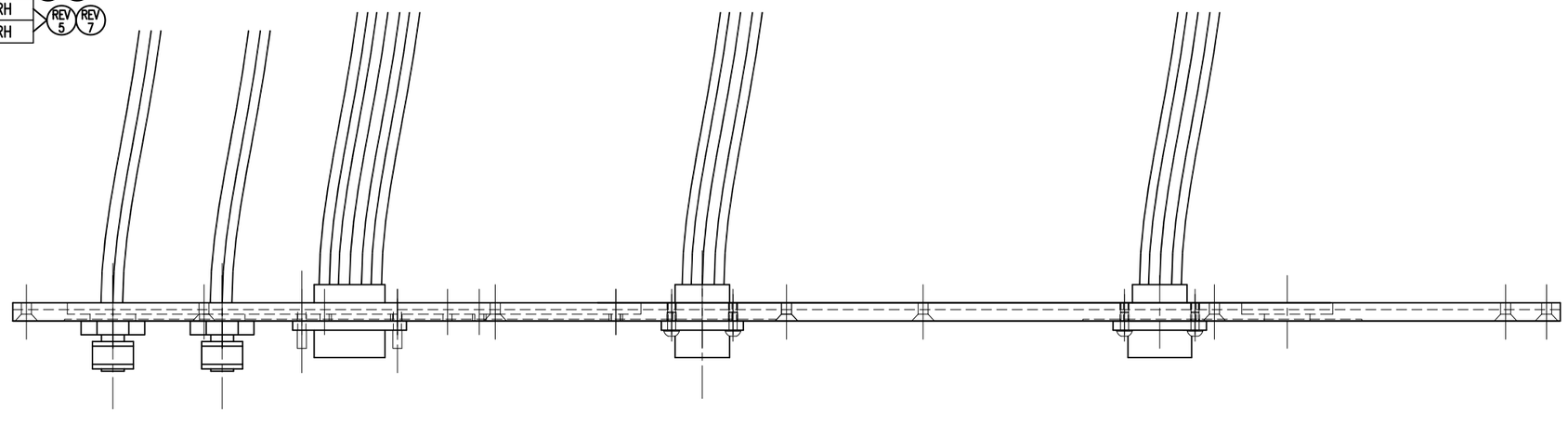
Dept. Code 70

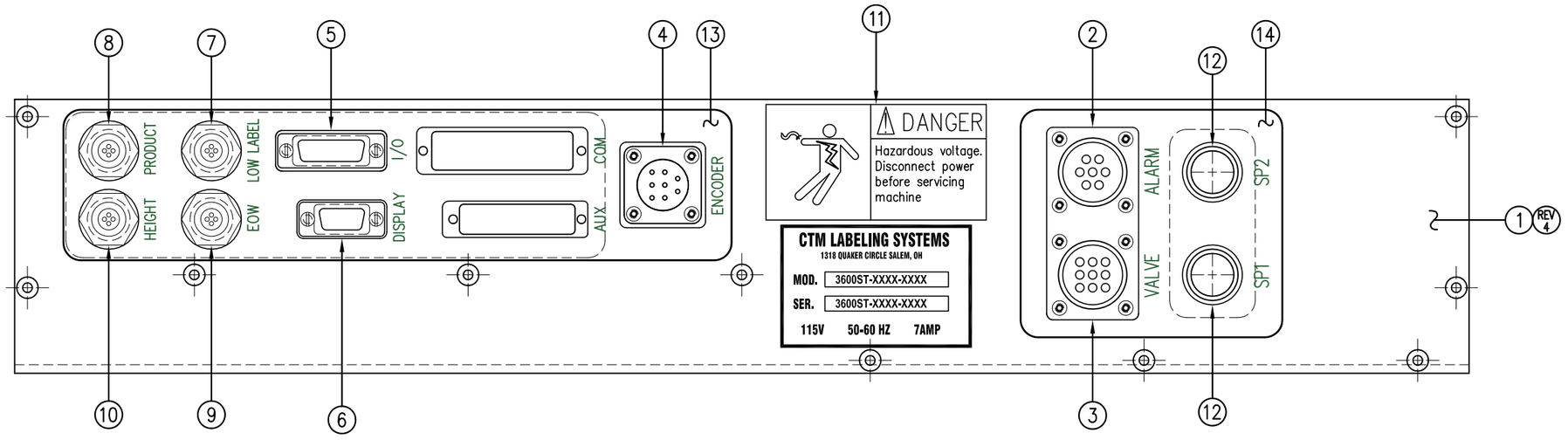
BILL OF MATERIAL

SAS-238ST-0127aR

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	MP-238ST-0204R	SERVO TAMP CONNECTOR FACEPLATE-RH (REV.2)	REV 4
②	1	ASS-238ST-0415	ALARM CONNECTOR HARNESS	
③	1	ASS-238ST-0414	VALVE CONNECTOR HARNESS	
④	1	ASS-238ST-0417	DRIVER TO ENCODER PORT HARNESS	
⑤	1	PE-238ST-0419	I/O HARNESS	REV 2
⑥	1	PE-238ST-0416	TB103 WIRING HARNESS (DISPLAY PORT)	REV 3
⑦	1	ASS-238ST-0422	LOW LABEL SENSOR PORT	
⑧	1	PE-CON1019	PRODUCT DETECT SENSOR PORT	REV 8
⑨	1	ASS-238ST-0421	END OF WEB SENSOR PORT	
⑩	1	ASS-238ST-0423	HEIGHT SENSOR PORT	
⑪	1	PM-WL1055	DANGER HAZARDOUS VOLTAGE LABEL	
⑫	2	PE-EN9056	5/8" DIA. HOLE PLUG	REV 1, REV 6
⑬	1	PM-LB1003	3600-ST CONNECTOR PLATE LARGE LABEL-RH	REV 5, REV 7
⑭	1	PM-LB1006	3600-ST CONNECTOR PLATE SMALL LABEL-RH	

SAS-238ST-0127aR





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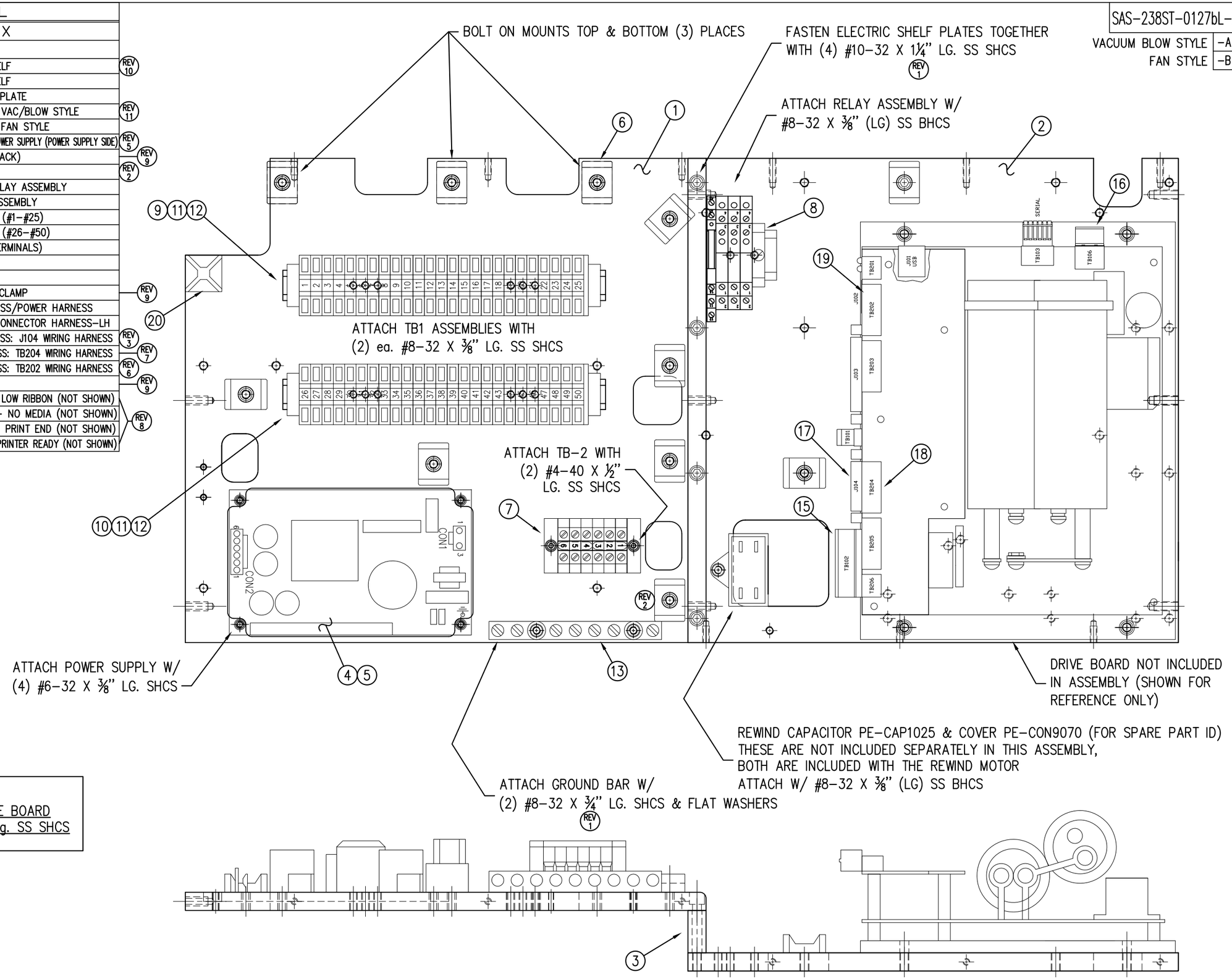
APPLICATOR SERIES: 3600ST	APPLICATOR WIDTH(S): 7.5"	GROUP: SERVO TAMP APPLICATOR: HOUSING	TITLE: CONNECTOR PLATE SHELF ASSEMBLY -RH
REV. 8	REV. DESCRIPTION REPLACED ITEM 8 W/ PE-CON1019	REV. DATE 06/24/19	REV. BY: BNT
		Scale: 1=2	Date: 04/26/2012
		DRAWN BY: ERIC SANOR	Dept. Code 70
		F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\SAS\SAS-238ST-0127aR	

BILL OF MATERIAL

SAS-238ST-0127bL-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	MP-238ST-0206	UPPER ELECTRIC SHELF	REV 10
②	1	MP-238ST-0205	LOWER ELECTRIC SHELF	
③	1	MP-238ST-0207	ELECTRIC SHELF TIE PLATE	
④	1	MP-PS1026	POWER SUPPLY FOR VAC/BLOW STYLE	REV 11
	1	PE-PS1007	POWER SUPPLY FOR FAN STYLE	
⑤	1	PE-238ST-0410	WIRE HARNESS: 24 VDC POWER SUPPLY (POWER SUPPLY SIDE)	REV 5
⑥	18	PE-PA1083	BOLT ON MOUNT (BLACK)	REV 9
⑦	1	ASS-238ST-0428	TB2 TERMINAL STRIP	REV 2
⑧	1	ASS-238ST-0430-A	VAC/BLOW STYLE RELAY ASSEMBLY	
	1	ASS-238ST-0430-B	FAN STYLE RELAY ASSEMBLY	
⑨	1	ASS-200a-0466a	TB1 TERMINAL STRIP (#1-#25)	
⑩	1	ASS-238ST-0427	TB1 TERMINAL STRIP (#26-#50)	
⑪	2	CP-200-0279	DIN RAIL (FOR 25 TERMINALS)	
⑫	4	PE-TE4020	END STOP	
⑬	1	PE-PA1110	GROUND BAR	
⑭	1	PE-PA1050	1/4" ADHSV CABLE CLAMP	REV 9
⑮	1	ASS-238ST-0408	TB102 WIRING HARNESS/POWER HARNESS	
⑯	1	ASS-238ST-0409L	AUXILLIARY POWER CONNECTOR HARNESS-LH	
⑰	1	PE-200A-1410	INTERNAL WIRE HARNESS: J104 WIRING HARNESS	REV 3
⑱	1	PE-238ST-0412	INTERNAL WIRE HARNESS: TB204 WIRING HARNESS	REV 7
⑲	1	PE-238ST-0413	INTERNAL WIRE HARNESS: TB202 WIRING HARNESS	REV 6
⑳	1	PE-PA1080	WHITE STICKY PAD	REV 9
	1	ASS-238-0406-G	PULL UP RESISTOR - LOW RIBBON (NOT SHOWN)	REV 8
	1	ASS-238-0406-Y	PULL UP RESISTOR - NO MEDIA (NOT SHOWN)	
	1	ASS-238-0406-P	PULL UP RESISTOR - PRINT END (NOT SHOWN)	
	1	ASS-238-0406-B	PULL UP RESISTOR - PRINTER READY (NOT SHOWN)	



DRIVE BOARD ADDED AT CTM LEVEL
APPLY HEAT SINK PASTE UNDER DRIVE BOARD
& ATTACH WITH (4) #10-32 x 1/2" Lg. SS SHCS

SAS-238ST-0127bL-X

VACUUM BLOW STYLE -A
FAN STYLE -B

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TITLE: ELECTRIC SHELF ASSEMBLY - LH

APPLICATOR SERIES: 3600ST
APPLICATOR WIDTH(S): 7.5"
GROUP: SERVO TAMP APPLICATOR: HOUSING
Dept. Code 70
Scale: 1=2
Date: 05/09/2012
DRAWN BY: ERIC SANOR
REV. BY: BNT
REV. DATE 08/27/20
F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\SAS\SAS-238ST-0127bL-X

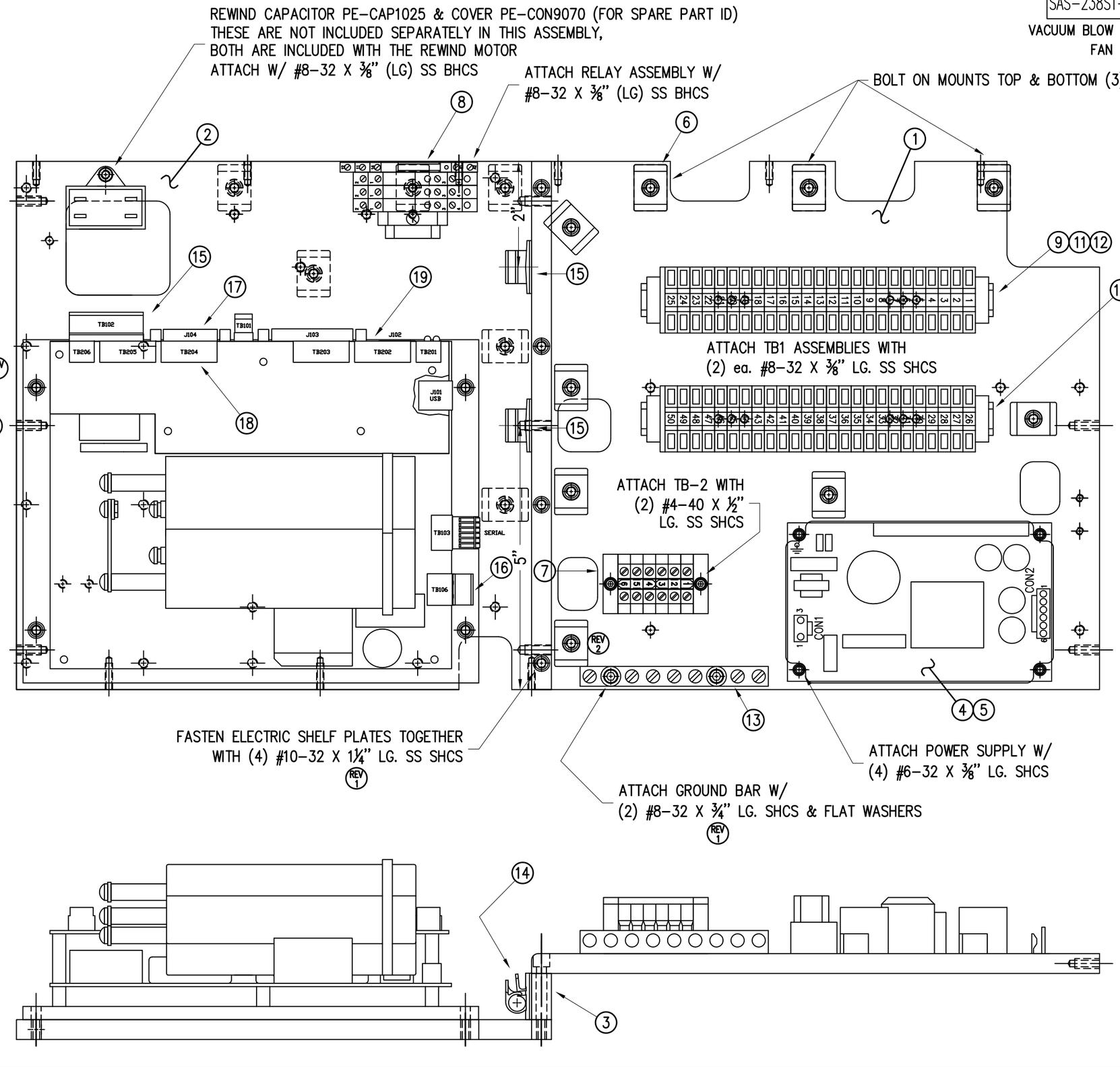
REV. 11
REV. DESCRIPTION
REPLACED PE-PS1024 w/ PE-PS1026

BILL OF MATERIAL

SAS-238ST-0127bR-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	1	MP-238ST-0206	UPPER ELECTRIC SHELF	
②	1	MP-238ST-0205	LOWER ELECTRIC SHELF	
③	1	MP-238ST-0207	ELECTRIC SHELF TIE PLATE	
④	1	MP-PS1026	POWER SUPPLY FOR VAC/BLOW STYLE	REV 12
	1	PE-PS1007	POWER SUPPLY FOR FAN STYLE	
⑤	1	PE-238ST-0410	WIRE HARNESS: 24 VDC POWER SUPPLY (POWER SUPPLY SIDE)	REV 5
⑥	19	PE-PA1083	BOLT ON MOUNT (BLACK)	
⑦	1	ASS-238ST-0428	TB2 TERMINAL STRIP	REV 2
⑧	1	ASS-238ST-0430-A	VAC/BLOW STYLE RELAY ASSEMBLY	
	1	ASS-238ST-0430-B	FAN STYLE RELAY ASSEMBLY	
⑨	1	ASS-200a-0466a	TB1 TERMINAL STRIP (#1-#25)	
⑩	1	ASS-238ST-0427	TB1 TERMINAL STRIP (#26-#50)	
⑪	2	CP-200-0279	DIN RAIL (FOR 25 TERMINALS)	
⑫	4	PE-TE4020	END STOP	
⑬	1	PE-PA1110	GROUND BAR	
⑭	2	PE-PA1050	1/4" ADHSV CABLE CLAMP	
⑮	1	ASS-238ST-0408	TB102 WIRING HARNESS/POWER HARNESS	
⑯	1	ASS-238ST-0409R	AUXILLIARY POWER CONNECTOR HARNESS-RH	
⑰	1	PE-200A-1410	INTERNAL WIRE HARNESS: J104 WIRING HARNESS	REV 3
⑱	1	PE-238ST-0412	INTERNAL WIRE HARNESS: TB204 WIRING HARNESS	REV 7
⑲	1	PE-238ST-0413	INTERNAL WIRE HARNESS: TB202 WIRING HARNESS	
	1	ASS-238-0406-G	PULL UP RESISTOR - LOW RIBBON (NOT SHOWN)	
	1	ASS-238-0406-Y	PULL UP RESISTOR - NO MEDIA (NOT SHOWN)	REV 8
	1	ASS-238-0406-P	PULL UP RESISTOR - PRINT END (NOT SHOWN)	
	1	ASS-238-0406-B	PULL UP RESISTOR - PRINTER READY (NOT SHOWN)	

DRIVE BOARD ADDED AT CTM LEVEL
APPLY HEAT SINK PASTE UNDER DRIVE BOARD
& ATTACH WITH (4) #10-32 x 1/2" Lg. SS SHCS



SAS-238ST-0127bR-X

VACUUM BLOW STYLE -A
FAN STYLE -B

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TITLE: ELECTRIC SHELF ASSEMBLY - RH

Dept. Code 70

F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\SAS\SAS-238ST-0127bR-X

APPLICATOR SERIES: 3600ST | APPLICATOR WIDTH(S): 7.5" | GROUP: SERVO TAMP APPLICATOR: HOUSING

REV. BY: BNT | Scale: 1=2 | Date: 04/26/2012 | DRAWN BY: ERIC SANOR

REV. 12 | REV. DESCRIPTION: REPLACED PE-PS1024 w/ PE-PS1026 | REV. DATE: 08/27/20

ASS-238ST-0401

FUSED AT 10 AMP
IEC CONNECTOR AND FILTER
COOLING FAN
GRN
WHT
BLK
24 VDC POWER SUPPLY
REV 10

MOTOR CABLE (ASS-238ST-0406)
GRN
BLK
RED
WHT
TB102
GRD
A
B
C
SERVO MOTOR (C-PE-M01082)
AC POWER
AUX POWER

FEEDBACK CABLE (ASS-238ST-0405)
J103 FEEDBACK

J	1	1	SHIELD
H	3	3	ENC 5V
M	5	5	HB
F	6	6	MKR–
E	7	7	MKR+
K	10	10	HA
P	11	11	HC
T	13	13	BRK–
A	14	14	COS+
B	15	15	COS–
C	17	17	SIN+
D	18	18	SIN–
G	21	21	ENC COM
S	25	25	BRK+
14 YEL	12	12	CW LMT
13 PINK	20	20	COM LMT
16 GRY	22	22	HOME LMT
15 PUR	24	24	CCW LMT

PRODUCT DETECT (C4 CON)
REV 8 COIL BLK FOR TRAILING EDGE USE
BRN
BLU
WHT
BLK n/c

LOW LABEL (C5 CON)
BRN
BLU
GRY

END OF WEB (C6 CON)
BRN
BLU
WHT

ONLY ONE RELAY
FOR VACUUM FAN
FAN
10K
OR
SPARE

SPARE VALVE OUTPUT
USE PE-RE1063 FOR FAN
USE PE-RE1013 FOR VALVE

VALVE (C9 CON)
VALVE BANK
GRN
YEL
BRN
GRY
PUR
BLOW
ASSIST

REF. PE-238ST-0408
CAP
BLK
WHT
TB102-AC2
RWND
ORG
BLK
TB102-AC1
REV 05
P2
M1
REWIND MOTOR (ASS-238-0428)
ENCODER (C7 CON)
twist
PINK
W/PUR
GRN
W/RED
RED
BLU
YEL/GRN
REV 04

7 W/BRN	4	4	PD SIGNAL	(din 0,4)
8 W/BLU	17	17	LOW LBL	(din 0,0)
9 W/YEL	18	18	END OF WEB	(din 0,1)
10 W/BLK	25	25	JOG	(din 0,2)
11 W/GRN	26	26	INHIBIT	(din 0,3)
17 W/GRY	6	6	TAMP RETURN	(din 0,5) REV 7
37 YEL	7	7	SPARE VALVE	(dout 0,0)
38 GRY	8	8	BLOW VALVE	(dout 0,1)
39 PUR	9	9	ASSIST VALVE	(dout 0,2)
40 ORG	16	16	REWIND MOTOR	(dout 0,3)
19 YEL/GRN	13	13	ANALOG IN (+)	
20 W/ORG	22	22	ANALOG OUT	
21 PINK	1	1	A+ CHANNEL	J104 PRIMARY I/O
22 W/PUR	2	2	A– CHANNEL	
23 GRN	10	10	B+ CHANNEL	
24 W/RED	11	11	B– CHANNEL	
25 RED	12	12	5 VDC	
BRN	5	5	24 VDC	
BRN	3	3	24 VDC	
BLU	23	23	0 VDC	
BLU	21	21	0 VDC	
BLU	15	15	OUTPUT COM	
BLU	14	14	ANALOG IN (–)	
BRN	24	24	INPUT COM	

TB202

24 VDC	1	1	BRN
0 VDC	2	2	BLU
SYSTEM READY	3	3	YEL/GRN
WARNING ALARM	4	4	PINK
CRITICAL ALARM	5	5	RED
PRINT START	6	6	ORG
TAMP HOME	7	7	YEL
LBL ON PAD	8	8	PUR
REISSUE	9	9	GRY
BLANK LABEL	10	10	GRY

REV 6

TB203

24 VDC	1	1
0 VDC	2	2
(8) SPARE OUTPUTS		
	10	10

REV 3

TB204

24 VDC	1	1	BRN
REV 7 LBL ON PAD	2	2	W/RED
REWIND PROX	3	3	W/ORG
PRINTER READY	4	4	W/BRN
PRINT END	5	5	W/PUR
LOW RIBBON	6	6	W/GRY
NO MEDIA	7	7	W/YEL
BAD READ	8	8	W/GRN
SPARE INPUT	9	9	W/BLU
	10	10	

ASS-238-0406x

TB205

24 VDC	1	1	BRN
REV 9 SPARE	2	2	
STOP INPUT	3	3	W/ORG
(6) SPARE INPUTS			
5 VDC	10	10	

REV 6

TB103

RS-232 TXD	2	2	WHT
RS-232 RXD	3	3	RED
SIGNAL COM	4	4	BLK
(–) BRAKE INPUT	5	5	BLU
(+) BRAKE INPUT	6	6	BRN

REV 01

BLU
BRN
BLK
REWIND PROX

HEIGHT (C3 CON)
BRN
19 YEL/GRN
BLU
BLK
GRD BAR
REV 02

ALARM (C8 CON)

GRN	GRD
BRN	24 VDC
YEL/GRN	READY
PINK	WARNING
RED	CRITICAL

I/O (C2 CON)

BLU	0 VDC
BRN	24 VDC
48 YEL/GRN	READY SIGNAL
49 PINK	WARNING ALARM
50 RED	CRITICAL ALARM
47 YEL	TAMP HOME
46 PUR	LABEL ON PAD
38 GRY	BLOW VALVE
39 PUR	ASSIST VALVE
7 W/BRN	PD SIGNAL
11 W/GRN	INHIBIT
REV 3 W/ORG	REV 3 E-STOP

DISPLAY (C1 CON)
REV 01
BLU
BRN
RED
WHT
BLK
GRN
REV 04

PRINT ENGINE
SERIAL PORT (C10) (ASS-238-0405) (C10B)
PARALLEL PORT (C11) (EY244-MF) (C11B)
INTERFACE PORT (C12) (C12B)

XX –TB2 TERMINALS			
TB2–1	AC/LINE POWER	TB2–4	AC/NEUTRAL POWER
TB2–2	AC/LINE POWER	TB2–5	AC/NEUTRAL POWER
TB2–3	AC/LINE POWER	TB2–6	AC/NEUTRAL POWER

XX –TB1 TERMINALS			
TB1–1	24 VDC	TB1–26	24 VDC
TB1–2	24 VDC	TB1–27	24 VDC
TB1–3	24 VDC	TB1–28	0 VDC
TB1–4	0 VDC	TB1–29	0 VDC
TB1–5	0 VDC	TB1–30	PRINTER READY
TB1–6	0 VDC	TB1–31	PRINT END
TB1–7	PD SIGNAL	TB1–32	LOW RIBBON
TB1–8	LOW LABEL	TB1–33	NO MEDIA
TB1–9	END OF WEB	TB1–34	BAD READ
TB1–10	JOG	TB1–35	SPARE INPUT
TB1–11	INHIBIT/EXTERNAL PRINT	TB1–36	PRINT START
TB1–12	LABEL ON PAD INPUT	TB1–37	HI/LO FAN
TB1–13	LIMIT COM	TB1–38	BLOW VALVE
TB1–14	CW LIMIT	TB1–39	ASSIST VALVE
TB1–15	CCW LIMIT	TB1–40	REWIND MOTOR
TB1–16	HOME PROX (NOT USED)	TB1–41	STOP INPUT
TB1–17	TAMP RETURN	TB1–42	N/C
TB1–18	REWIND ON INPUT	TB1–43	BLANK LABEL
TB1–19	ANALOG INPUT	TB1–44	FAN OR VALVE CONTROL
TB1–20	ANALOG OUTPUT	TB1–45	REISSUE OUTPUT
TB1–21	(A+) CHANNEL	TB1–46	LABEL ON PAD OUTPUT
TB1–22	(A–) CHANNEL	TB1–47	TAMP HOME
TB1–23	(B+) CHANNEL	TB1–48	READY SIGNAL
TB1–24	(B–) CHANNEL	TB1–49	WARNING SIGNAL
TB1–25	5 VDC	TB1–50	CRITICAL SIGNAL

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PART: GENERAL SCHEMATICS FOR 3600 SERVO/ELECTRIC TAMP
Dept. Code 70
F:\Engineering\Standard Parts\Applicator\360 3600-ST\ASS-238ST-0401
Scale:
Date: 06-05-12
DRAWN BY: dkm
REV. BY: BNT
REV. DATE 09/23/20

TITLE: 3600 SERVO/ELECTRIC TAMP W/ AEROTECH MOTOR

REV. 10 REVISED POWER SUPPLY FOR PE-PS1026

BILL OF MATERIAL

PE-238ST-0405

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON0996	17-POLE AMPHENOL PLUG, SIZE 20
②	1	PE-CON0994	AMPHENOL SIZE 20, CABLE CLAMP
③	1	PE-CON2058	DB-25 PIN MALE CONNECTOR
④	18	PE-CON7055	MALE PIN, DB (22-26 AWG)
⑤	1	PE-CA1105	25-CONDUCTOR CABLE 40"
⑥	1	PE-W1035	YELLOW (AWG 22) WIRE x 18.00" Lg.
⑦	1	PE-W1060	PINK (AWG 22) WIRE x 18.00" Lg.
⑧	1	PE-W1039	GRAY (AWG 22) WIRE x 18.00" Lg.
⑨	1	PE-W1040	PURPLE (AWG 22) WIRE x 18.00" Lg.
⑩	1	PE-ST1025	1/2"ø SHRINK TUBE x 2.00" Lg.
⑪	1	PE-ST1015	1/4"ø SHRINK TUBE x 6.00" Lg.
⑫	1	PE-CON1023	AMPHENOL REDUCING/EXTENDING BUSHING, SIZE 20/22

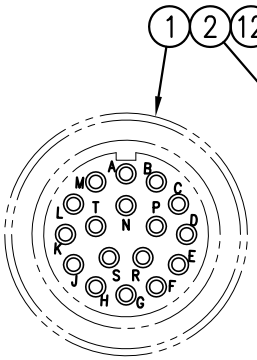
PE-238ST-0405

* SOLDER 22 GA WIRE TO MULTIPLE WIRES GOING TO A SINGLE PIN.

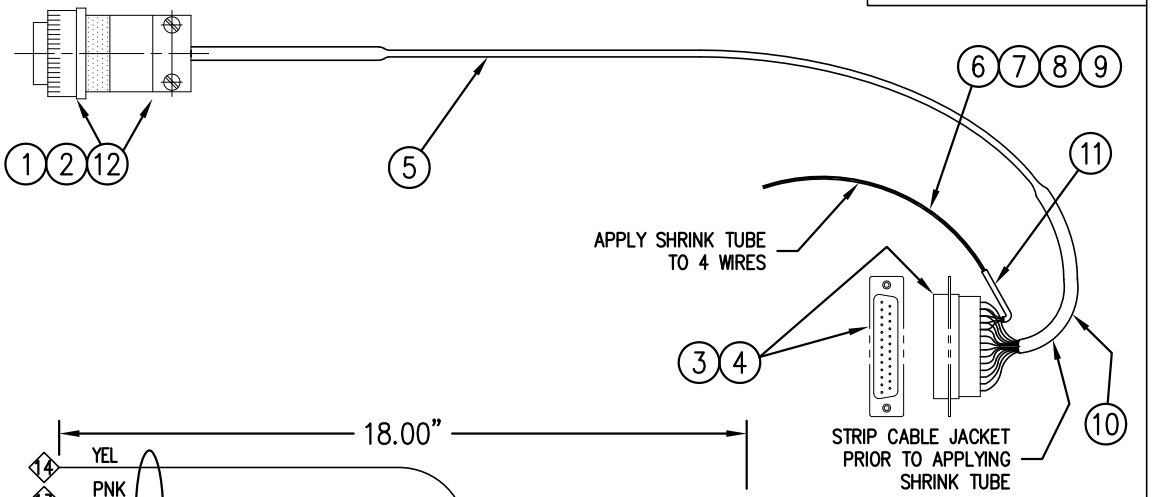
** REMOVE FOLLOWING WIRES FROM CABLE:

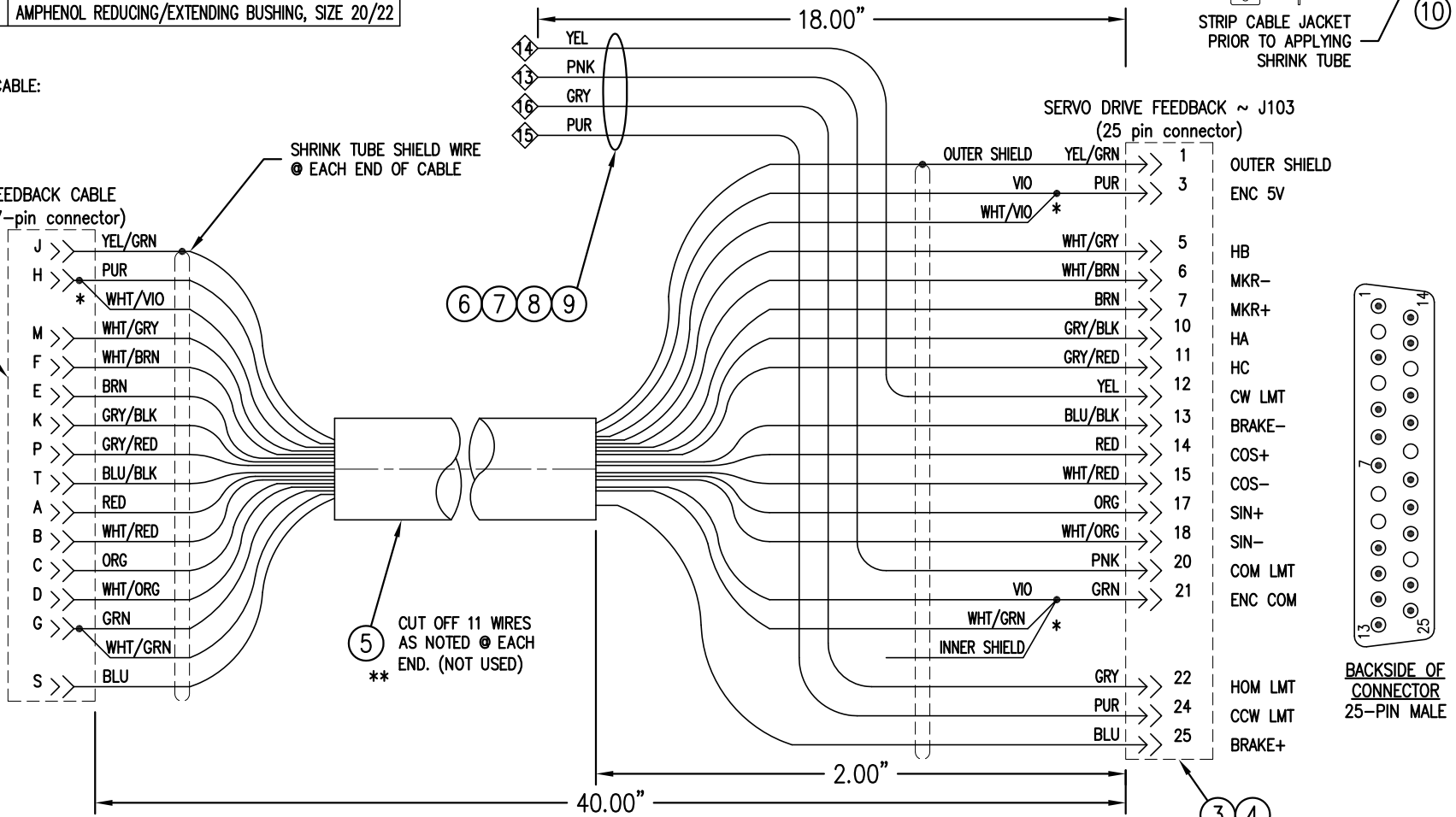
BLK	WHT
BLK/ORG	WHT/YEL
YEL	PINK
YEL/BLK	GRN/BLK
RED/BLK	GRY
RED/ORG	YEL/BRN***

*** SPECIFIC ONLY TO Rev F CABLES



BACK SIDE OF CONNECTOR
MOTOR END
(17 pin Amphenol connector)





BACKSIDE OF CONNECTOR
25-PIN MALE

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	SERVO DRIVE J103 ENCODER FEEDBACK CABLE	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
1	ADDED NOTE TO REMOVE YEL/BRN WIRE FOR REV F CABLES	07/31/19	BNT	1=1.5	01/30/14	DLM	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\PE\PE-238ST-0405

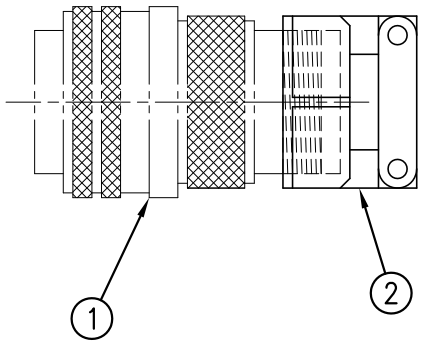
PE-238ST-0406

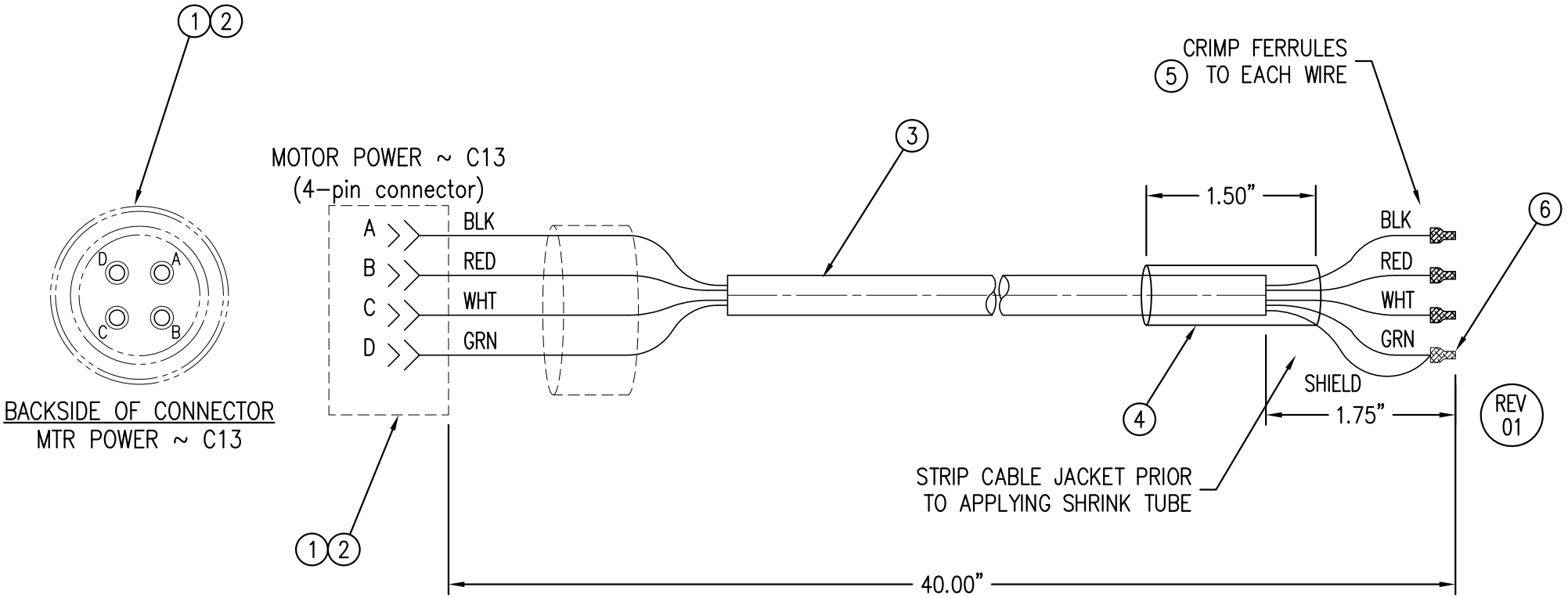
BILL OF MATERIAL

PE-238ST-0406

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON0998	4-POLE AMPHENOL PLUG, SIZE 18
②	1	PE-CON0992	AMPHENOL SIZE 18, CABLE CLAMP
③	1	PE-CA1100	4-CONDUCTOR POWER CABLE 40" LONG
④	1	PE-ST1020	3/8"ø SHRINK TUBE x 1.50" Lg.
⑤	3	PE-CON1354	14 AWG FERRULE (YELLOW)
⑥	1	PE-CON1353	12 AWG FERRULE (GREY)

REV 02





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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	SERVO MOTOR POWER TO TB102 DRIVE CABLE	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
02	PE-W1050 REMOVED, PE-CON1353 ADDED	05/29/14	DLM	1=1	01/30/14	DLM	3600-ST\PE\PE-238ST-0406

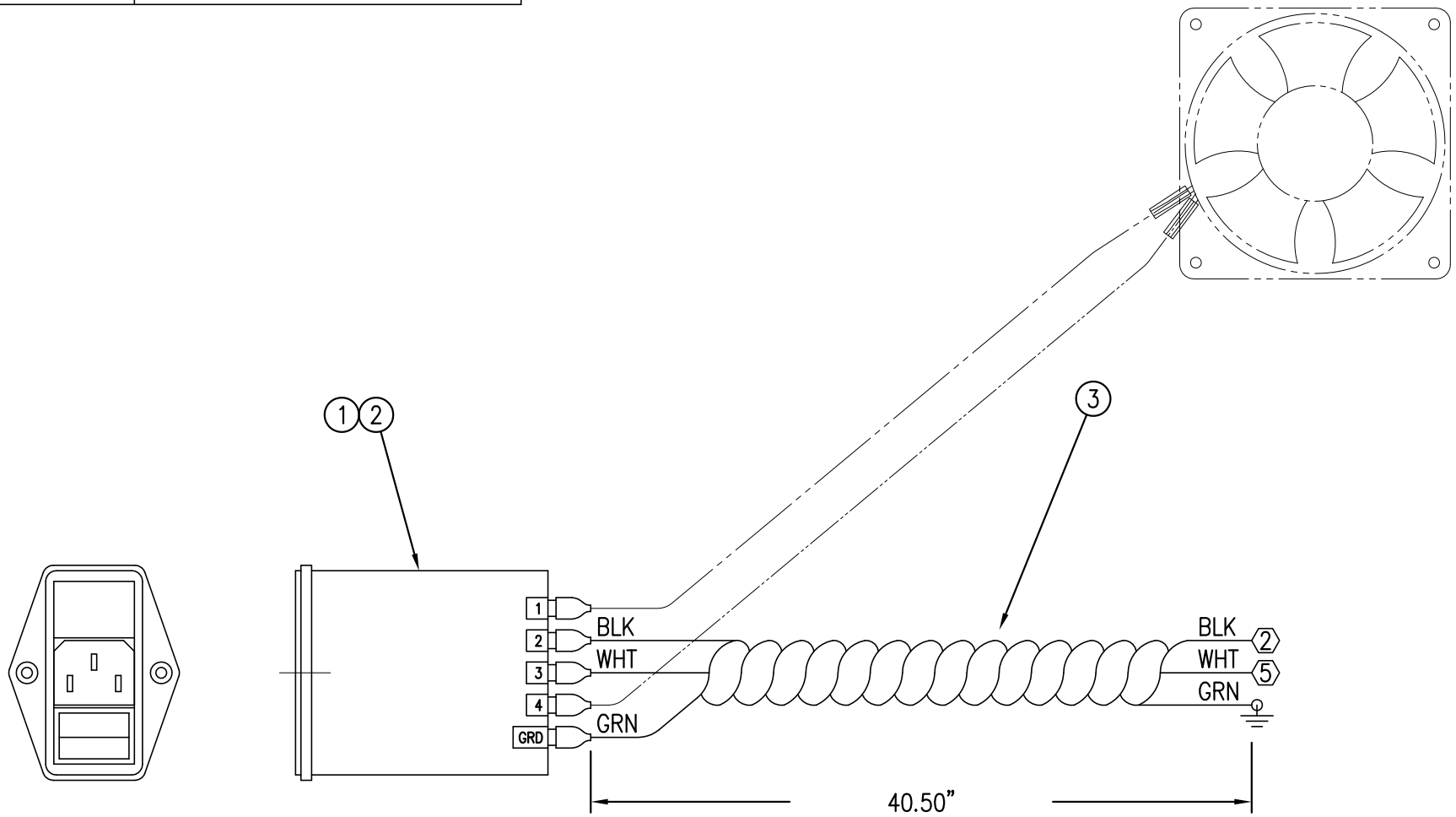
BILL OF MATERIAL

ASS-238ST-0407

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-FI1015	IEC FILTER
②	2	PE-FU2078	10 AMP FUSE
③	1	PE-238ST-0407	WIRE HARNESS

ASS-238ST-0407

ASS-238ST-0429
REFERENCE ONLY
FAN ASSEMBLY



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	AC POWER HARNESS & FILTER ASSEMBLY	70

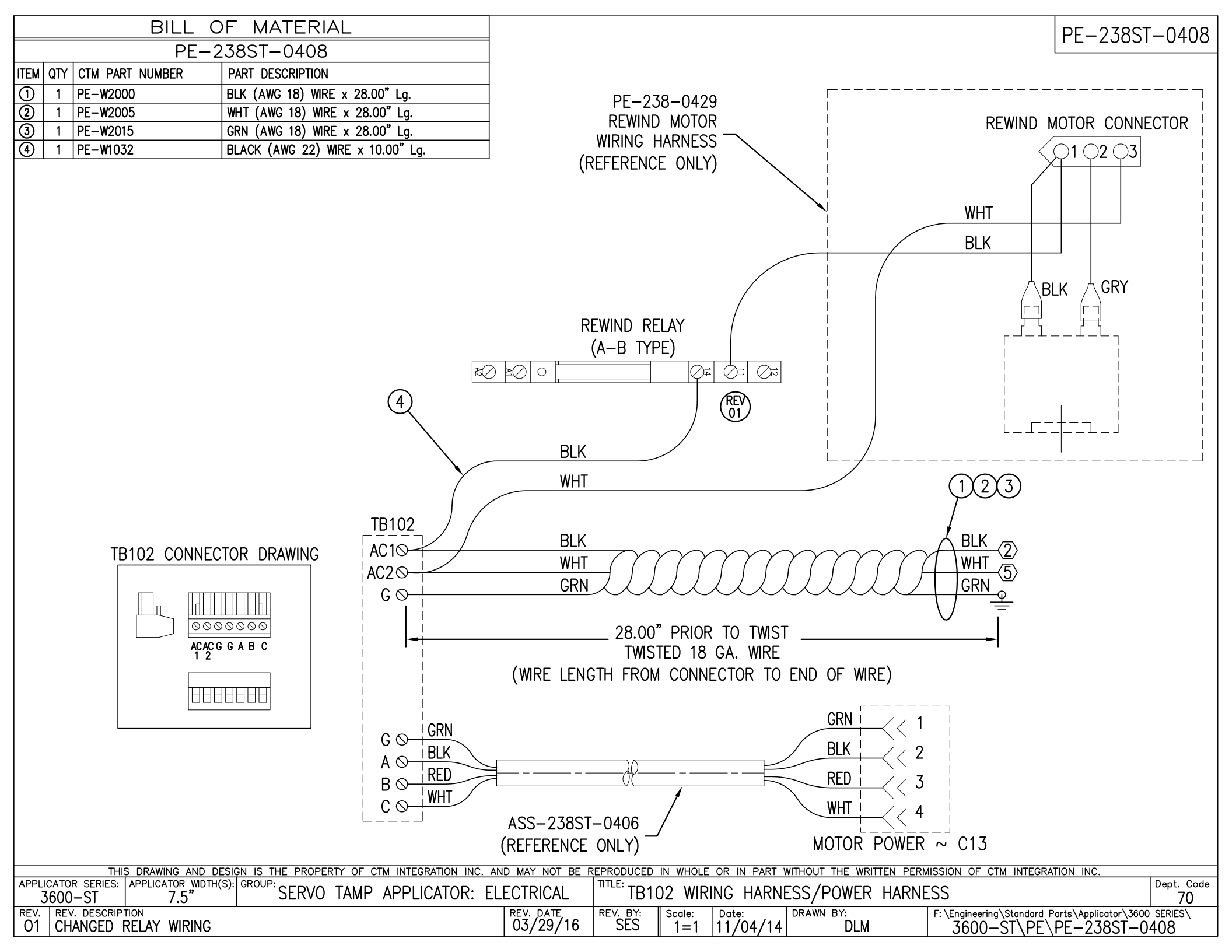
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
2	MULTIPLE REVISIONS, HARNESS CHANGED TO PURCHASED PART	7/23/18	JWS	1=1	02/07/12	BMW	3600-ST\ASS\ASS-238ST-0407

PE-238ST-0408

BILL OF MATERIAL

PE-238ST-0408

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-W2000	BLK (AWG 18) WIRE x 28.00" Lg.
②	1	PE-W2005	WHT (AWG 18) WIRE x 28.00" Lg.
③	1	PE-W2015	GRN (AWG 18) WIRE x 28.00" Lg.
④	1	PE-W1032	BLACK (AWG 22) WIRE x 10.00" Lg.



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	TB102 WIRING HARNESS/POWER HARNESS	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
01	CHANGED RELAY WIRING	03/29/16	SES	1=1	11/04/14	DLM	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\PE\PE-238ST-0408

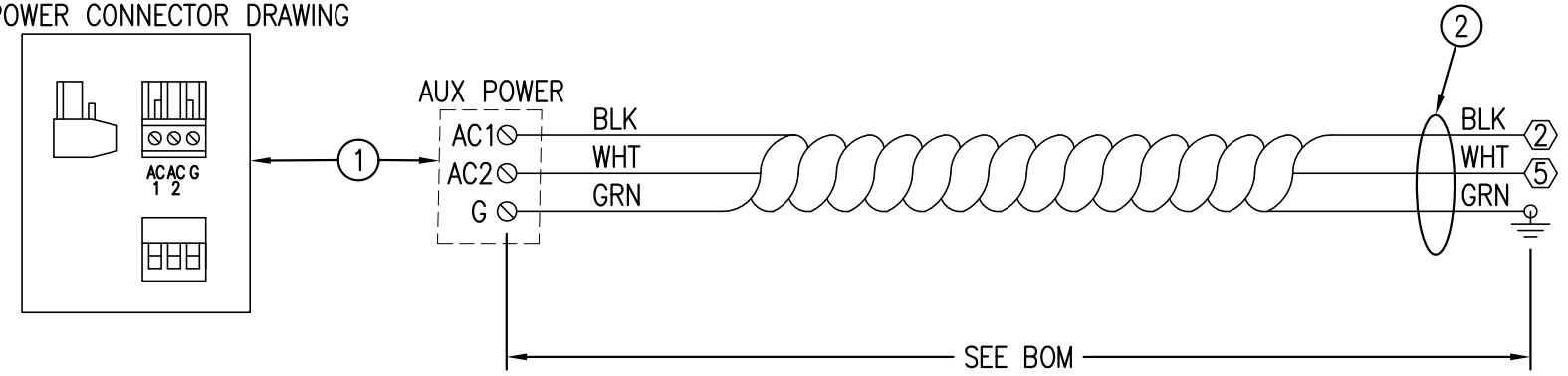
ASS-238ST-0409

BILL OF MATERIAL

ASS-238ST-0409

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION		
①	1	N/A INCLUDED W/ DRIVE	TB106 AUX POWER CONNECTOR		
②	1	PE-W1090020T	22 AWG TWISTED WIRE		LH 3600ST
	1/3	PE-W1090020T	22 AWG TWISTED WIRE	CUT TO 10"	RH 3600ST
	1/2	PE-W1090020T	22 AWG TWISTED WIRE	CUT TO 15"	RH/LH 360ST

AUX POWER CONNECTOR DRAWING



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	AUXILIARY POWER CONNECTOR HARNESS	70

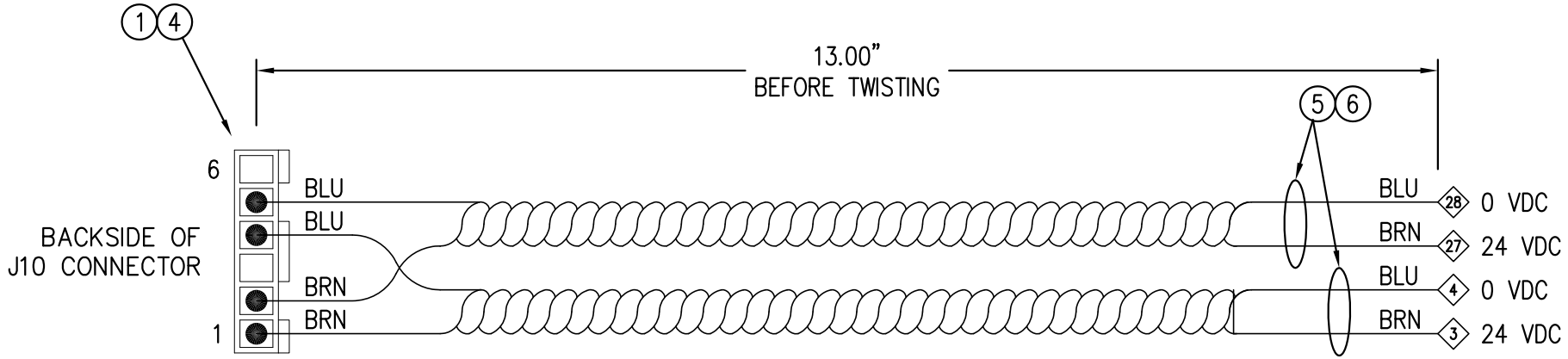
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
2	REVISED LENGTH NOTATIONS. REMOVED RH/LH PART VARIATION.	06/06/19	BNT	1=1	02/02/12	BMW	3600-ST\ASS\ASS-238ST-0409

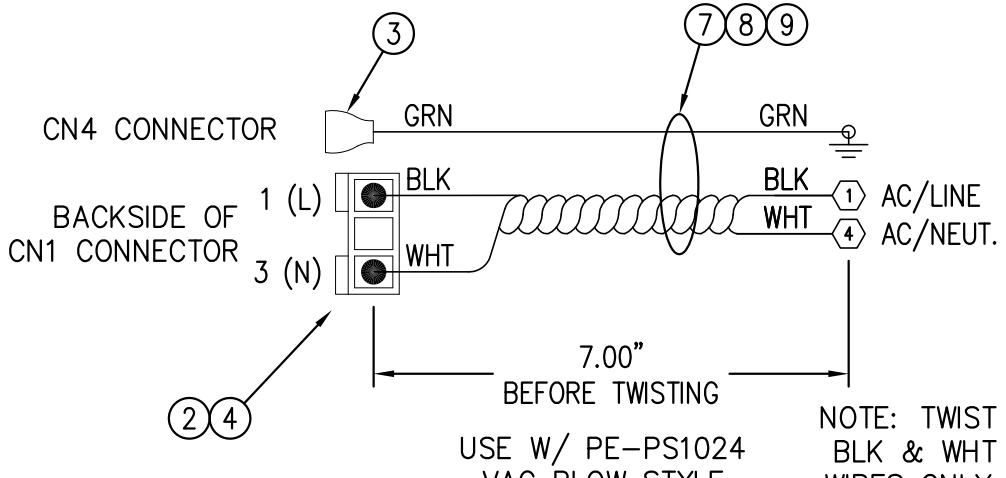
PE-238ST-0410

BILL OF MATERIAL

PE-238ST-0410

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON7064	DC CONNECTOR HOUSING
②	1	PE-CON7062	DC CONNECTOR HOUSING
③	1	PE-REC2050	GROUND CONNECTOR
④	6	PE-CON7066	PINS FOR HOUSING
⑤	2	PE-W1036	BLU (AWG 22) WIRE x 13.00" Lg.
⑥	2	PE-W1037	BRN (AWG 22) WIRE x 13.00" Lg.
⑦	1	PE-W1031	WHT (AWG 22) WIRE x 7.00" Lg.
⑧	1	PE-W1034	GRN (AWG 22) WIRE x 7.00" Lg.
⑨	1	PE-W1032	BLK (AWG 22) WIRE x 13.00" Lg.





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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	WIRE HARNESS: 24 VDC POWER SUPPLY (POWER SUPPLY SIDE)	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
1	REMOVED FAN STYLE from PE DRAWING	12/12/14	KSM	1=1	11/04/14	DLM	3600-ST\PE\PE-238ST-0410

BILL OF MATERIAL

ASSEMBLY		ASS-200a-1410		SOLD
ITEM	QTY	ITEM DESCRIPTION	CTM PART NUMBER	
(1)	1	26 PIN HIGH DENSITY HOUSING	PE-CON7063	.
(2)	24	MALE PINS	PE-CON9045	.
	1	22 GA. PINK WIRE x 19" LONG	PE-W1060	.
	1	22 GA. WHT/PURPLE WIRE x 19" LONG	PE-W1049	.
	1	22 GA. RED WIRE x 19" LONG	PE-W1033	.
	1	22 GA. WHT/BROWN WIRE x 19" LONG	PE-W1046	.
	1	22 GA. WHT/GRAY WIRE x 19" LONG	PE-W1048	.
	1	22 GA. YELLOW WIRE x 19" LONG	PE-W1035	.
	1	22 GA. GRAY WIRE x 19" LONG	PE-W1039	.
	1	22 GA. PURPLE WIRE x 19" LONG	PE-W1040	.
	1	22 GA. GREEN WIRE x 19" LONG	PE-W1034	.
	1	22 GA. WHT/RED WIRE x 19" LONG	PE-W1042	.
	1	22 GA. YEL/GREEN WIRE x 19" LONG	PE-W1050	.
	4	22 GA. BLUE WIRE x 19" LONG	PE-W1036	.
	1	22 GA. ORANGE WIRE x 19" LONG	PE-W1038	.
	1	22 GA. WHT/BLUE WIRE x 19" LONG	PE-W1045	.
	1	22 GA. WHT/YELLOW WIRE x 19" LONG	PE-W1044	.
	1	22 GA. WHT/ORANGE WIRE x 19" LONG	PE-W1047	.
	3	22 GA. BROWN WIRE x 19" LONG	PE-W1037	.
	1	22 GA. WHT/BLACK WIRE x 19" LONG	PE-W1041	.
	1	22 GA. WHT/GREEN WIRE x 19" LONG	PE-W1043	.

REV 01

**NOTE: SOLDER WIRE CONNECTIONS TO J104 CONNECTOR

ASS-200a-1410

ARRANGED BY PIN NUMBER

J104

1	PINK	TB1-21	(A+ CHANNEL)	TWIST @ ASSEMBLY
2	W/PUR	TB1-22	(A- CHANNEL)	
3	BRN	TB2-4	(CAPTURE +)	
4	W/BRN	TB1-1	(PD SIGNAL)	
5	BRN	TB2-4	(CAPTURE +)	
6	W/GRY	TB1-6	(LABEL SENSOR)	
7	YEL	TB1-11	(TAMP VALVE)	
8	GRY	TB1-12	(BLOW VALVE)	
9	PUR	TB1-13	(ASSIST VALVE)	
10	GRN	TB1-23	(B+ CHANNEL)	TWIST @ ASSEMBLY
11	W/RED	TB1-24	(B- CHANNEL)	
12	RED	TB1-25	(5 VDC)	
13	YEL/GRN	TB1-19	(ANALOG (+) IN)	
14	BLU	TB2-6	(ANALOG (-) IN)	
15	BLU	TB2-6	(OUTPUT COM)	
16	ORG	TB1-14	(SPARE VALVE)	
17	W/BLU	TB1-2	(LOW LABEL)	
18	W/YEL	TB1-3	(END OF WEB)	
21	BLU	TB2-6	(0 VDC)	
22	W/ORG	TB1-20	(ANALOG OUT)	
23	BLU	TB2-6	(0 VDC)	
24	BRN	TB2-2	(INPUT COM)	
25	W/BLK	TB1-4	(JOG)	
26	W/GRN	TB1-5	(INHIBIT)	

(1) (2)

ARRANGED BY I/O TYPE

J104

1	PINK	TB1-21	(A+ CHANNEL)	ENCODER
2	W/PUR	TB1-22	(A- CHANNEL)	
10	GRN	TB1-23	(B+ CHANNEL)	
11	W/RED	TB1-24	(B- CHANNEL)	
12	RED	TB1-25	(5 VDC)	
21	BLU	TB2-6	(0 VDC)	
23	BLU			
4	W/BRN	TB1-1	(PD SIGNAL)	CAPTURE INPUTS
6	W/GRY	TB1-6	(LABEL SENSOR)	
3	BRN	TB2-4	(24 VDC)	
5	BRN			
13	YEL/GRN	TB1-19	(ALOG (+) IN)	ANALOG
14	BLU	TB2-6	(ALOG (-) IN)	
22	W/ORG	TB1-20	(ALOG OUT)	
15	BLU	TB2-6	(OUTPUT COM)	I/O
24	BRN	TB2-2	(INPUT COM)	
7	YEL	TB1-11	(TAMP VALVE)	
8	GRY	TB1-12	(BLOW VALVE)	
9	PUR	TB1-13	(ASSIST VALVE)	
16	ORG	TB1-14	(SPARE VALVE)	
17	W/BLU	TB1-2	(LOW LABEL)	
18	W/YEL	TB1-3	(END OF WEB)	
25	W/BLK	TB1-4	(JOG)	
26	W/GRN	TB1-5	(INHIBIT)	

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
360	N/A	HOUSING ELECTRICAL	INTERNAL WIRE HARNESS: J104 WIRING HARNESS	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
01	CHANGED LENGTHS OF WIRE TO 19" LG.	10/23/14	DLM	1=2	01/05/07	DKM	F:\Engineering\Standard Parts\Applicator\360 SERIES\360a\ASS\ASS-200a-1410

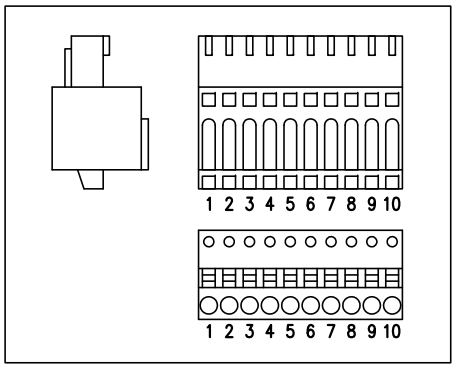
PE-238ST-0412

BILL OF MATERIAL

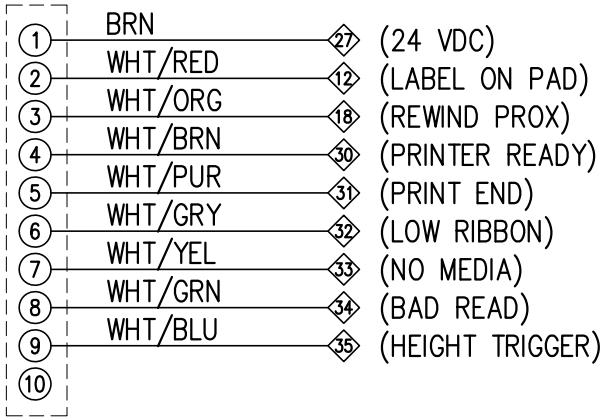
PE-238ST-0412

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
	1	PE-W1037	22 AWG (BROWN) x 24" LONG
	1	PE-W1042	22 AWG (WHT/RED) x 24" LONG
	1	PE-W1047	22 AWG (WHT/ORG) x 24" LONG
	1	PE-W1046	22 AWG (WHT/BRN) x 24" LONG
	1	PE-W1049	22 AWG (WHT/PUR) x 24" LONG
	1	PE-W1048	22 AWG (WHT/GRY) x 24" LONG
	1	PE-W1044	22 AWG (WHT/YEL) x 24" LONG
	1	PE-W1043	22 AWG (WHT/GRN) x 24" LONG
	1	PE-W1045	22 AWG (WHT/BLU) x 24" LONG

TB204 CONNECTOR DRAWING



STEPPER DRIVE
TB204



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	INTERNAL WIRE HARNESS: TB204 WIRING HARNESS	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
1	CHANGED PIN 2 TO LABEL ON PAD.	06/14/19	BNT	1=1	11/04/14	DLM	3600-ST\PE\PE-238ST-0412

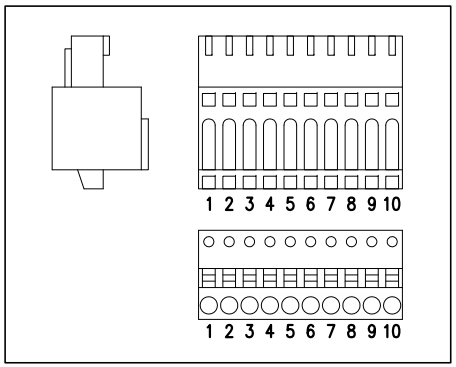
PE-238ST-0413

BILL OF MATERIAL

PE-238ST-0413

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
	1	PE-W1037	22 AWG (BROWN) x 17" LONG
	1	PE-W1036	22 AWG (BLUE) x 17" LONG
	1	PE-W1050	22 AWG (YEL/GRN) x 17" LONG
	1	PE-W1060	22 AWG (PINK) x 17" LONG
	1	PE-W1033	22 AWG (RED) x 17" LONG
	1	PE-W1038	22 AWG (ORANGE) x 17" LONG
	1	PE-W1035	22 AWG (YELLOW) x 17" LONG
	1	PE-W1040	22 AWG (PURPLE) x 17" LONG
	1	PE-W1039	22 AWG (GRAY) x 17" LONG

TB202 CONNECTOR DRAWING



STEPPER DRIVE
TB202

1	BRN	27	(24 VDC)
2	BLU	29	(0 VDC)
3	YEL/GRN	48	(SYSTEM READY)
4	PNK	49	(WARNING ALARM)
5	RED	50	(CRITICAL ALARM)
6	ORG	36	(PRINT START)
7	YEL	47	(TAMP HOME)
8	PUR	46	(LABEL ON PAD)
9	GRY	45	(RE-ISSUE)
10		XX	ADDITIONAL WIRE AT ASSEMBLY AS REQUIRED SEE SCHEMATIC FOR COLOR & TERMINATION

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	INTERNAL WIRE HARNESS: TB202 WIRING HARNESS	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
1	ADDED ASSEMBLY NOTE	09/29/18	SES	1=1	11/04/14	DLM	3600-ST\PE\PE-238ST-0413

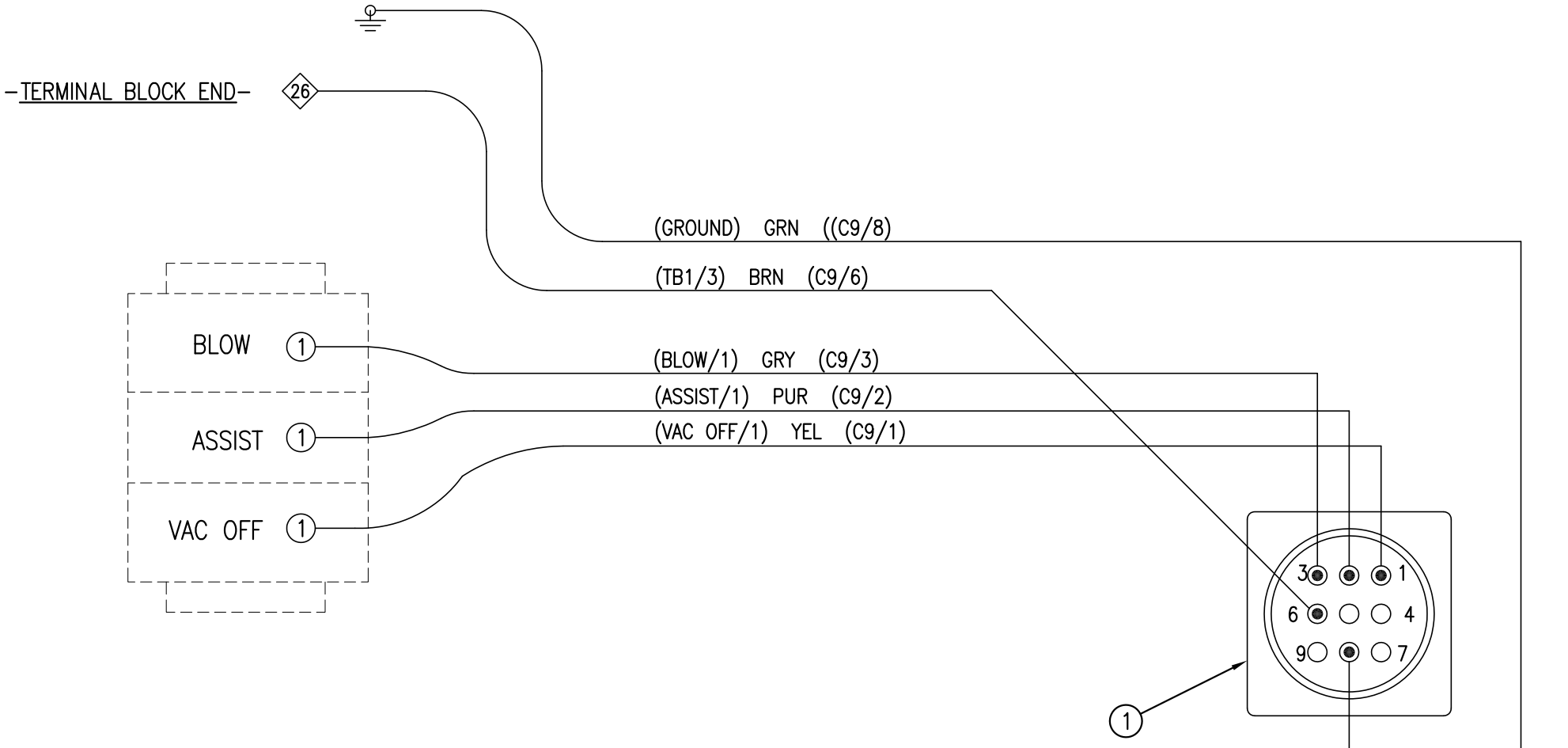
ASS-238ST-0414

BILL OF MATERIAL

ASS-238ST-0414

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-200-0415	VALVE PORT TO RELAY HARNESS
			22 AWG (BROWN) WIRE x 20" LONG
			22 AWG (GRN) WIRE x 20" LONG
			22 AWG (GRAY) WIRE x 7" LONG
			22 AWG (PURPLE) WIRE x 7" LONG
			22 AWG (YELLOW) WIRE x 7" LONG

NOTE: REMOVE ORANGE WIRE
CUT REMAINING WIRES TO LENGTH AS SHOWN



BACK SIDE OF CONNECTOR – C9
-VALVE PORT @ APPLICATOR HOUSING-

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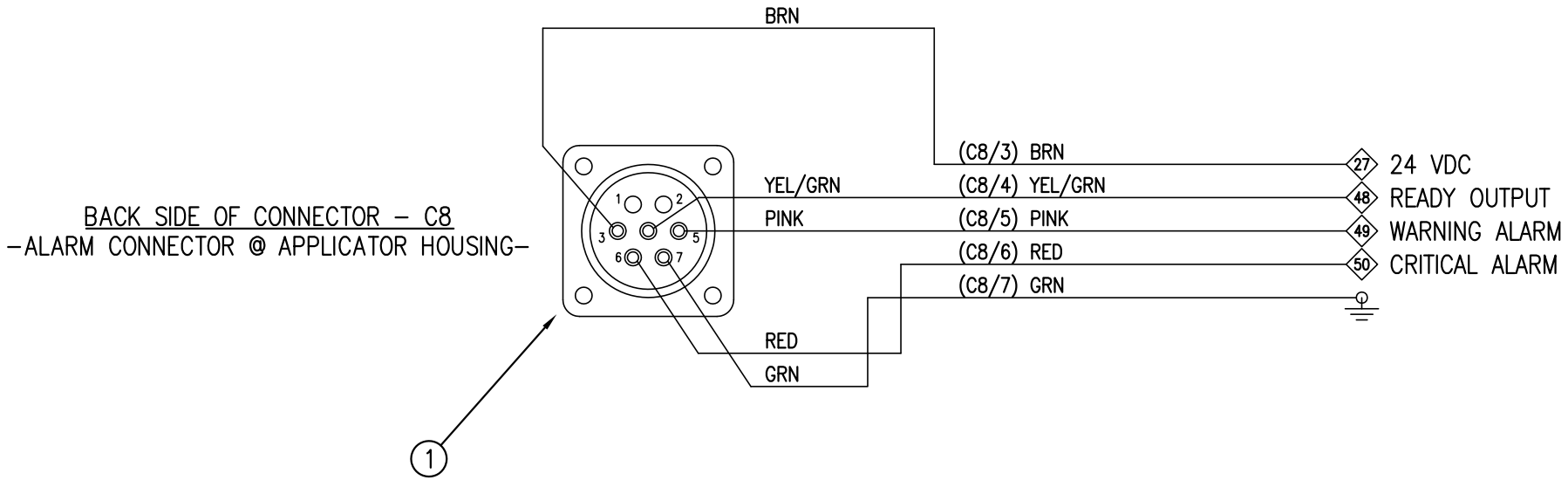
APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	VALVE TO APPLICATOR CONNECTOR HARNESS	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
2	REMOVED INDIVIDUAL WIRES FROM BOM	06/14/19	BNT	1=1	02/08/12	BMW	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0414

BILL OF MATERIAL			
ASS-238ST-0415			
ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-238-0410	APPLICATOR ALARM CONNECTOR HARNESS

ASS-238ST-0415

NOTE: REMOVE WHITE AND BLACK WIRES



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	APPLICATOR ALARM CONNECTOR HARNESS	70

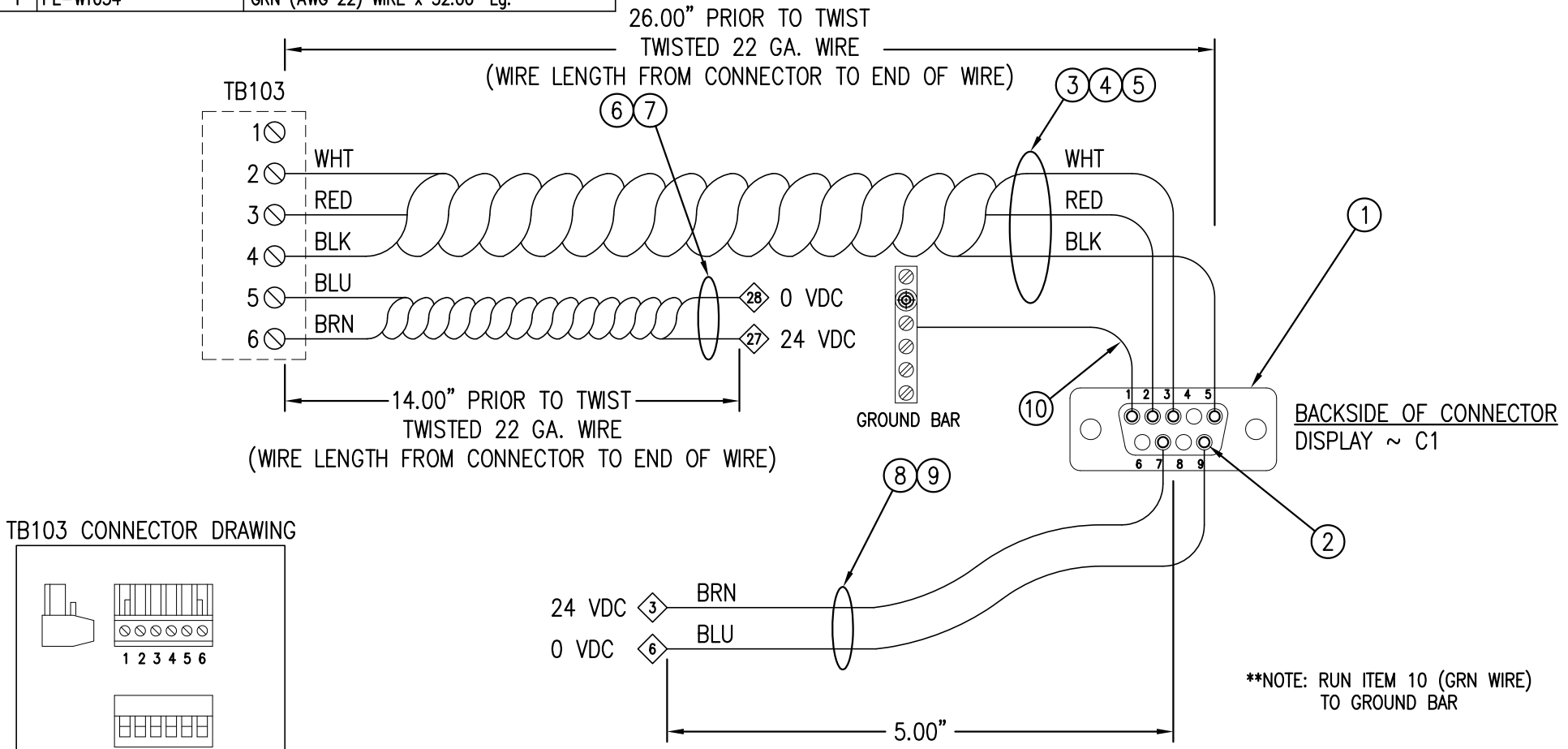
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	-	-	XXX	1=1	02/08/12	BMW	3600-ST\ASS\ASS-238ST-0415

PE-238ST-0416

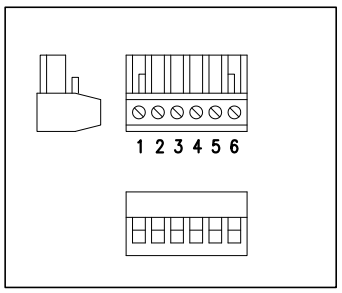
BILL OF MATERIAL

PE-238ST-0416

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON2040	FEMALE (SOCKET) CONNECTOR ~ 9 PIN
②	6	PE-CON7057	FEMALE/SOCKET
③	1	PE-W1033	RED (AWG 22) WIRE x 26.00" Lg.
④	1	PE-W1031	WHT (AWG 22) WIRE x 26.00" Lg.
⑤	1	PE-W1032	BLK (AWG 22) WIRE x 26.00" Lg.
⑥	1	PE-W1036	BLU (AWG 22) WIRE x 14.00" Lg.
⑦	1	PE-W1037	BRN (AWG 22) WIRE x 14.00" Lg.
⑧	1	PE-W1036	BLU (AWG 22) WIRE x 5.00" Lg.
⑨	1	PE-W1037	BRN (AWG 22) WIRE x 5.00" Lg.
⑩	1	PE-W1034	GRN (AWG 22) WIRE x 32.00" Lg.



TB103 CONNECTOR DRAWING



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	INTERNAL WIRING HARNESS: TB103 WIRING HARNESS	70

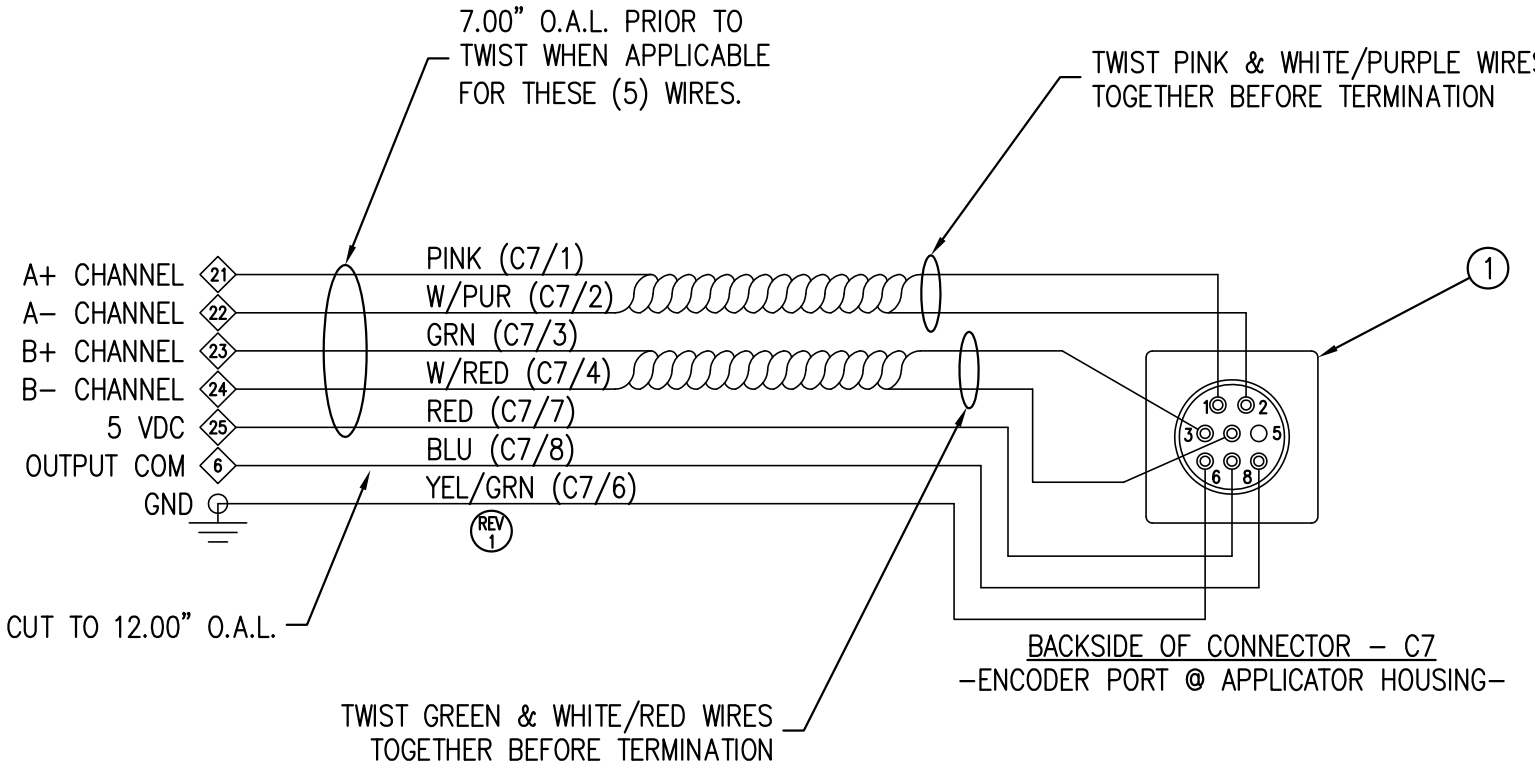
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	XXX	1=1	11/04/14	DLM	3600-ST\PE\PE-238ST-0416

BILL OF MATERIAL

ASS-238ST-0417

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	ASS-200a-0418	INTERNAL WIRE HARNESS: DRIVER TO ENCODER PORT
	1	PE-W1060	22 AWG (PINK) WIRE x 7" LONG
	1	PE-W1049	22 AWG (W/PUR) WIRE x 7" LONG
	1	PE-W1034	22 AWG (GRN) WIRE x 7" LONG
	1	PE-W1042	22 AWG (W/RED) WIRE x 7" LONG
	1	PE-W1033	22 AWG (RED) WIRE x 7" LONG
	1	PE-W1036	22 AWG (BLUE) WIRE x 12" LONG
	1	PE-W1050	22 AWG (YEL/GRN) WIRE x 17" LONG

NOTE: CUT REMAINING WIRES TO LENGTH AS SHOWN



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	INTERNAL WIRE HARNESS: DRIVER TO ENCODER PORT	70

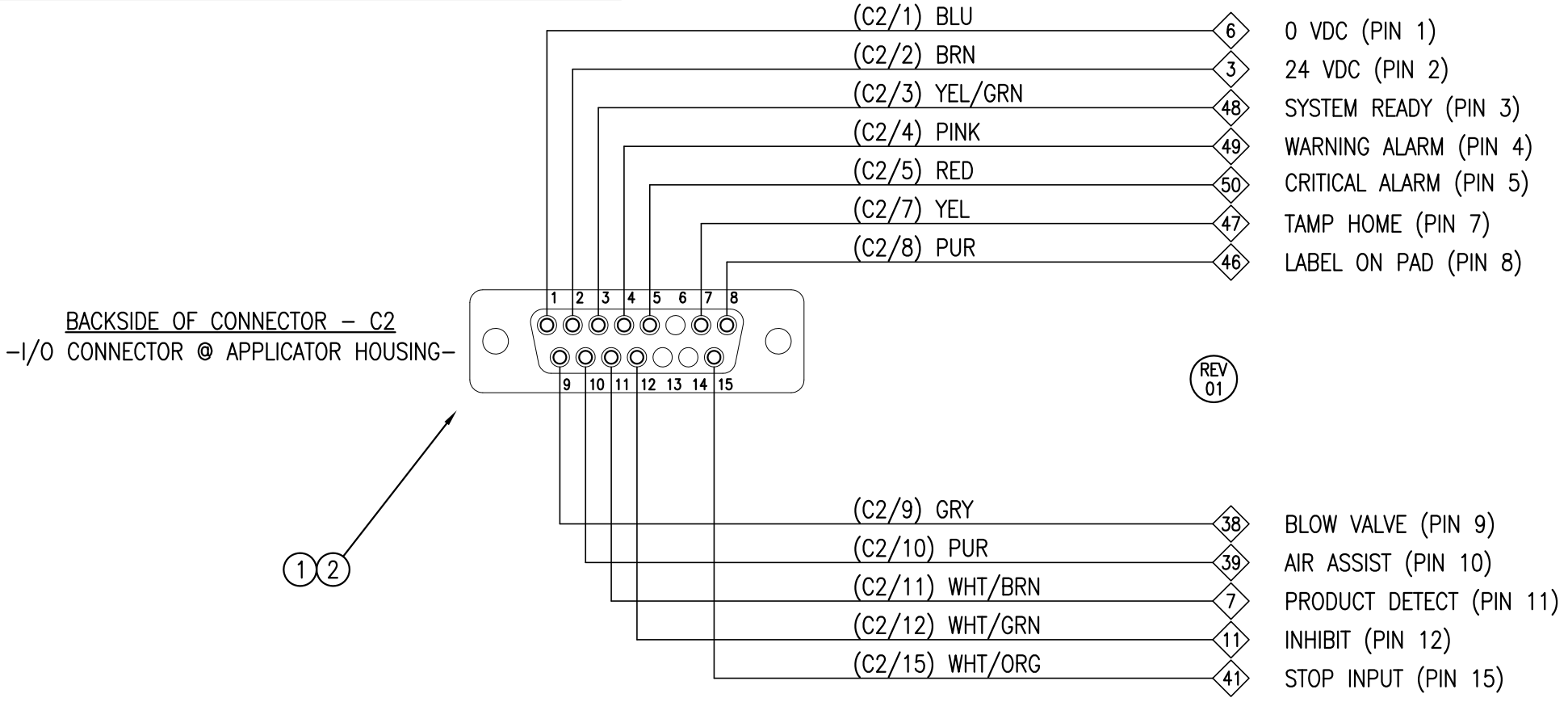
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
1	ADDED GROUND WIRE TO PIN 6	12/16/15	SES	1=1	02/08/12	BMW	3600-ST\ASS\ASS-238ST-0417

PE-238ST-0419

BILL OF MATERIAL

PE-238ST-0419

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON2050	FEMALE (SOCKET) CONNECTOR
②	11	PE-CON7057	FEMALE/SOCKET
	1	PE-W1036	22 AWG (BLUE) WIRE x 18" LONG
	1	PE-W1037	22 AWG (BRN) WIRE x 18" LONG
	1	PE-W1050	22 AWG (YEL/GRN) WIRE x 18" LONG
	1	PE-W1060	22 AWG (PINK) WIRE x 18" LONG
	1	PE-W1033	22 AWG (RED) WIRE x 18" LONG
	1	PE-W1035	22 AWG (YEL) WIRE x 18" LONG
	2	PE-W1040	22 AWG (PUR) WIRE x 18" LONG
	1	PE-W1039	22 AWG (GREY) WIRE x 18" LONG
	1	PE-W1046	22 AWG (W/BRN) WIRE x 18" LONG
	1	PE-W1043	22 AWG (W/GRN) WIRE x 18" LONG
	1	PE-W1047	22 AWG (W/ORG) WIRE x 18" LONG



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600-ST	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	INTERNAL WIRE HARNESS: APPLICATOR I/O CONNECTOR HARNESS	70

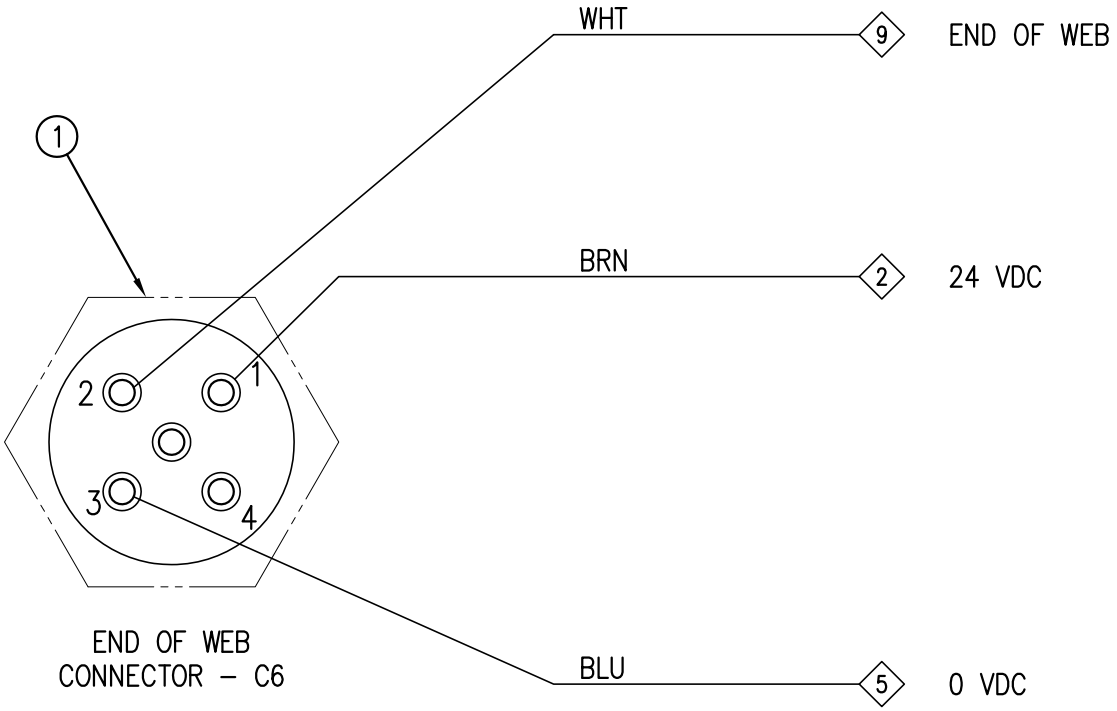
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
01	CHANGED E-STOP TO STOP INPUT	01-16-19	dkm	1=1	11/04/14	DLM	3600-ST\PE\PE-238ST-0419

BILL OF MATERIAL

ASS-238ST-0421

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-CON1025	MODIFIED EUROFAST 5-PIN REVERSE KEY FEMALE RECEPTACLE

NOTE: PE-CON1025 W/ GRN/YEL AND BLACK WIRES REMOVED



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	END OF WEB SENSOR PORT	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	XXX	1=1	02/03/12	BMW	3600-ST\ASS\ASS-238ST-0421

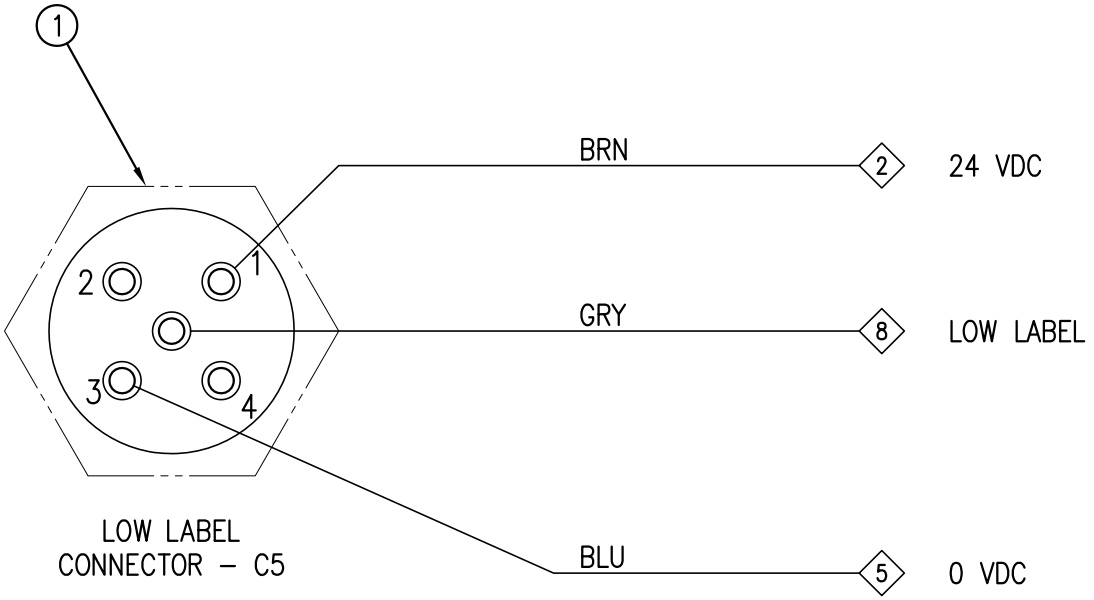
ASS-238ST-0422

BILL OF MATERIAL

ASS-238ST-0422

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	MP-CON1020	MODIFIED EUROFAST 5-PIN FEMALE RECEPTACLE

NOTE: PE-CON1020 W/ WHT AND BLACK WIRES REMOVED



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	LOW LABEL SENSOR PORT	70

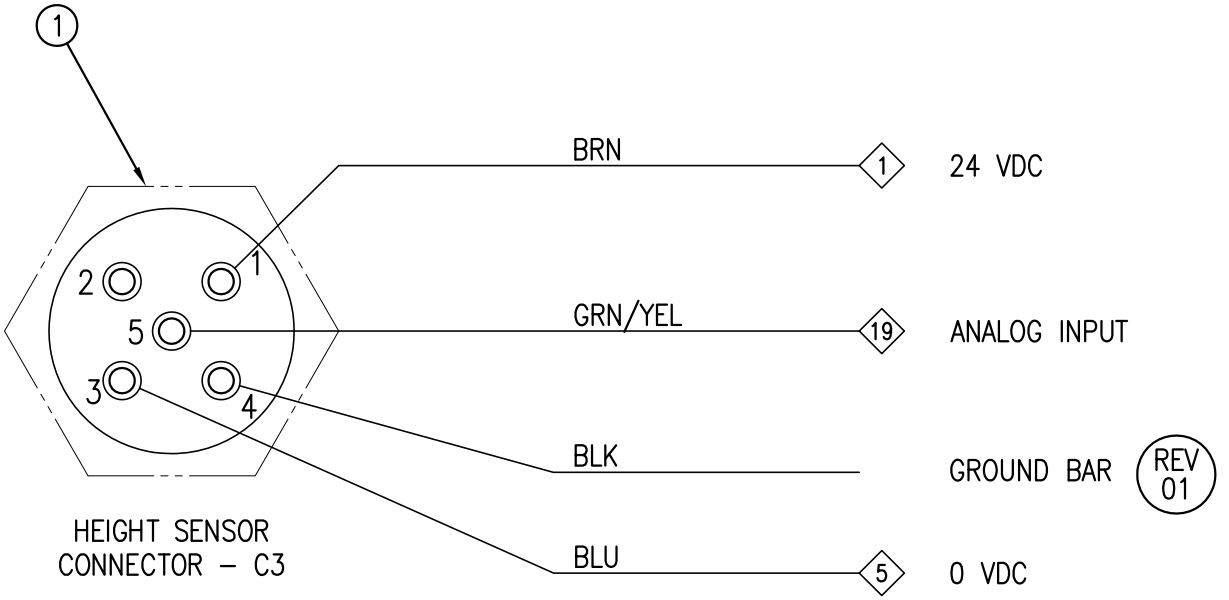
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	XXX	1=1	02/08/12	BMW	3600-ST/ASS\ASS-238ST-0422

BILL OF MATERIAL

ASS-238ST-0423

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON1025	EUROFAST 5-PIN REVERSE KEY FEMALE RECEPTACLE

NOTE: BLACK WIRE TO GROUND BAR



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	HEIGHT SENSOR PORT	70

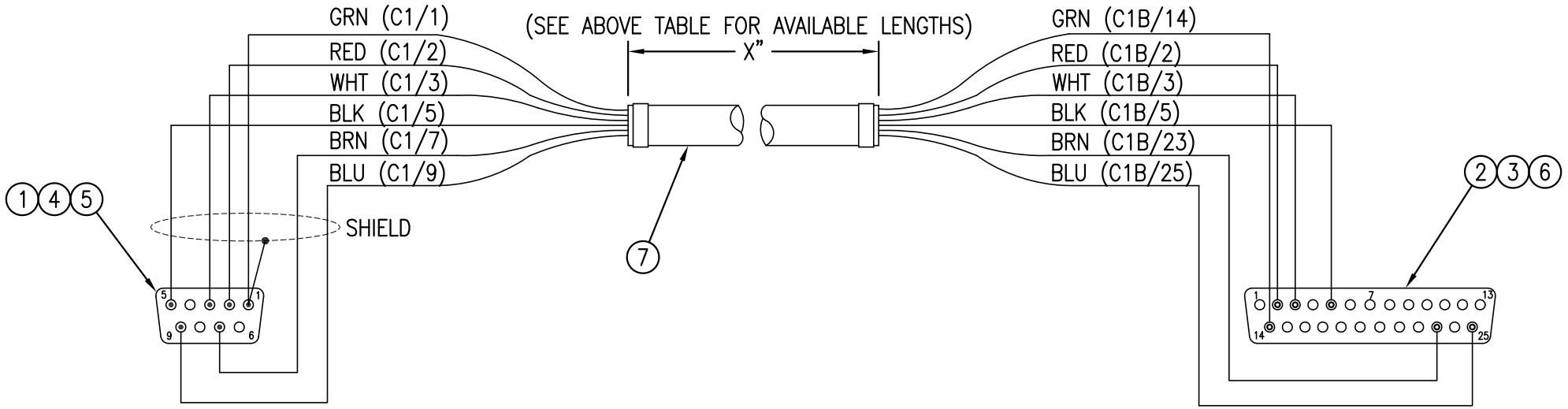
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
1	ADDED BLK WIRE TO GRD BAR, REMOVED WHT WIRE	11/20/13	DLM	1=1	02/08/12	BMW	3600-ST\ASS\ASS-238ST-0423

BILL OF MATERIAL

ASS-238ST-0425-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON2039	MALE (PLUG) CONNECTOR ~ 9 PIN
②	1	PE-CON2060	FEMALE (SOCKET) CONNECTOR ~ 25 PIN
③	1	PE-CON3020	CABLE HOOD ~ 25 PIN
④	1	PE-CON3000	CABLE HOOD ~ 9 PIN
⑤	6	PE-CON7055	MALE PIN (APPLICATOR END)
⑥	6	PE-CON7057	FEMALE/SOCKET (DISPLAY UNIT END)
⑦	1	PE-CA2200	8 CONDUCTOR CABLE ~ 24 AWG

5'	ASS-238ST-0425-5
10'	ASS-238ST-0425-10
15'	ASS-238ST-0425-15



BACK SIDE OF MALE CONNECTOR – C1
–DISPLAY PORT @ APPLICATOR HOUSING–

BACK SIDE OF FEMALE CONNECTOR – C1B
–DISPLAY UNIT END–

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	DISPLAY CABLE	70

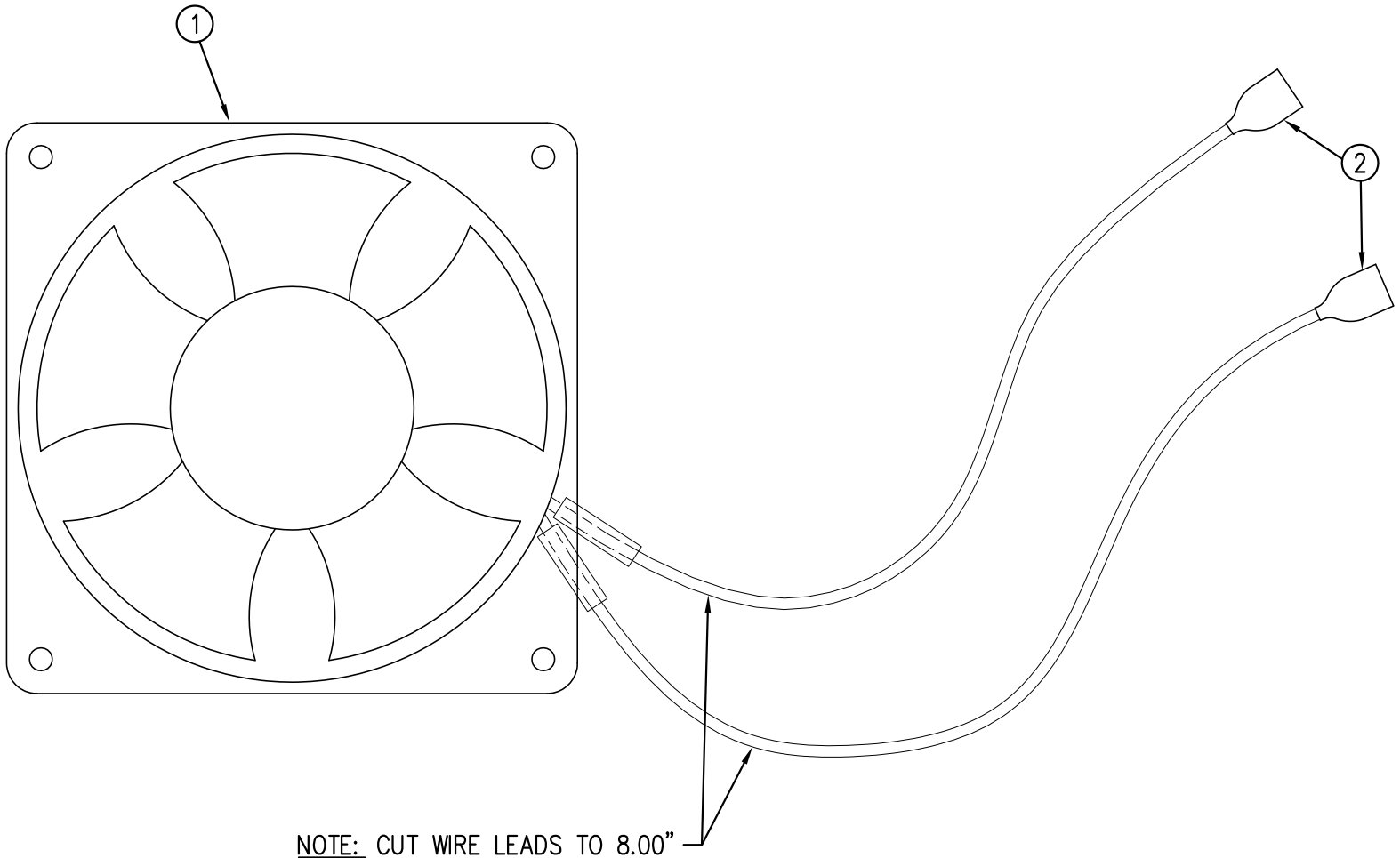
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
06	ADDED CUSTOM LENGTH CABLES	10/6/15	JWS	1=1	02/06/12	BMW	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0425-X

BILL OF MATERIAL

ASS-238ST-0429

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-FAN1103	AXIAL FAN
②	2	PE-REC2050	RED 18-22 AWG SPADE RECEPTACLE

ASS-238ST-0429



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	FAN ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
0	–	–	XXX	1=1	02/06/12	BMW	3600-ST\ASS\ASS-238ST-0429

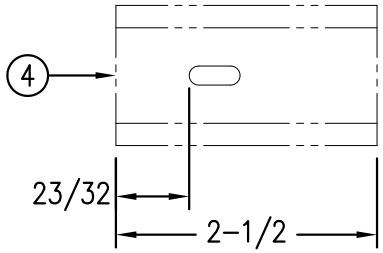
BILL OF MATERIAL

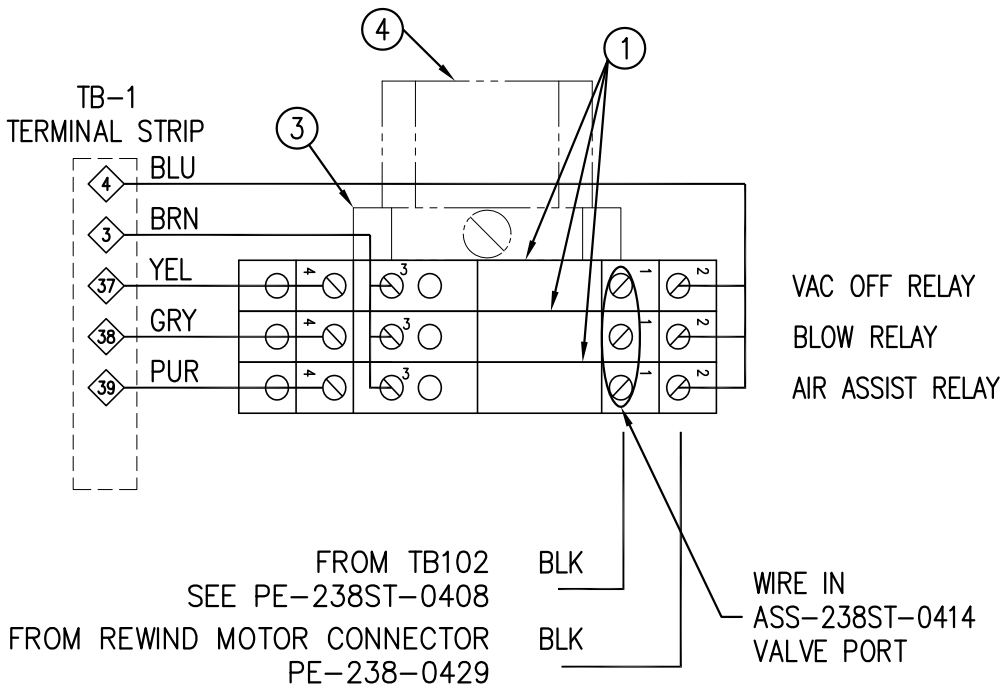
ASS-238ST-0430-X

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION	
①	3	PE-RE1013	CONTINENTAL SOLID STATE RELAY	
②	0	PE-RE1063	A-B STYLE RELAY	W/ TAMP
	2	PE-RE1063	A-B STYLE RELAY	W/ FAN
③	1	PE-RE1053	DIN RAIL STOPS	
④	1	CP-238ST-0283	DIN RAIL x 2-1/2" Lg.	
⑤	1	PE-RES1040	10k OHM RESISTOR (fan style only)	
⑥	1	PE-W1035	YEL (AWG 22) WIRE x 18.00" Lg.	
	2	PE-W103602B	BLU (AWG 22) JUMPER x 2" LONG	
	2	PE-W103701B	BRN (AWG 22) JUMPER x 2" LONG	
	1	PE-W1036	BLU (AWG 22) WIRE x 18" LONG	
	1	PE-W1037	BRN (AWG 22) WIRE x 16" LONG	
	1	PE-W1038	ORG (AWG 22) WIRE x 16" LONG	
	1	PE-W1039	GRY (AWG 22) WIRE x 16" LONG	
	1	PE-W1040	PUR (AWG 22) WIRE x 16" LONG	
	1	PE-W1035	YEL (AWG 22) WIRE x 16" LONG	

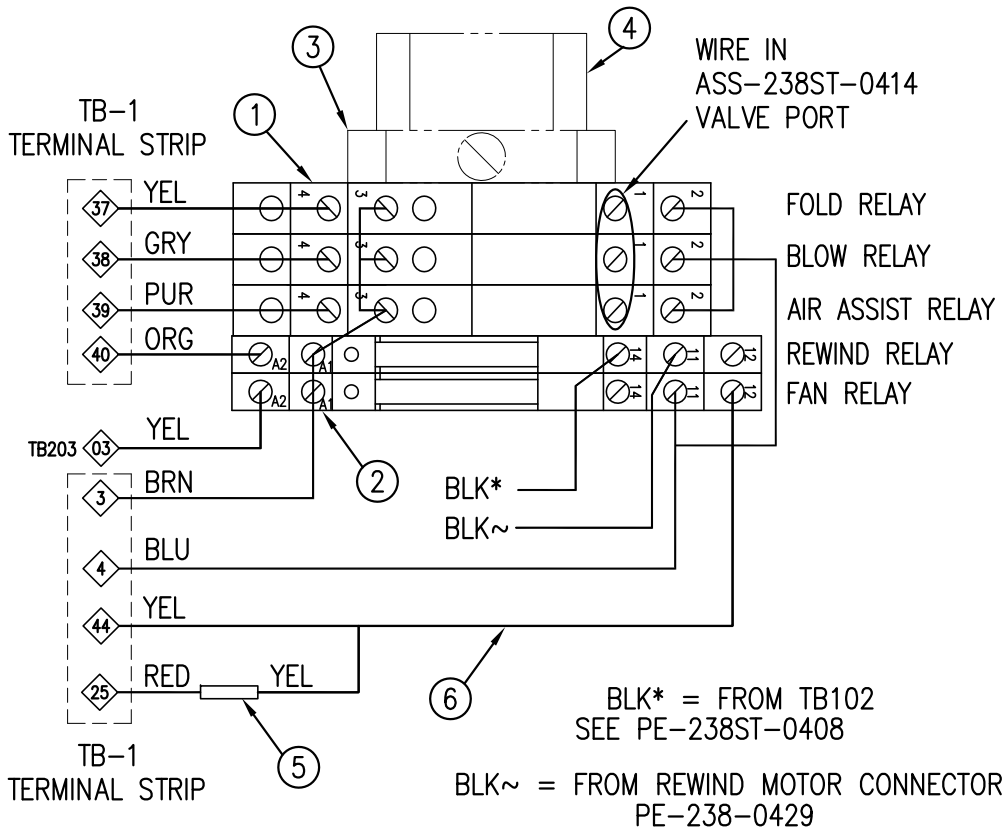
ASS-238ST-0430-X

VAC-BLOW A
FAN B





ASS-238ST-0430-A
VAC BLOW STYLE



ASS-238ST-0430-B
FAN STYLE

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	VALVE RELAY ASSEMBLY	70

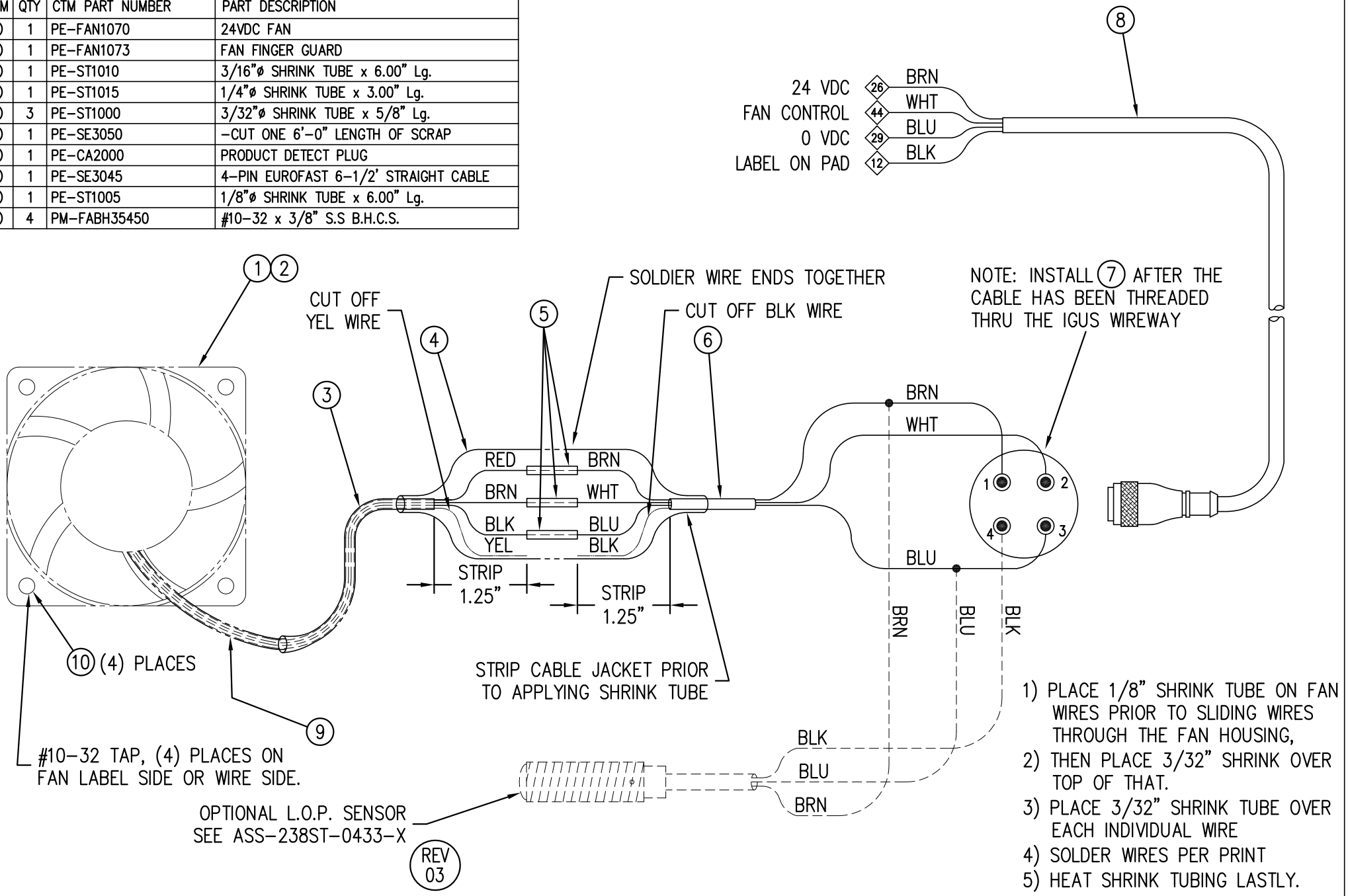
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
3	REMOVED BLACK WIRE FROM ASSEMBLY. GENERAL CORRECTIONS MADE	09/05/19	BNT	1=1	11/11/13	DLM	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0430-X

ASS-238ST-0431

BILL OF MATERIAL

ASS-238ST-0431

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-FAN1070	24VDC FAN
②	1	PE-FAN1073	FAN FINGER GUARD
③	1	PE-ST1010	3/16"ø SHRINK TUBE x 6.00" Lg.
④	1	PE-ST1015	1/4"ø SHRINK TUBE x 3.00" Lg.
⑤	3	PE-ST1000	3/32"ø SHRINK TUBE x 5/8" Lg.
⑥	1	PE-SE3050	-CUT ONE 6'-0" LENGTH OF SCRAP
⑦	1	PE-CA2000	PRODUCT DETECT PLUG
⑧	1	PE-SE3045	4-PIN EUROFAST 6-1/2' STRAIGHT CABLE
⑨	1	PE-ST1005	1/8"ø SHRINK TUBE x 6.00" Lg.
⑩	4	PM-FABH35450	#10-32 x 3/8" S.S B.H.C.S.



1) PLACE 1/8" SHRINK TUBE ON FAN WIRES PRIOR TO SLIDING WIRES THROUGH THE FAN HOUSING,
2) THEN PLACE 3/32" SHRINK OVER TOP OF THAT.
3) PLACE 3/32" SHRINK TUBE OVER EACH INDIVIDUAL WIRE
4) SOLDER WIRES PER PRINT
5) HEAT SHRINK TUBING LASTLY.

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	VACUUM FAN ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
3	REVISED L.O.P. SENSOR DESCRIPTION	03/06/14	DLM	1=1	02/07/12	BMW	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0431

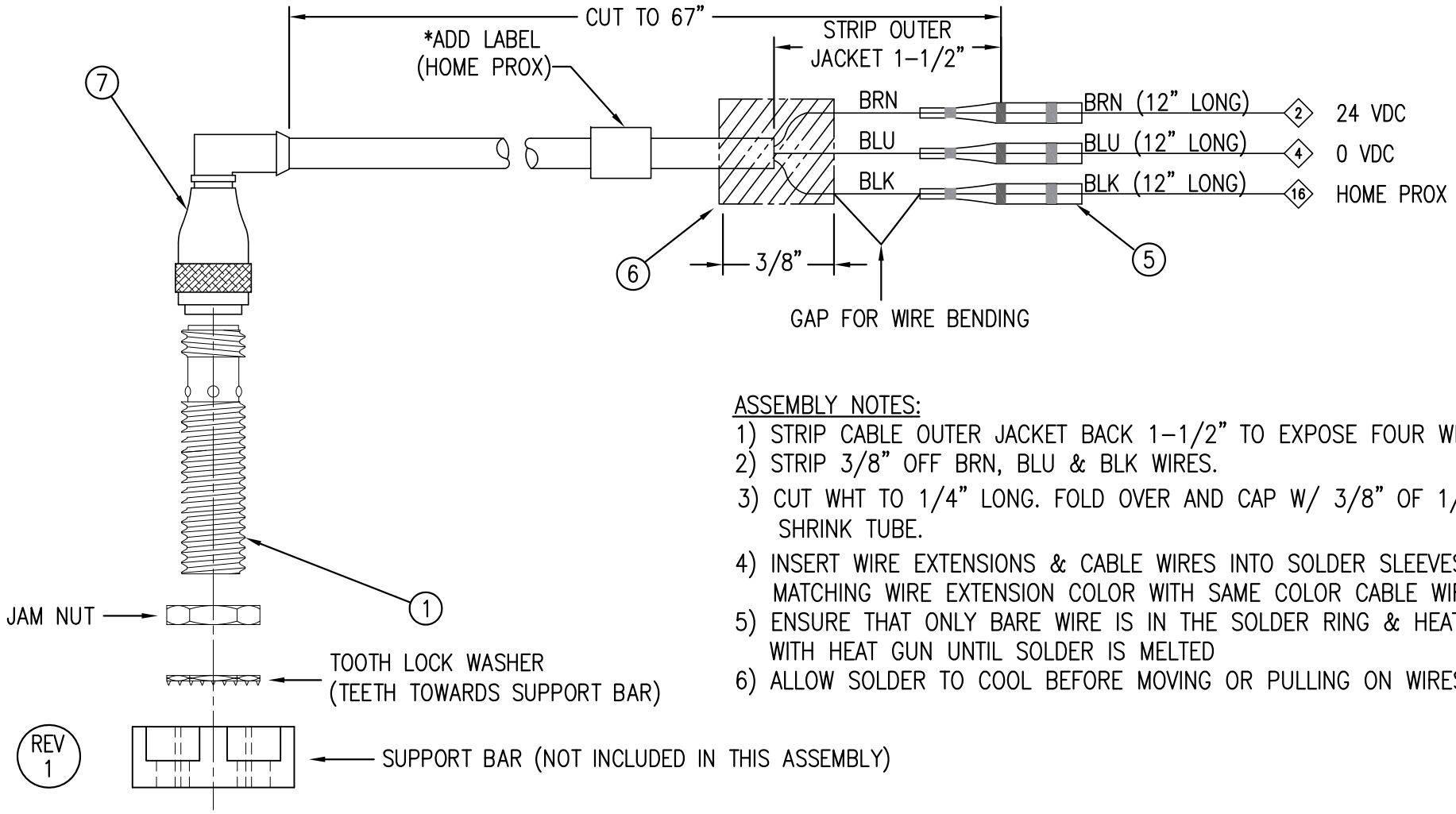
BILL OF MATERIAL

ASS-238ST-0432

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-SE10108	3 mm Q.D. INDUCTIVE PROX. SENSOR
②	1	PE-W1036	22 AWG (BLUE) WIRE x 12" LONG
③	1	PE-W1032	22 AWG (BLACK) WIRE x 12" LONG
④	1	PE-W1037	22 AWG (BROWN) WIRE x 12" LONG
⑤	3	PE-SL1000	GRAY SOLDER SLEEVE 22-26 AWG
⑥	1	PE-ST1015	1/4"ø SHRINK TUBE x 3/8" LONG
⑦	1	PE-SE3053	4-PIN EUROFAST 6-1/2' 90° QD CABLE

ASS-238ST-0432

SET-UP INSTRUCTIONS:
FOR PROPER GAP BETWEEN SENSOR HEAD AND TARGET, SCREW SENSOR IN UNTIL IT CONTACTS THE TARGET, THEN BACK THE SENSOR OUT 1-1/2 TO 2 TURNS POSITIONING THE KEY ON THE SENSOR CONNECTOR IN THE 1 O'CLOCK POSITION, THEN LOCK INTO POSITION W/ TOOTH LOCK WASHER AND JAM NUT INCLUDED WITH SENSOR.



ASSEMBLY NOTES:
1) STRIP CABLE OUTER JACKET BACK 1-1/2" TO EXPOSE FOUR WIRES.
2) STRIP 3/8" OFF BRN, BLU & BLK WIRES.
3) CUT WHT TO 1/4" LONG. FOLD OVER AND CAP W/ 3/8" OF 1/4" SHRINK TUBE.
4) INSERT WIRE EXTENSIONS & CABLE WIRES INTO SOLDER SLEEVES; MATCHING WIRE EXTENSION COLOR WITH SAME COLOR CABLE WIRE.
5) ENSURE THAT ONLY BARE WIRE IS IN THE SOLDER RING & HEAT WITH HEAT GUN UNTIL SOLDER IS MELTED
6) ALLOW SOLDER TO COOL BEFORE MOVING OR PULLING ON WIRES.

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	HOME LIMIT SENSOR ASSEMBLY - 6-1/2 FT LG CABLE	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
5	REPLACED 3/32" SHRINK TUBE WITH GRAY SOLDER SLEEVE	02/08/19	BNT	1=1	02/09/12	BMW	3600-ST\ASS\ASS-238ST-0432

BILL OF MATERIAL

ASS-238ST-0433-A

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-SE3043	10mm CONVERGENT SS MINI SENSOR
②	1	PE-CA2000	PRODUCT DETECT PLUG
③	1	PE-SE3045	4-PIN EUROFAST 6-1/2' STRAIGHT CABLE
④	1	PE-ST1000	3/32" SHRINK TUBE X 1-1/4" LG
⑤	2	PE-ST1010	3/16" SHRINK TUBE X 1-1/4" LG
⑥	4	PE-SL1000	GRAY SOLDER SLEEVE 22-26 AWG
◯	1	PE-W1037040	22 AWG BROWN WIRE 6" LONG
◯	1	PE-W1036120	22 AWG BLUE WIRE 6" LONG
◯	1	PE-W1032	22 AWG BLACK WIRE 6" LONG
◯	1	PE-W1031	22 AWG WHITE WIRE 6" LONG

BILL OF MATERIAL

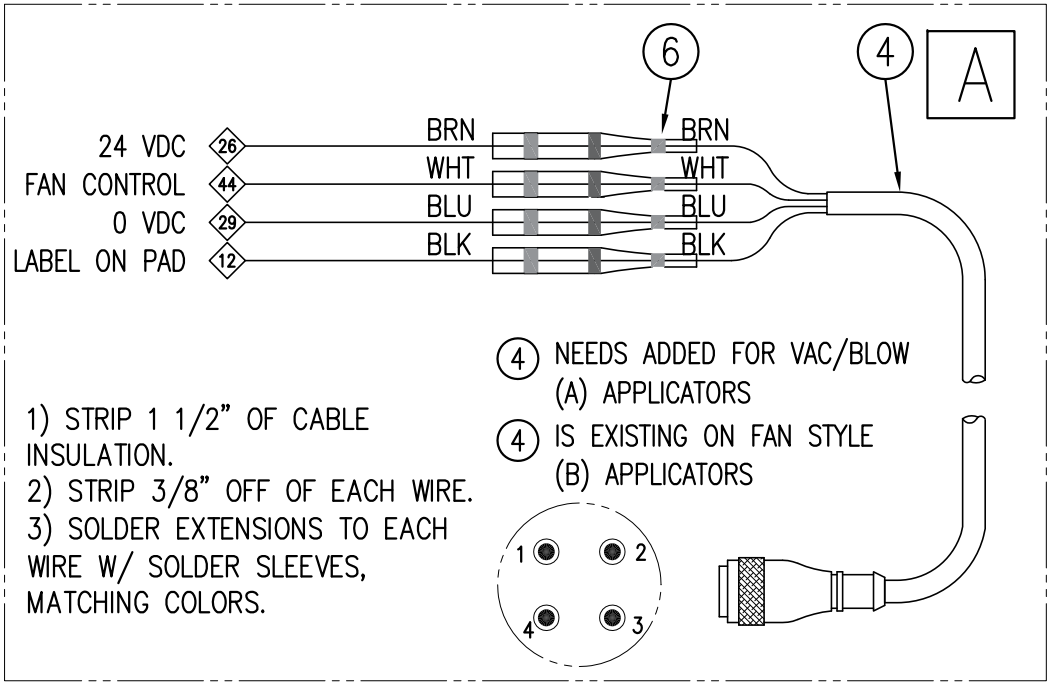
ASS-238ST-0433-B

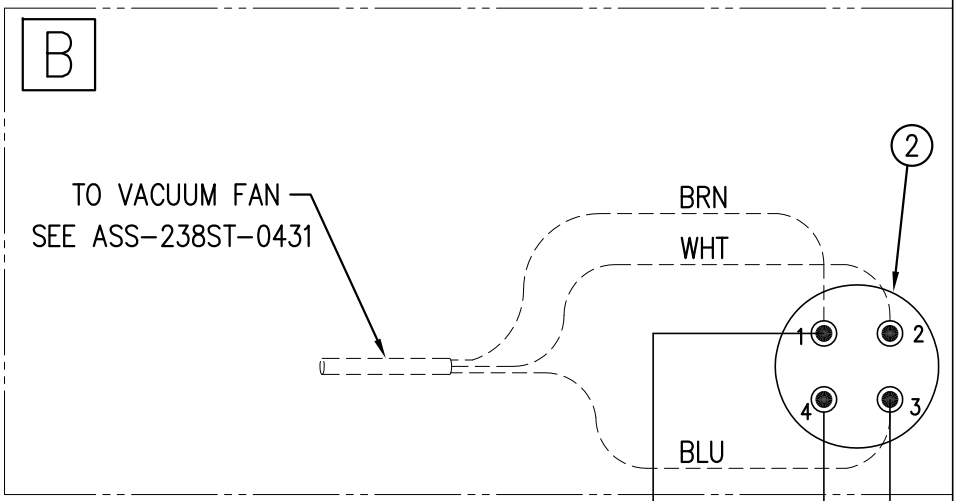
ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-SE3043	10mm CONVERGENT SS MINI SENSOR
②	1	PE-CA2000	PRODUCT DETECT PLUG
④	1	PE-ST1005	1/8" SHRINK TUBE X 1-1/4" LG
⑤	2	PE-ST1010	3/16" SHRINK TUBE X 1-1/4" LG

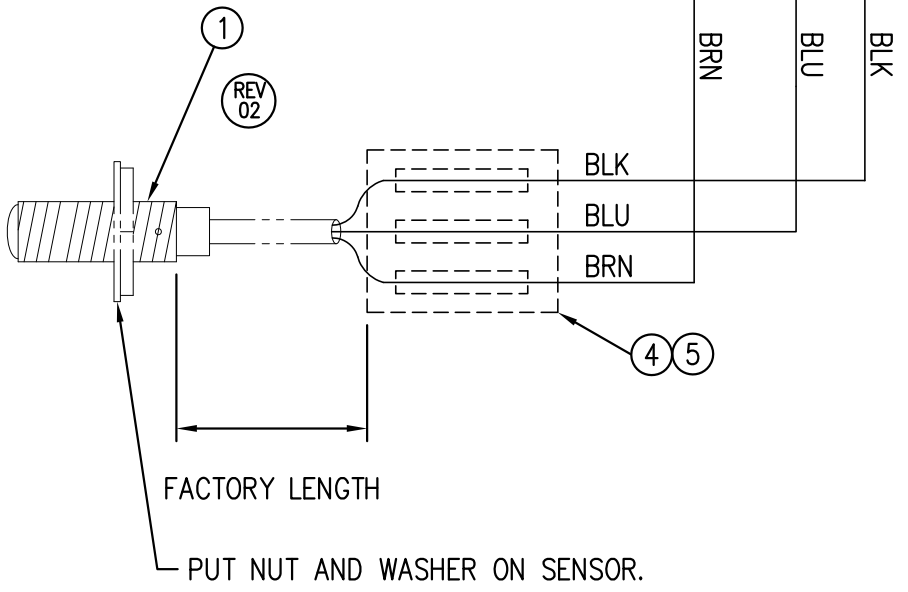
VAC/BLOW STYLE	ASS-238ST-0433-A
FAN STYLE	ASS-238ST-0433-B

WIRE PREPARATION NOTES: (REV 01)

1) STRIP OUTER JACKET 1-1/2"
2) THEN STRIP 1/2" FROM EACH WIRE. TWIST, FOLD BACK, THEN SOLDER.
3) SHRINK TUBE CABLE TO MAKE CONNECTOR FIT WITH 1 PC OF 1/8" DIA, 2 PC OF 3/16" DIA, BOTH 1-1/4" LG.
4) PUT 1/8" DIA OVER CABLE END, EVEN WITH THE STRIPPED END OF THE OUTER JACKET
5) THEN THE 3/16" OVER 1/8" AND THE OTHER 3/16" OVER BOTH







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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	LABEL ON PAD SENSOR ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
04	REPLACED ITEM 6 WITH GRAY SOLDER SLEEVES	02/08/19	BNT	1=1	06/13/13	DLM	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0433-X

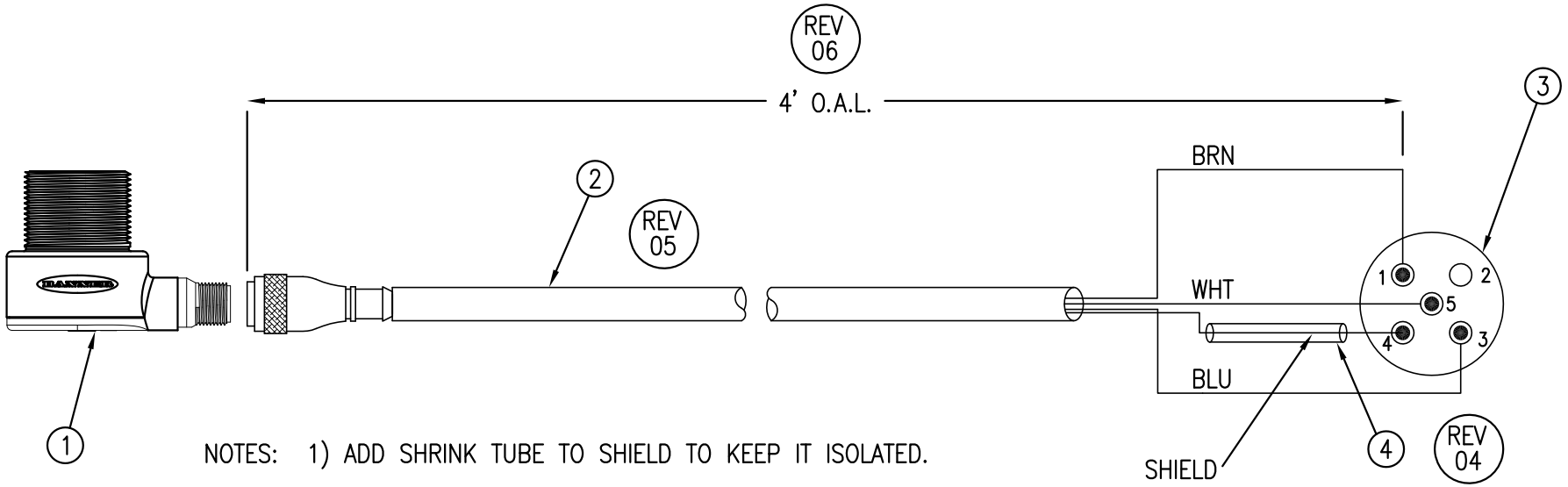
BILL OF MATERIAL

ASS-238ST-0434

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-SE1034	ULTRASONIC SENSOR
②	1	C-PE-SE1076-6	ULTRASONIC SENSOR CABLE- 6-1/2' LG.
③	1	PE-CA2080	5-PIN EUROFAST REVERSE KEY CONNECTOR
④	1	PE-ST1002	1/16"ø SHRINK TUBE X 1-1/2" LG.

REV 06

ASS-238ST-0434



NOTES: 1) ADD SHRINK TUBE TO SHIELD TO KEEP IT ISOLATED.

2) CUT BLK WIRE OFF

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	HEIGHT SENSOR ASSEMBLY	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
6	ADDED CABLE LENGTH AND CHANGED ITEM 2 ON BOM	02/28/14	DLM	1=1	11/12/13	DLM	3600-ST\ASS\ASS-238ST-0434

BILL OF MATERIAL

ASS-238ST-0436-A

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-SE1078	3 PIN THREADED PICO-STYLE CORDSET, RT ANGLE, 5m
②	1	PE-SE3044	10mm CONVERGENT SS MINI SENSOR QD
③	1	PE-CA2000	PRODUCT DETECT PLUG
④	1	PE-SE3045	4 PIN EUROFAST 6-1/2' STRAIGHT CABLE
⑤	4	PE-SL1000	GRAY SOLDER SLEEVE 22-26 AWG
	1	PE-W1037040	22 AWG BROWN WIRE. 6" LONG STRIP ONE END
	1	PE-W1036120	22 AWG BLUE WIRE. 6" LONG. STRIP ONE END
	1	PE-W1032	22 AWG BLACK WIRE. 6" LONG
	1	PE-W1031	22 AWG WHITE WIRE. 6" LONG

BILL OF MATERIAL

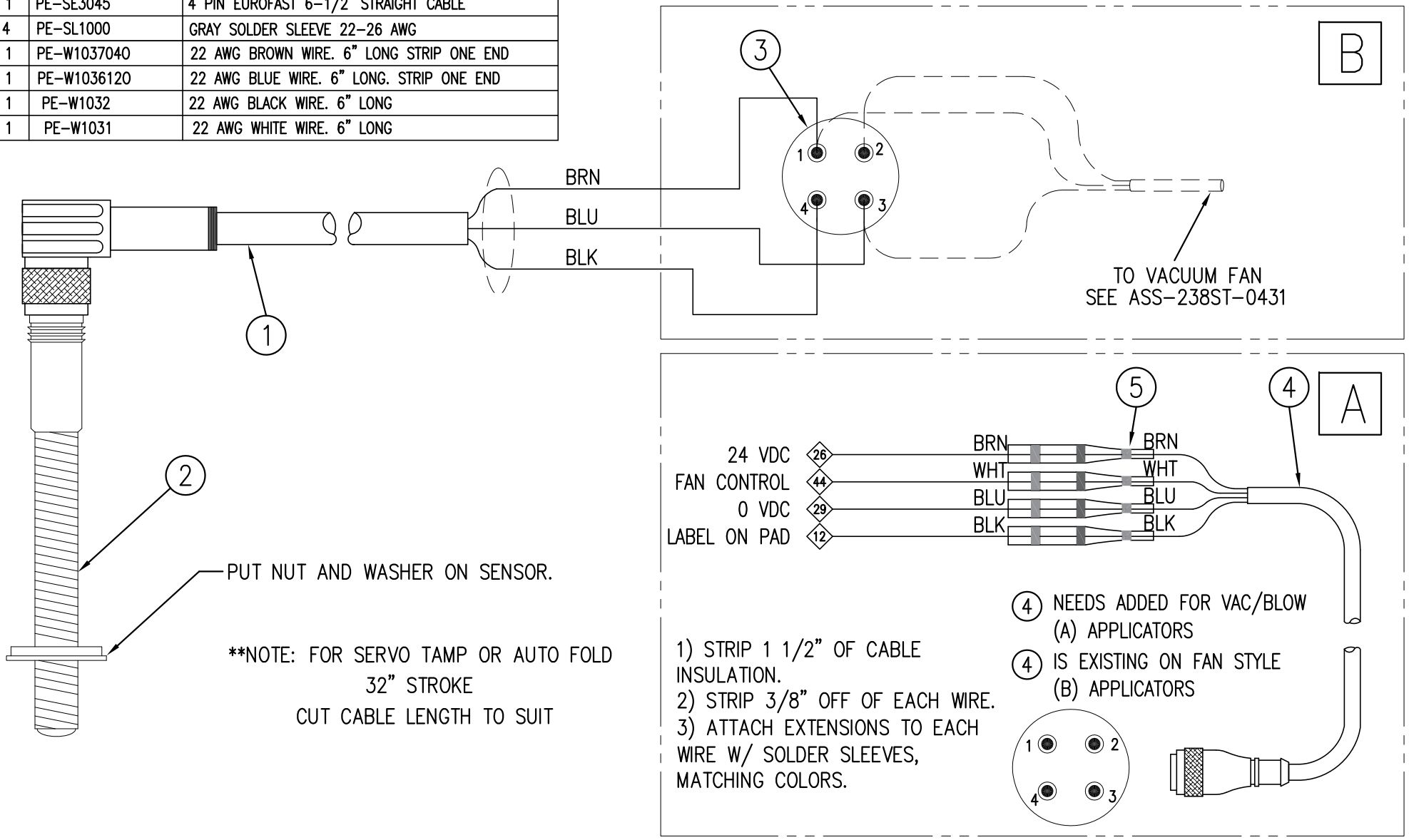
ASS-238ST-0436-B

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-SE1078	3 PIN THREADED PICO-STYLE CORDSET, RT ANGLE, 5m
②	1	PE-SE3044	10mm CONVERGENT SS MINI SENSOR QD
③	1	PE-CA2000	PRODUCT DETECT PLUG

ASS-238ST-0436-X

VAC/BLOW STYLE
ASS-238ST-0436-A

FAN STYLE
ASS-238ST-0436-B



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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	LABEL ON PAD SENSOR ASSEMBLY QD	70

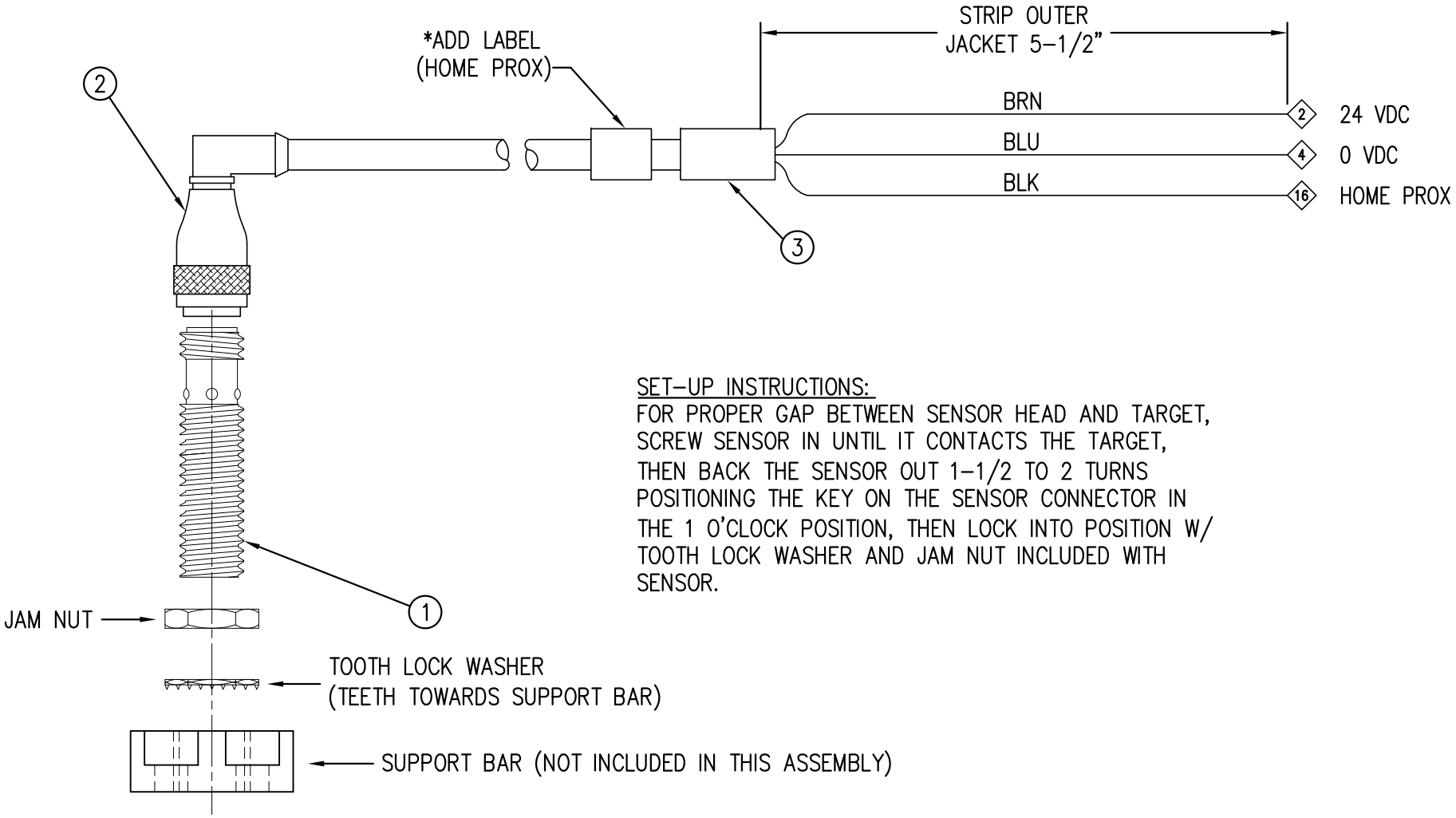
REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
02	REPLACED 3/32" SHRINK TUBE WITH GRAY SOLDER SLEEVE	02/08/19	BNT	1=1	02/19/14	DLM	F:\Engineering\Standard Parts\Applicator\3600 SERIES\3600-ST\ASS\ASS-238ST-0436-X

ASS-238ST-0437

BILL OF MATERIAL

ASS-238ST-0437

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-SE10108	3 mm Q.D. INDUCTIVE PROX. SENSOR
②	1	PE-SE3055	RT ANGLE QD SENSOR CABLE - 15' LG.
③	1	PE-ST1015	1/4" ø SHRINK TUBE X 1" LG.



SET-UP INSTRUCTIONS:
FOR PROPER GAP BETWEEN SENSOR HEAD AND TARGET, SCREW SENSOR IN UNTIL IT CONTACTS THE TARGET, THEN BACK THE SENSOR OUT 1-1/2 TO 2 TURNS POSITIONING THE KEY ON THE SENSOR CONNECTOR IN THE 1 O'CLOCK POSITION, THEN LOCK INTO POSITION W/ TOOTH LOCK WASHER AND JAM NUT INCLUDED WITH SENSOR.

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APPLICATOR SERIES:	APPLICATOR WIDTH(S):	GROUP:	TITLE:	Dept. Code
3600	7.5"	SERVO TAMP APPLICATOR: ELECTRICAL	HOME LIMIT SENSOR ASSEMBLY - 15 FT CABLE	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600 SERIES\
				1=1	02/09/12	DLM	3600-ST\ASS\ASS-238ST-0437

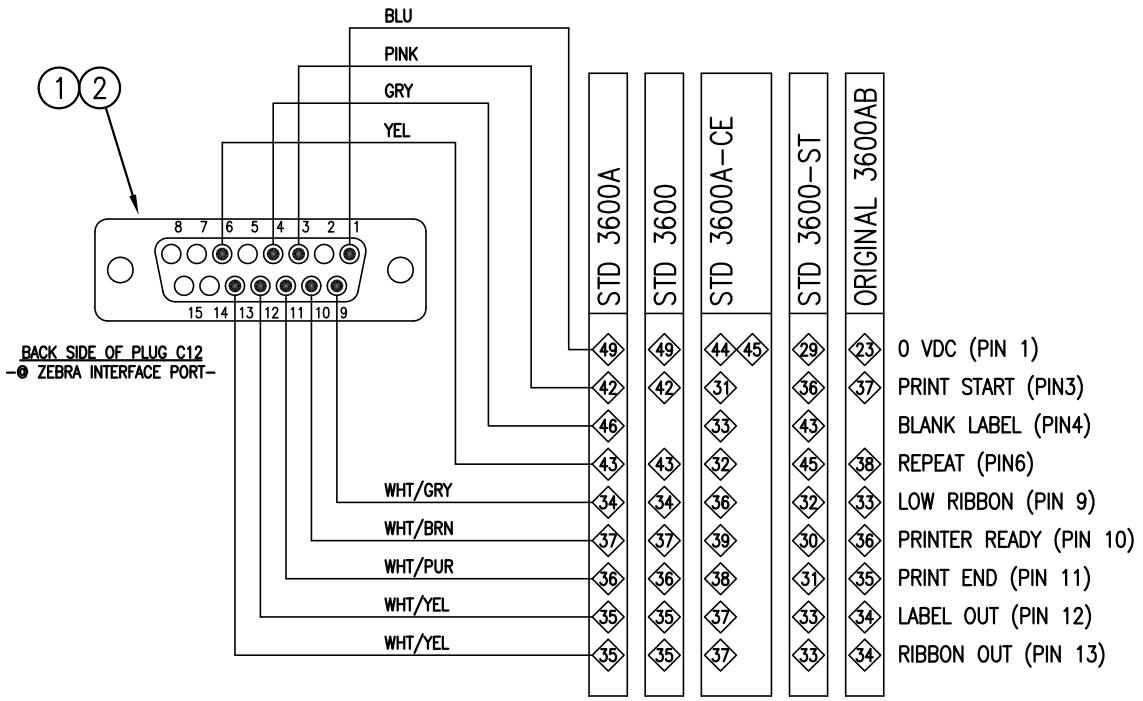
PE-238-0418

BILL OF MATERIAL

ASSEMBLY		PE-238-0418		SOLD
ITEM	QTY	ITEM DESCRIPTION	CTM PART NUMBER	
(1)	1	ZEBRA I/F PLUG	PE-CON2049	.
(2)	8	MALE PIN	PE-CON7055	.
	1	BLUE (AWG 22) WIRE x 42" LG.	PE-W1036	.
	1	PINK (AWG 22) WIRE x 42" LG.	PE-W1060	.
	1	YELLOW (AWG 22) WIRE x 42" LG.	PE-W1035	.
	1	WHT/GRY (AWG 22) WIRE x 42" LONG	PE-W1048	.
	1	WHT/BRN (AWG 22) WIRE x 42" LONG	PE-W1046	.
	1	WHT/PUR (AWG 22) WIRE x 42" LONG	PE-W1049	.
	1	GRY (AWG 22) WIRE x 42" LONG	PE-W1039	.
	2	WHT/YEL (AWG 22) WIRE x 42" LONG	PE-W1044	.
	2	DB MALE SCREW RETAINER	PE-CON2002	.

NOTE: INSTALL 1/4" X 6" LONG SHRINK TUBE AT TERMINAL END AT ASSEMBLY.

WIRING FOR 3600, 3600a, 3600aCE, 3600AB and 3600-ST



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TITLE: 3600-PA SERIES APPLICATOR: ELECTRICAL	PART: APPLICATOR TO ZEBRA or 'A' CLASS DATAMAX INTERFACE HARNESS	Dept. Code 70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600
7	ADDED BLANK LABEL TO 3600ST	01-16-19	dkm	1=2	01/23/01	BOB S.	238\PE-238-0418

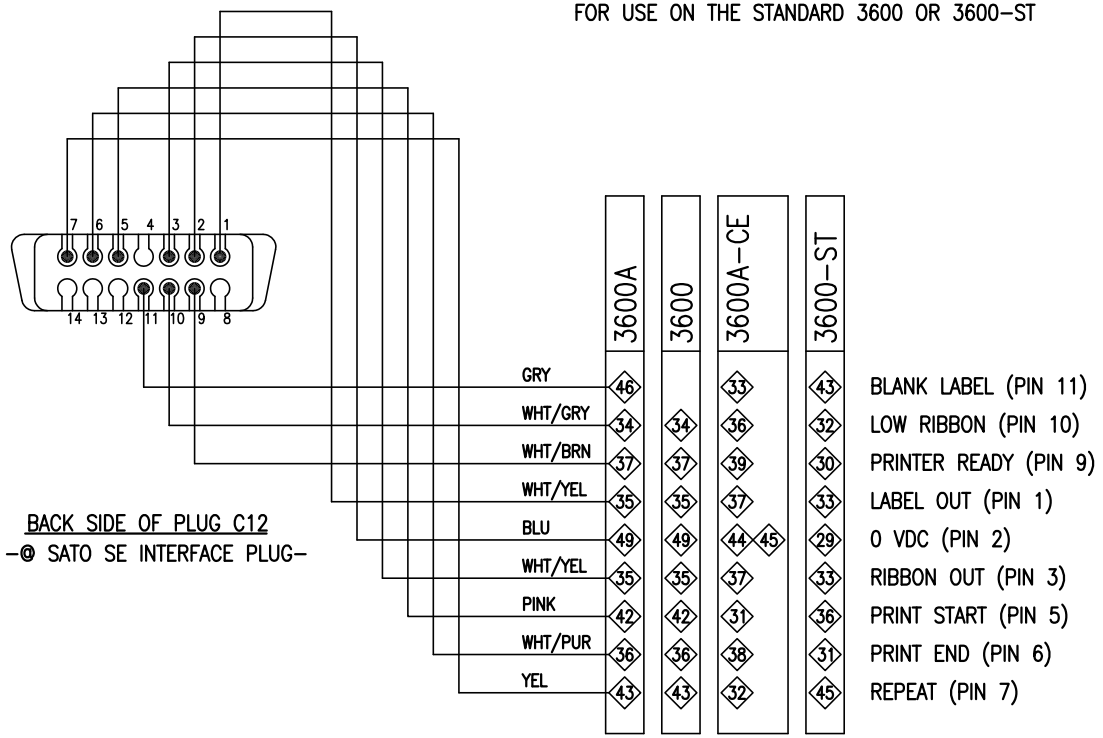
PE-238-0420

BILL OF MATERIAL				SOLD
ASSEMBLY		PE-238-0420		.
ITEM	QTY	ITEM DESCRIPTION	CTM PART NUMBER	
①	1	SATO I/F PLUG	PE-PL1100	.
	1	WHT/GRY (AWG 22) WIRE x 42" LONG	PE-W1048	.
	1	WHT/BRN (AWG 22) WIRE x 42" LONG	PE-W1046	.
	2	WHT/YEL (AWG 22) WIRE x 42" LONG	PE-W1044	.
	1	BLUE (AWG 22) WIRE x 42" LG.	PE-W1036	.
	1	PINK (AWG 22) WIRE x 42" LG.	PE-W1060	.
	1	WHT/PUR (AWG 22) WIRE x 42" LONG	PE-W1049	.
	1	YELLOW (AWG 22) WIRE x 42" LG.	PE-W1035	.
	1	GRY (AWG 22) WIRE x 42" LG.	PE-W1039	.

-SOLDER WIRES INTO CONNECTOR.
-SLIDE 3/32" X 3/8" LONG SHRINK TUBE OVER SOLDER CONNECTIONS OF EACH WIRE.
-APPLY 3/8" X 3" LONG SHRINK TUBE OVER ALL THE WIRES LEAVING A 1/8" GAP BETWEEN THE 3/32" AND 3/8" TUBE.
-REMOVE THE CLAMPS ON THE CONNECTOR HOUSING BY DRILLING THE RIVETS OUT.
-COMPLETE ASSEMBLY.

WIRING FOR 3600a, 3600-PA, 3600-ST, 3600A-CE

CTM ASSEMBLY
1.) DO NOT CONNECT THE GRAY WIRE FOR USE ON THE STANDARD 3600 OR 3600-ST



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TITLE:	PART:	Dept. Code
3600-PA/ST SERIES APPLICATOR: ELECTRICAL	APPLICATOR TO SATO SE INTERFACE HARNESS	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	
4	ADDED BLANK LABEL TO 3600ST	01-16-19	dkm	1=2	01/23/01	BOB S.	F:\Engineering\Standard Parts\Applicator\3600 238\PE-238-0420

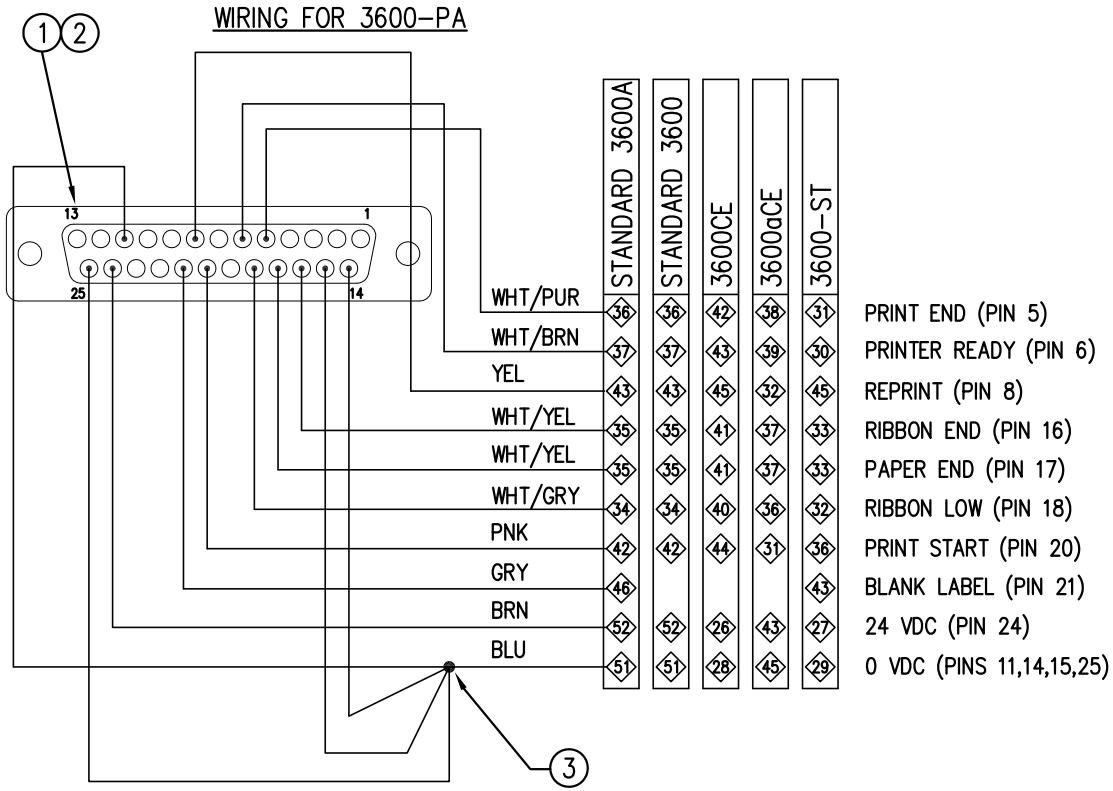
PE-238-0431

BILL OF MATERIAL

PE-238-0431

ITEM	QTY	CTM PART NUMBER	PART DESCRIPTION
①	1	PE-CON2058	MALE PLUG CONNECTOR – 25 PIN
②	12	PE-CON7055	MALE PIN
③	1	PE-ST1005	1/8"ø SHRINK TUBE x 1" LG
◯	1	PE-ST1015	1/4"ø SHRINK TUBE x 6" LG
◯	1	PE-W1036	22 AWG BLU WIRE x 42" LG
◯	1	PE-W1060	22 AWG PNK WIRE x 42" LG
◯	1	PE-W1035	22 AWG YEL WIRE x 42" LG
◯	1	PE-W1048	22 AWG WHT/GRY WIRE x 42" LG
◯	1	PE-W1046	22 AWG WHT/BRN WIRE x 42" LG
◯	1	PE-W1049	22 AWG WHT/PUR WIRE x 42" LG
◯	1	PE-W1037	22 AWG BRN WIRE x 42" LG
◯	1	PE-W1039	22 AWG GRY WIRE x 42" LG
◯	2	PE-W1044	22 AWG WHT/YEL WIRE x 42" LG
◯	2	PE-CON2002	DB MALE SCREW RETAINER

NOTE: INSTALL 1/4" X 6" LONG SHRINK TUBE AT TERMINAL END AT ASSEMBLY.



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TITLE:	PART:	Dept. Code
3600-PA/ST SERIES APPLICATOR: ELECTRICAL	SATO S84/6 EX PRINT ENGINE PRINTER HARNESS	70

REV.	REV. DESCRIPTION	REV. DATE	REV. BY:	Scale:	Date:	DRAWN BY:	F:\Engineering\Standard Parts\Applicator\3600
6	REVISED TERMINATION LOCATIONS OF BRN & BLU WIRES	07/03/19	BNT		09/29/14	DLM	238\PE-238-0431