# SKID-LOCK® UNITIZING SYSTEMS AUTOMATIC APPLICATOR INSTRUCTION MANUAL

## Model # SLUSD-020

**June, 16**

V4

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## INTRODUCTION

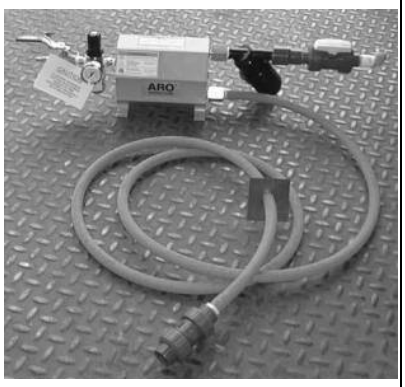
Thank you for purchasing our automatic SKID-LOCK® applicator, model SLUSD. This system represents our fourth generation of automatic applicators, beginning with a 115 volt non-PLC unit in the summer of 1992. The second generation (Fall 1992) introduced a 24 volt dc unit using a Programmable Logic Controller (PLC) housed in a stainless steel cabinet.

The current generation is also 24 volt dc with 100-240 volt input. It uses more compact photo electric eyes, the same reliable spray valves, and PLC. This new generation incorporates micro-solenoids mounted onto the spray valves, providing much faster reaction time, especially in REMOTE INSTALLATIONS.

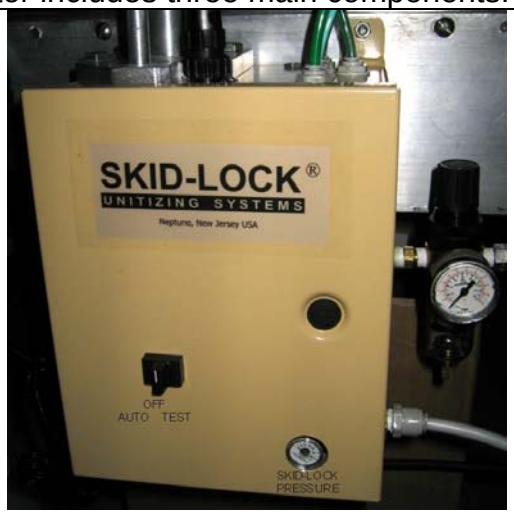
This system was designed and assembled from the ground up by Gluefast engineers. The result is a more compact, simpler, and easier-to-use applicator t. It will effectively apply SKID-LOCK, and with the normal maintenance procedures found in this manual, it will have a long service life.

## THE BASICS

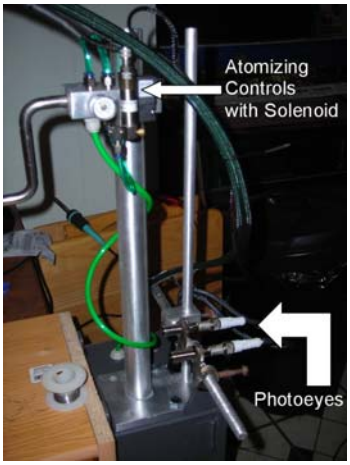
The automatic applicator includes three main components:




Pumping Station




Control Box




Spray Arm Assembly

1. The PUMPING STATION consists of a pump which is mounted onto a wall or a special 55 gallon drum cover. Our ¼" wall mountable pump is shown above left. The PUMPING STATION supplies the liquid to one or more automatic applicators. It consists of an air inlet lockout valve, air filter/regulator, double diaphragm pump, liquid filter, in-feed hose, material outlet hose, and liquid shut-off valve.
2. The CONTROL BOX (photo above in the center) consists of a painted metal cabinet with the PLC and controls to determine the amount of product applied.
3. SPRAY ARM ASSEMBLY (photo above at right) consists of:
   A. A vertical support rod which holds the PHOTO EYES and their horizontal support rod.
   B. A vertical support shaft which holds an ATOMIZING CONTROL MOUNTING BLOCK into which is fitted a horizontal rod to which the SPRAY VALVES are attached. Each SPRAY VALVE has an ACTUATING SOLENOID.

   The SPRAY ARM ASSEMBLY is mounted on the top of the CONTROL BOX or, if conveyor space is tight, it can be mounted on the conveyor with the CONTROL BOX mounted nearby (called a REMOTE INSTALLATION). In either case, the SPRAY VALVES are attached to a horizontal rod which is placed directly over the conveyor.

## WARRANTY

This equipment is covered by a limited one year warranty. All parts are covered, except for normal wear and tear. Normal maintenance procedures are required as outlined later on in this manual.

Gluefast will repair or replace or repair any warranty part at no charge. If the customer returns the equipment to the manufacturer we will do the repair work with no labor charge. If the customer prefers we will ship a replacement part for the customer to install. However, Gluefast is not responsible for any downtime, loss in production, or customer labor costs involved in repairing any equipment covered by this warranty.

## UNPACKING THE EQUIPMENT

Please carefully unpack all parts and inspect for damage. If there is any damage contact Gluefast immediately. Temporarily save all packing material.

Check all fittings, bolts, nuts, hoses, and other components before putting into service.

# CAUTION!

WHEN INSERTING TUBING INTO FITTINGS, BE SURE TUBE IS SEATED FIRMLY AND WILL NOT PULL OUT. CHECK FOR LEAKS AT INITIAL START UP AND RECHECK PERIODICALLY FOR THE FIRST TWO DAYS. THIS IS ESPECIALLY CRITICAL FOR THE LIQUID PRODUCT TUBING, AS IT WOULD TAKE LESS THAN AN HOUR FOR A DISCONNECTED HOSE TO SPILL HUNDREDS OF POUNDS OF PRODUCT.

NOTE: THE SKID-LOCK® FAMILY OF PRODUCTS ARE WATER BASED AND WILL FREEZE WHEN EXPOSED TO TEMPERATURES BELOW 32° FAHRENHEIT ( ZERO DEGREES CENTIGRADE ). BE CERTAIN THAT THE PRODUCT IN THE CONTAINER AND GLUE LINES DOES NOT FREEZE WHICH COULD DAMAGE THE PRODUCT AND RUPTURE THE GLUE LINES. THIS COULD RESULT IN EMPTYING THE CONTAINER OF ADHESIVE!

BE SURE TO TURN OFF AIR SUPPLY TO PUMPING STATION WHEN SHUTTING DOWN FOR A SHIFT!

## INSTALLATION

LOCATION & ASSEMBLY:

1. The SPRAY ARM ASSEMBLY should be installed on the conveyor where there is little or no chance of two cartons touching each other. A "speed up conveyor" is usually the ideal location. Automatic palletizers have a speed up conveyor so that the photo eyes associated with counting the cartons for the palletizer will get an accurate count. This is an ideal location to install the SPRAY ARM ASSEMBLY unless you are using an SL-POLY product. If you are using SKID-LOCK and must place the SPRAY VALVES farther from the palletizer, you can reduce or eliminate atomizing to lengthen the open time. "Open time" starts when adhesive is applied and ends when the next item is placed on top.

   SL-POLY products have to "air dry" to work properly. With these products all of the water should evaporate before contact is made with the next item on the pallet. Therefore, it may be more beneficial to locate the SPRAY VALVES farther from the palletizer. If the items being unitized are shrink wrapped, applying these products immediately after the shrink film tunnel will results in the fastest evaporation time.
2. If this is to be a REMOTE INSTALLATION (the SPRAY ARM ASSEMBLY is mounted on the conveyor but the CONTROL BOX is mounted elsewhere) find a suitable means to attach the SPRAY ARM ASSEMBLY on or near the conveyor so that the horizontal arm holding the SPRAY VALVES swings over the conveyor. The CONTROL BOX should be mounted onto a wall or firm object nearby. For more details see the next page.
3. If this is not a REMOTE INSTALLATION the SPRAY ARM ASSEMBLY is mounted directly on top of the CONTROL BOX. If the optional AUTO RETURN MECHANISM & ALARM FOR SPRAY ARM is included there will be a black wire leading from a PROXIMITY SWITCH on the lower part of this section. Attach this wire to its mate (labeled PROXIMITY SWITCH CONNECTOR) located inside the CONTROL BOX.
4. Be sure that the item the CONTROL BOX will be mounted to can support its weight adequately.
5. There are two PHOTO ELECTRIC EYES. The PHOTO EYE which senses the item to be sprayed first should be plugged into the receptacle marked PHOTO EYE #1.
6. The power supply is effective in a voltage range between 100 volts and 230 volts. It may be necessary to change the plug depending on your location.
7. Install the hoses as required, matching the color of the hoses to the colors on the fittings. The black hoses are for ATOMIZING AIR while the red hoses are for ACTUATING AIR (turns the spray valve on and off). The Presto-Lok fittings require a "clean cut". Be certain to insert firmly and all the way to lock securely. When pressurizing the system for the first time use low pressure and check for leaks.

## INSTRUCTIONS FOR REMOTE INSTALLATION PACKAGE "D"

The following items are included:

1. The EXTERNAL WIRING/GLUE HARNESS will have an additional 20 feet of translucent glue hose.
2. An EXTENSION WIRING HARNESS that connects the EXTERNAL WIRING/GLUE HARNESS with the CONTROL BOX.

## INSTALLATION

Be certain that the CONTROL BOX and the SPRAY ARM ASSEMBLY are securely fastened to a wall, conveyor, or an object suitable to support these items. Be certain that the hoses and cables are tied and out of the way of normal traffic. Avoid sharp turns which may cause failure of the hoses or cables.

1. Place the cap plug(s) on the top of the CONTROL BOX if they are not already installed.
2. For a Remote System you will need to attach the Extension Cable to the WIRING HARNESS INPUT on top of the CONTROL BOX.
3. Attach translucent tubing 5/16" - (glue lines) to the top of the CONTROL BOX.
4. Attach the solid green hose - 1/4" - to the top of the CONTROL BOX and attach the other end to the fitting on the bottom of the ATOMIZING CONTROL MOUNTING BLOCK.
5. If you have the optional AUTO RETURN MECHANISM & ALARM FOR SPRAY ARM there will be a connector labeled PROXIMITY SWITCH CONNECTOR.

Follow all other instructions for operating this system. Be certain that there are no leaks before allowing liquid to travel to through the CONTROL BOX**.**

**Check for leaks inside the CONTROL BOX the first time product flows!**

# OPERATORS MANUAL FOR THE SKID-LOCK® UNITIZING SYSTEM

## MODEL SLUSD

### SKID-LOCK® PUMPING STATION INSTRUCTIONS

### MODELS SLUSB-14DM, SLUSB-14WM,SLUSB-0012DM, & SLUSB-0012WM

Two double diaphragm pumps are available. The ¼ inch pump can be mounted in any direction and is suitable for one or two CONTROL BOXES. The ½ inch pump is suitable for several CONTROL BOXES depending on the distance from the pump. The ½ inch pump must be mounted upright with the stand on the bottom. Mounting this pump in any other direction will cause problems! Fifteen feet (5 meters) of half inch outlet hose is provided. If the distance from the pump to the CONTROL BOX exceeds 100 feet (15 meters), or if one pump is to serve more than 5 CONTROL BOXES, we recommend using 1 inch hose. Both pumps include:

AIR VALVE, ON/OFF - This is an OSHA approved lock out type shut off valve.
AIR REGULATOR/GAUGE/FILTER - Controls the air pressure into the pump and filters water from the air line.
FILTER, LIQUID - Filters the liquid as it exits the pump.
LIQUID VALVE - Located after the Filter, this allows filter replacement without having to depressurize the entire system.
BLUE HOSE, IN-FEED - Brings liquid from the container to the pump.
FOOT VALVE or CHECK VALVE - Located at the end of the BLUE IN-FEED HOSE, this one way valve prevent back flow of liquid when changing containers.

The ON/OFF AIR VALVE & AIR REGULATOR/GAUGE/FILTER assembly must be carefully screwed into the pump where it is marked "AIR INLET". The LIQUID FILTER & LIQUID VALVE assembly must be carefully screwed into the pump where it is marked "LIQUID OUTLET".

**BE CAREFUL NOT TO STRIP PARTS WHEN ASSEMBLING!**

### PUMPING STATION OPTIONS

LOW LEVEL ALARM - This consists of a control box and a tube with a float device which is inserted into the container of product. The operator can adjust the height of the float which senses when the level of liquid in the container is getting low. A fault condition exists when the level in the container falls below the float, triggering a RED FAULT LIGHT and an audible alarm, both located on the control box. A switch on the control box allows the operator to turn off the audible alarm. The float and tube should be wiped clean when changing containers. See separate instructions for details.

## CONTROL BOX OPERATOR CONTROLS



SLUSD-020-int
Gluefast Co.
Neptune, NJ USA

SWITCH - Illuminated Power Switch on left side of box
This removes all power to the CONTROL BOX including the Programmable Logic Controller (PLC) and the 24 volt dc power supply.

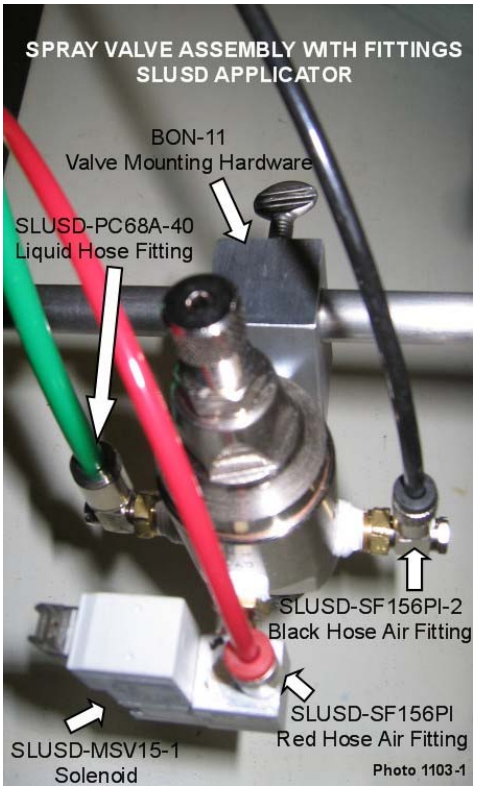
SWITCH - 3 Position Switch AUTO/OFF/TEST
TEST - This is a manual override of the PHOTO EYES and activates the SPRAY VALVES. Spray will continue until the switch is moved to the OFF position or after a timer automatically shuts the spray heads off in 10 seconds. To continue test spraying after the 10 second shut-off, turn the switch to the OFF position and then to the TEST position.
OFF - This position shuts down the applicator and resets the 10 second timer.
AUTO - This position places the SPRAY VALVES under the control of the PLC. In this case, when both PHOTO EYES sense an item in the correct sequence (PHOTO EYE #1 first, then PHOTO EYE #2), the SPRAY VALVES apply product until PHOTO EYE #1 no longer senses an item.

REGULATOR – LIQUID / Glue Pressure Gauge
This controls the liquid pressure from the CONTROL BOX to the SPRAY VALVES.

SAFETY TIMER – There are two Philips head screw located on the PLC.
This item is provided to prevent prolonged spraying should an item stop in front of both PHOTO-EYES in the AUTO mode. The timer is factory preset to 4 second. If the item to be sprayed is very long or the conveyor moves very slowly, the SAFETY TIMER can easily be changed by turning the top adjusting screw clockwise and the bottom screw counterclockwise to increase the time,
*CAUTION:* Turning the SAFETY TIMER too low can mean:

1. Spray application may stop too soon, resulting in only partial coverage of the item to be sprayed.
2. The system may not spray items which should be sprayed.

## SPRAY ARM ASSEMBLY




This includes the vertical support column which supports a horizontal rod containing the SPRAY VALVES, and a narrower vertical support column which supports a horizontal rod containing the two PHOTO EYES. The SPRAY ARM ASSEMBLY can be mounted directly on top of the CONTROL BOX or it can be mounted on the conveyor (as in a REMOTE INSTALLATION).

PHOTO ELECTRIC EYES
Mounted on brackets which sit on a horizontal rod attached to a vertical rod just behind the vertical support column. PHOTO EYE #1 must be the first to sense a item. Spraying begins when both PHOTO EYES sense an item. Spraying halts when one, or both, PHOTO EYES no longer sense an item. Spraying begins after the item has passed PHOTO EYE #2 and a second item is detected by both PHOTO EYES. Set the height of the PHOTO EYES low enough to detect the lowest item on the conveyor.

**Please note: The green hose shown for liquid in the photo above is now a clear hose!**

PHOTO EYE SENSITIVITY

The PHOTO EYES have been set to sense an item 8-10" (25 cm) away. When an item is sensed, the "light" indicator turns on.

SPRAY VALVES (See drawings SLUS-SN-1194-E & 7042-1108 on pages 25-26)

SHUT OFF NEEDLE - Seats against FLUID CAP to stop flow of product.

FLUID CAP - Controls the atomizing air and liquid air. If the SPRAY VALVE clogs remove the fluid cap and clean the central opening.

AIR CAP - Focuses the air and liquid so that atomizing will occur outside the SPRAY VALVE. This should be parallel to the conveyor.

RETAINER NUT - Locks the AIR CAP onto the FLUID CAP.

LIQUID PRESSURE ADJUSTING SCREW - Allows for individual variation in the amount of product applied for each SPRAY VALVE. Turning this screw completely clockwise will prevent the application of any product.

***CAUTION*: If you tighten this screw all the way and you remove the FLUID CAP product will flow because there is nothing for the SHUT OFF NEEDLE to seat against! Inside the CONTROL BOX is a Turn off the BALL VALVE (SHUT OFF) that should be closed *before* removing the FLUID CAP!**

## OPTIONAL ITEMS FOR THE CONTROL BOX

Not applicable for this system.

## INITIAL SET-UP

1. Place the BLUE INLET HOSE into the adhesive container. If a tote is being used you may attach it to the side outlet of the tote. If you have the optional LOW LEVEL ALARM for use with the tote you must pump liquid from the side opening of the tote.
2. If you have the optional LOW LEVEL ALARM see the separate instructions for use.
3. When priming the pump be sure the LIQUID VALVE located just beyond the filter is open. Turn on the pump to 60 psi air (4 bar). The range is between 40-100 psi. The wall mounted pump has a longer inlet hose and may have difficulty priming. If the pump does not shut off, increase the pump air pressure. If it still fails to prime:
   A. Temporarily lower the pump or raise the container of adhesive.
   B. Reduce the length of blue inlet hose.
   C. The Check Valve (or Foot Valve for totes) on the end of the blue inlet hose prevents back flow. If the container is not completely dry when changing to a full container the pump will not have to be primed again. If initial priming is a problem remove the Check or Foot Valve to prime.
4. After attaching the SPRAY ARM ASSEMBLY on the CONTROL BOX using the bolts provided, attach the ¼" diameter solid green hose to the Air Atomizing fittings on the CONTOL BOX and the MOUNTING BLOCK. Connect the three 5/16" translucent green hoses from the SPRAY VALVES to the LIQUID HOSE fittings on the top of the CONTOL BOX. Everything should be clearly marked to make this a simple task.
5. After following the previous instructions for set-up, adjust the SPRAY VALVES so that they will be about 3 inches (7 cm) from the top of the carton, bag, etc., on the conveyor. If random size items are to be on the same line, see the section marked SETTING FOR RANDOM SIZE ITEMS later in this manual. SPRAY VALVES should be adjusted so that they are about one-third of the way in from the longitudinal edge of the carton.
6. Turn the SKID-LOCK PRESSURE on the CONTROL BOX counter clockwise until it is almost loose. This will insure that no liquid will enter the CONTROL BOX initially. Turn the BALL (SHUT-OFF) VALVE located inside the CONTROL BOX to the off position (horizontal). Turn on the pump to 60 (4 bar) psi initially (recommended operating range is 40-100 psi). Be sure that the LIQUID VALVE located just beyond the filter is in the open position.
7. Check inside the CONTROL BOX to be certain that there are no liquid leaks so far. If there are leaks, close the LIQUID VALVE on the pump and fix the leak.
8. With the TEST/OFF/AUTO switch in the TEST mode, observe the ATOMIZING PRESSURE and adjust the pressure to 10 psi. The AIR ATOMIZING ASSEMBLY includes the device needed to control atomizing air. Later you can adjust the pressure to avoid over spray and misting. By setting the ATOMIZING PRESSURE to zero the product is applied in a solid bead. This allows very long open time but it will also lengthen setting time. ("Open time" starts when adhesive is

applied and ends when the next item is placed on top.) Fine misting is not necessary for most applications, except SL-POLY products. See the addendum entitled USING SL-POLY PRODUCTS IN THE AUTOMATIC APPLICATOR.

9. If you have the optional OPERATOR INTERFACE, adjust the SKIP-TIME and SKIP-COUNT features to "000" as mentioned earlier in the instruction manual.
10. Turn the unit on AUTO and allow an item (carton, bag, etc.) to move on the conveyor. When the item is detected by both PHOTO EYES the noise you will hear is the atomizing air coming from the SPRAY VALVES. There should be no product spraying yet. (If there are problems with the PHOTO EYES detecting the items, see the addendum at the end of this section for instructions.) If you have the optional NO FLOW DETECTION the audible alarm will sound. You can shut off the alarm by touching the green (+) button on the OPERATOR INTERFACE.

    You should "hear" the SPRAY VALVES turning on and off approximately 2 inches (5 cm) from the start and end of the item being sprayed. Move the PHOTO EYES left or right to make adjustments. Moving PHOTO EYE #1 farther away from PHOTO EYE #2 will shut off the SPRAY VALVES sooner. Moving PHOTO EYE #2 closer to PHOTO EYE #1 will make the SPRAY VALVES turn on sooner.
11. Slowly increase SKID-LOCK PRESSURE to 5 psi, open SHUT-OFF VALVES located inside the CONTROL BOX and check again for leaks. (You may also need to loosen the LIQUID PRESSURE ADJUSTMENT SCREW on the SPRAY VALVE counter clockwise.) Place a container below the SPRAY VALVES and turn the switch to the TEST position. Product will begin flowing toward the SPRAY VALVES.

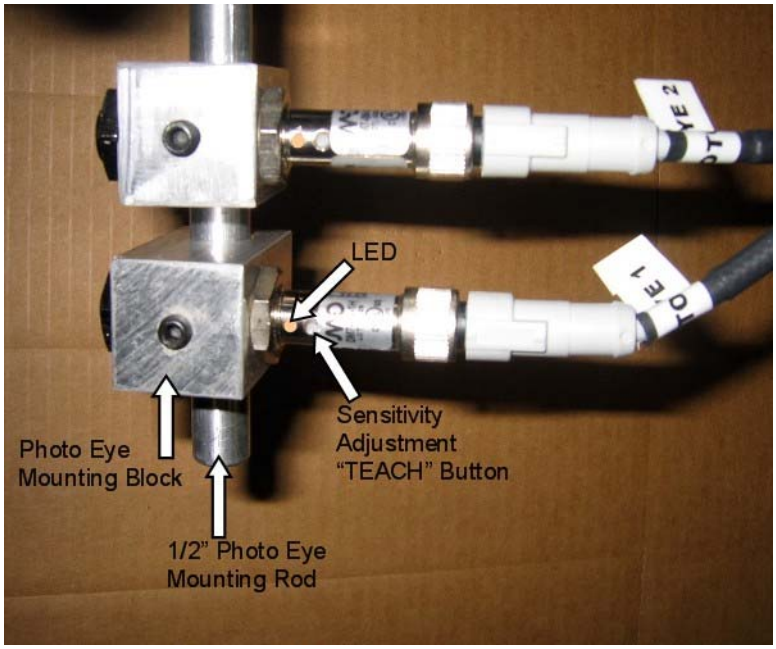
    Alternatively, you can leave the switch on the OFF position, making certain that the SHUT-OFF VALVES located inside the CONTROL BOX are in the off position (horizontal). Then carefully unscrew the two FLUID CAPS, being careful to keep the gaskets with the FLUID CAPS. Open SHUT-OFF VALVES and monitor carefully. Product will begin to flow. Allow product to flow into the container until all of the air is out of the lines. Turn the SHUT-OFF VALVES to the OFF position, carefully wiping adhesive from the SHUT OFF NEEDLE, replace the FLUID CAPS with gaskets, and remove the container. Open the SHUT-OFF VALVES.
12. You should be ready to fine tune the system. The amount of product to be applied depends on many factors. A good starting point is 1 gram per linear foot (30 cm) of product applied per SPRAY VALVE (20% of that when using an SL-POLY adhesive). If you test a pallet an hour later and the adhesive is still wet between the top two tiers you are probably applying too much product. If your cartons are not flat and square, some of the SKID-LOCK may not make good contact with the carton above it, resulting in a weak bond on the top layer of cartons. You may have to reposition the SPRAY VALVES so that product is applied on the part of the carton that will make the best contact with the one above.

    Be certain to test the stability of the unitized load before using the optional SKIP GLUE feature. The TOP TIER ELIMINATOR feature can be used immediately. If you use an automatic palletizer, you can use the TOP TIER ELIMINATOR feature or you can send a signal from the automatic palletizer to eliminate spraying of the top tier. See the next section for details.

***CAUTION:*** The end user is responsible for the stability of the load. Be certain to test carefully before shipping palletized loads!

## Adjusting the Photo Eye Sensitivity

Position the target object at the sensing distance required, checking that the optical axis is perpendicular to the surface of the object. Assuming the worst possible conditions (object smaller and object or part of the object is darker than the background), position the object at the furthest possible point from the sensor. Press the TEACH (white button next to the LED) for 2-5 seconds until the LED switches on constantly. The threshold is set at 50% of the detected signal, thus giving the device a standard sensitivity adjustment. Remove the object and check that the LED has switched off.



**SETTINGS FOR RANDOM HEIGHT ITEMS**

If there are to be random size cartons, bags, etc. on the conveyor feeding into a single CONTROL BOX, we recommend the following adjustments:

1. Adjust the height of the SPRAY VALVES so that they will be 2 inches (5 cm) from the top of the highest item.
2. Adjust the location of the SPRAY VALVES on the horizontal support arm so that they will apply product near the outer edge of the item with the smallest width.
3. Reduce the ATOMIZING PRESSURE as low as possible to prevent over spray.
4. Adjust the height of the PHOTO EYES so that they will be able to target the lowest item height.
5. Adjust the location of PHOTO EYE #2 so that the SPRAY VALVE starts applying product 1-2 inches (3-5 cm) from the leading edge of the tallest item.
6. Adjust the location of PHOTO EYE #1 so that the SPRAY VALVE stops applying product 1-2 inches (3-5 cm) from the trailing end of the shortest item.

## USING AN AUTOMATIC PALLETIZER TO CONTROL SPRAY VALVES SO THAT NO PRODUCT IS APPLIED ONTO THE TOP TIER

If you have an automatic palletizer an electrical engineer and/or an electrician can arrange for a dry signal to be sent from the palletizer to the CONTROL BOX to omit the application of adhesive from the top tier of cartons, bags, etc. Attach the wiring to both yellow terminal blocks labeled D1 & D2 as in the photo shown to the right.


*NOTE:* If you have the optional OPERATOR INTERFACE and you are sending a dry signal from the palletizer to eliminate spraying the top tier, be certain that the SKIP COUNT is set to "000".

## USING THE INHIBIT CONTACTS TO PREVENT THE APPLICATION OF ADHESIVE WHEN AN ITEM STOPS IN FRONT OF BOTH PHOTO EYES

To prevent the “flooding” of adhesive on items that have stopped in front of both PHOTO EYES, an electrician can arrange for a dry signal sent to the yellow terminal blocks labeled D1 & D2 as in the photo shown above when the conveyor motor stops.

# MAINTENANCE WHEN USING A SKID-LOCK® FORMULA

## *PRECAUTIONS*

When shutting down for a shift we recommend the following procedure:

1. Shut off the AIR VALVE and LIQUID VALVE on the pump. If this procedure is not followed an entire container of product could be emptied should there be a break in the line!
2. Shut off the AIR VALVE and POWER SWITCH on the CONTROL BOX.

## DAILY MAINTENANCE

When using most SKID-LOCK® products, the automatic applicator should not require daily maintenance, except for inspection to be sure that the proper amount of product is being applied. However, it is recommended that food grade grease or petroleum jelly be placed on the tip of the SPRAY VALVE nozzle. Startup the next day should not require much, if any, adjustment.

## WEEKEND SHUTDOWN

If the system is to be shut down over the weekend, be sure to follow the *PRECAUTIONS* listed above. In addition, we recommend that a "dab" of petroleum jelly or an FDA approved grease be applied onto the tip of the SPRAY VALVE. This will prevent the product from drying in the FLUID CAP, resulting in a full or partial clog.

## WEEKLY MAINTENANCE

Drain any water from the FILTER mechanism on the AIR REGULATOR located on the PUMPING STATION and the CONTROL BOX. Water in the air lines can result in premature failure of the solenoids.

Clean the LIQUID FILTER! *CAUTION: USE GOGGLES!* Turn off the AIR VALVE to the pump, close the LIQUID VALVE (just after the LIQUID FILTER). Note that the liquid in the filter is pressurized! Place a container under the LIQUID FILTER and *SLOWLY* unscrew the plastic housing. Remove the screen and wash thoroughly with soap and water. Replace the screen, tighten the plastic housing, and open the AIR VALVE and LIQUID VALVE.

If you have the optional LOW LEVEL ALARM you should clean the float and tube when changing containers. Be certain that the float moves freely.

## CLOGGING

If one of the SPRAY VALVES becomes partially clogged you may be able to temporarily compensate by adjusting the LIQUID PRESSURE ADJUSTING SCREW located on top of the SPRAY VALVE. However, the FLUID CAP should be cleaned as soon as possible. It is a good idea to keep an extra pair of FLUID CAPS available.

Inside the CONTROL BOX ARE shut-off valves for each glue line. Be sure to close the shut-off valve to the clogged SPRAY VALVE. Remove the RETAINER NUT and AIR CAP, then slowly unscrew the FLUID CAP. Do not lose the gasket. Clean the exposed SHUT-OFF NEEDLE.

Clean the FLUID CAP with soap and water. A small paper clip may be used to clean the orifice. Blow out the remaining water in the FLUID CAP and hold it up to the light. You should be able to easily see through the opening. Screw the FLUID CAP back onto the SPRAY VALVE, remembering to use the gasket. *DO NOT OVER TIGHTEN!* Replace the AIR CAP and RETAINER NUT, being certain that the AIR CAP is perpendicular to the conveyor.

## USING AN SL-POLY PRODUCT

This system was ordered for use with an SL-POLY product so that the standard and FLUID CAP 40100 has been replaced with FLUID CAP 2850. **(See SPRAY NOZZLE ASSEMBLY drawing #SLUSD-SN-1194-E).** The smaller orifice in FLUID CAP 2850 used when applying an SL-POLY product allows for better fluid control. This set up will also work well with other SKID-LOCK formulations.

Adjust the SKID-LOCK PRESSURE gauge to 5 psi or more and use the LIQUID PRESSURE ADJUSTING SCREW located on top of the SPRAY VALVE to reduce the amount of product being applied (see diagram #SLUSD-SN-1194-E on page 25). Pressure requirements may vary. The ATOMIZING AIR PRESSURE should be adjusted to 60 psi or more. Follow all of the instructions in this manual. The PHOTO EYES may have to be readjusted to apply product no closer than the leading and trailing 3 inches (8 cm) of the bag, carton, etc.

SL-POLY products, unlike the standard SKID-LOCK products, must air dry *before* the next item is placed on top. A very thin film is applied, typically only 20% as much as with other formulations. A good starting point for testing purposes is 0.1 to 0.2 grams per linear foot (30 cm) applied per spray head. SL-POLY products are white when liquid, clear when dry. If these adhesives are still wet when the next carton or bag is placed on top, the bond strength will be less when applied on plastic, or may result in fiber tearing if applied for use on paper surfaces.

If an SL-POLY product is being applied on the top of shrink wrapped items, it is a good idea to place the SPRAY ASSEMBLY just past the shrink film tunnel. The heat of the film will help dry these products more quickly.

These adhesives will begin to dry inside the tip of the FLUID CAP after a few minutes of inactivity. However, on the next spray cycle the dried material will be forced out and normal spraying will resume.

## MAINTENANCE WHEN USING AN SL-POLY PRODUCT OR SKID-LOCK-C97

SL-POLY products are high solids, water based products. Clogging can occur with these products because of its tacky, pressure sensitive nature, low water content, and fast drying properties.

If the applicator is not to be used for any extended period of time (one hour or more) we recommend that a "dab" of petroleum jelly or an FDA approved grease be applied onto the tip of the FLUID CAP. This will prevent the product from drying on the SHUT-OFF NEEDLE, resulting in a full or partial clog with down time.

To clean SL-POLY products you can soak the FLUID CAP in any of the commercially available non-toxic "citrus" cleaners (Delimonine, an orange peel derivative). Be sure the tip of the FLUID CAP is clean before returning it to service. When it is clean you will be able to hold it up to a light and see through the tip. A thin metal rod (about 0.25 inch or 0.64 mm) the thickness of an office staple may be used to dislodge some of the dried or gummy adhesive. You can also spray silicone onto the clean fluid cap & air cap to reduce adhesive buildup. Change the FLUID CAP and AIR CAP daily for best results.

For a stronger, more aggressive cleaner you may use acetone. This is a fast drying, noxious, flammable cleaner. Be sure to use with adequate ventilation and refer to the appropriate Material Safety Data Sheet for acetone before using this solvent.

If a SPRAY VALVE is clogged or if it is applying less product than the other valve, put on a clean FLUID CAP and soak the clogged one in one of the cleaning agents described above.

## ***PRECAUTIONS***

When shutting down for a shift we recommend the following procedure:

1. Shut off the AIR INLET VALVE and LIQUID VALVE on the pump. If this procedure is not followed an entire container of product could be emptied should there be a break in the line!
2. Shut off the AIR INLET VALVE and POWER SWITCH on the CONTROL BOX.

## WEEKEND SHUTDOWN

If the system is to be shut down over the weekend, be sure to follow the *PRECAUTIONS* listed above. In addition, we recommend that a "dab" of petroleum jelly or an FDA approved grease be applied onto the tip of the SPRAY VALVE. This will prevent the product from drying in the FLUID CAP, resulting in a full or partial clog.

## WEEKLY MAINTENANCE

Drain any water from the FILTER mechanism on the AIR REGULATOR located on the PUMPING STATION and the CONTROL BOX. Water in the air lines can result in premature failure of the solenoids located in the CONTROL BOX. The addition of one or two drops of SAE 10 weight or lighter oil into the air inlet of the CONTROL BOX will lengthen the life of the solenoids.

Clean the LIQUID FILTER! *CAUTION: USE GOGGLES!* Turn off the AIR VALVE to the pump, close the LIQUID VALVE (just after the LIQUID FILTER). Note that the liquid in the filter is pressurized! Place a container under the LIQUID FILTER and *SLOWLY* unscrew the plastic housing. Remove the screen and wash thoroughly with soap and water. Replace the screen, tighten the plastic housing, and open the AIR VALVE and LIQUID VALVE.

To flush the system turn the shut-off glue valves on the glue lines just before the spray valves to the “off” position and then remove the spray set-ups (FLUID CAP & AIR CAP). Place a bucket beneath the spray valves & open the shut-off valves. This will allow the glue to drain without using the control box. Once all of the glue is drained place the pump inlet hose in a bucket of water & let the water run through the system. Then place the inlet hose back in the SL-POLY container & let the system fill up with adhesive. When adhesive comes through spray valves turn off the shut-off valves & place clean spray set-ups in valves. Open the shut-off valves & you are ready to glue!

If you have the optional LOW LEVEL ALARM you should clean the float and tube when changing containers. Be certain that the float moves freely.

## RECOMMENDED SPARE PARTS LIST

| | Description | Quantity | Part # |
|---|---|---|---|
| 1. | Photoelectric Eye | One | SLUSD-DM70N1H |
| 2. | Solenoid Valve | One | SLUSD-MSV15-1 |
| 3. | Spray Set-up for Spray Valve | | |
| | For SKID-LOCK | Two | 7042-5060 |
| | For SL-POLY | Two | 7042-2850 |
| 4. | Spring (in Spray Valve) | Two | 7042-5080 |
| 5. | Filter Element | One | 6692-082 |
| 6. | Power Supply, 24 VOLT DC | One | SLUSD-T962P5PND |
| 7. | Complete Spray Valve (excluding fittings & mounting block) | | |
| | For SKID-LOCK | One | 7042-509 |
| | For SL-POLY | One | 7042-509P |

# TROUBLE SHOOTING GUIDE

SECTION A

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| Neither SPRAY VALVE applies SKID-LOCK® | Air/Electric supply off. | Turn on Air/Electric supply. |
| | One or both PHOTO EYES do not sense item | Check connections of PHOTO EYES. Sensitivity may need to be adjusted. |
| | Dirty PHOTO EYES | Clean PHOTO EYE lenses |
| | Glue supply impeded | Be sure adhesive pressure is adequate |
| | TOP TIER ELIMINATOR feature of OPERATOR INTERFACE is not synchronized. | Be sure GLUE-COUNT and SKIP-COUNT are correct. If TOP TIER ELIMINATOR feature is not being used set SKIP-COUNT to "000". |
| | SKIP-GLUE feature improperly adjusted. | Check to be sure that minimum time settings of "0.15" seconds are used. Set SKIP TIME to "0.00" if the SKIP GLUE feature is not used. |
| | Faulty 24 volt POWER SUPPLY. | Replace POWER SUPPLY. |
| | Problem with optional AUTO RETURN SPRAY ARM ALARM | Check connectors or replace proximity switch. |
| Build up of product on PHOTO EYES. | Over-spray. | Reduce ATOMIZING PRESSURE.<br>Move PHOTO EYES away from SPRAY VALVES. |
| Product is applied too close to the leading or trailing edge of item. | PHOTO EYES not properly adjusted for conveyor speed. | Adjust PHOTO EYE #1 to move location of product on trailing edge, PHOTO EYE #2 to move locations of product on leading edge.<br>Minor adjustments may be made by rotating the SPRAY VALVES on the horizontal rod, but this changes the location of both leading and trailing edges of product on the item. |

## TROUBLE SHOOTING GUIDE - SECTION B

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| Product is not being atomized. | ATOMIZING PRESSURE is too low. | Increase ATOMIZING PRESSURE. |
| | Solenoid which controls ATOMIZING PRESSURE is malfunctioning or broken. | Check wires and hose connections. Replace if necessary.<br>*Note:* Compressed air with a lot of water may result in premature failure of solenoids. |
| One or both SPRAY VALVES apply significantly less product, particularly upon start-up after a shut down period. | Clogged SPRAY VALVE(S). | Clean FLUID CAP and/or AIR CAP. SHUT OFF NEEDLE in SPRAY VALVE may also require cleaning.<br>Slight adjustment in LIQUID PRESSURE ADJUSTING SCREWS found on each SPRAY VALVE may compensate for minor variations in product applied. |
| One SPRAY VALVE will not shut off. | A clog has developed preventing the SHUT OFF NEEDLE from functioning. | Remove and thoroughly clean the SHUT OFF NEEDLE & FLUID CAP..<br>Unscrew cap (LIQUID PRESSURE ADJUSTING SCREW is mounted on the cap) from top of SPRAY VALVE. Be careful not to lose the SPRING and gasket. Remove SHUT OFF NEEDLE assembly and clean. Replace SHUT OFF NEEDLE assembly and replace SPRING and cap. |
| | The spring in the SPRAY VALVE has worn out. | Replace the SPRING following the directions above. |

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## TROUBLE SHOOTING GUIDE - SECTION C

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| There is intermittent failure to spray product on items. | GLUE COUNT/SKIP Count of the TOP TIER ELIMINATOR is not set properly | Set GLUE COUNT to the number of cartons to glue, SKIP COUNT to the number of items to skip. Touch RESET COUNT switch on top of CONTROL BOX if the count needs to be reset. |
| | SAFETY TIMER setting is too low. | Increase SAFETY TIMER interval by turning the top screw clockwise, bottom counter-clockwise |
| Conveyor stops often with item in front of both PHOTO EYES resulting in flooding of item with product. | Uncontrollable stopping of conveyor with carton stopping in front of the two photo eyes | Send a dry signal from the conveyor motor so that when the motor stops, a dry signal is sent to the two yellow terminal block labeled D1 & D2. This will prevent the system from spraying when the conveyor stops. |

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# PLC DIAGNOSTICS
# SKID-LOCK® AUTOMATIC APPLICATOR
# MODEL SLUSB & SLUSD

## LED STATUS

TEST/OFF/ON Switch set to

1. "OFF"
   IN lights - 3, 4, &7 lit
2. "TEST"
   IN lights - 3,4,5, &7 lit
   OUT lights 2,3 lit
3. "AUTO"
   IN lights - 3,4,6, &7 lit with no item in front of photo eyes
   IN lights - 0,1,3,4,6, &7 lit when detecting an item
   OUT lights 2,3 lit when detecting item
   With INHIBIT activated,
   IN lights - 2,3,4,6, &7 lit with no item in front of photo eyes
   IN lights - 0,1,2,3,4,6, &7 lit when detecting an item

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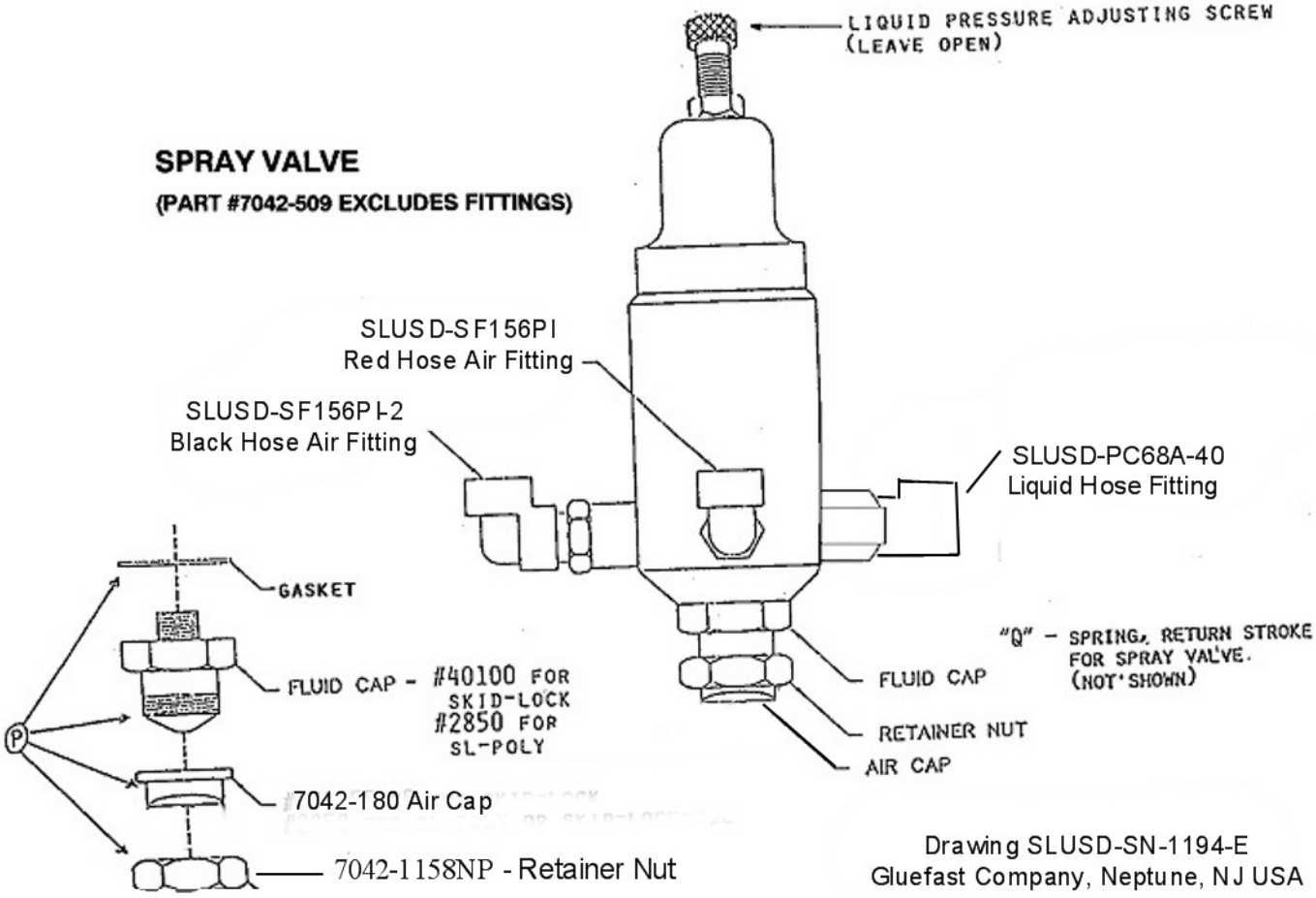
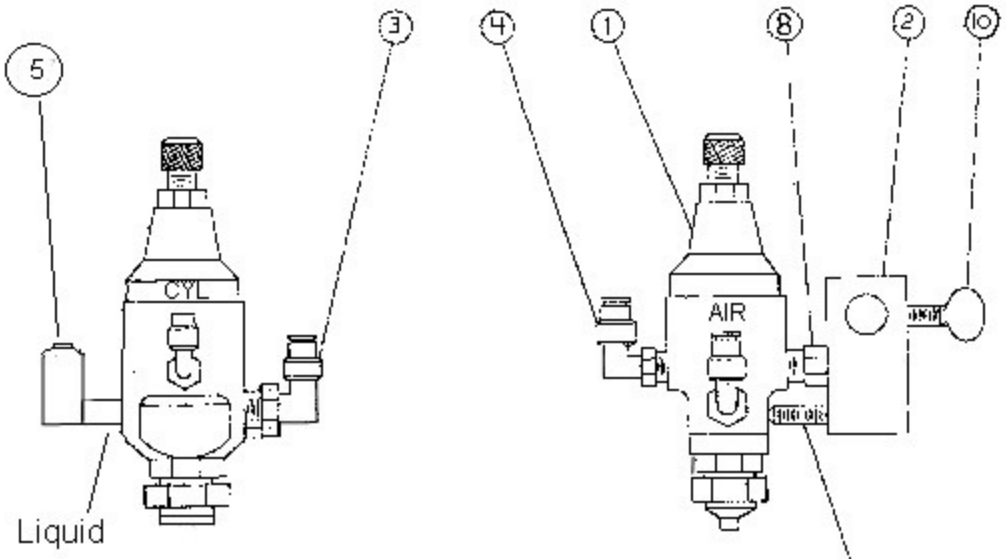
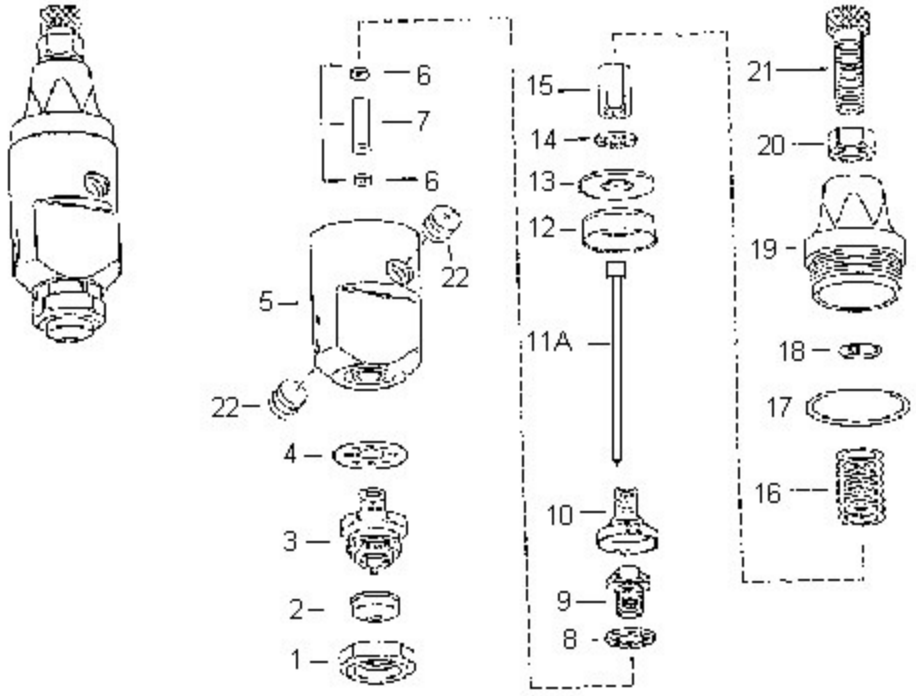
## DRAWINGS FOLLOW






Drawing 7042-1108
**MODEL SLUSB SPRAY NOZZLE SUB ASSEMBLY**

Gluefast Co., Inc.
Neptune, NJ USA




**SCHEMATIC DIAGRAM - DRAWING GF-SS-1194**

## PARTS LIST FOR SPRAY NOZZLE SUB-ASSEMBLY (509 & 509P)

| Ref. # | Part Number | Description |
|---|---|---|
| 1a. | 7042-509P | Automatic Atomizing Spray Nozzle for most SKID-LOCK products |
| 1b. | 7042-509P | Automatic Atomizing Spray Nozzle for SL-POLY & SKID-LOCK-C97 |
| 2. | 509-BON | Mounting block for spray nozzle |
| 3. | SLUSD-SF156P1-2 | Black Hose fitting for atomizing air port |
| 4. | SLUSD-SF156P1 | Red Hose fitting for actuating air port (marked CYL on nozzle) |
| 5 | SLUSD-PC68A-40 | Liquid Hose Fitting |
| 8. | 509-1/8mt | Mounting screw for spray nozzle |
| 9. | 509-st | Stabilizing screw for spray nozzle |
| 10. | BON-11 | Thumb screw, ¼-20 x 1.5” |

## PARTS LIST FOR DRAWING SLUS-SN-1194-A

| Ref. # | Part Number | Description |
|---|---|---|
| 1. | 7042-1158NP | RETAINER NUT |
| 2a. | 704213425545 | AIR CAP FOR MOST SKID-LOCK PRODUCTS |
| 2b. | 7042-180 | AIR CAP FOR SL-POLY & SKID-LOCK-C97 |
| 3a. | 7042-40100 | FLUID CAP FOR MOST SKID-LOCK ADH. |
| 3b. | 7042-2850C | FLUID CAP FOR SL-POLY & SKID-LOCK-C97 |
| 4. | 7042-CP3612 | FLUID CAP GASKET |
|  | 7042-5060 | SPRAY SET UP FOR SKID-LOCK includes item # 1,2a,3a, &4. |
|  | 7042-2850 | SPRAY SET UP FOR SL-POLY & SKID-LOCK-C97 includes item #1, 2b, 3b, &4 |
| 5. | 7042-CP4019 | BODY, BRASS-NICKEL PLATED |
| 6. | 7042-CP8394 | QUAD RING (2 per valve) |
| 7. | 7042-20220 | QUAD RING RETAINER |
| 8. | 7042-CP7776 | SHAKEPROOF WASHER |
| 9. | 7042-CP4024 | PACKING SCREW, BRASS |
| 10. | 7042-CP4027 | PISTON BODY, BRASS |
| 11A. | 7042-5359/28 | CLEANOUT NEEDLE FOR BOTH SPRAY SET UPS |
| 11A-15 | 7042-11A/15 | CLEANOUT NEEDLE ASSEMBLY |
| 12. | 7042-CP4237 | PACKING CUP |
| 13. | 7042-CP4026 | WASHER, BRASS |
| 14. | 7042-CP7778 | SHAKEPROOF WASHER |
| 15. | 7042-CP4025 | CAP NUT, BRASS |
| 16 | 7042-5080 | CAP SPRING |
| 17. | 7042-CP4238 | GASKET, COPPER |
| 18. | N/A/ | DISC STRAINER (NOT ON THIS VALVE) |
| 19. | 7042-CP6235 | END CAP |
| 20. | 7042-CP7962 | NUT, BRASS/NICKLE PLATED |
| 21. | 7042-CP10874 | ADJUSTING SCREW |

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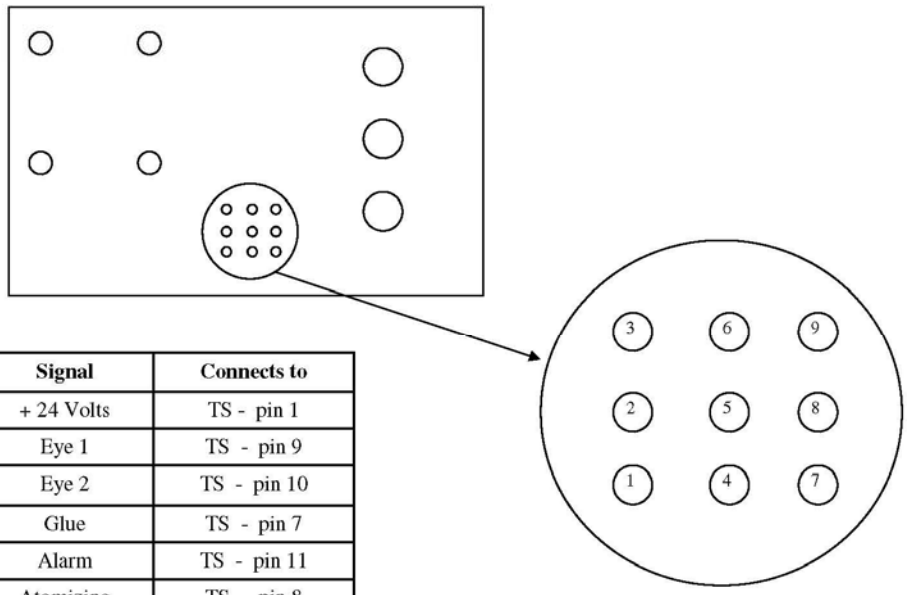
# ELECTRICAL DIAGRAMS

**Main Wire Harness Connector**

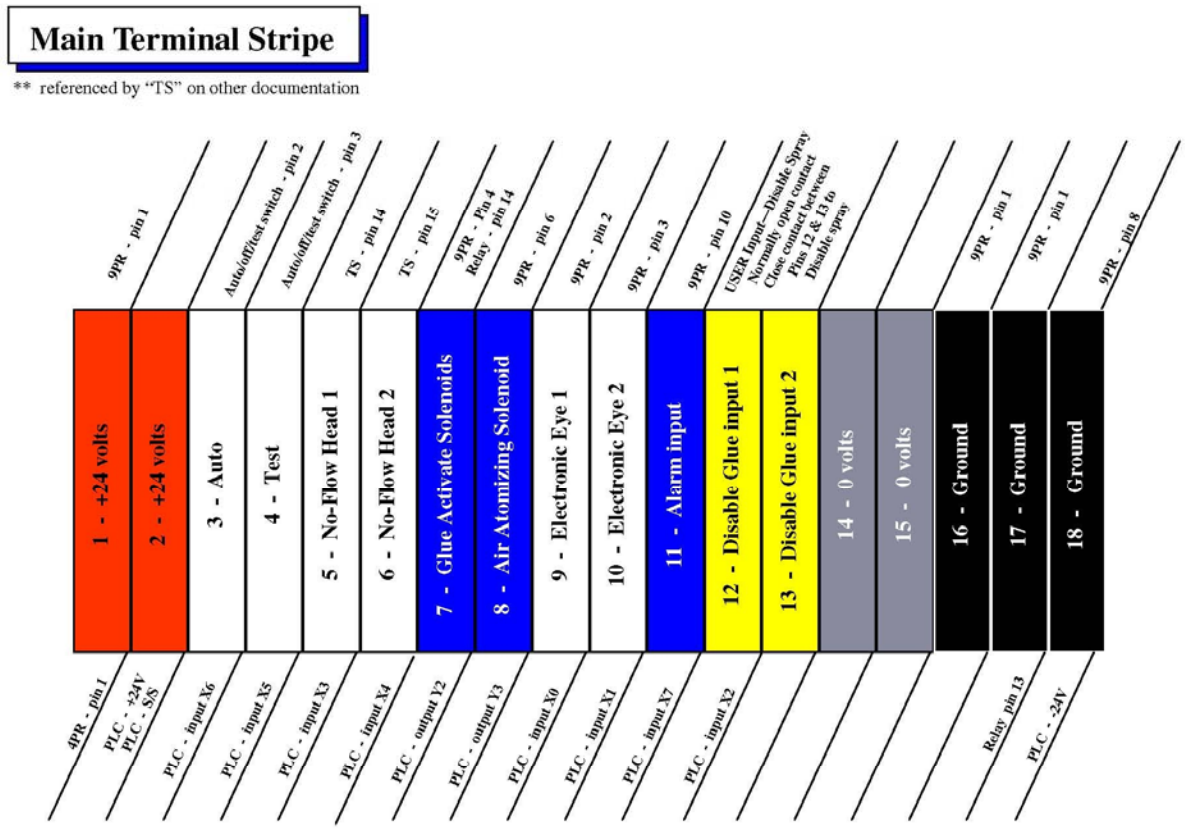
** referenced by "9RP" on other documentation

Top View of Application System




| Pin # | Signal | Connects to |
|---|---|---|
| 1 | + 24 Volts | TS - pin 1 |
| 2 | Eye 1 | TS - pin 9 |
| 3 | Eye 2 | TS - pin 10 |
| 4 | Glue | TS - pin 7 |
| 5 | Alarm | TS - pin 11 |
| 6 | Atomizing | TS - pin 8 |
| 7 | Ultrasonic | Relay - pin 9 |
| 8 | Ground | TS - pin 18 |
| 9 | 3rd Spray head | Relay - pin 5 |

Drawing SLUSD-E3
The Gluefast Company, Inc.
Neptune, NJ USA 10/08

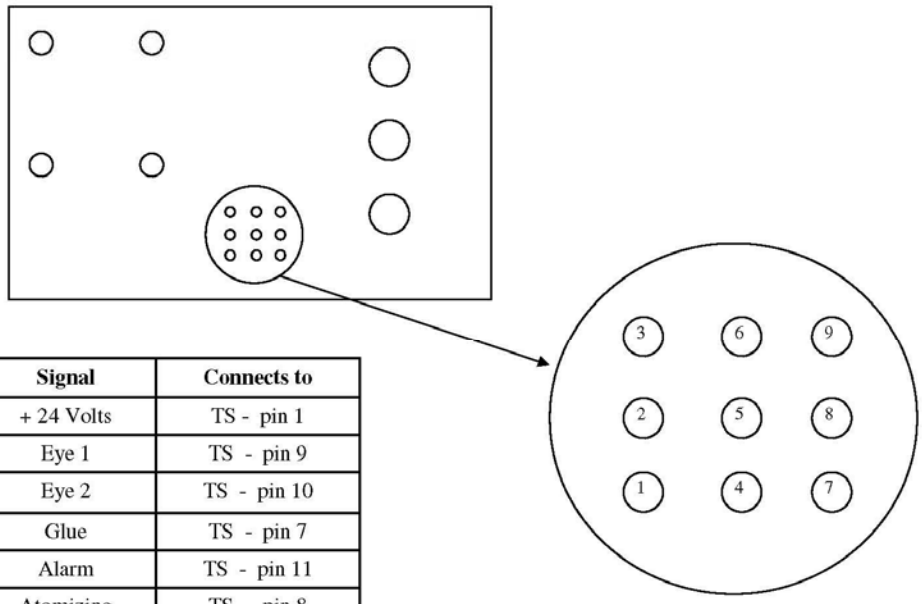



Drawing SLUSD-E2
The Gluefast Company, Inc.
Neptune, NJ USA 10/08

## Main Wire Harness Connector

** referenced by "9RP" on other documentation

Top View of Application System




| Pin # | Signal | Connects to |
|---|---|---|
| 1 | + 24 Volts | TS - pin 1 |
| 2 | Eye 1 | TS - pin 9 |
| 3 | Eye 2 | TS - pin 10 |
| 4 | Glue | TS - pin 7 |
| 5 | Alarm | TS - pin 11 |
| 6 | Atomizing | TS - pin 8 |
| 7 | Ultrasonic | Relay - pin 9 |
| 8 | Ground | TS - pin 18 |
| 9 | 3rd Spray head | Relay - pin 5 |

Drawing SLUSD-E3
The Gluefast Company, Inc.
Neptune, NJ USA 10/08

**PLC**

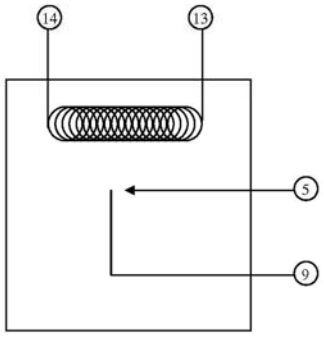
** referenced by "PLC" on other documenta-


| Pin # | Signal | Connects to |
|---|---|---|
| + | +24 Volts | 9RP - pin 9 |
| - | Ground - 0volts | 9RP - pin 7 |
| S/S | Source/Sink | TS - pin 2 |
| X0 | Input-0 :: Eye 1 | TS - pin 9 |
| X1 | Input-1 :: Eye 2 | TS - pin 10 |
| X2 | Input-2 :: Disable Spray | TS - pin 12 |
| X3 | Input-3 :: No Flow 1 | TS - pin 5 |
| X4 | Input-4 :: No Flow 2 | TS - pin 6 |
| X5 | Input-5 :: Test | TS - pin 4 |
| X6 | Input-6 :: Auto | TS - pin 3 |
| X7 | Input-7 :: Alarm | TS - pin 11 |
| +V0 | Source for output Y0 | PLC + |
| +V1 | Source for output Y1 | PLC +V0 |
| +V2 | Source for outputs Y2, Y3, Y4, Y5 | PLC +V1 |
| Y0 | Output-0 :: Alarm | TS - pin |
| Y2 | Output-2 :: Glue | TS - pin 7 |
| Y3 | Output-3 :: Atomizing | TS - pin 8 |

Drawing SLUSD-E4
The Gluefast Company, Inc.
Neptune, NJ USA 10/08

## Relay and relay Mounting Block

** referenced by "Relay" on other documenta-




Relay

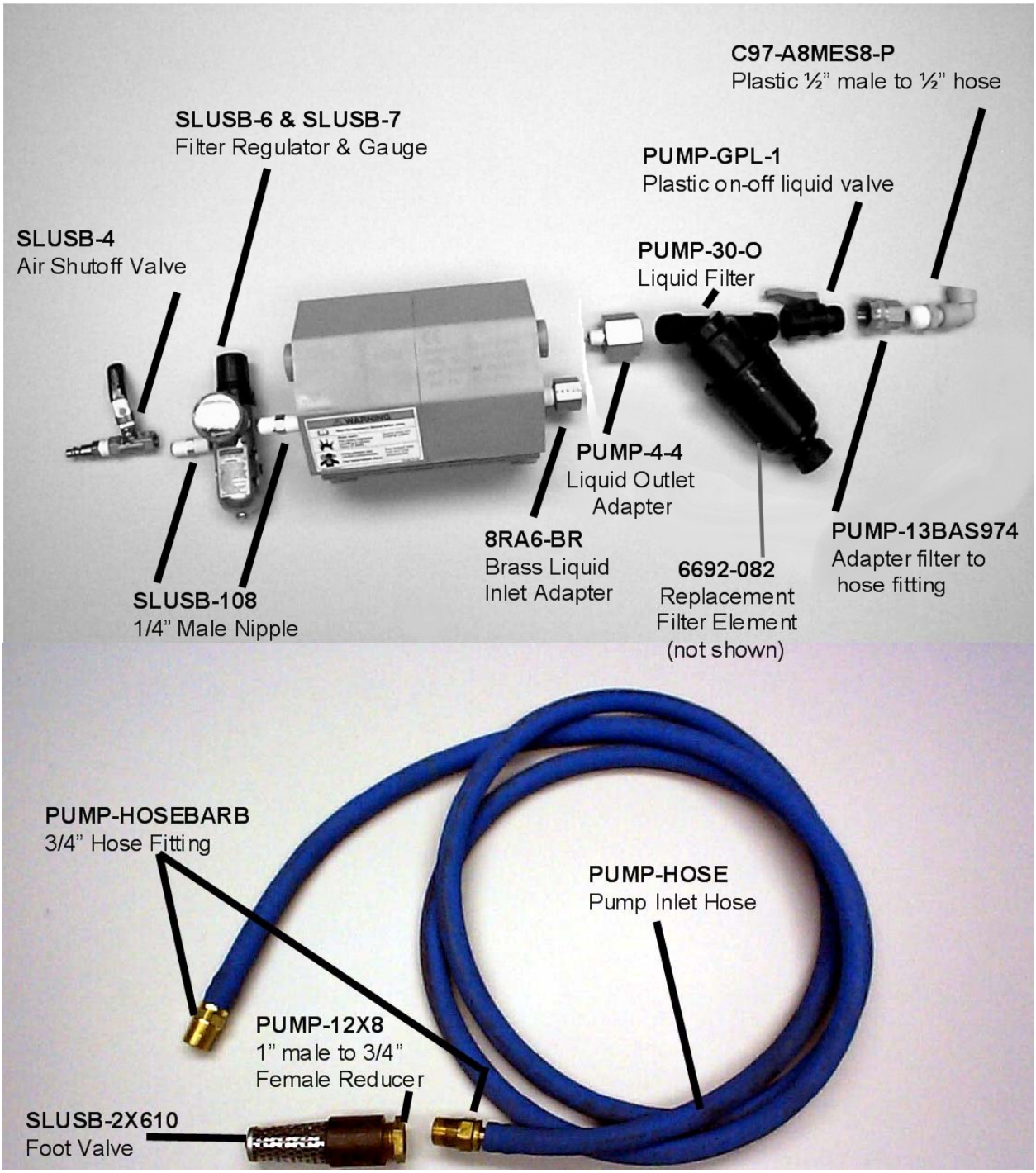

Relay mounting block

| Pin # | Signal | Connects to |
|---|---|---|
| 5 | Common | 9RP - pin 9 |
| 9 | Normally open | 9RP - pin 7 |
| 13 | Coil | TS - pin 17 |
| 14 | Coil | TS - pin 7 |

Drawing SLUSD-E5
The Gluefast Company, Inc.
Neptune, NJ USA 10/08

# SKID-LOCK® ¼" PUMPING STATION

With inlet hose for 5 gallon pail & 55 gallon drum



# Liquid Hose & Attachments
# For use with 260 gallon Disposable Tote Container