Operation, Repair, Parts

LineLazer™ ES 1000 / ES 2000 Airless Line Striper

3A4603J
EN

For the application of line striping materials.
For professional use only.
Not approved for use in explosive atmospheres or hazardous locations.

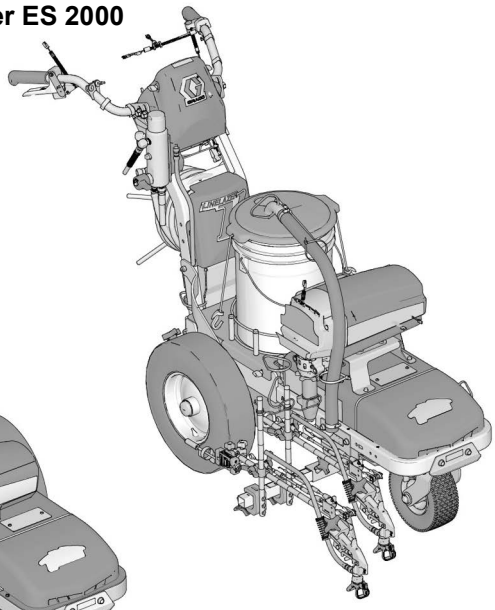
Maximum Operating Pressure: 3300 psi (22.8 MPa, 228 bar)

Important Safety Instructions

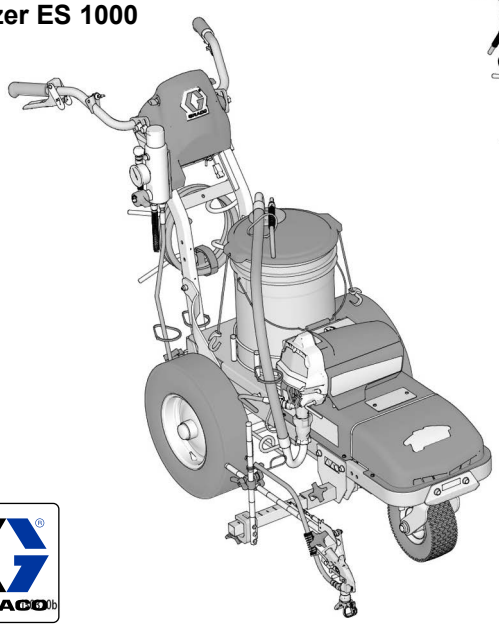
Read all warnings and instructions in this manual and in related manuals before using the equipment. Be familiar with the controls and the proper usage of the equipment. Save these instructions.

Related Manuals:			
ES 1000		**ES 2000**	
311254	Gun	311254	Gun
334599	Pump	310643	Pump
		3A3428	Auto-Layout Application Methods

LineLazer ES 2000



LineLazer ES 1000



Use only genuine Graco replacement parts.
The use of non-Graco replacement parts may void warranty.

Contents

Models

LineLazer ES 1000		
Model	1 Battery Included	2 Batteries Included
25M226	✓ 120V	
25N784		✓ 120V
25M228 CE	✓ 230V	
25N785 CE		✓ 230V

LineLazer ES 2000									
Model	2 Batteries Included	Standard Series	HP Auto Series	Number of Manual Guns	Number of Auto Guns	120V	230V	LazerGuide 1700	LazerGuide 2000
25N550	✓	✓		2	0	✓			
25N551	✓		✓	1	1	✓		✓	
25N552	✓		✓	0	2	✓		✓	
25N559	✓		✓	1	1	✓		✓	✓
25N560	✓		✓	0	2	✓		✓	✓
25N553 CE	✓	✓		1	0		✓		
25N554 CE	✓		✓	0	1		✓		
25N561 CE	✓	✓		2	0		✓		
25N562 CE	✓		✓	0	2		✓		
25N657 CE	✓		✓	1	1		✓		

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

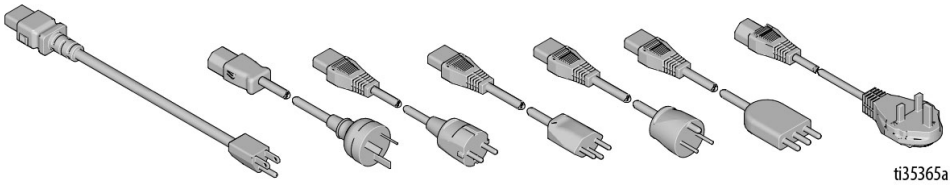
⚠WARNING

GROUNDING

This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

- Improper installation of the grounding plug is able to result in a risk of electric shock.
- When repair or replacement of the cord or plug is required, do not connect the grounding wire to either flat blade terminal.
- The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.
- Check with a qualified electrician or serviceman when the grounding instructions are not completely understood, or when in doubt as to whether the product is properly grounded.
- Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.
- This product is for use on a nominal 120V or 230V circuit and has a grounding plug similar to the plugs illustrated in the figure below.

120V US 230V



- Only connect the product to an outlet having the same configuration as the plug.
- Do not use an adapter with this product.

Extension Cords:

- Use only a 3-wire extension cord that has a grounding plug and a grounding receptacle that accepts the plug on the product.
- Make sure your extension cord is not damaged. If an extension cord is necessary use 12 AWG (2.5mm^2) minimum to carry the current that the product draws.
- An undersized cord results in a drop in line voltage and loss of power and overheating.

WARNING

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:

- Do not spray flammable or combustible materials near an open flame or sources of ignition such as cigarettes, motors, and electrical equipment.
- Paint or solvent flowing through the equipment is able to result in static electricity. Static electricity creates a risk of fire or explosion in the presence of paint or solvent fumes. All parts of the spray system, including the pump, hose assembly, spray gun, and objects in and around the spray area shall be properly grounded to protect against static discharge and sparks. Use Graco conductive or grounded high-pressure airless paint sprayer hoses.
- Verify that all containers and collection systems are grounded to prevent static discharge. Do not use pail liners unless they are antistatic or conductive.
- Connect to a grounded outlet and use grounded extensions cords. Do not use a 3-to-2 adapter.
- Do not spray flammable or combustible liquids in a confined area.
- Sprayer generates sparks. Keep spray area well-ventilated. Keep a good supply of fresh air moving through the area.
- Keep pump assembly in a well ventilated area when spraying, flushing, cleaning, or servicing. Do not spray pump assembly.
- Do not smoke in the spray area or spray where sparks or flame is present.
- Do not operate light switches, engines, or similar spark producing products in the spray area.
- Keep area clean and free of paint or solvent containers, rags, and other flammable materials.
- Know the contents of the paints and solvents being sprayed. Read all Safety Data Sheets (SDSs) and container labels provided with the paints and solvents. Follow the paint and solvents manufacturer's safety instructions.
- Keep a working fire extinguisher in the work area.

SKIN INJECTION HAZARD

High-pressure spray is able to inject toxins into the body and cause serious bodily injury. In the event that injection occurs, **get immediate surgical treatment.**

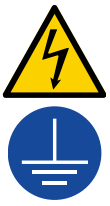
- Do not aim the gun at, or spray any person or animal.
- Keep hands and other body parts away from the discharge. For example, do not try to stop leaks with any part of the body.
- Always use the nozzle tip guard. Do not spray without nozzle tip guard in place.
- Use Graco nozzle tips.
- Use caution when cleaning and changing nozzle tips. In the case where the nozzle tip clogs while spraying, follow the **Pressure Relief Procedure** for turning off the unit and relieving the pressure before removing the nozzle tip to clean.
- Equipment maintains pressure after power is shut off. Do not leave the equipment energized or under pressure while unattended. Follow the **Pressure Relief Procedure** when the equipment is unattended or not in use, and before servicing, cleaning, or removing parts.
- Check hoses and parts for signs of damage. Replace any damaged hoses or parts.
- This system is capable of producing 3300 psi (22.8 MPa, 228 bar). Use Graco replacement parts or accessories that are rated a minimum of 3300 psi (22.8 MPa, 228 bar).
- Always engage the trigger lock when not spraying. Verify the trigger lock is functioning properly.
- Verify that all connections are secure before operating the unit.
- Know how to stop the unit and bleed pressure quickly. Be thoroughly familiar with the controls.

WARNING

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



ELECTRIC SHOCK HAZARD

This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off, disconnect power cord, and disconnect battery before servicing equipment.
- Connect only to grounded electrical outlets.
- Use only 3-wire extension cords.
- Ensure ground prongs are intact on power and extension cords.
- Do not expose to rain. Store indoors.
- Wait five minutes after disconnecting power cord before servicing.

MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read Safety Data Sheet (SDS) to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

⚠WARNING

PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

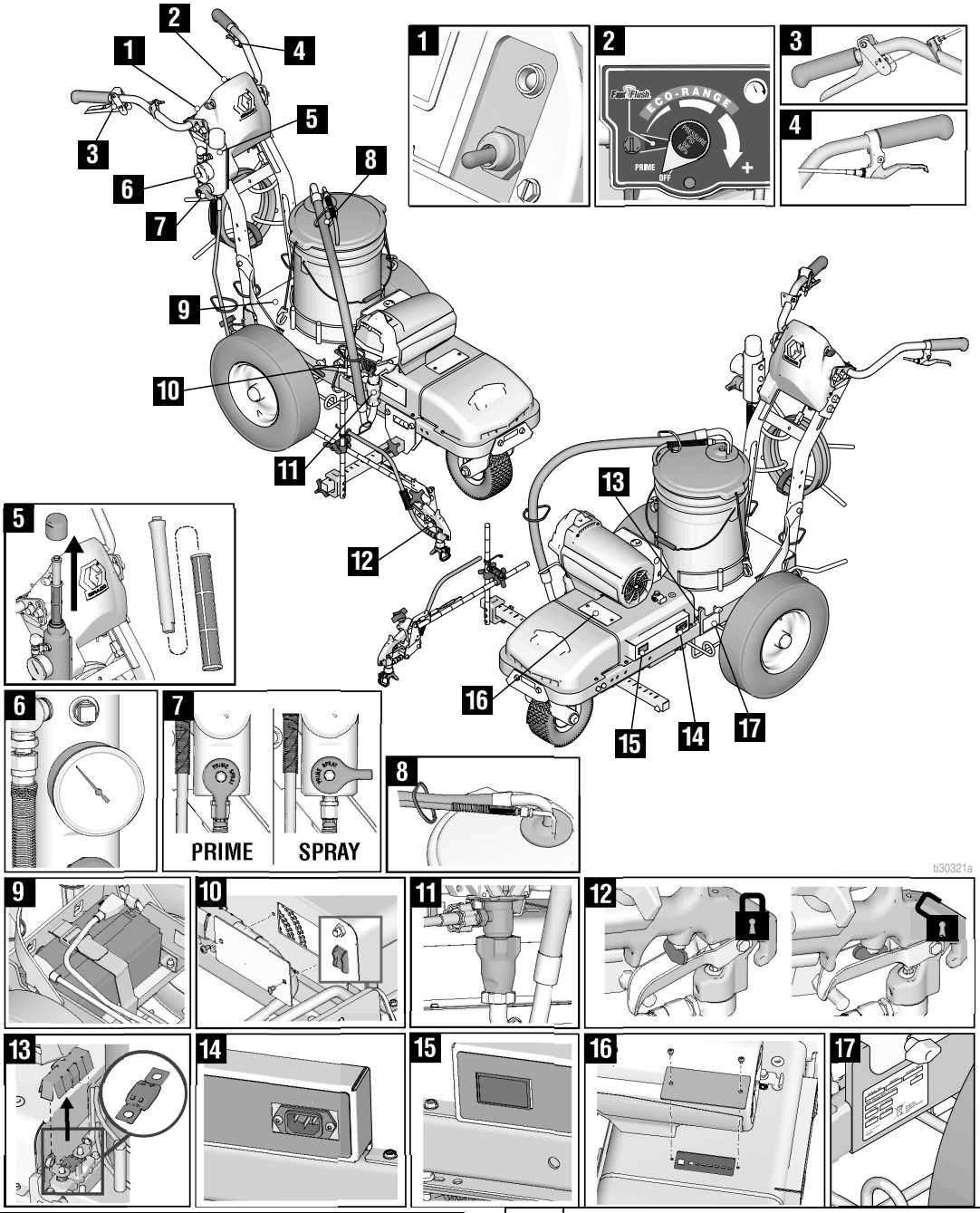
- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

BATTERY HAZARD

Lead-acid batteries produce explosive gases and contain sulfuric acid that can cause severe burns. To avoid sparks and injury when handling or working with a lead-acid battery:

- Only use the battery type specified for use with the equipment. See **Technical Data**.
- Read and follow the battery manufacturer's warnings.
- Exercise caution when working with metallic tools or conductors to prevent short circuits and sparks.
- Keep all sparks, flames, and cigarettes away from batteries.
- Always wear protective eyewear and protective equipment for face, hands, and body.
- If you have direct contact with battery fluid, flush with water and consult a physician immediately.
- Installation and maintenance must be performed by knowledgeable personnel only.

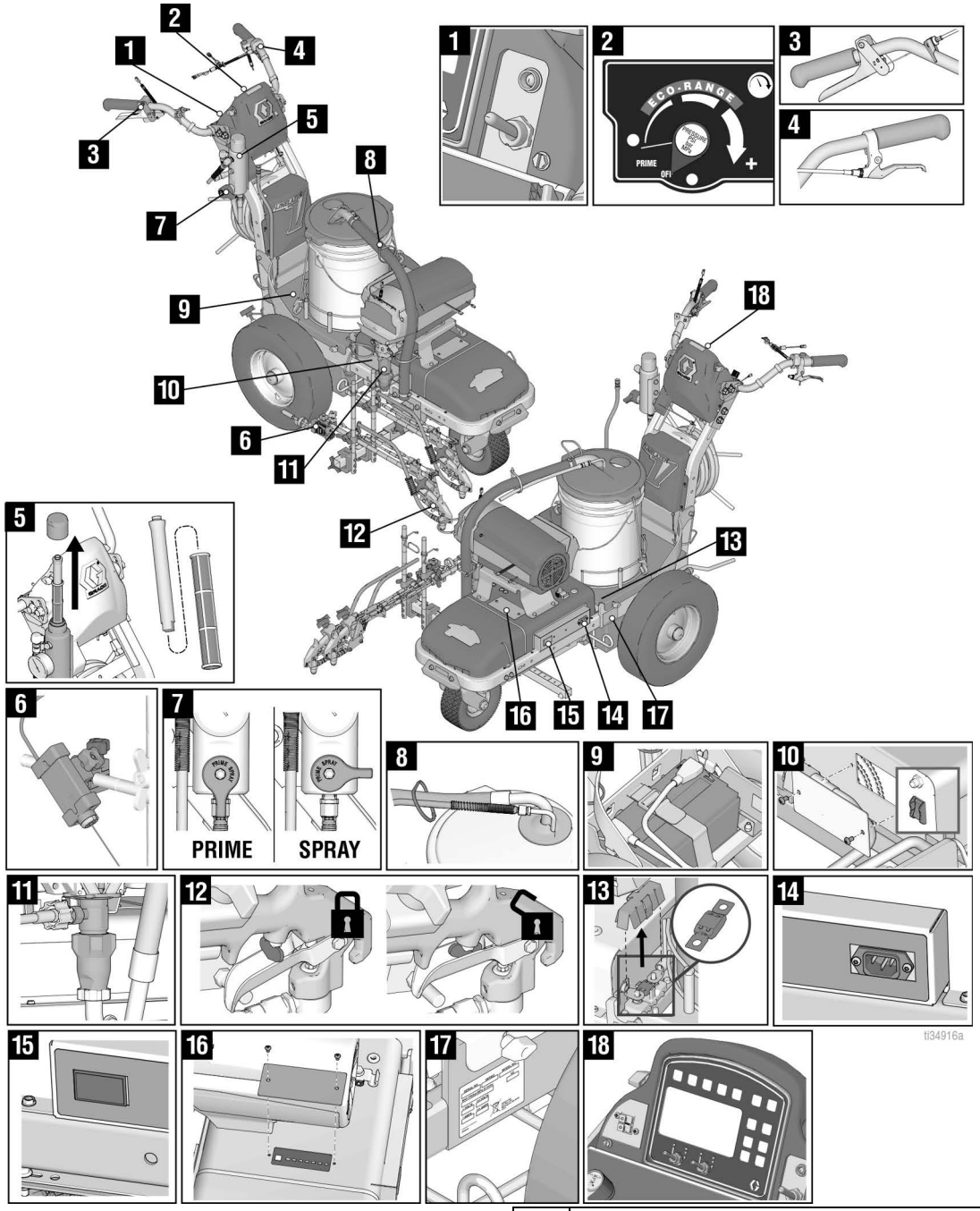
Component Identification (ES 1000)



1	ON/OFF Switch
2	Pressure Control & Display
3	Spray Gun Trigger
4	Turn Control
5	Filter
6	Pressure Gauge
7	Prime/Pressure Valves
8	Drain and Siphon Hoses
9	Battery Compartment

10	Inverter Circuit Breakers
11	Pump
12	Trigger Safety
13	Fuse
14	Charging Port
15	Voltage Meter
16	LED Status Center & Battery Type Selector Access
17	Serial ID

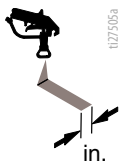
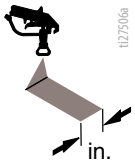
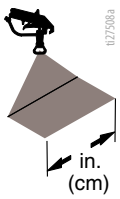
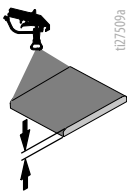
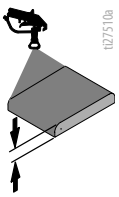
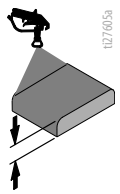
Component Identification (ES 2000)



1	ON/OFF Switch
2	Pressure Control & Display
3	Spray Gun Trigger
4	Turn Control
5	Filter
6	Laser
7	Prime/Pressure Valves
8	Drain and Siphon Hoses
9	Battery Compartment

10	Inverter Circuit Breakers
11	Pump
12	Trigger Safety
13	Fuse
14	Charging Port
15	Voltage Meter
16	LED Status Center & Battery Type Selector Access
17	Serial ID
18	Display

Tip Selection

							
LL5213*	2 (5)				✓		
LL5215*	2 (5)					✓	
LL5217		4 (10)				✓	
LL5219		4 (10)					✓
LL5315		4 (10)			✓		
LL5317		4 (10)			✓		
LL5319		4 (10)				✓	
LL5321		4 (10)				✓	
LL5323		4 (10)				✓	
LL5325		4 (10)					✓
LL5327		4 (10)					✓
LL5329		4 (10)					✓
LL5331		4 (10)					✓
LL5333		4 (10)					✓
LL5335		4 (10)					✓
LL5355		4 (10)					✓
LL5417			6 (15)		✓		
LL5419			6 (15)		✓		
LL5421			6 (15)		✓		
LL5423			6 (15)			✓	
LL5425			6 (15)			✓	
LL5427			6 (15)			✓	
LL5429			6 (15)			✓	
LL5431			6 (15)				✓
LL5435			6 (15)				✓
LL5621				12 (30)	✓		
LL5623				12 (30)	✓		
LL5625				12 (30)	✓		
LL5627				12 (30)	✓		
LL5629				12 (30)	✓		
LL5631				12 (30)		✓	
LL5635				12 (30)		✓	
LL5639				12 (30)			✓

*Use 100 mesh filter to reduce tip clogs.

Battery and Charger

NOTICE

If the battery level is below 9.7V, the on-board charger will not be allowed to charge the battery. Charge battery with an external charger to raise the level above 10.0V to activate the on-board charger, or replace the battery.

NOTICE

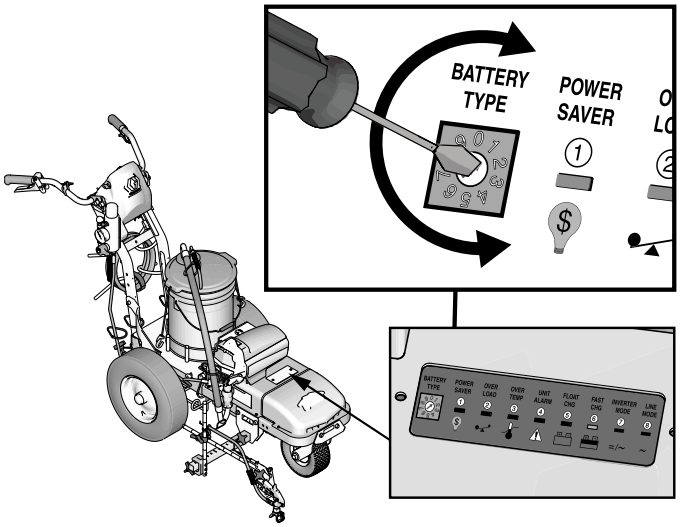
Do not expose sprayer to rain or washdown. Exposure could cause damage to electrical components. Store and transport covered or indoors.

- **Battery Protection Features:** Unit is designed to protect the battery by shutting down at 10.5V and not allowing charging to occur above 15.5V.
- **Self Discharge:** Lead acid batteries can self-discharge in as little as 3 months depending on storage temperatures. The hotter the storage temperature, the faster the self-discharge occurs. To prevent damage to the battery, it is important to keep the battery in a charged state.
- **Battery Life:** Battery recharge cycles depend on the depth of discharge per cycle. A battery that is discharged to 50% depth will get over twice as many cycles in its life compared to it being discharged to 100% depth each cycle.

Battery Type and Charging Profiles

Graco recommends using a 12V 100 Ahr Absorbent Glass Mat (AGM) **DEEP CYCLE** battery.The charger is set for this charging profile from the factory. If a different battery is used, the charging profile can be set at the LED Status Center. The initial charge rate is 30 amps.

Only use batteries that allow an initial charge rate of 30 amps or higher.
Use a small flat head screw driver to turn the arrow to point at the number that correlates with the chosen battery.



BATTERY TYPE SELECTOR SETTINGS

Switch Position	Description	Boost/Vdc	Float/Vdc
0	Charger Off		
1	Gel USA	14.0	13.7
2	AGM 1	14.1	13.4
3	AGM 2 (Graco Supplied)	14.6	13.7
4	Sealed Lead Acid	14.4	13.6
5	Gel Euro	14.4	13.8
6	Open Lead Acid	14.8	13.3
7	LiFePO4	14.4	14.4
8	De-sulphation	15.5 (4 hours then Off)	
9	Not used		

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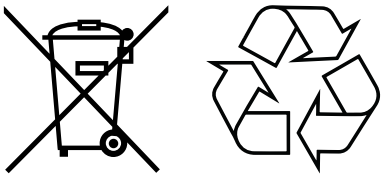
Battery Disposal

Do not place batteries in the trash. Recycle batteries according to local regulations.



Charging the Battery

Replace and charge battery only in well-ventilated area and away from flammable or combustible materials, including paints and solvents.

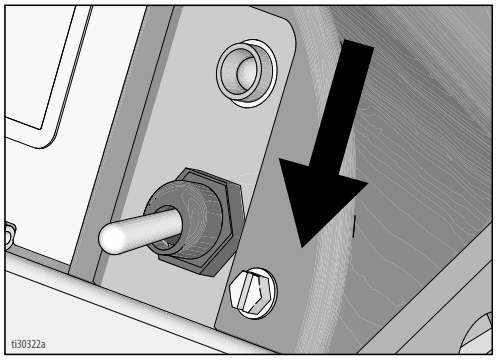
If the battery level is below 9.7V, the on-board charger will not be allowed to charge the battery. Charge battery with an external charger to raise the level above 10.0V to activate the on-board charger, or replace the battery.

Use an extension cord with an undamaged ground contact. If an extension cord is necessary, use a 3-wire, 12 AWG (2.5 mm^2) minimum.

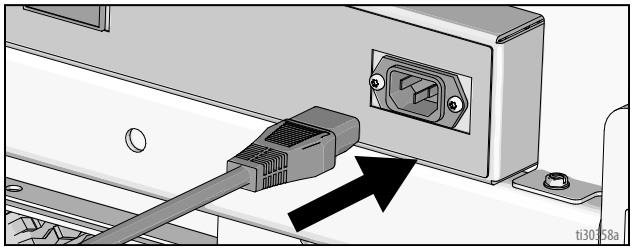
Batteries are fully charged when leaving the factory. Due to self-discharging of the battery, charge battery before first use. It takes ~3 hours to charge a dead battery to 80%. It takes ~5 hours to charge a fully depleted battery (double these times for 2 battery unit).

1. Place unit in dry, well-ventilated area and away from flammable or combustible materials, including paints and solvents.

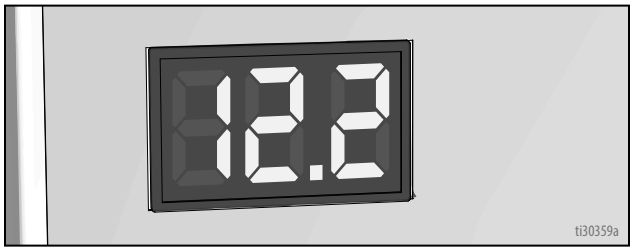
2. Ensure power switch is in **OFF** position.



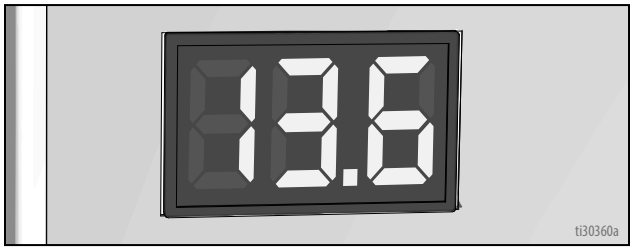
3. Plug charging cord into charging port on the unit. Connect an extension cord, minimum 12AWG (2.5mm^2), to the charging cord and plug it into wall power.



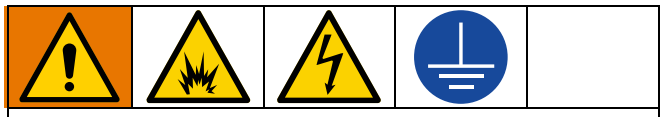
4. When power is connected the voltmeter will turn on and the charger will immediately begin charging. User should be able to see voltmeter start to climb to indicate charging is occurring.



5. Battery will charge to 14.6-14.8 volts and then it will come back down to ~13.6 volts when fully charged.



Grounding Procedure
(AC Wall Power)



This equipment must be grounded to reduce the risk of static sparking and electric shock. An electric shock or static spark can cause fumes to ignite or explode. An improper ground can cause electric shock. A good ground provides an escape wire for the electric current.

Position the striper so the wheels are on a true grounded surface. Not on pavement.

The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.

Power Requirements

- 100-120V units require 100-120 VAC, 50/60 Hz, 12 or 15A, 1 phase.
- 230V units require 230 VAC, 50/60 Hz, 7 or 9A, 1 phase.

Extension Cords

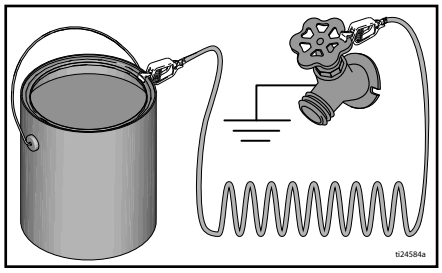
Use an extension cord with an undamaged ground contact. If an extension cord is necessary, use a 3-wire, 12 AWG (2.5 mm^2) minimum.

Pails

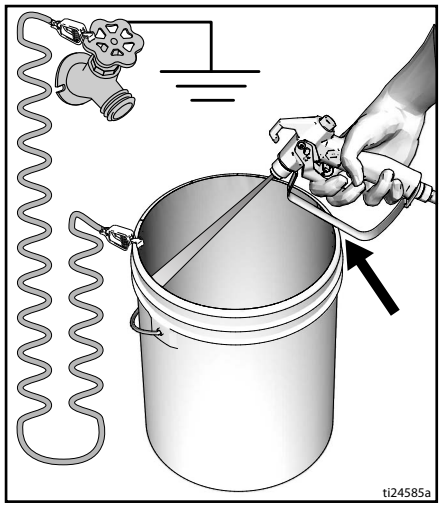
Solvent and oil-based fluids: follow local code. Use only conductive metal pails, placed on a grounded surface such as concrete.

Do not place pail on a non-conductive surface such as paper or cardboard which interrupts grounding continuity.

Always ground a metal pail: connect a ground wire to the pail. Clamp one end to the pail and the other end to a true earth ground such as a water pipe.



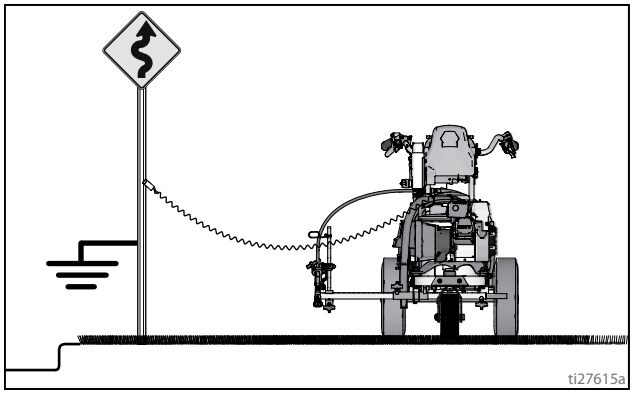
To maintain ground continuity when sprayer is flushed or pressure is relieved: hold metal part of spray gun firmly to the side of a grounded metal pail then trigger gun.



Grounding Procedure (Battery Power) (For Flammable Flushing Fluids Only)

This equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.

1. Position striper so that the tires are not on pavement.
2. Striper is shipped with a grounding clamp. Grounding clamp must attach to grounded object (e.g., metal sign post).



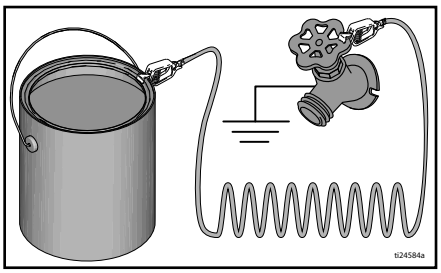
3. Disconnect grounding clamp after flushing is complete.

Pails

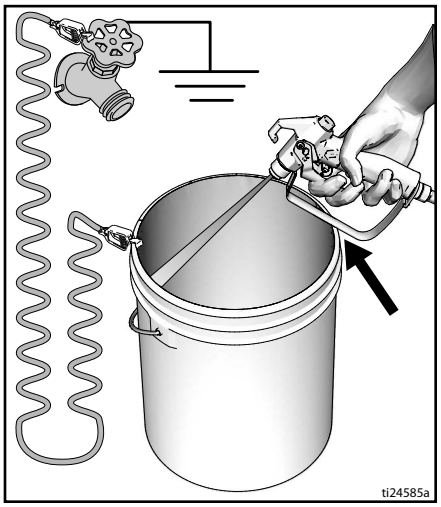
Solvent and oil-based fluids: follow local code. Use only conductive metal pails, placed on a grounded surface such as concrete.

Do not place pail on a non-conductive surface such as paper or cardboard which interrupts grounding continuity.

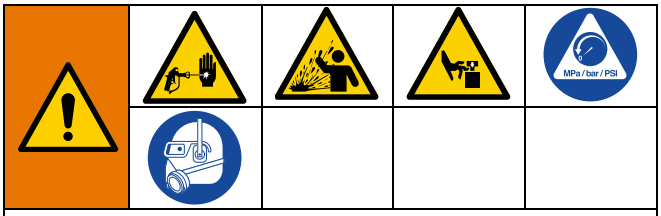
Always ground a metal pail: connect a ground wire to the pail. Clamp one end to the pail and the other end to a true earth ground such as a water pipe.



To maintain ground continuity when sprayer is flushed or pressure is relieved: hold metal part of spray gun firmly to the side of a grounded metal pail then trigger gun.

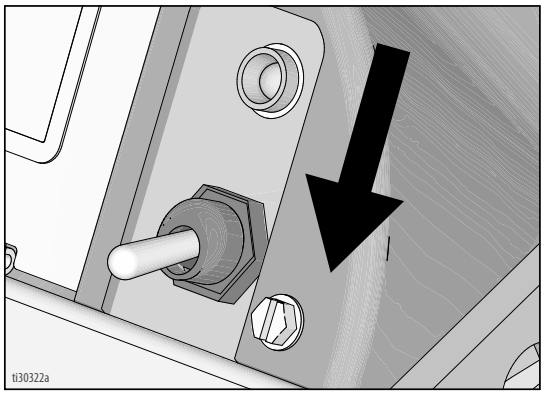


Pressure Relief Procedure

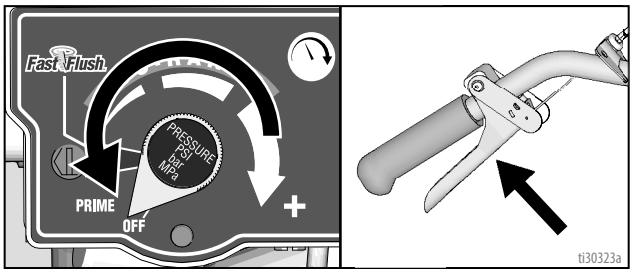


This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing the equipment.

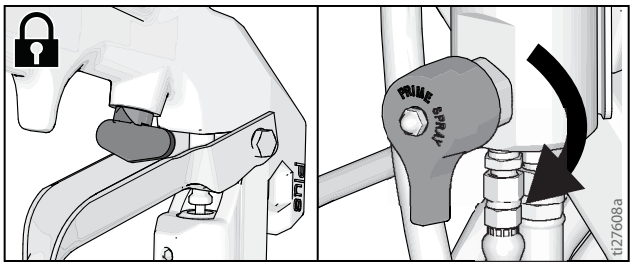
1. Perform **Grounding Procedure** if using flammable materials.
2. Turn ON/OFF Switch to **OFF**.



3. Turn pressure control to lowest setting. Trigger all guns to relieve pressure.

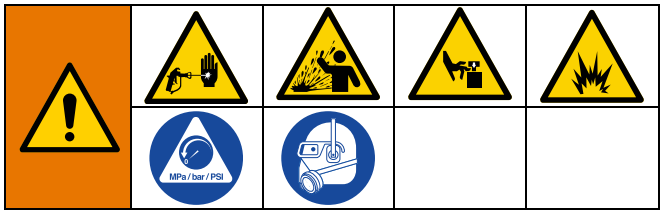


4. Engage all gun trigger locks. Turn prime valve down.

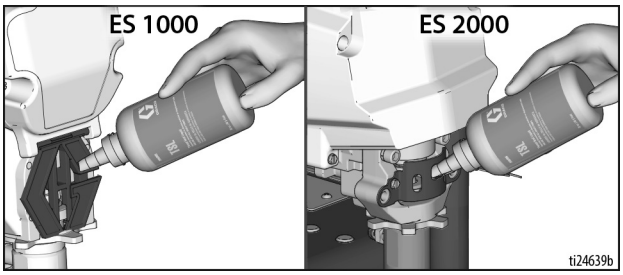


5. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved:
   a. VERY SLOWLY loosen the tip guard retaining nut or the hose end coupling to relieve pressure gradually.
   b. Loosen the nut or coupling completely.
   c. Clear the obstruction in the hose or tip.

Setup/Startup

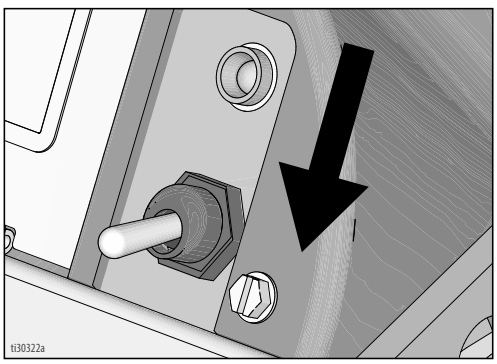


1. Perform **Pressure Relief Procedure**, page 16**.**
2. **Charging the Battery**, page 13.
3. Perform **Grounding Procedure (AC Wall Power)**, page 14, **or Grounding Procedure (Battery Power) (For Flammable Flushing Fluids Only)**, page 15, if using flammable materials.
4. Fill throat packing nut with TSL to prevent premature packing wear. Do this daily or each time you spray.
   a. Place the TSL bottle nozzle into the top center opening in the grill at the front of the sprayer.
   b. Squeeze bottle to dispense enough TSL to fill the space between the pump rod and packing nut seal.

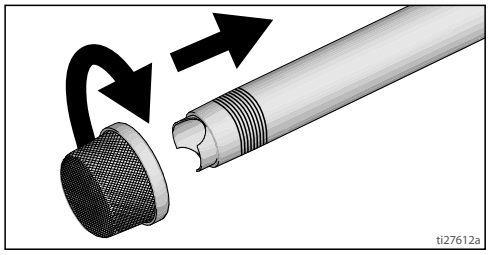


NOTE: If running off wall power, plug cord into charging port. If using an extension cord, use a 3-wire, 12 AWG (2.5mm^2) minimum with an undamaged ground contact.

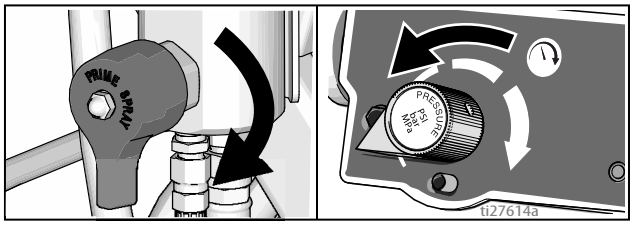
5. Turn ON/OFF Switch to **OFF**.



6. If removed, install strainer.

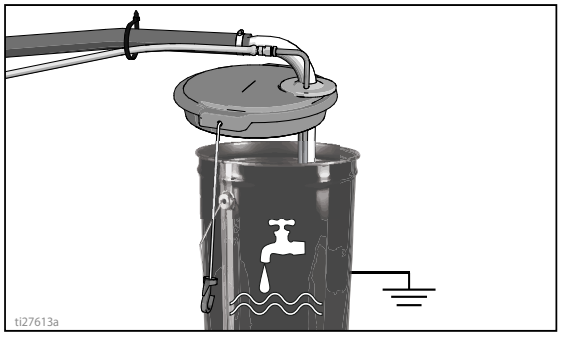


7. Turn prime valve down. Turn pressure control counterclockwise to lowest pressure.

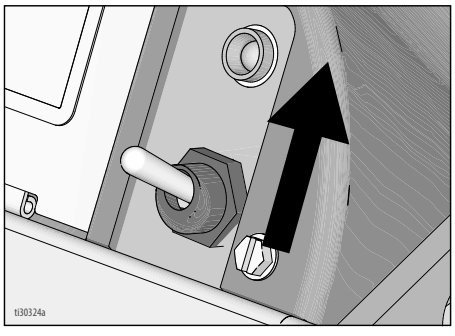


NOTE: Minimum hose size for proper sprayer operation is 1/4 in. x 50 ft for LL ES 1000 and 3/8 x 20’ for ES 2000.

8. Place siphon tube set in grounded metal pail partially filled with flushing fluid. Attach ground wire to true earth ground. Use water to flush water-based paint and mineral spirits to flush oil-based paint and storage oil.

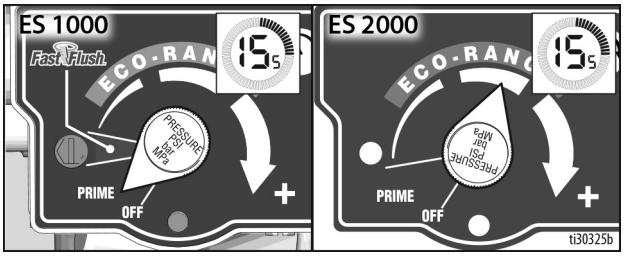


9. Turn ON/OFF Switch to ON:

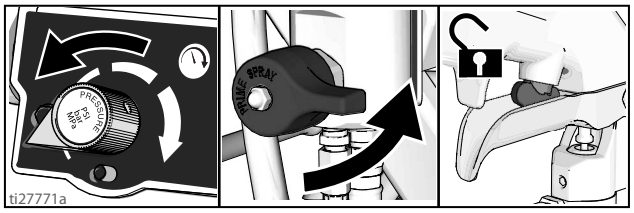


10. **ES 1000:** Turn pressure control to prime. Allow fluid to circulate for 15 seconds.

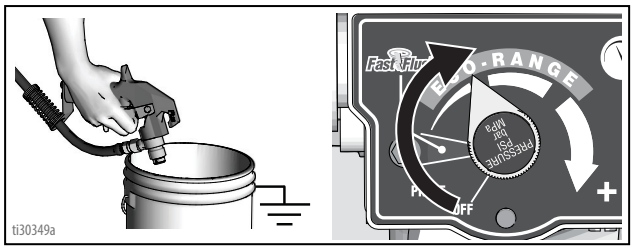
    ES 2000: Increase pressure 1/2 turn to start motor and allow fluid to circulate for 15 seconds.



11. Turn pressure down, turn prime valve horizontal. Disengage gun trigger lock.



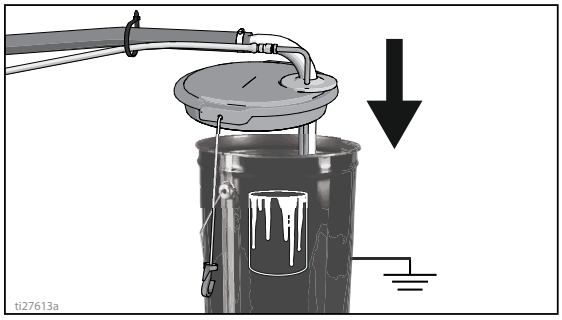
12. Hold all guns against a grounded metal flushing pail. Trigger guns and increase fluid pressure slowly until pump runs smoothly to spray.



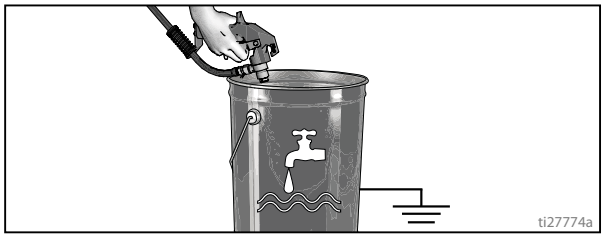
High-pressure spray is able to inject toxins into the body and cause serious bodily injury. Do not stop leaks with hand or rag.

13. Inspect fittings for leaks. If leaks occur, turn sprayer OFF immediately. Perform **Pressure Relief Procedure**, page 16. Tighten leaky fittings. Repeat **Setup/Startup**, steps 1 - 13. If no leaks, continue to trigger gun until system is thoroughly flushed. Proceed to step 14.

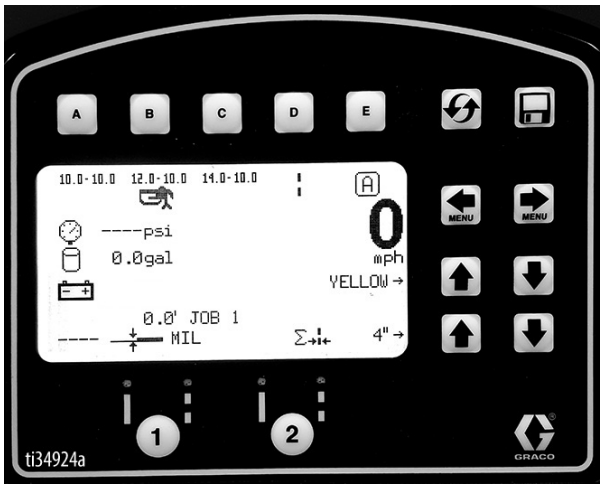
14. Place siphon tube in paint pails.



15. Trigger all guns again into a flushing fluid pail until paint appears. Assemble tips and guards.



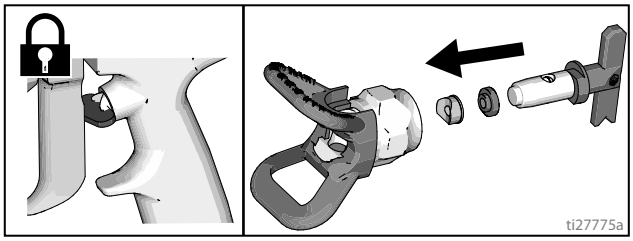
16. **ES 2000:** Digital display is functional when unit is turned on.



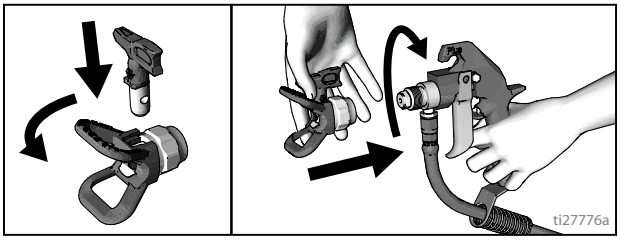
SwitchTip and Guard Assembly

To avoid serious injury from skin injection do not put your hand in front of the spray tip when installing or removing the spray tip and tip guard.

1. Engage trigger lock. Use end of SwitchTip to press OneSeal into tip guard, with curve matching tip bore.



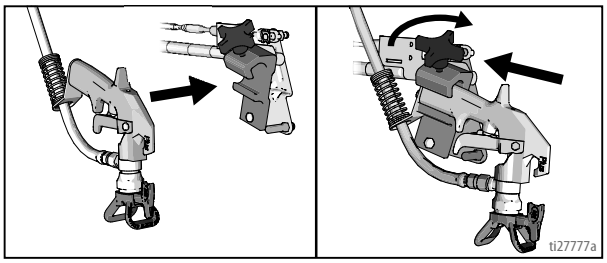
2. Insert SwitchTip in tip bore and firmly thread assembly onto gun.



Gun Placement

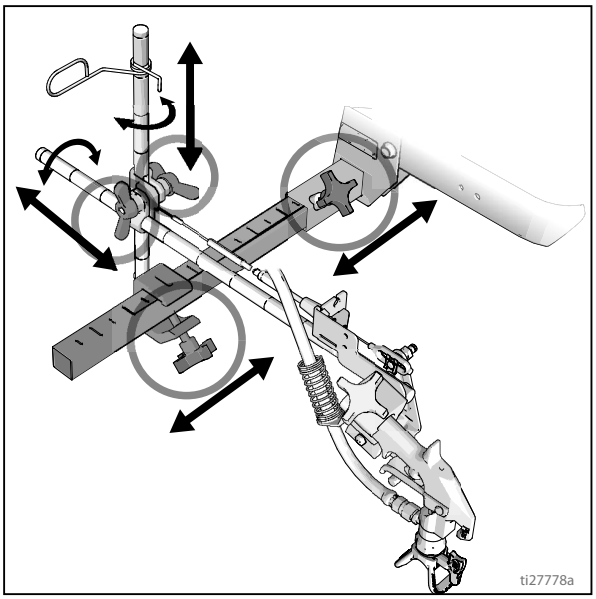
Install Gun

1. Insert guns into gun holder. Tighten clamps.

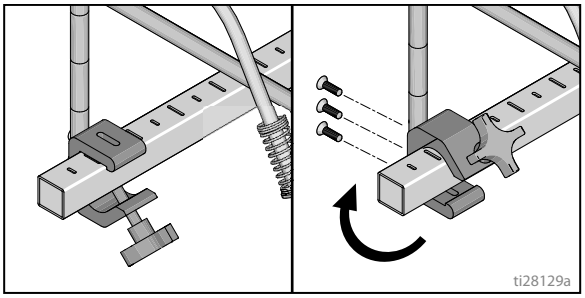


Position Gun

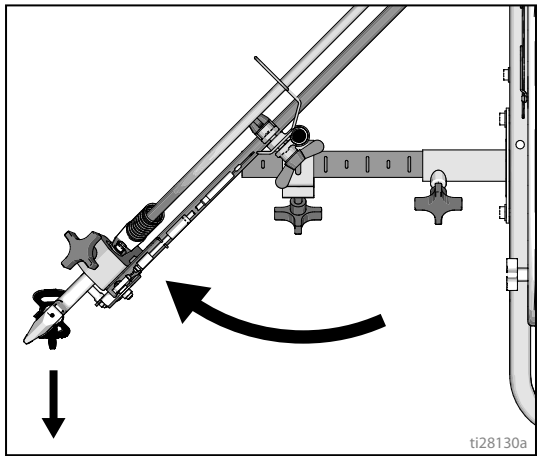
2. Position gun: up/down, forward/reverse, left/right. See **Gun Positions Chart**, page 22 for examples.



NOTE: When striping above a curb, the mounting clamp can be rotated for clearance.

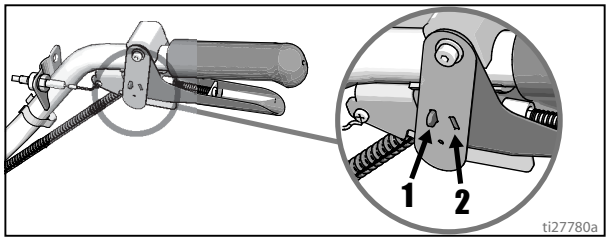


Another option can be to swing the gun out at an angle and rotate the tip guard. This results in better visibility for the user.



Select Manual Guns

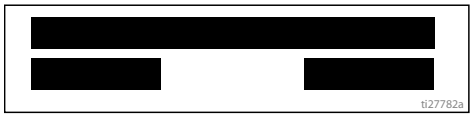
3. Connect gun cables to left or right gun selector plates.



a. One gun: Disconnect one gun selector plate from trigger.

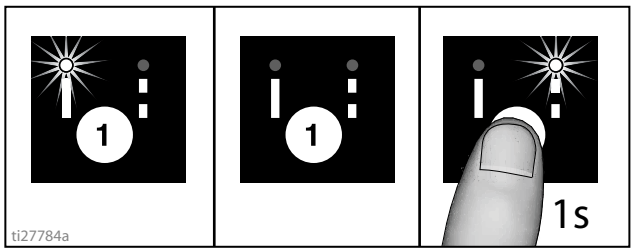
b. Both guns simultaneously: Adjust both gun selector plates to the same position.

c. Solid-skip and skip-solid: Adjust solid-line gun to position 1 and skip-line to position 2.

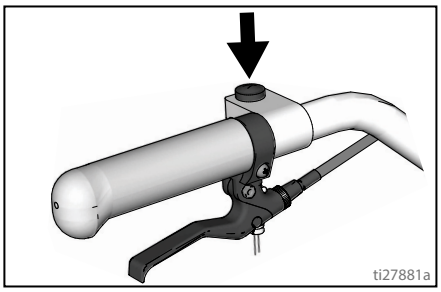


Select Auto Guns (ES 2000)

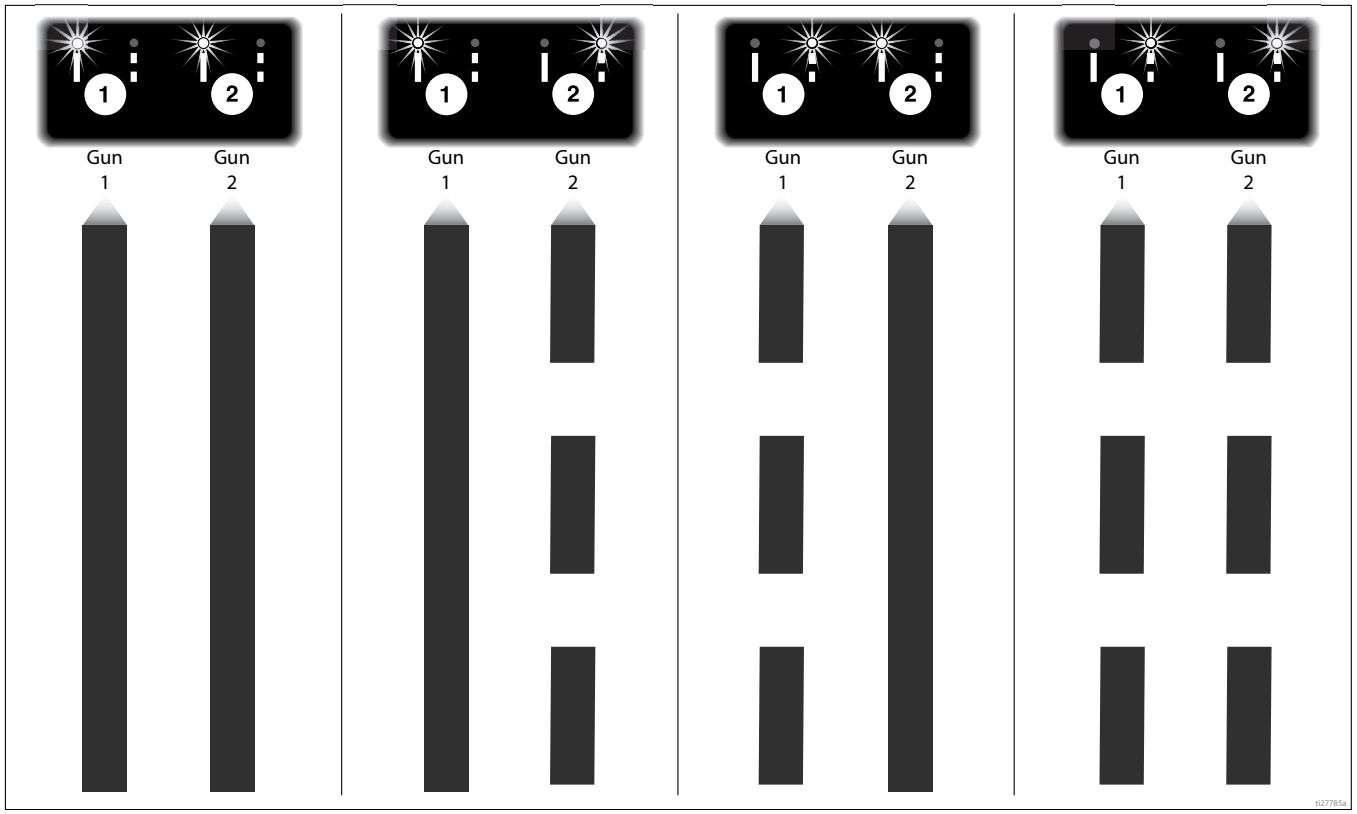
1. Use the gun selector buttons to determine which guns are active. Each gun selector has 3 settings: continuous line, OFF and programmed line pattern.



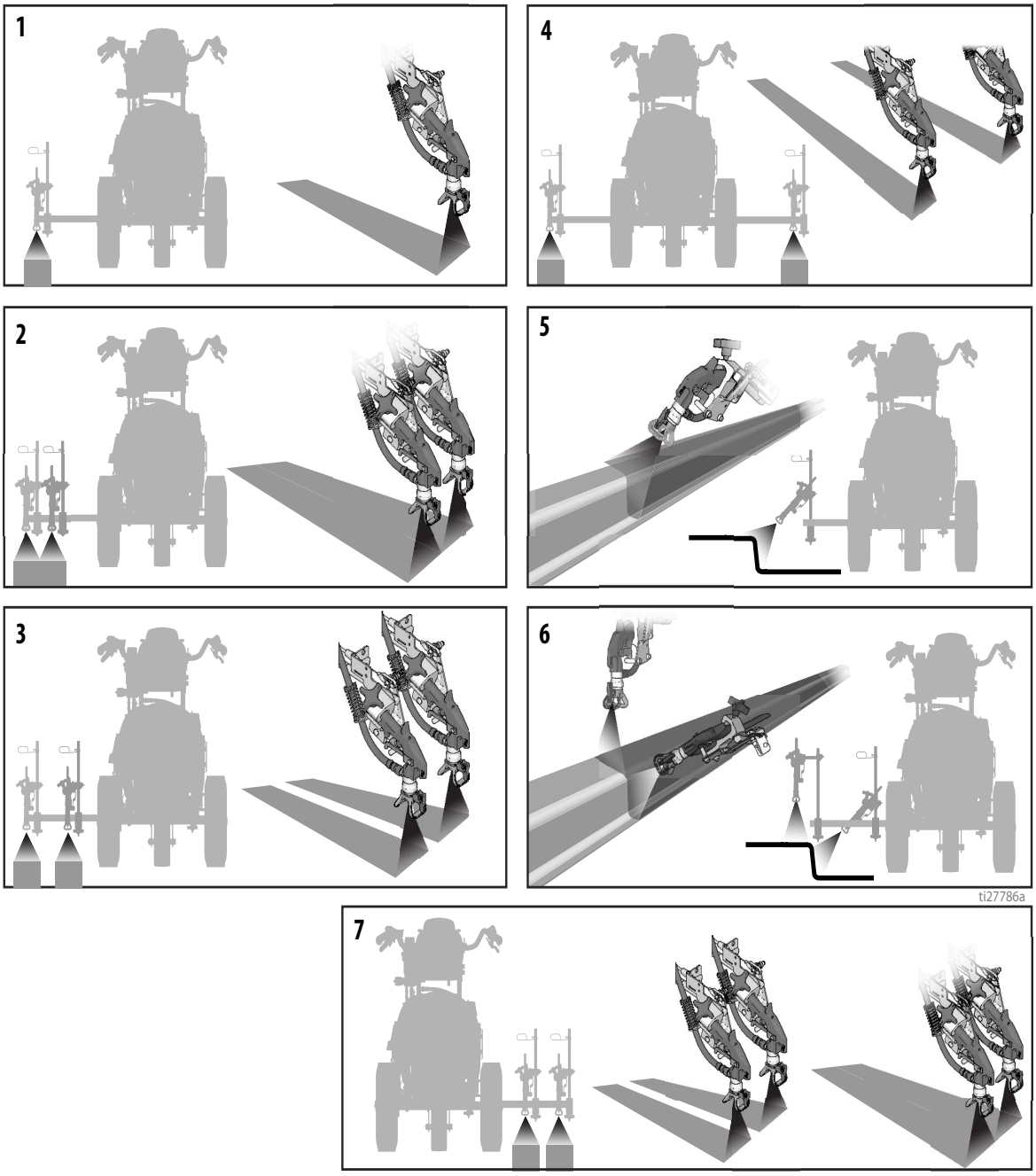
2. Use the gun trigger control to actuate auto guns.



4 Examples:



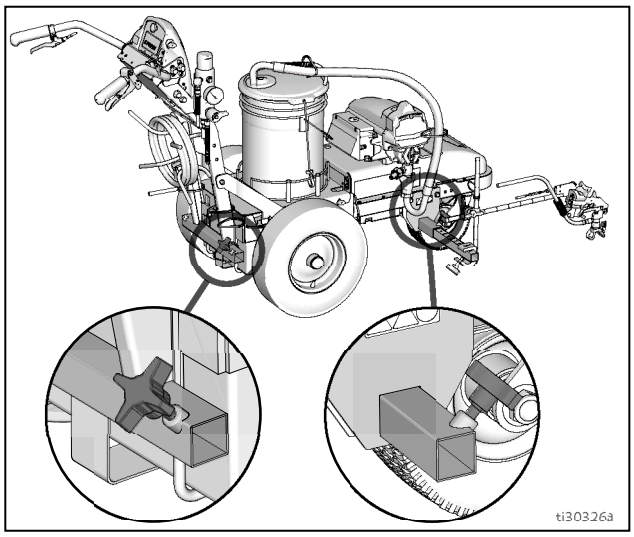
Gun Positions Chart



1	One line
2	One line up to 24 in. (61cm) wide
3	Two lines
4	One line or two lines to spray around obstacles
5	One gun curb
6	Two gun curb
7	Two lines or one line up to 24 in. (61 cm) wide

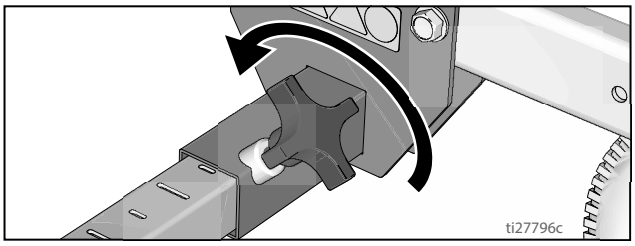
Gun Arm Mounts

This unit is equipped with front and rear gun arm mounts.

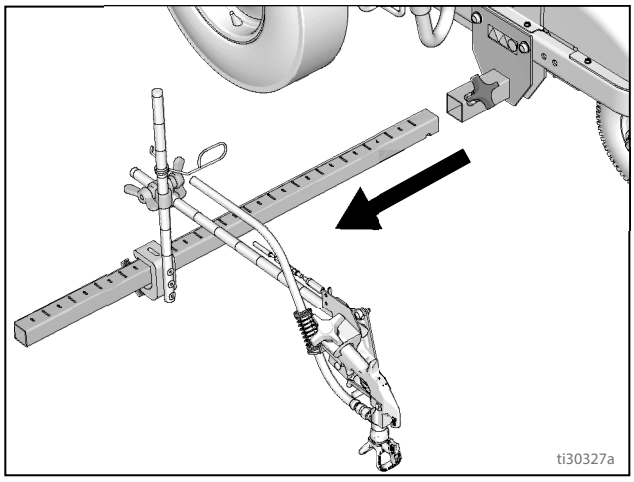


Change Gun Position (Front and Back)

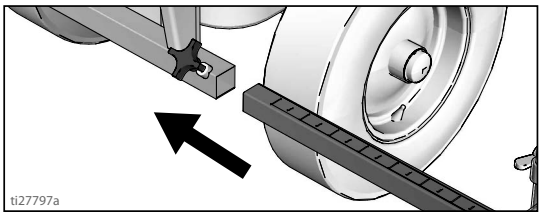
1. Loosen gun arm knob and remove from gun arm mounting slot.



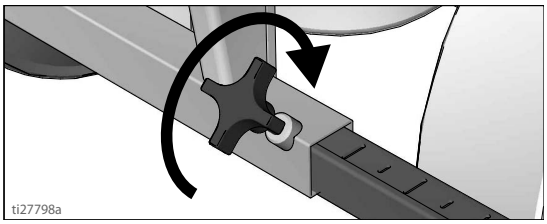
2. Slide gun arm assembly (including gun and hoses) out from gun arm mounting slot.



3. Slide gun arm assembly into desired gun arm mounting slot.



4. Tighten gun arm knob into gun arm mounting slot.



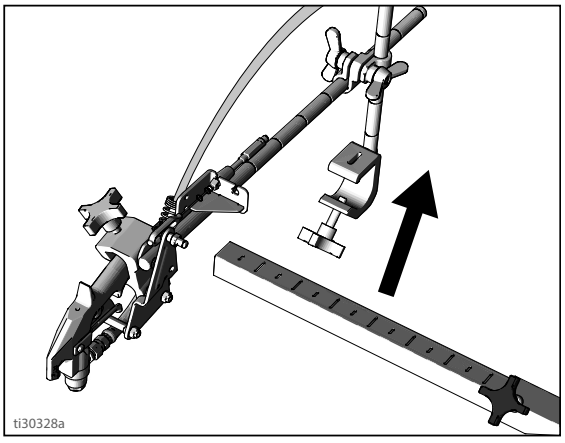
NOTICE

Make sure all hoses, cables, and wires are properly routed through brackets and do NOT rub on tire. Contact with tire will result in damaged hoses, cables, and wires.

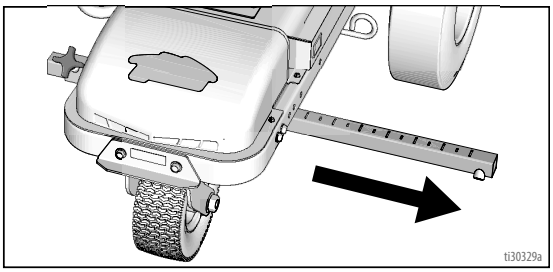
Change Gun Position (Left and Right)

Removal

1. Loosen vertical gun arm knob on gun arm mounting bar and remove.

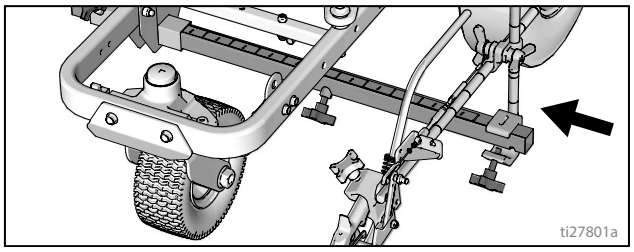


2. Extend mounting bar on opposite side of the machine.



Installation

1. Install vertical gun mount onto gun bar.

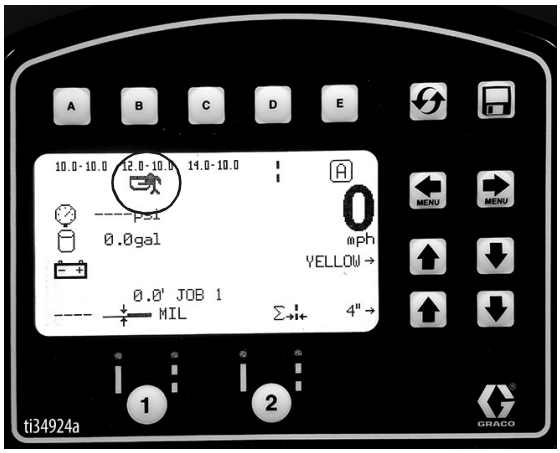


NOTE: Make sure all hoses, cables, and wires are properly routed through brackets.

Trigger Sensor Adjustment (ES 2000)

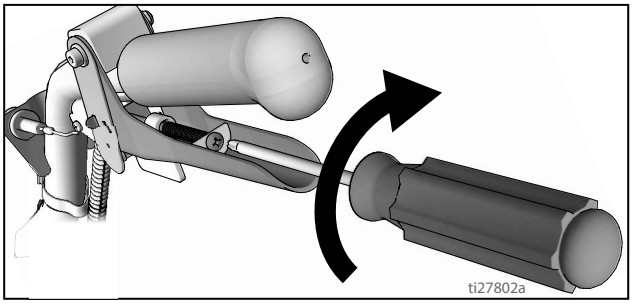
1. Turn striper on. Engage trigger. Spray icon should appear simultaneously with start of fluid spray.

ES 2000



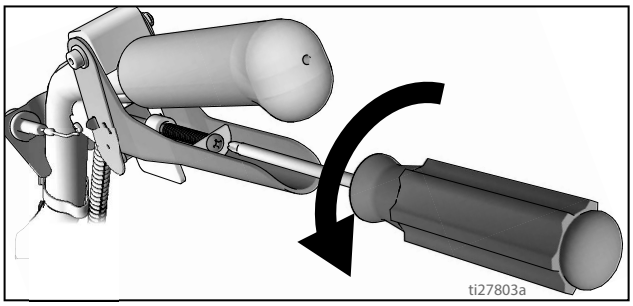
No fluid spray

2. Turn screw in handle clockwise if spray icon appears before fluid spray starts.

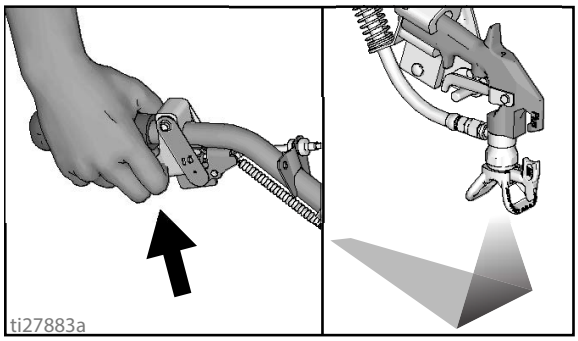


No spray icon

3. Turn screw in handle counterclockwise if fluid spray starts before spray icon appears.

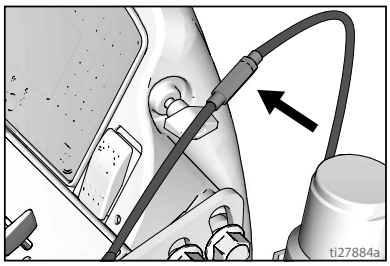


4. Continue adjusting screw in handle until timing of spray icon and fluid spray are synchronized. Adjustment of the gun cables might be necessary.



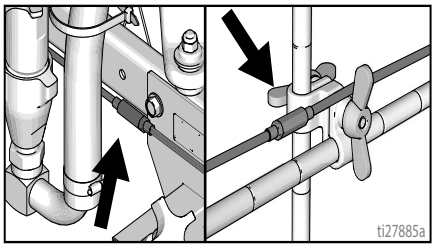
Gun Cable Adjustment

Adjusting the gun cable will increase or decrease the gap between the trigger plate and the gun trigger. To adjust trigger gap, perform the steps below.

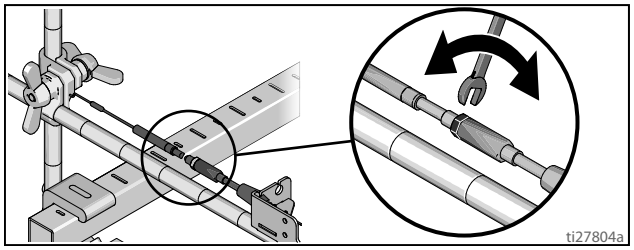


ES 1000 & ES 2000

ES 2000



1. Use wrench to loosen locking nut on cable adjuster.

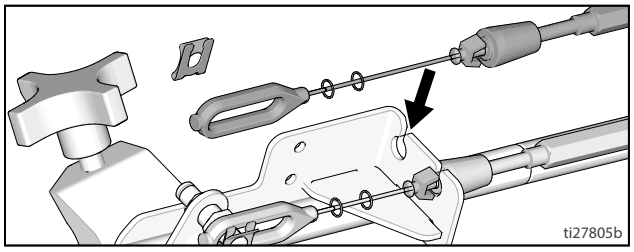


2. Loosen or tighten adjuster until desired result is achieved. **NOTE:** More thread exposed means less gap between gun trigger and trigger plate.
3. Use wrench to tighten locking nut on the adjuster.

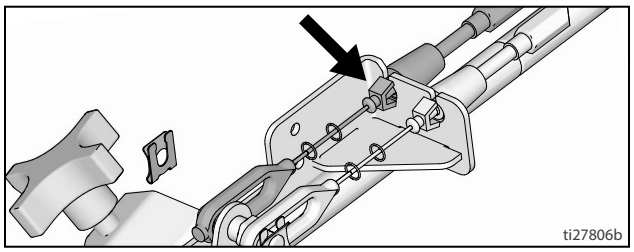
Adding Gun Cable (ES 2000)

The ES 2000 can be equipped with two gun actuators. Each gun actuator is capable of operating one cable.

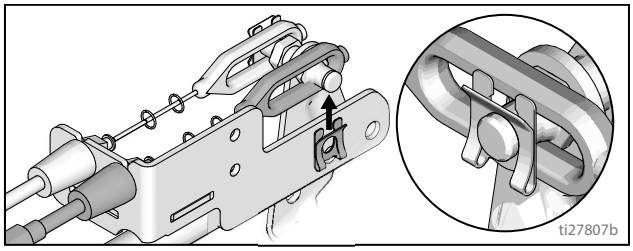
1. Select cable end with adjuster.
2. Install exposed cable through cable bracket slot.



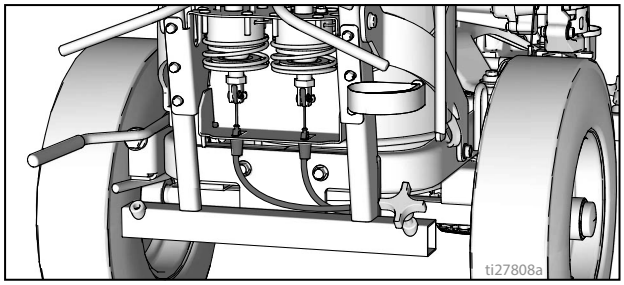
3. Insert plastic cable retainer into cable bracket hole.



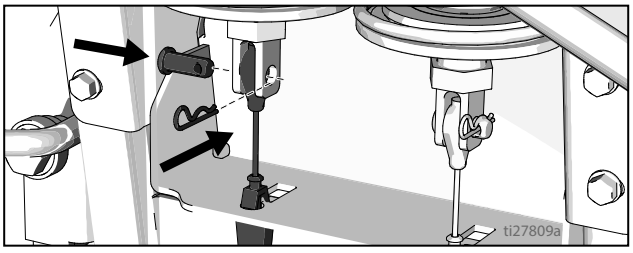
4. Install cable end onto trigger plate pin and install clip.



5. Route cable around unit and up through cable holes behind hose mount.



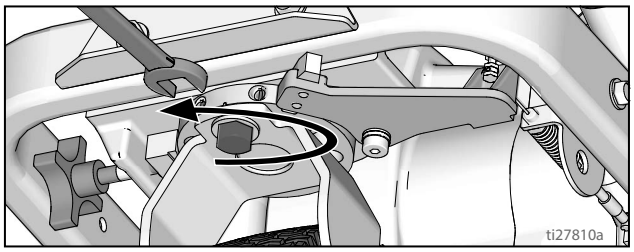
6. Route cable end loop through rectangular hole in bracket and insert plastic cable retainer into the actuator bracket. Install cable end onto actuator rod and install pin.



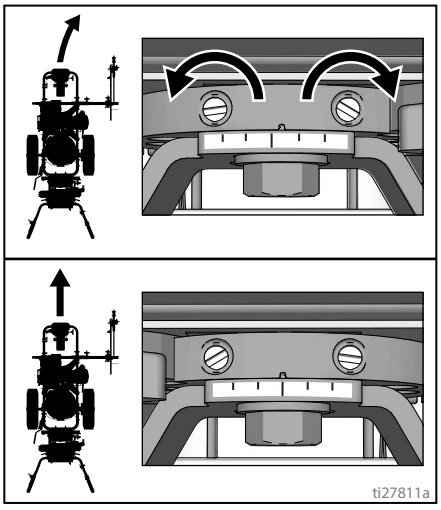
Straight Line Adjustment

The front wheel is set to center the unit and allow the operator to form straight lines. Over time, the wheel may become misaligned and will need to be readjusted. To re-center the front wheel, perform the following steps:

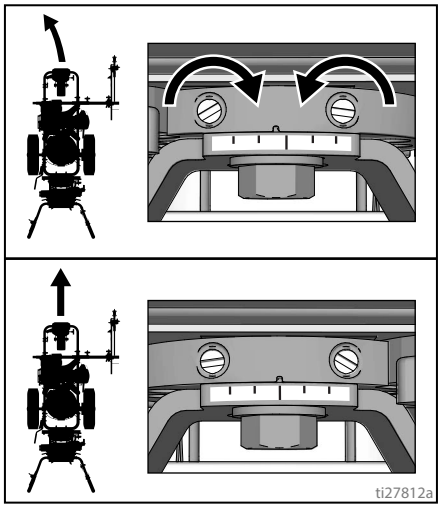
1. Loosen bolt on the front wheel bracket.



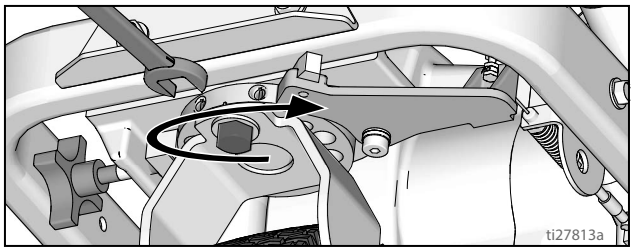
2. If striper arcs to the right, loosen left set screw and tighten right set screw for fine tune adjustment.



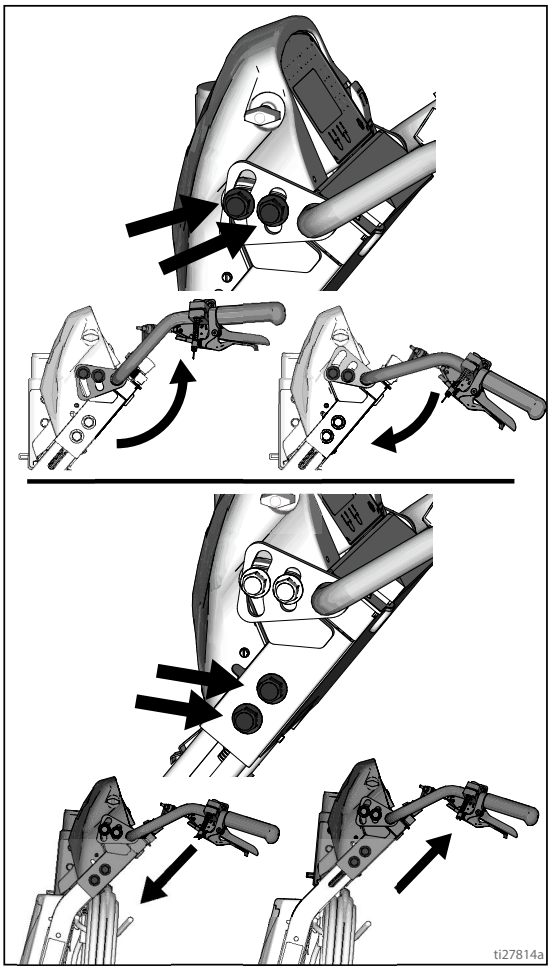
3. If striper arcs to the left, loosen right set screw and tighten left set screw.



4. Roll the striper. Repeat steps 2 and 3 until striper rolls straight. Tighten bolt on wheel alignment plate to lock the new wheel setting.

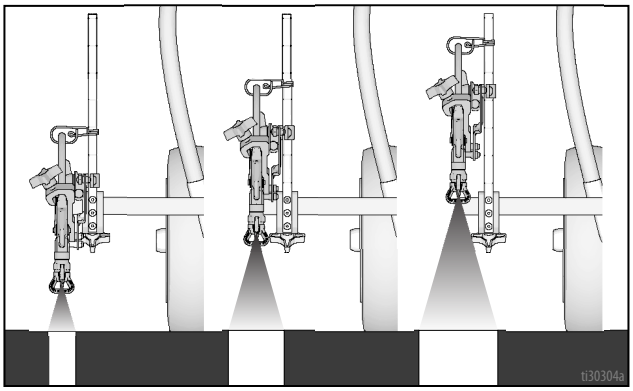


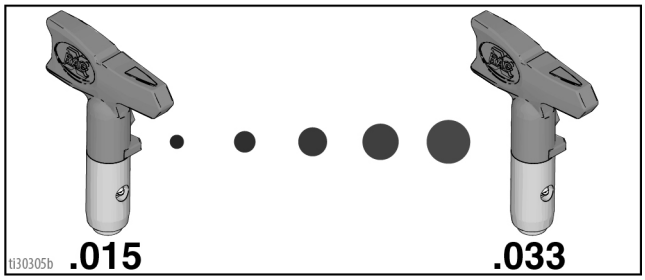
Handle Bar Adjustment



Paint Stripe Width

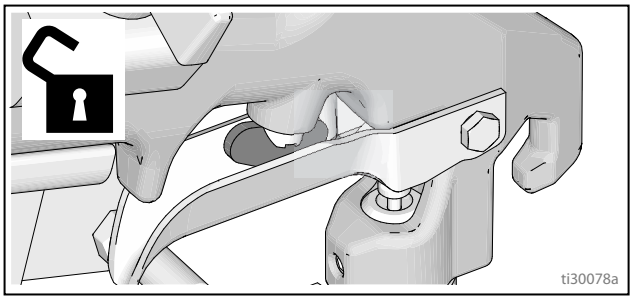
1. Adjust gun up or down to change paint stripe width.



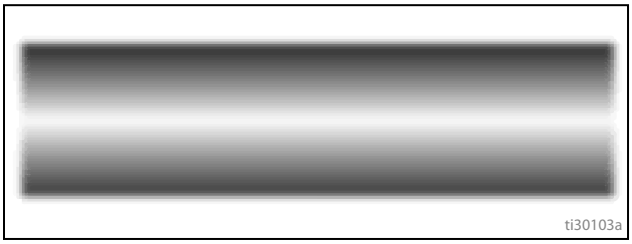


Spray Test Stripe

1. Disengage trigger lock.

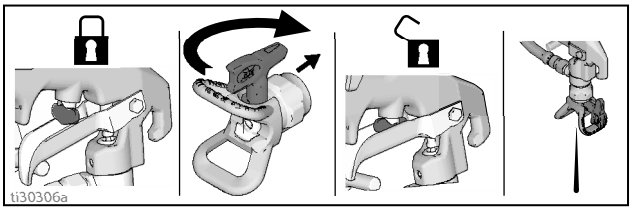


2. Trigger gun and spray test pattern. Slowly adjust pressure to eliminate heavy edges. Use smaller tip size if pressure adjustment can not eliminate heavy edges.

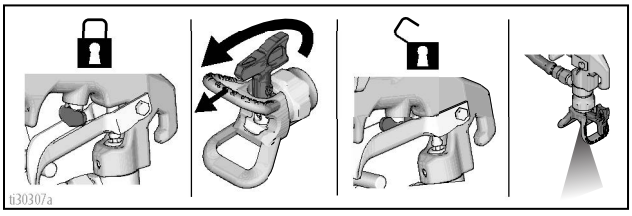


Clearing Tip Clogs

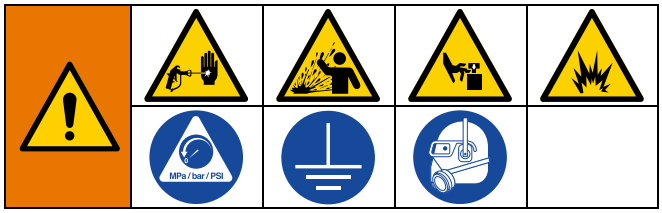
1. Release trigger. Engage gun trigger lock. Rotate SwitchTip. Disengage gun trigger lock and trigger gun to clear the clog.



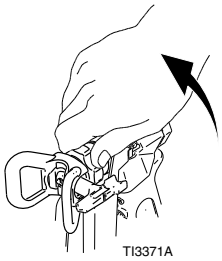
2. Engage gun trigger lock, return SwitchTip to original position, disengage gun trigger lock and continue spraying.



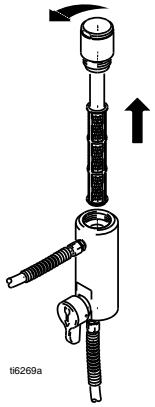
Cleanup



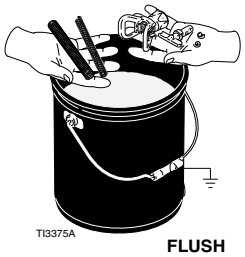
1. Perform **Pressure Relief Procedure**, page 16.
2. Remove guard and SwitchTip from all guns.



3. Unscrew cap, remove filter. Assemble without filter.



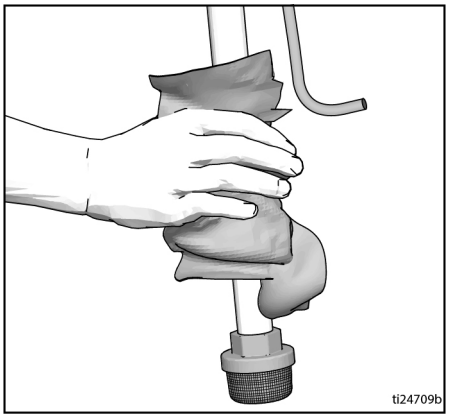
4. Clean filter, guard and SwitchTip in flushing fluid.



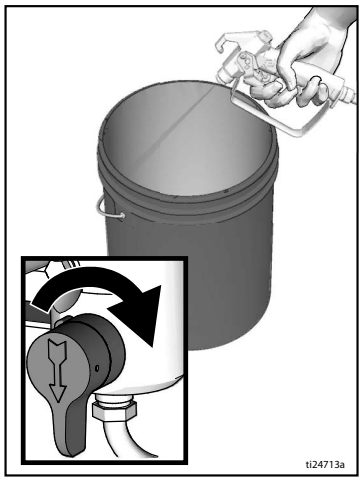
5. Attach ground wire to true earth ground or plug unit into grounded outlet.

Flush Drain Tube

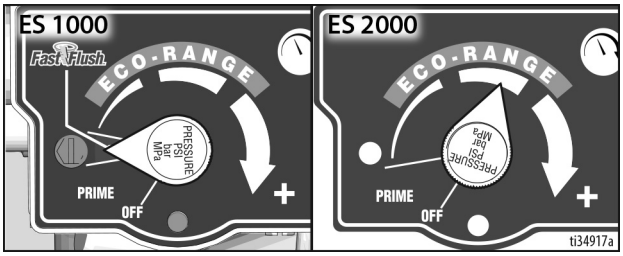
6. Remove fluid intake and drain tube from paint, wipe excess paint off outside.



7. Place siphon tube set in grounded metal pail partially filled with flushing fluid. Use water for water base paint and mineral spirits for oil-based paint.
8. To flush drain tube and pump turn prime valve down.

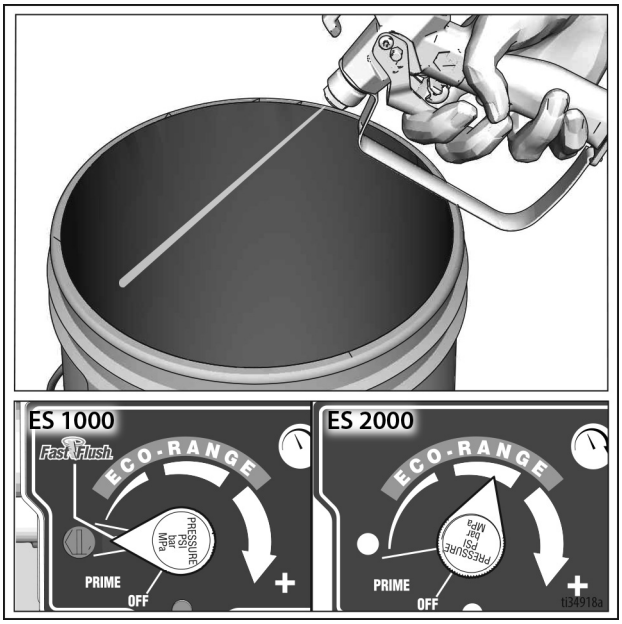


9. Turn pressure control to Fast Flush (ES1000), or 1/2 position (ES2000), and operate until the pump runs steady and flushing fluid appears in the waste pail.



Flush Hose and Gun

10. To flush airless hose and spray gun, turn prime valve horizontal.
11. Hold gun against waste pail. Disengage trigger lock. Trigger gun and turn pressure control to Fast Flush (ES1000), or 1/2 position (ES2000), and operate until the pump runs steady and flushing fluid appears.



12. Stop triggering gun.
13. Fill pump with Pump Armor and reassemble filter, guard and SwitchTip.
14. Each time you spray and store, fill throat packing nut with TSL to decrease packing wear.