Operation, Repair, Parts

LineLazer™ V 200MMA 1:1 Airless Line Stripers

3A6466B
EN

For the application of two component line striping materials.
For professional use only.
For outdoor use only.
Not 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.

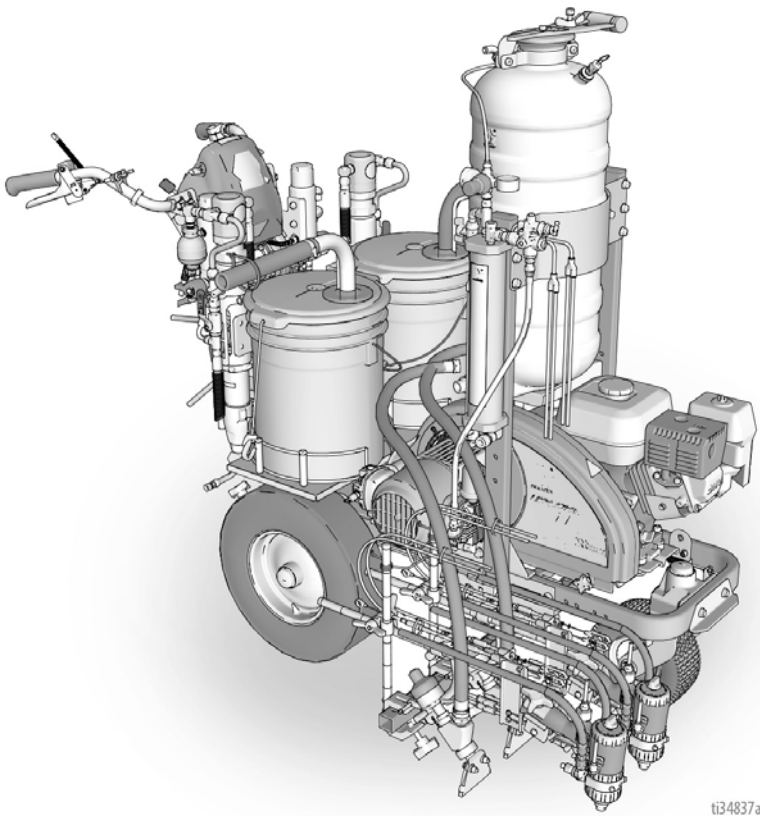
Important Medical Information

Read the medical alert card provided with the gun. It contains injection injury treatment information for a doctor. Keep it with you when operating the equipment.

Related Manuals:	
309277	Pump
3A3428	Auto-Layout Applications Methods
332230	Pressurized Bead System

Model:	**HP Reflective 1 Auto Gun 1 PBS Tank**	**HP Reflective 2 Auto Guns 1 PBS Tank**
17Y234 18B025	✔ CE	
17Y271	✔ with laser	
17Y513		✔ CE
17Y512		✔ with laser

All auto guns can be actuated manually.



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

Contents

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

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Do not fill fuel tank while engine is running or hot; shut off engine and let it cool. Fuel is flammable and can ignite or explode if spilled on hot surface.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Ground all equipment in the work area. See **Grounding** instructions.
- Never spray or flush solvent at high pressure.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are antistatic or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- 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 spray tip guard. Do not spray without spray tip guard in place.
- Use Graco spray tips.
- Use caution when cleaning and changing spray tips. In the case where the spray tip clogs while spraying, follow the **Pressure Relief Procedure** for turning off the unit and relieving the pressure before removing the spray 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. Use Graco replacement parts or accessories that are rated a minimum of 3300 psi.
- Always engage the piston safety lock when not spraying. Verify the piston safety 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

CARBON MONOXIDE HAZARD

Exhaust contains poisonous carbon monoxide, which is colorless and odorless. Breathing carbon monoxide can cause death.

- Do not operate in an enclosed area.

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 Sheets (SDSs) 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.

PRESSURIZED ALUMINUM PARTS HAZARD

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.
- Do not use chlorine bleach.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.

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.

ENTANGLEMENT HAZARD

Rotating parts can cause serious injury

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

⚠ WARNING

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 Sheets (SDSs) 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.

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

The battery may leak, explode, cause burns, or cause an explosion if mishandled. Contents of an open battery can cause severe irritation and/or chemical burns. If on skin, wash with soap and water. If in eyes, flush with water for at least 15 minutes and get immediate medical attention.

- Only use the battery type specified for use with the equipment. See **Technical Data**.
- Replace battery only in well-ventilated area and away from flammable or combustible materials, including paints and solvents.
- Do not dispose of battery in fire or heat above 50°C (122°F). The battery is capable of exploding.
- Do not throw into fire.
- Do not expose battery to water or rain.
- Do not disassemble, crush, or penetrate the battery.
- Do not use or charge a battery that is cracked or damaged.
- Follow local ordinances and/or regulations for disposal.

ELECTRIC SHOCK HAZARD

Hazardous voltage is present in control box while engine is running.

- Turn off engine before servicing equipment.

Important Laser Information for Units with Laser Option

⚠ WARNING

LASER LIGHT HAZARD: AVOID DIRECT EYE CONTACT

Eye exposure to Class IIIa3/3R levels of laser light can potentially present an eye (retinal) injury hazard, including spot blindness or other retinal injury. To avoid direct eye exposure:

- Never look directly in to a laser beam or point the beam into the eyes of others, even at long distances.
- Never shine the laser at mirror like surfaces which can cause specular reflections of the beam.
- Always set the laser at a height and angle that prevents the beam from shining into people's eyes.
- Immediately terminate laser emissions if personnel, animals or reflective objects approach the beam.
- Always turn off laser when unattended.
- Do not remove any warning labels from the laser.
- Only properly trained laser operators are to use this product.
- Never allow beams to be aimed toward traffic, vehicles, or heavy equipment. Even when not damaging at long distances, the high brightness of lasers can distract or disrupt vehicle operations.
- Never point a laser at an aircraft or law enforcement personnel. This is considered a felony in most locations, with the possibility of jail time, heavy fines or both.
- Do not disassemble laser product. Return to factory for all service procedures.
- Laser must be turned OFF when cleaning the lens, so as not to create unwanted laser refraction.

LASER RADIATION HAZARD

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

- Do not attempt to open or disassemble the laser housing under any circumstances. Doing so may cause exposure to potentially hazardous levels of laser radiation.
- No serviceable parts within. Unit is factory sealed.

FIRE AND EXPLOSION HAZARD

Connecting directly to a generator source can create a short or sparking under certain conditions.

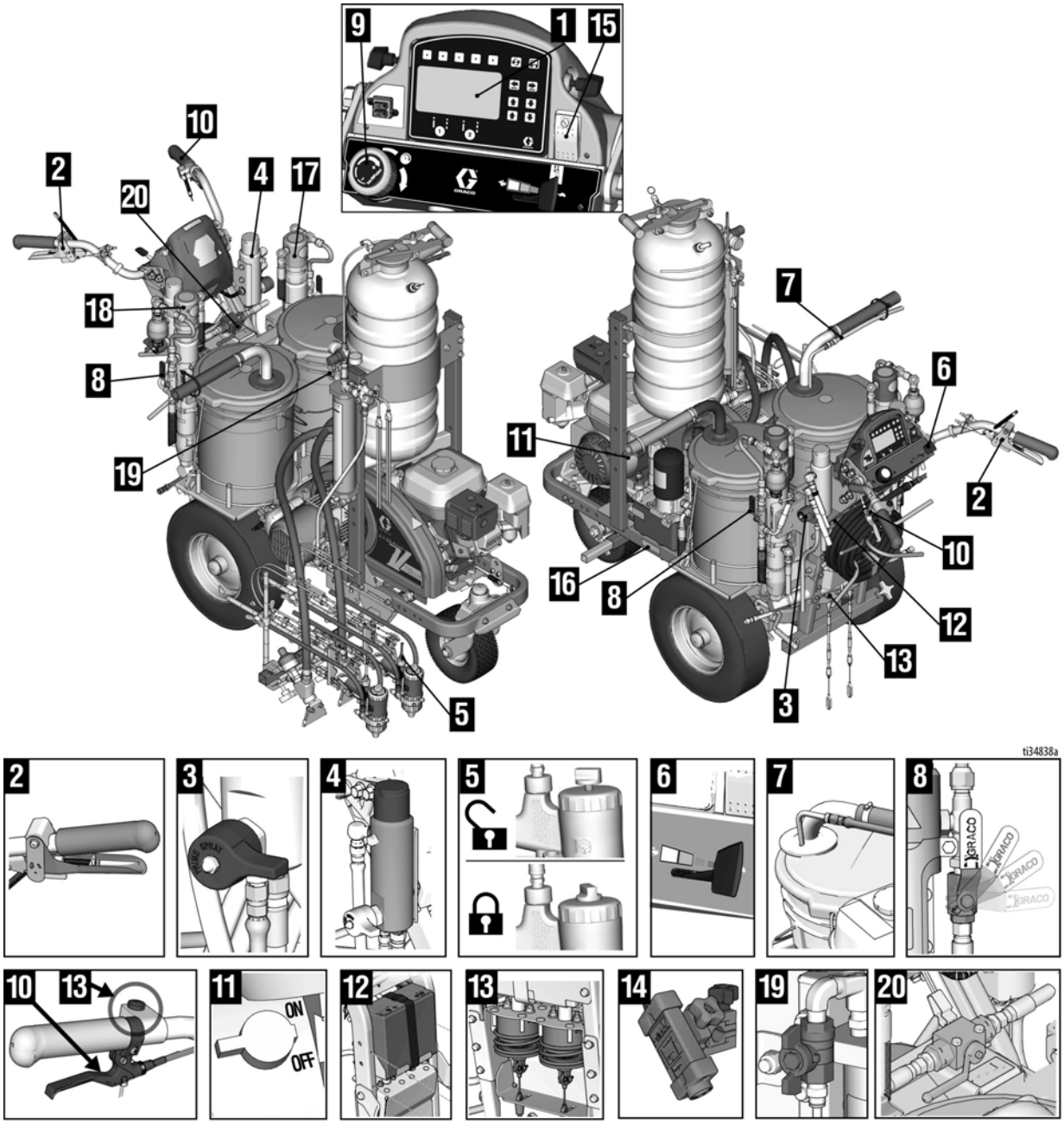
- Only connect GL1700 to a dedicated 12 volt DC battery source.

Tip Selection

							
286321	3-4 (7-10)				✔		
286323	3-4 (7-10)					✔	
286325	3-4 (7-10)					✔	
286327	3-4 (7-10)						✔
286331	3-4 (7-10)						✔
286423		4-5 (10-13)			✔		
286425		4-5 (10-13)			✔		
286427		4-5 (10-13)				✔	
286429		4-5 (10-13)				✔	
286433		4-5 (10-13)					✔
286525		5-6 (13-15)			✔		
286527		5-6 (13-15)			✔		
286529		5-6 (13-15)				✔	
286531		5-6 (13-15)				✔	
286533		5-6 (13-15)					✔
286535		5-6 (13-15)					✔
286627			6-8 (15-20)		✔		
286629			6-8 (15-20)		✔		
286631			6-8 (15-20)			✔	
286633			6-8 (15-20)			✔	
286635			6-8 (15-20)				✔
286729				8-10 (20-25)	✔		
286735				8-10 (20-25)			✔
286831				8-12 (20-30)	✔		
286833				8-12 (20-30)		✔	
286835				8-12 (20-30)			✔
286935				9-12 (23-30)			✔

Tips smaller than a 0.021 orifice may result in poorly mixed material or frequently clogged tips.

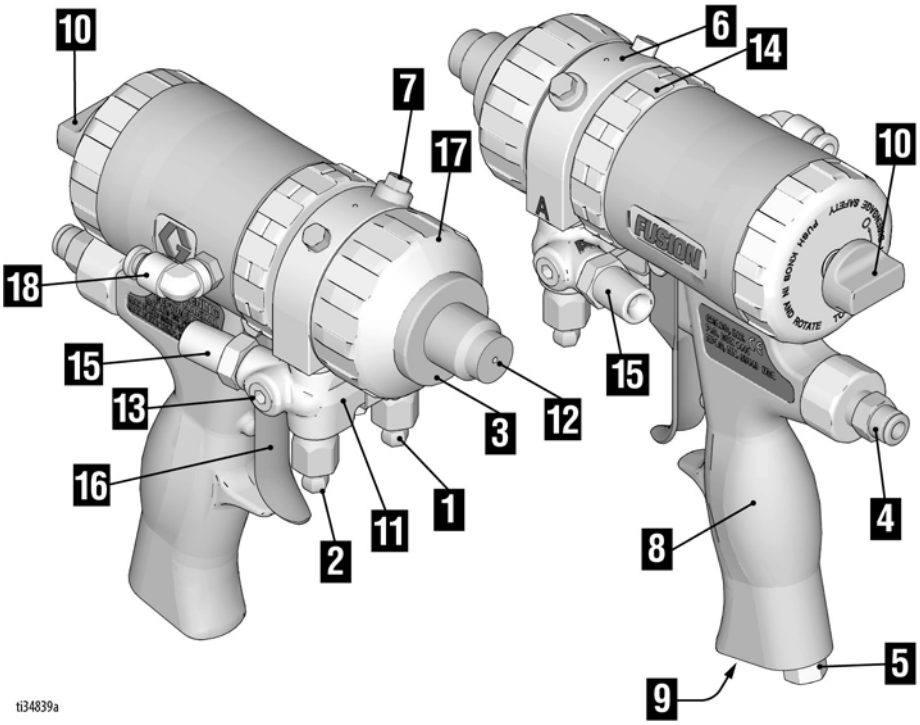
Component Identification - LLV 200MMA



1	Display
2	Spray Gun Control
3	Prime/Spray Valve
4	Filter Manifold
5	Piston Safety Lock
6	Engine/Controls
7	Drain and Siphon Tubes
8	Pump ON/OFF Valve
9	Pressure Control
10	Turn Control

11	Engine STOP
12	12 Volt Battery
13	Gun Actuator
14	Layout Laser
15	Engine Kill Switch
16	Identification Label
17	A Side Fluid Pump
18	B Side Fluid Pump
19	Purge Air Valve
20	Proportioning Valve

Component Identification - Fusion Gun



1	A Side Fluid Valve
2	B Side Fluid Valve
3	Spray Tip Adapter
4	1/4” Air Push-to-Connect for Actuation
5	Muffler
6	Fluid Housing
7	Grease Fitting (under cap)
8	Handle
9	Optional Air Inlet

10	Piston Safety Lock
11	Gun Fluid Manifold
12	Mix Chamber Nozzle
13	Fluid Inlets (optional) (A Side Shown)
14	Lock Ring
15	Fluid Inlet (A Side Shown)
16	Trigger
17	Front Retaining Ring
18	1/4” Air Push to Connect for Purge

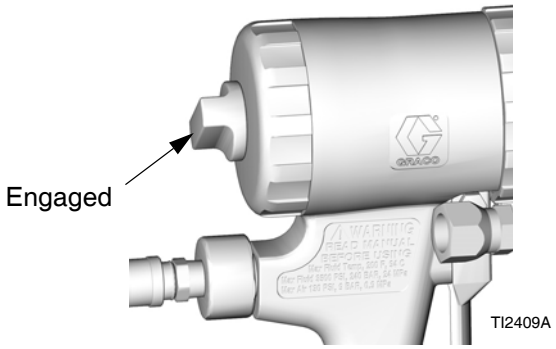
Piston Safety Lock

Engage Piston Safety Lock whenever you are handling the gun out of the holder and the gun is under pressure, to avoid accidental triggering.

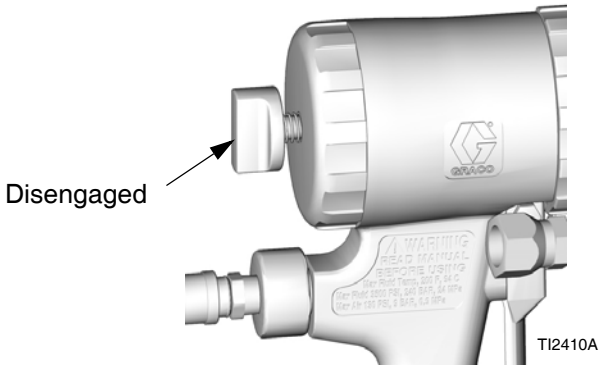
RISK OF INJECTION

To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, engage the Piston Safety Lock when handling the gun out of the holder.

To engage Piston Safety Lock: push knob in and turn clockwise. If engaged, gun will not actuate.



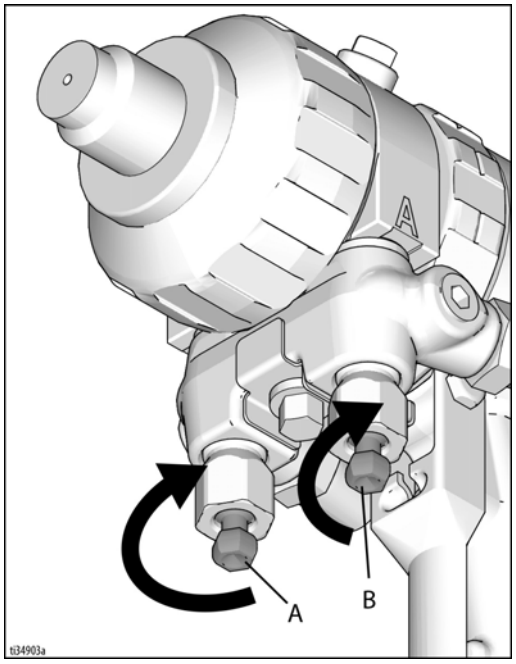
To disengage Piston Safety Lock: push knob in and turn counterclockwise until it pops out. There will be a gap between knob and gun body.



Loss of Air Pressure

In event of loss of air pressure, gun will continue to spray. To shut off gun, do one of the following:

- Push in **Piston Safety Lock**, page 10.
- Close Fluid Valves A and B.



Theory of Gun Operation

Gun Triggered (Fluid Spraying)

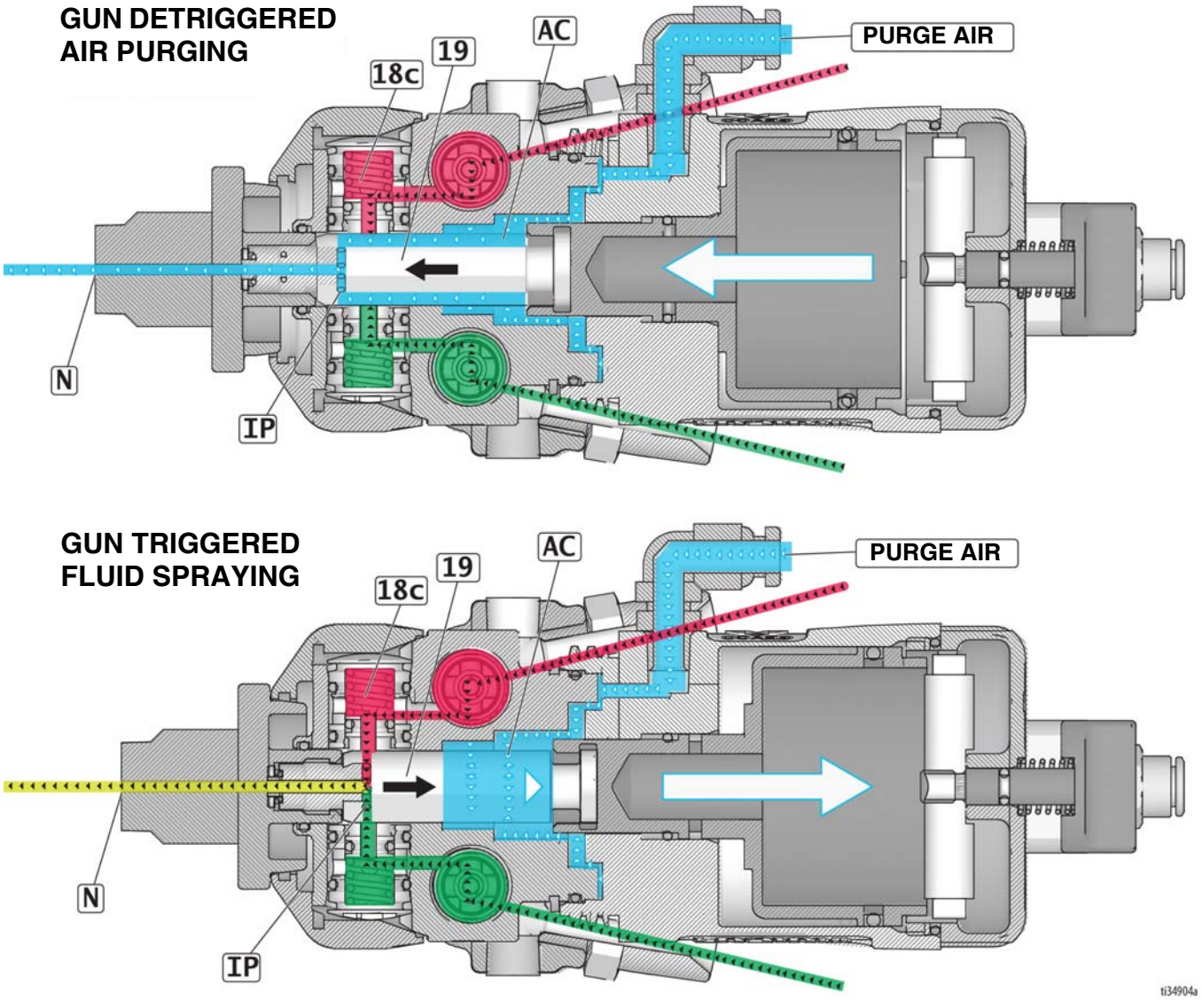
Mix chamber (19) moves back, shutting off purge air flow. Impingement ports (IP) align with fluid ports of side seals (18c), allowing fluid to flow through mix chamber nozzle (N).

NOTE: Flow paths are not shown to scale, for clarity. See Parts List, pages 72-74, for part numbers and reference locations.

Gun Detriggered (Air Purging)

Mix chamber (19) moves forward, shutting off fluid flow. Impingement ports (IP) open to air chamber (AC), allowing purge air to flow through mix chamber nozzle (N).

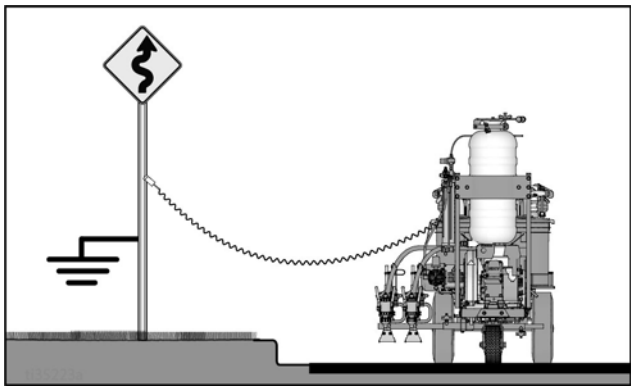
See page 29 for use of Grease Fitting.



Grounding Procedure (For Flammable Flushing Fluids Only)

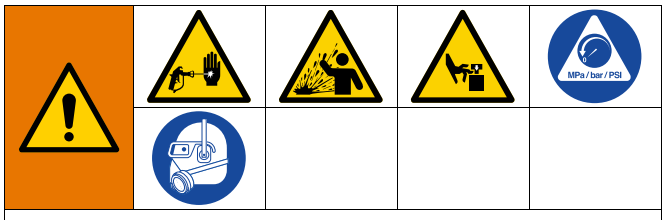
This equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.

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).



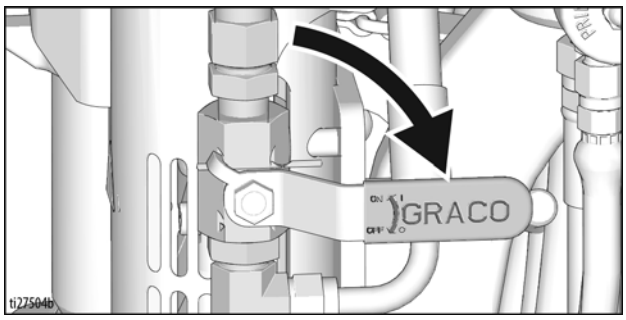
3. Disconnect grounding clamp after flushing is complete.

Pressure Relief Procedure

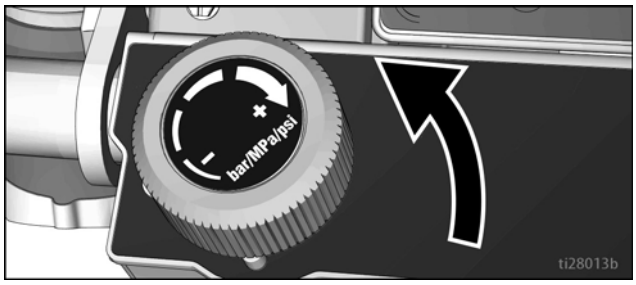


This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing the equipment.

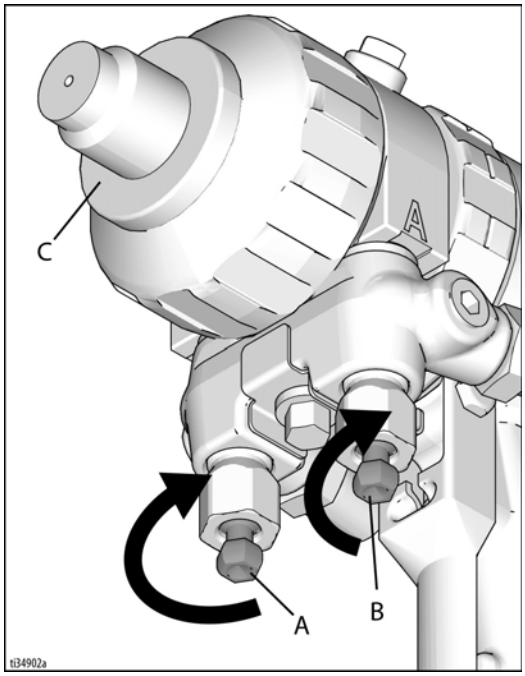
1. Perform **Grounding Procedure (For Flammable Flushing Fluids Only)**, page 12.
2. Set both Pump ON/OFF Valves to **OFF**.



3. Turn Pressure Control to lowest setting.



4. Close the fluid needle valves on the hose manifold with the provided 5/16” nut driver.

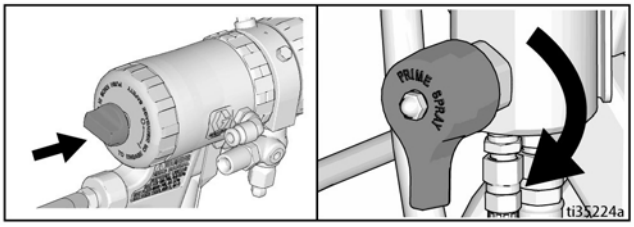


5. Remove the hose manifold, see **Remove/Reinstall Hose Manifold**, page 45.

6. Point the hose manifold outlets downward into a waste bucket, and slowly open the fluid needle valves to relieve pressure.

7. Cloe the fluid needle valves and reinstall the hose manifold, see **Remove/Reinstall Hose Manifold**, page 45.

8. Engage all gun Piston Safety Locks. Turn Prime Valves to prime positions.



Clear Spray Tip Adapter Clog

1. If you suspect the spray tip adapter is clogged or that pressure has not been fully relieved:

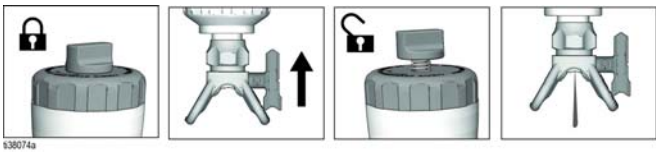
   a. Perform **Pressure Relief Procedure**, page 12.

   b. Remove the Spray Tip Adapter VERY SLOWLY.

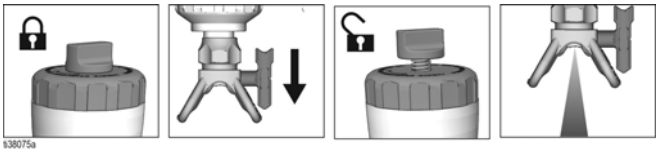
   c. Clear the obstruction in the spray tip adapter and reinstall.

Clear Tip Clogs

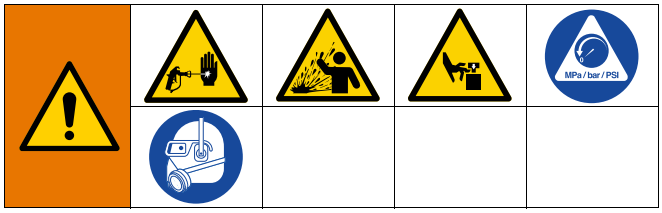
1. Release trigger. Engage Piston Safety Lock. Rotate SwitchTip. Disengage Piston Safety Lock and trigger gun to clear the clog.



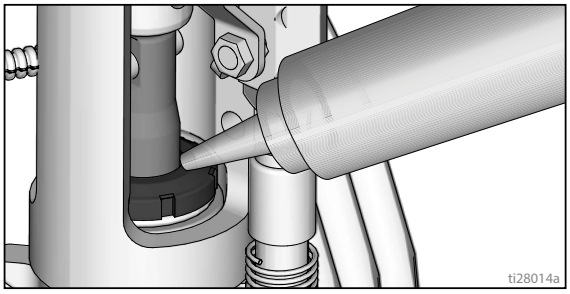
2. Engage Piston Safety Lock, return SwitchTip to original position, disengage Piston Safety Lock and continue spraying.



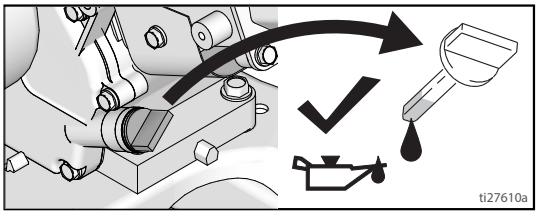
Setup/Startup



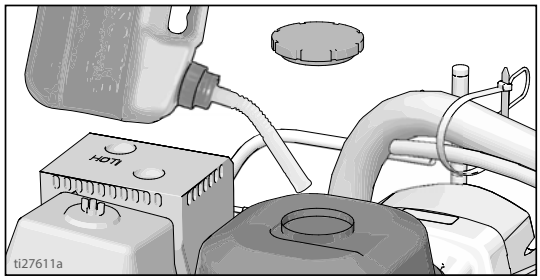
1. Perform **Pressure Relief Procedure**, page 12.
2. Perform **Grounding Procedure (For Flammable Flushing Fluids Only)**, page 12, if using flammable materials.
3. Fill throat packing nut with Throat Seal Liquid (TSL) to decrease packing wear.



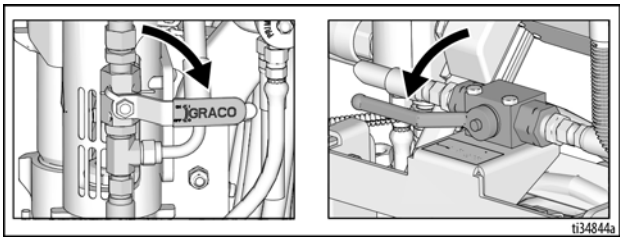
4. Check engine oil level. Add SAE 10W-30 (summer) or 5W-30 (winter). See engine manual.



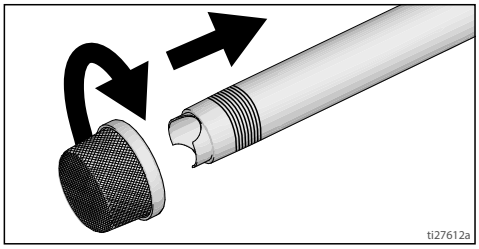
5. Fill fuel tank.



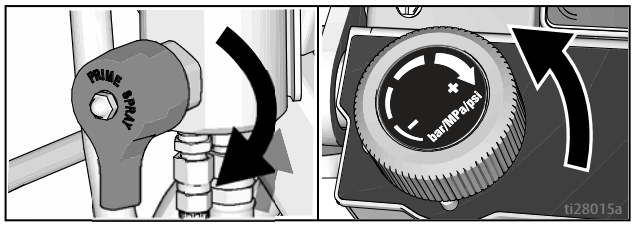
6. Set A and B side Pump ON/OFF Valves to **OFF**. Set proportioning valve to “non-proportioning.”



7. If removed, install strainers on both A and B suction tubes.



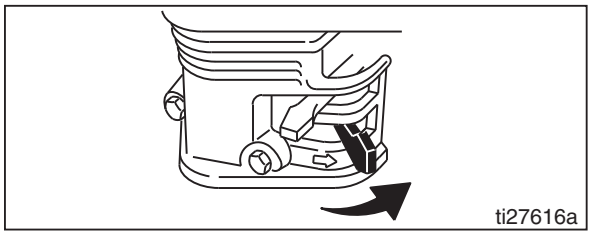
8. Turn both Prime Valves to prime. Turn Pressure Control counterclockwise to lowest pressure.



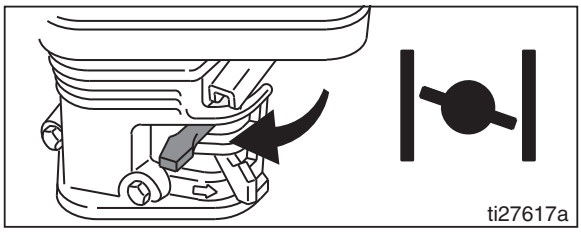
NOTE: Minimum hose size allowable for proper sprayer operation is 3/8 in. x 11 feet & 1/4 in. x 7 feet for LLV 200MMA.

9. Start engine:

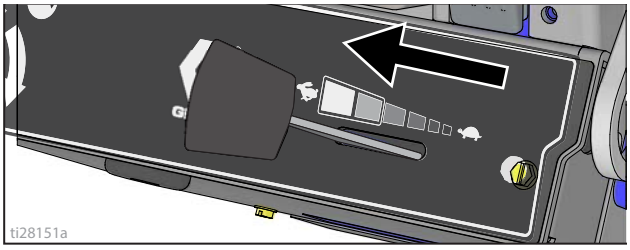
   a. Move fuel valve to open.



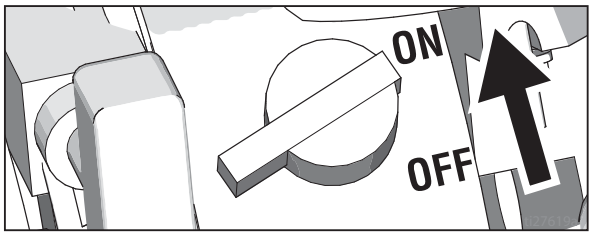
   b. Move choke to closed.



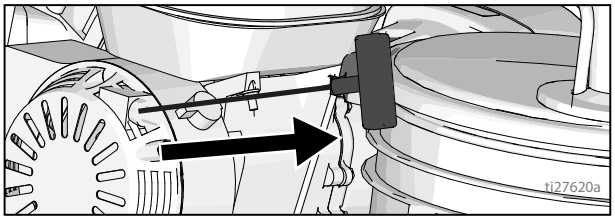
   c. Set throttle to fast.



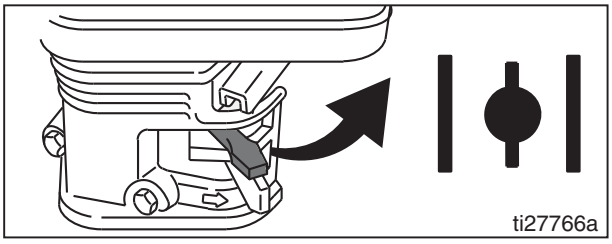
   d. Set engine switch to ON.



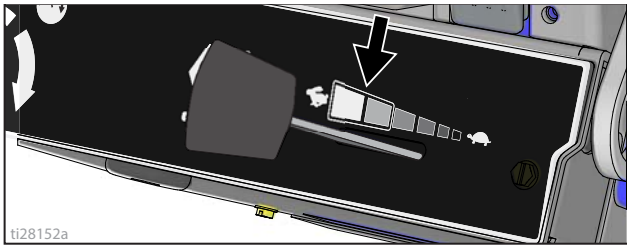
   e. Pull starter cord.



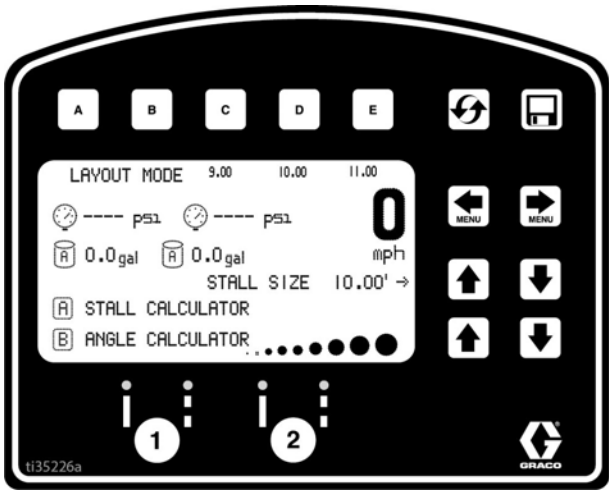
10. After engine starts, move choke to open.



11. Set throttle to desired setting.



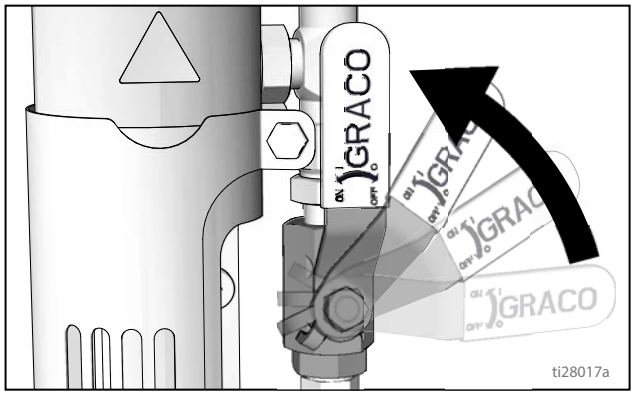
12. Digital Display is functional after engine starts.



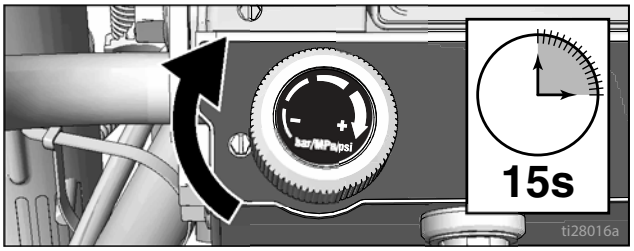
13. Mix BPO catalyst with component B per manufacturer's recommendation.

14. Place siphon tube in component B pail and drain tube in separate waste pail.

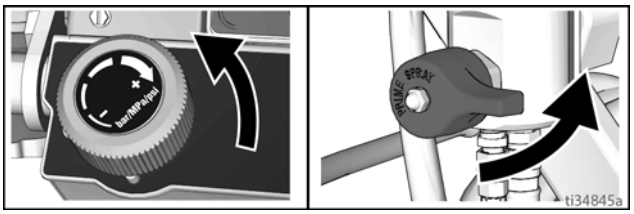
15. Set B side Pump ON/OFF Valve to **ON** (pump is now active).



16. Increase Pressure Control enough to start pump. Pump is primed when fluid flows from drain tube.

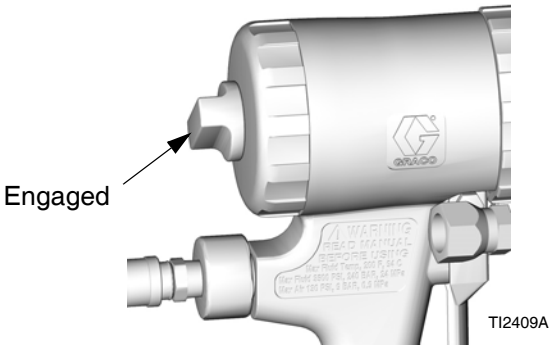


17. Turn pressure down, turn Prime Valve to spray.

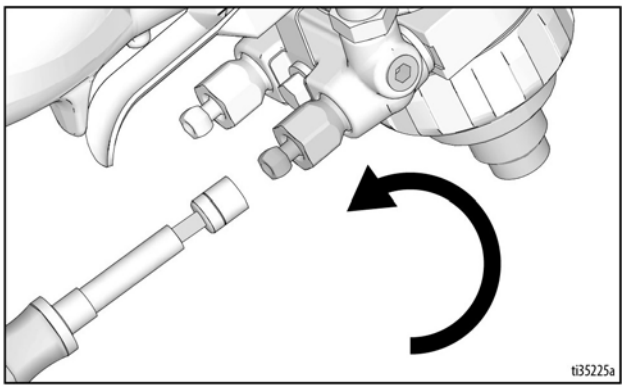


18. Return drain line to component B pail.

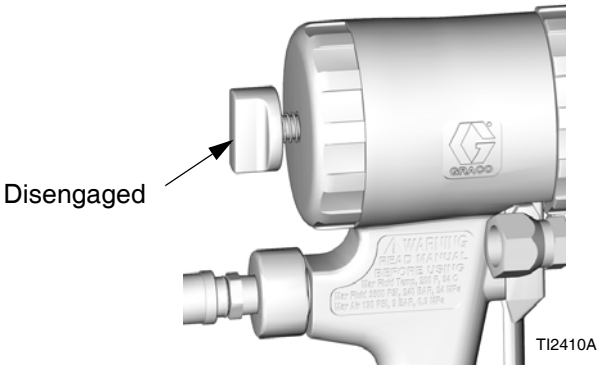
19. Engage Piston Safety Lock.



20. Open B side Fluid Valve (about three full turns).

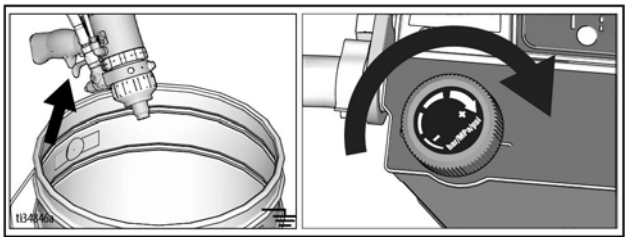


21. Disengage Piston Safety Lock.



22. Set the B side ON/OFF valve to **ON** (pump is now active).

23. Hold gun against a grounded metal flushing pail. Trigger gun and increase fluid pressure slowly until pump runs smoothly.



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

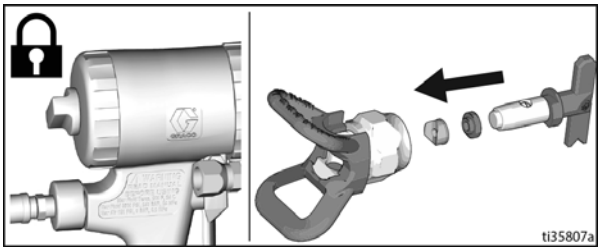
24. If you suspect a clog, perform **Clear Spray Tip Adapter Clog**, page 13.

25. Inspect fittings for leaks. If leaks occur, turn sprayer OFF immediately. Perform **Pressure Relief Procedure**, page 12. Tighten leaky fittings. Repeat **Startup**, steps 1-22. If no leaks, continue to trigger gun until system is thoroughly primed. Proceed to step 26.

26. Perform **Pressure Relief Procedure**, page 12.

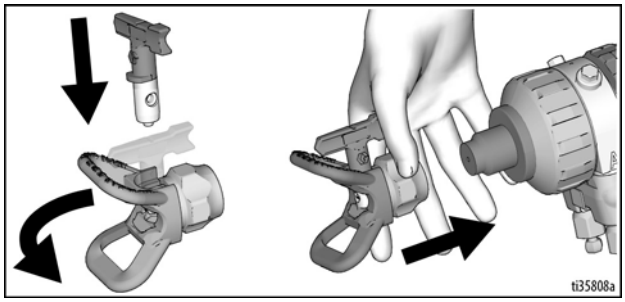
27. Close B side Fluid Valve on gun, and repeat step 14-23 for pump “A” with component A material.

28. Engage Piston Safety Lock. Use end of SwitchTip to press OneSeal into tip guard, with curve matching tip bore.

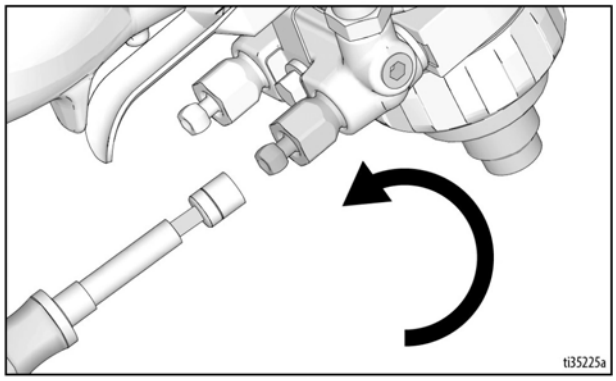


To avoid serious injury from skin injection, do not put your hand in front of the spray tip when installing or removing the spray tip and tip guard.

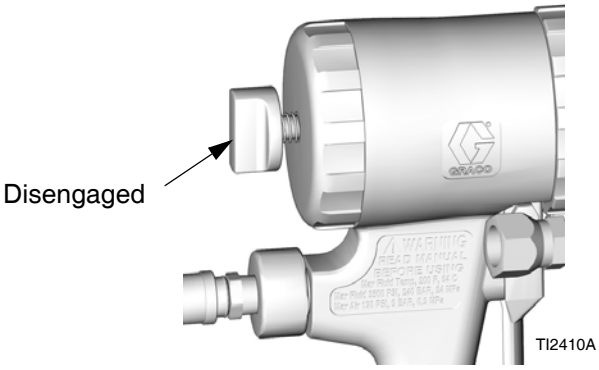
29. Insert SwitchTip in tip bore and firmly thread assembly onto gun.



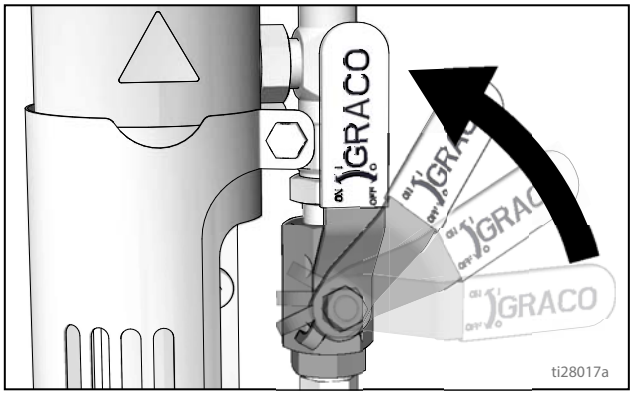
30. Open both A and B side fluid shutoff valves.



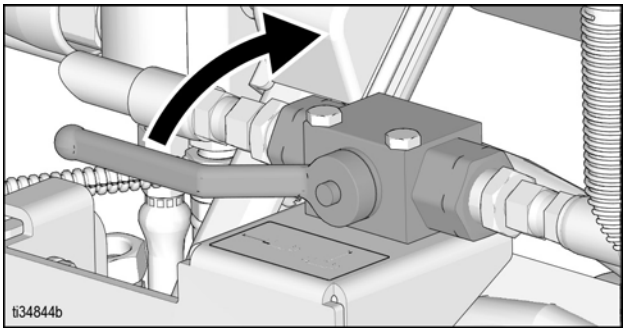
31. Disengage Piston Safety Lock.



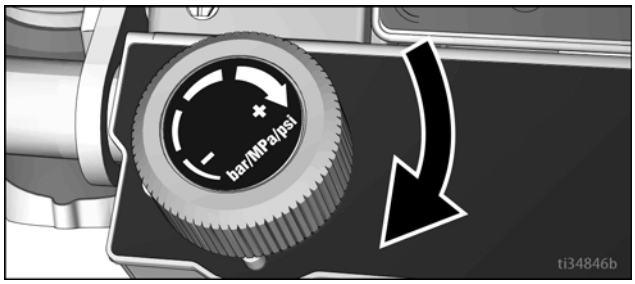
32. Turn both A and B Pump ON/OFF Valves to **ON.**



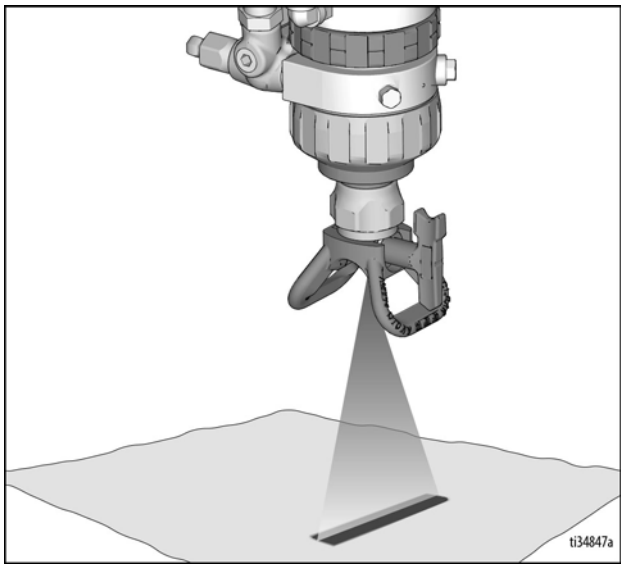
33. Turn proportioning valve to “proportion”.



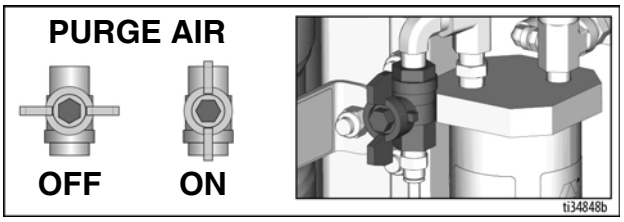
34. Increase pressure control knobs to deired pressure.



35. Test spray onto cardboard. Adjust pressure to achieve desired results. If you suspect the spary tip is clogged, perform **Clear Tip Clogs**, page 13.



36. Open Purge Air Valve to purge mixed material from tip and spray tip adapter.



NOTICE

Purge Air Valve must be open to purge material from gun. Purging material maintains the gun’s functionality and prevents hardened material in gun components.

37. You are now ready to spray.

Keep Components A and B Separate

Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination:

- Never interchange component A and component B wetted parts.
- Never use solvent on one side if it has been contaminated from the other side.

Changing Materials

NOTICE

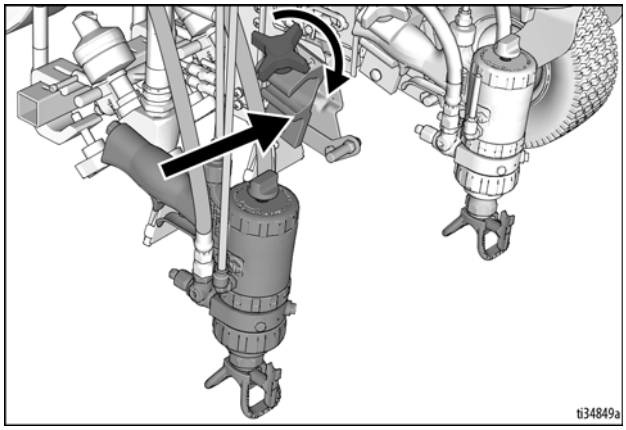
Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers on suction tubes after flushing.
- Check with your material manufacturer for chemical compatibility.

Gun Placement

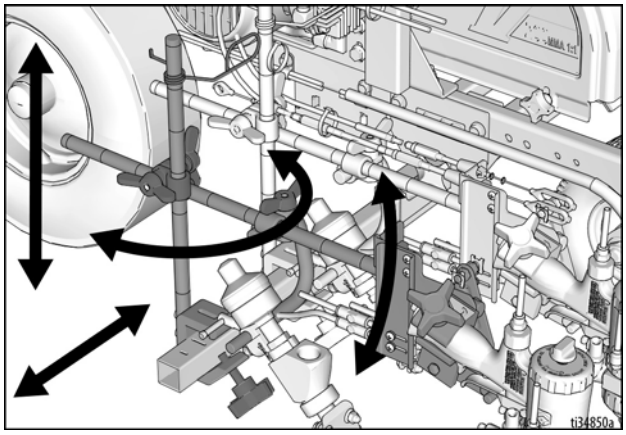
Install Guns

1. If pressurized, perform **Pressure Relief Procedure**, page 12.
2. Insert guns into gun holder. Tighten clamps.

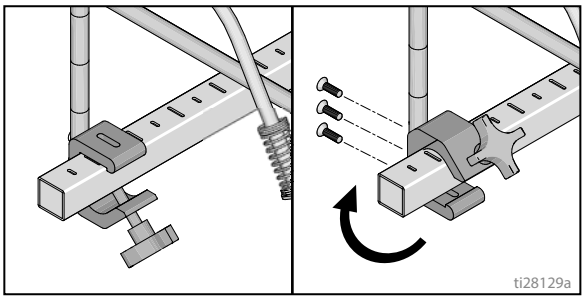


Position Gun

3. Position gun: up/down, forward/reverse, left/right. See **Gun Positions Chart**, page 21, for examples.

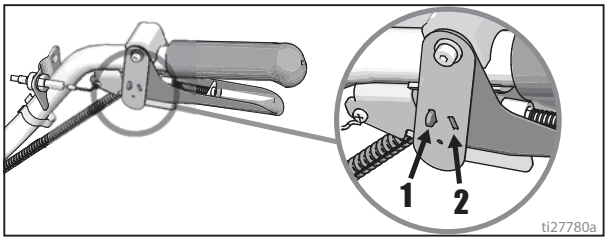


NOTE: When striping above a curb, the mounting clamp can be rotated for clearance.



Manual Guns Selection

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

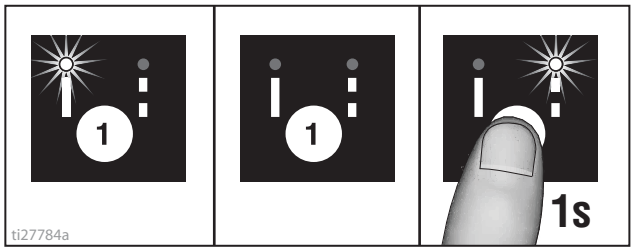


a. One gun: Disconnect one gun selector plate from trigger.

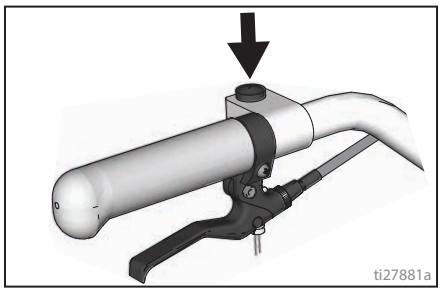
b. Both guns simultaneously: Adjust both gun selector plates to the same position.

Auto Guns Selection

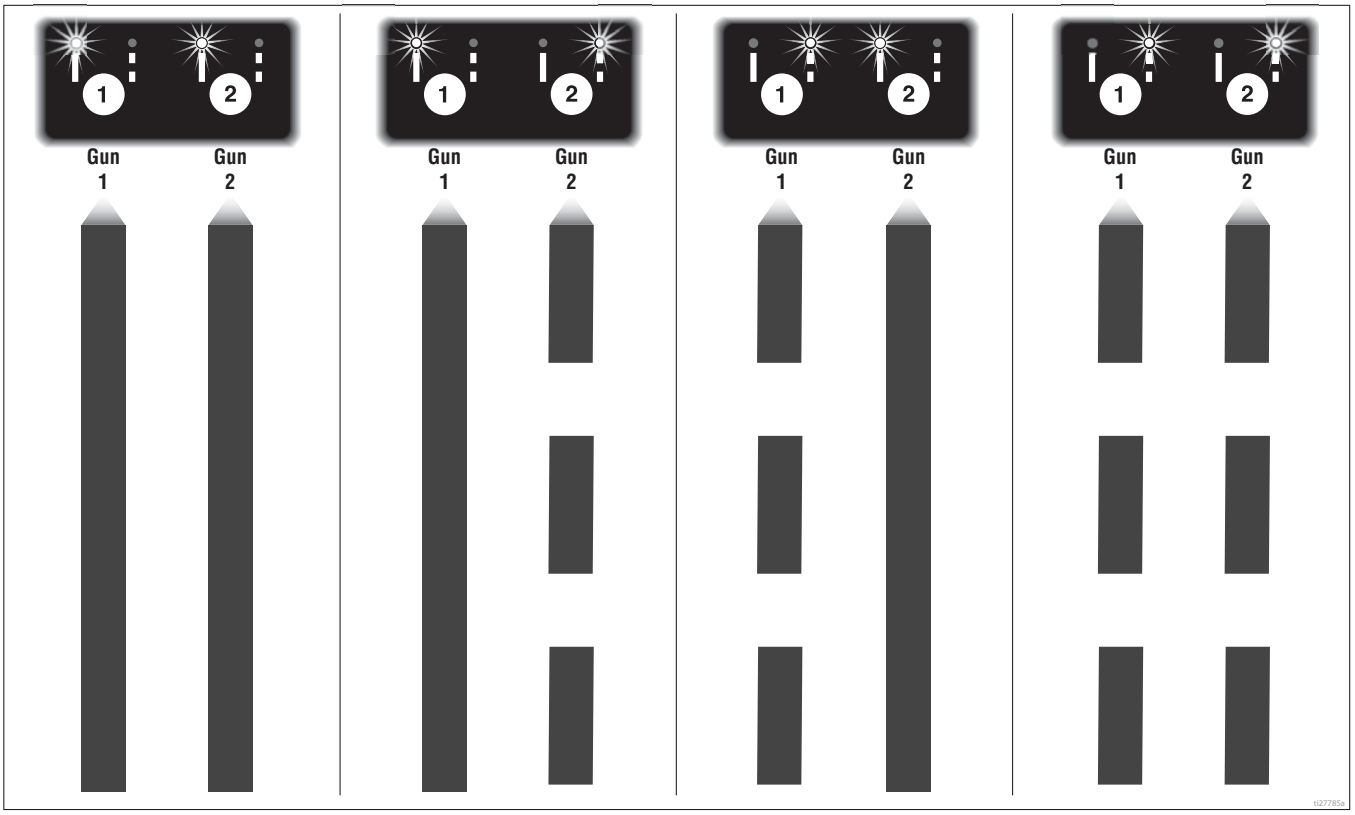
1. Use the gun selector buttons to determine which guns are active. Each gun selector has 3 settings: continuous line, OFF, and programmed line pattern.



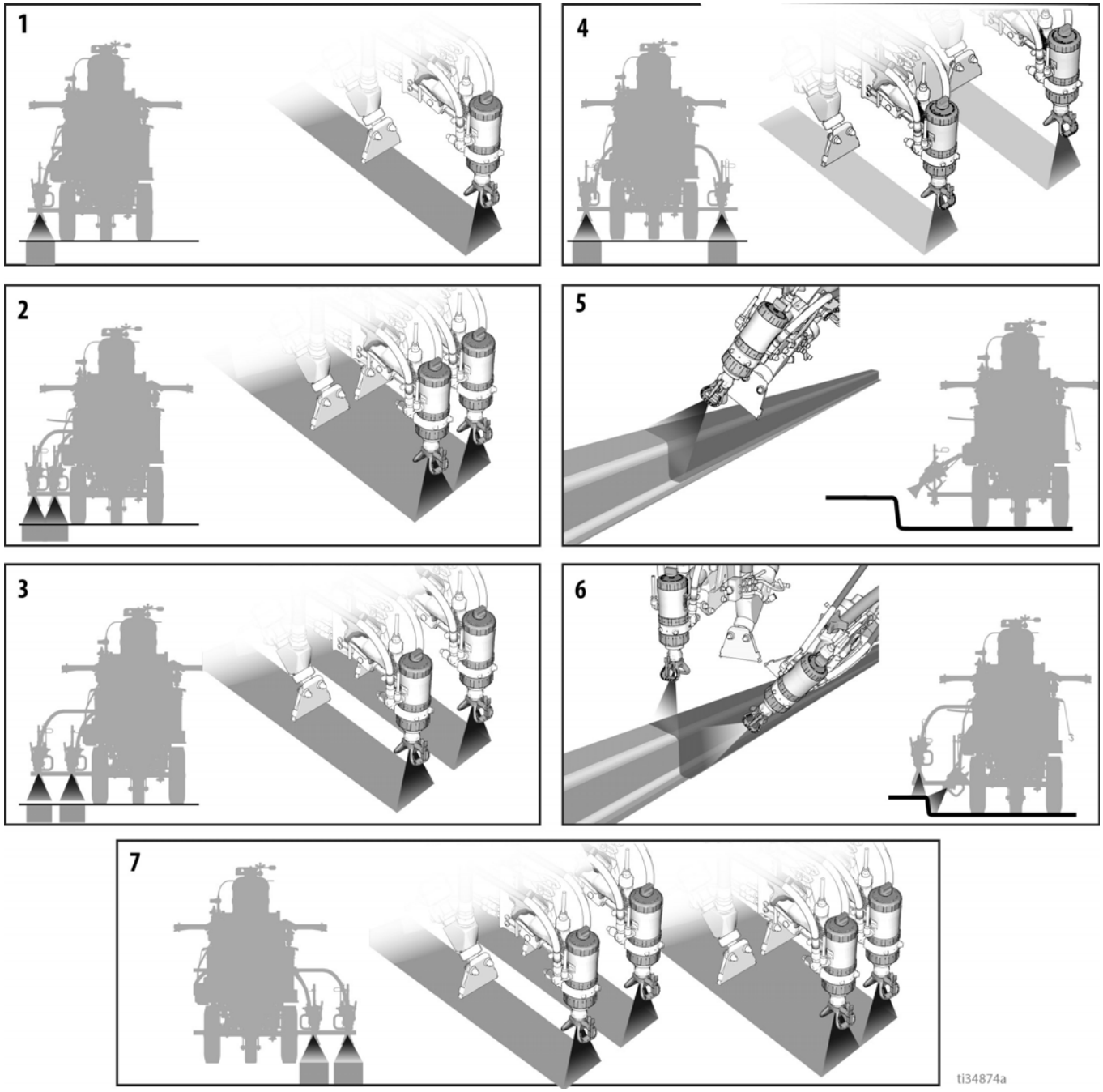
2. Use the gun trigger control to actuate guns.



4 Examples:



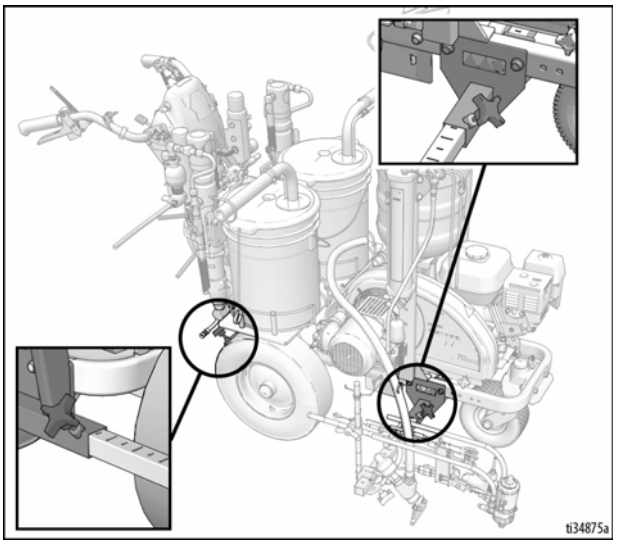
Gun Positions Chart



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

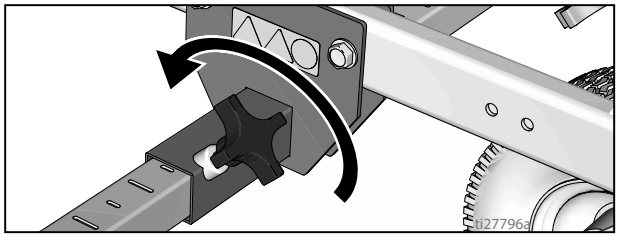
Gun Arm Mounts

This unit is equipped with front and rear gun arm mounts to allow the operator to place the guns in the optimal location.

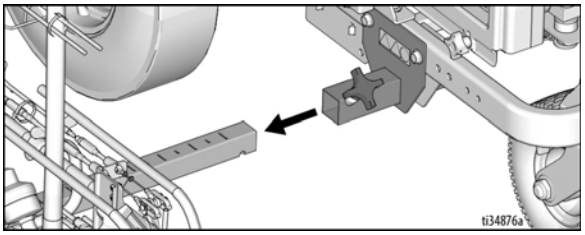


Change Gun Position (Front and Back)

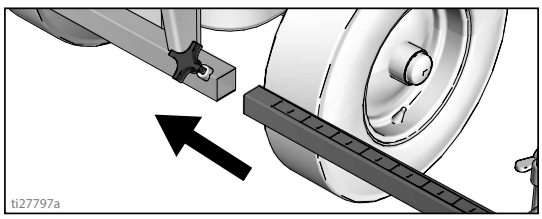
1. Loosen gun arm knob and remove from gun arm mounting slot.



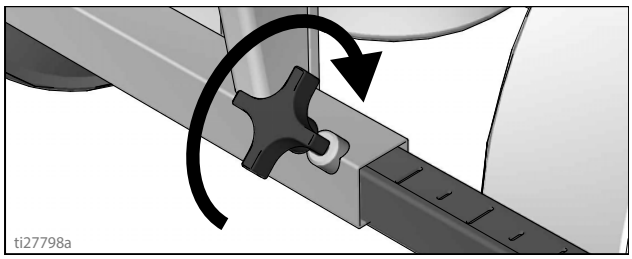
2. Slide gun arm assembly (including gun and hoses) out from gun arm mounting slot.



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



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



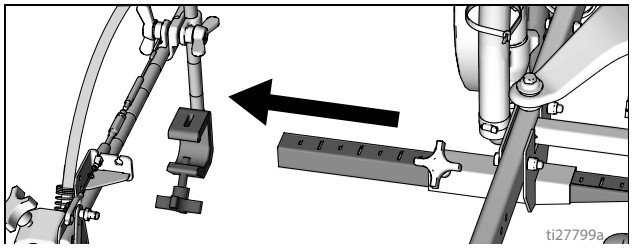
NOTICE

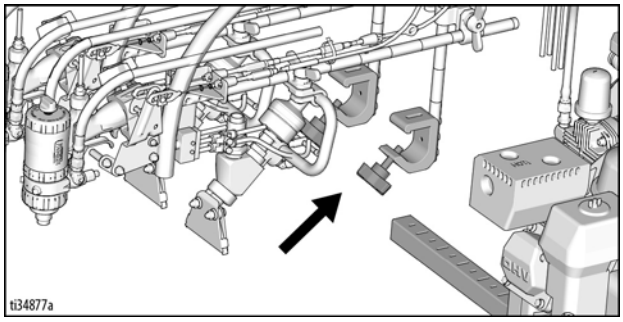
Make sure all hoses, cables, and wires are properly routed through brackets and do NOT rub on tire. Contact with tire will result in damaged hoses, cables, and wires.

Change Gun Position (Left and Right)

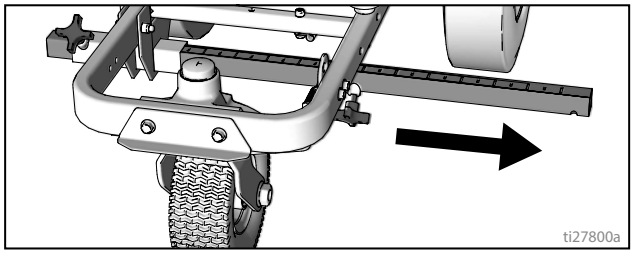
Removal

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



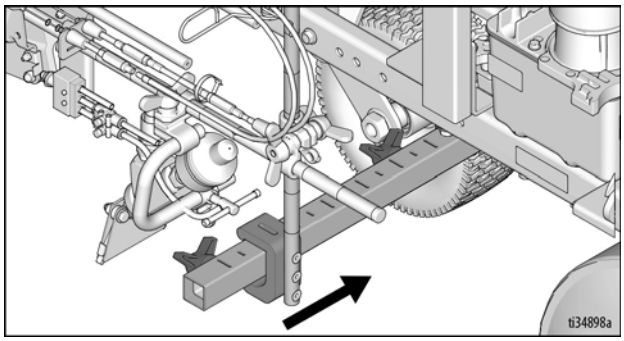


2. Extend mounting bar on opposite side of the machine.



Installation

1. Install vertical gun mount onto gun bar.

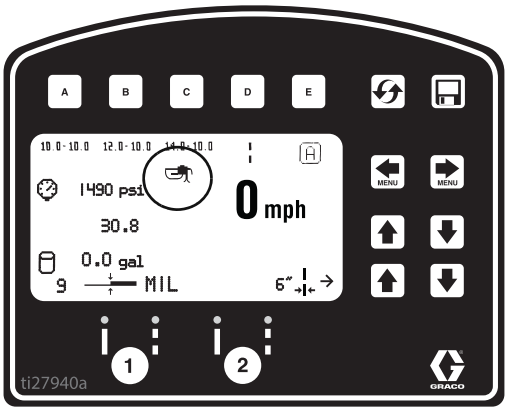


NOTE: Make sure all hoses, cables, and wires are properly routed through brackets.

Trigger Sensor Adjustment

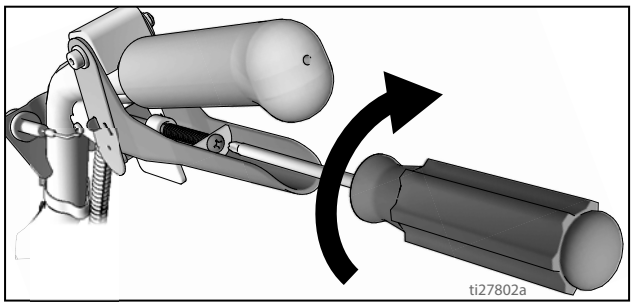
1. Start striper engine. Manually pull the trigger. Spray icon should appear simultaneously with start of fluid spray.

HP Auto Series



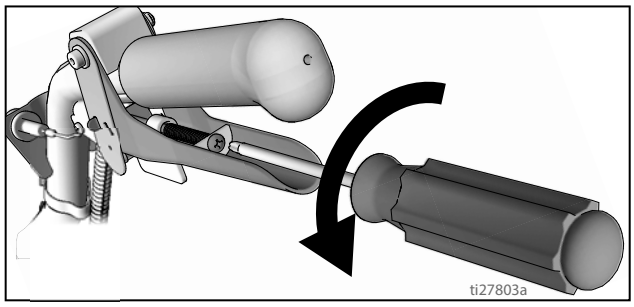
No fluid spray

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



No spray icon

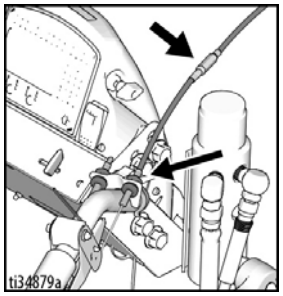
3. Turn screw in handle counterclockwise if fluid spray starts before spray icon appears.



4. Continue adjusting screw in handle until timing of spray icon and fluid spray are synchronized.

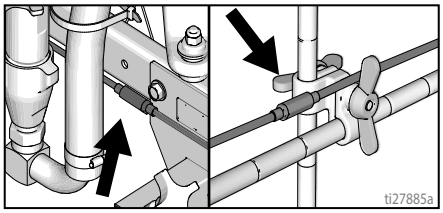
Gun Cable Adjustment

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.

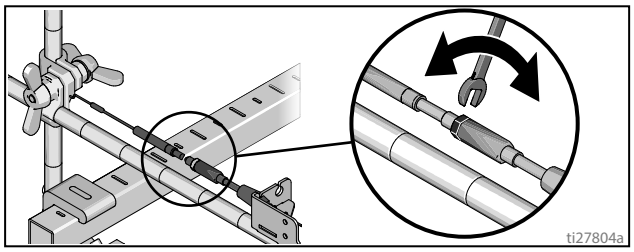


Manual Guns

Auto Guns
(has 2 locations)



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.

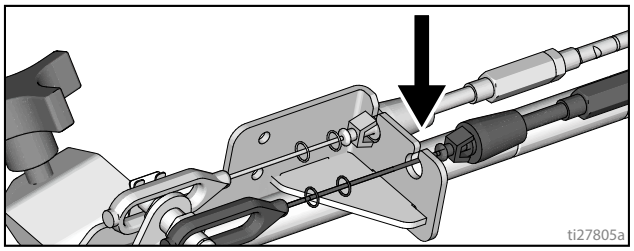
3. Use wrench to tighten locking nut on the adjuster.

Adding Gun Cable (Auto Gun)

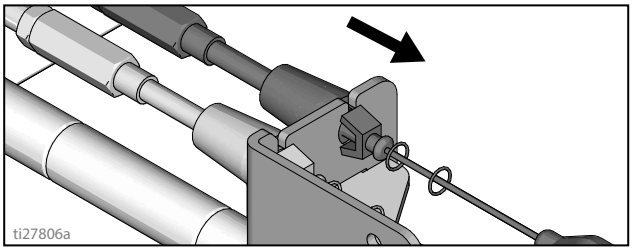
The HP Auto Series can be equipped with two Gun Actuators. Each Gun Actuator is capable of operating one cable.

1. Select cable end with adjuster.

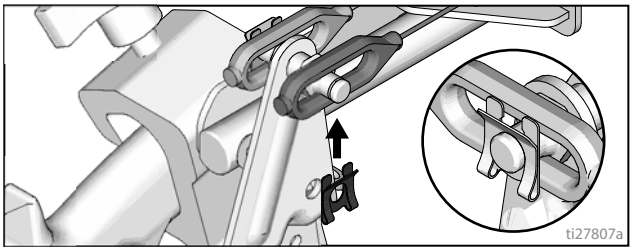
2. Install exposed cable through cable bracket slot.



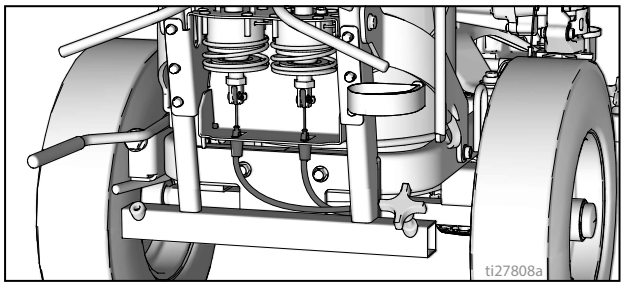
3. Insert plastic cable retainer into cable bracket hole.



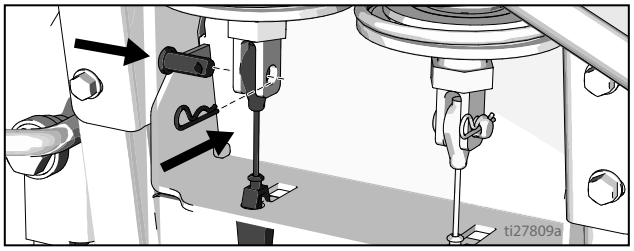
4. Install cable end onto trigger plate pin and install clip.



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



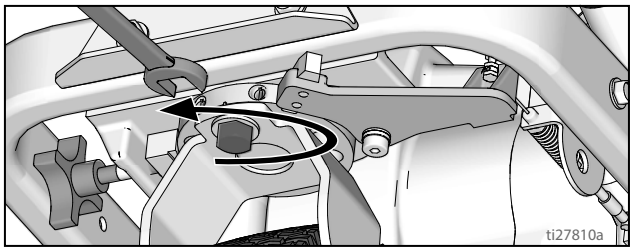
6. Route cable end loop through rectangular hole in bracket and insert plastic cable retainer into the actuator bracket. Install cable end onto actuator rod and install pin.



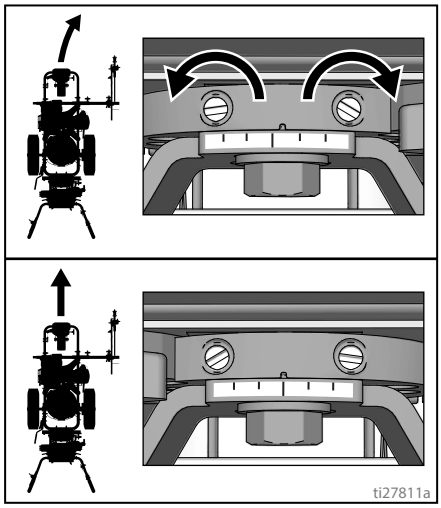
Straight Line Adjustment

The front wheel is set to center the unit and allows 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:

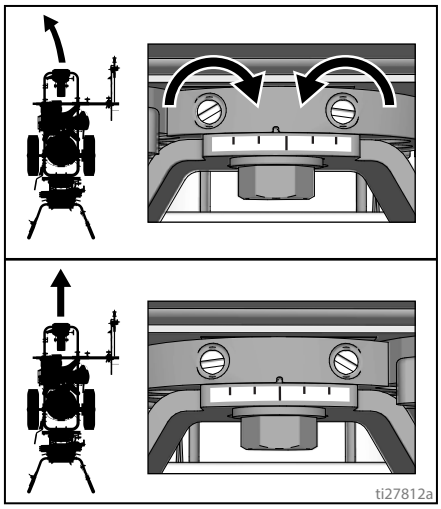
1. Loosen bolt on the front wheel bracket.



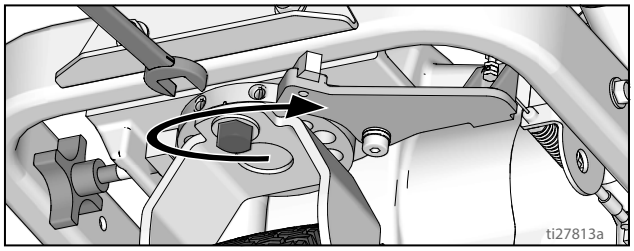
2. If striper arcs to the right, loosen left set screw and tighten right set screw for fine tune adjustment.



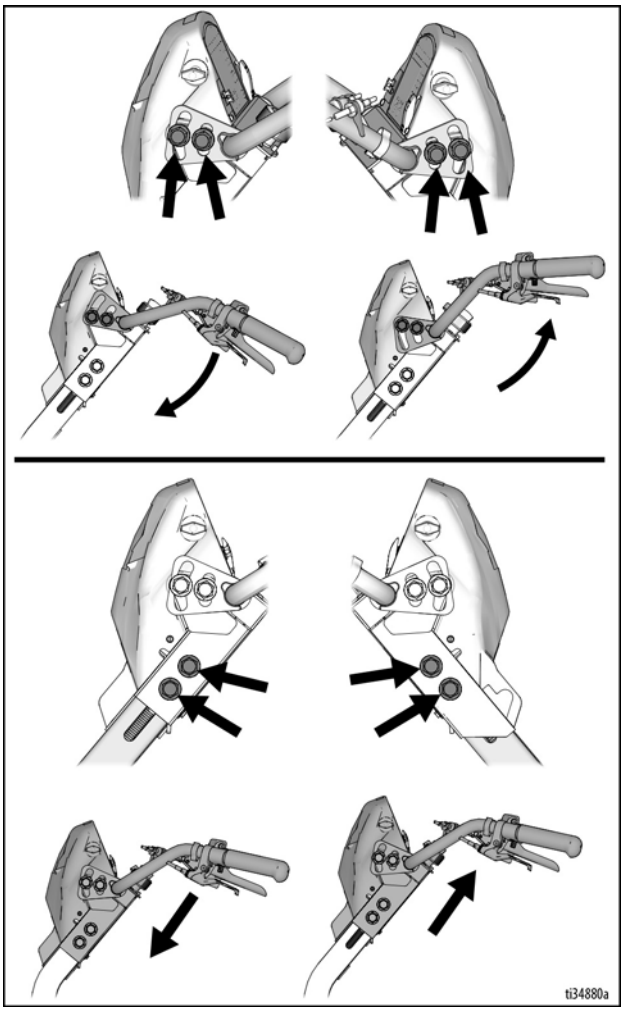
3. If striper arcs to the left, loosen right set screw and tighten left set screw.



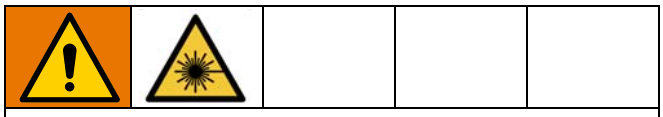
4. Roll the striper. Repeat steps 2 and 3 until striper rolls straight. Tighten bolt on wheel alignment plate to lock the new wheel setting.



Handle Bar Adjustment

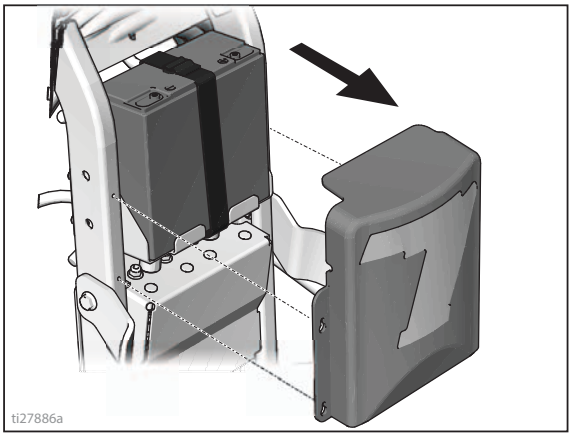


Dot Laser

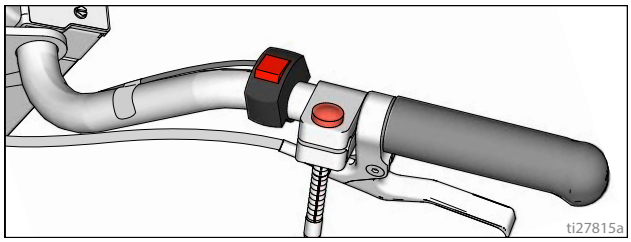


LASER LIGHT HAZARD. Avoid direct eye contact.

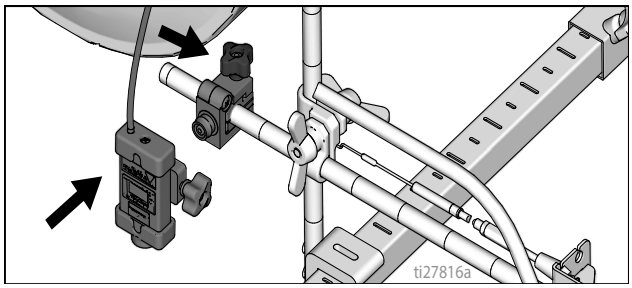
1. Remove battery cover.



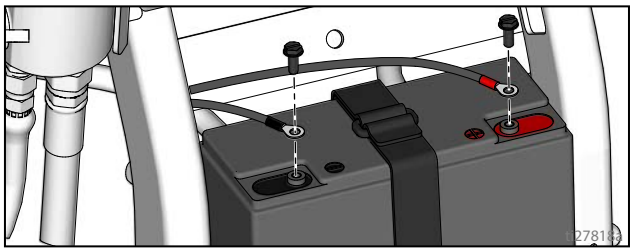
2. Attach ON/OFF switch to desired location on the handle bar.



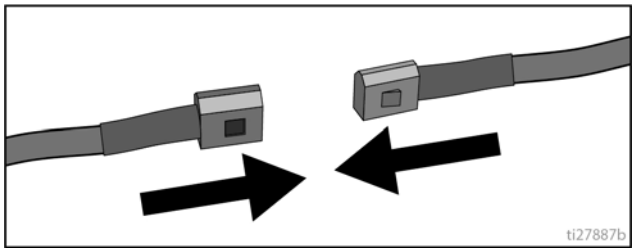
3. Attach laser to desired location on the gun arm.



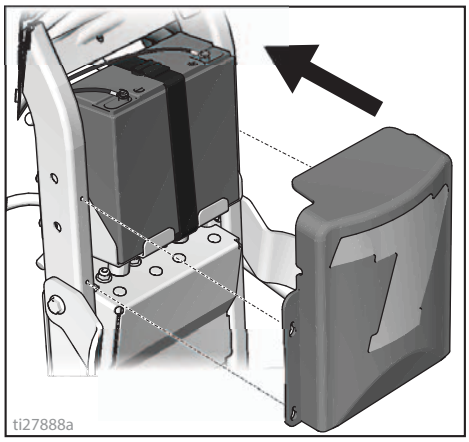
4. Route wires from the switch to the Battery and connect to the (+) and (-) terminals.



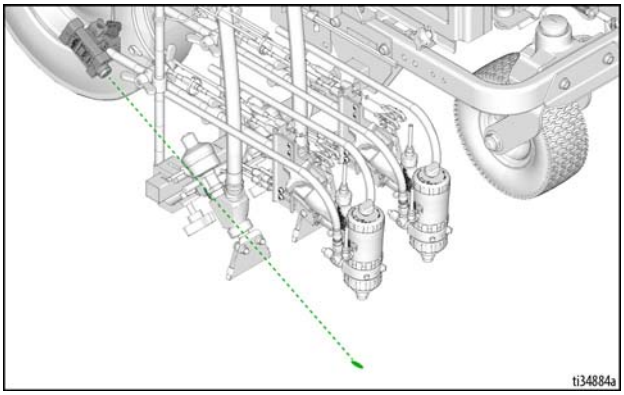
5. Connect the switch leads to the wire harness.



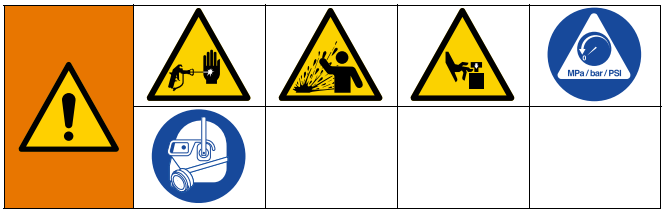
6. Reattach battery cover.



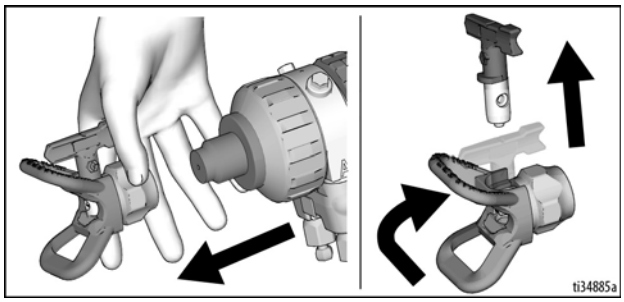
7. Turn on laser and position dot underneath gun head.



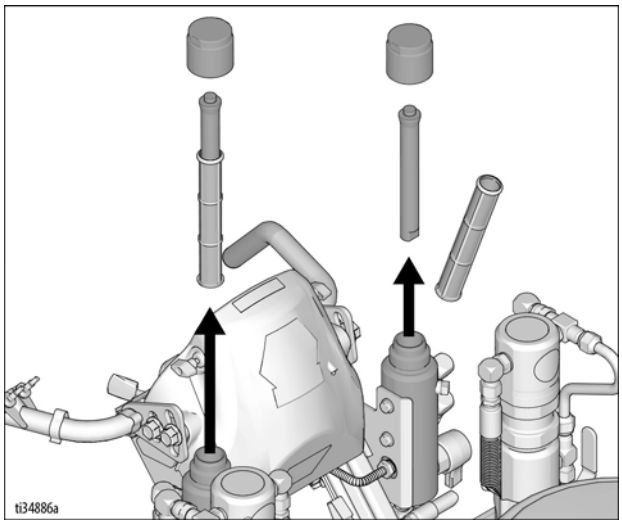
Cleanup



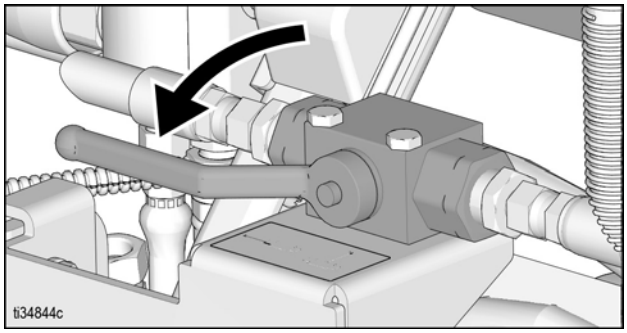
1. Perform **Grounding Procedure (For Flammable Flushing Fluids Only)** and **Pressure Relief Procedure**, page 12.
2. Remove guard and tip from all guns and place in acetone.



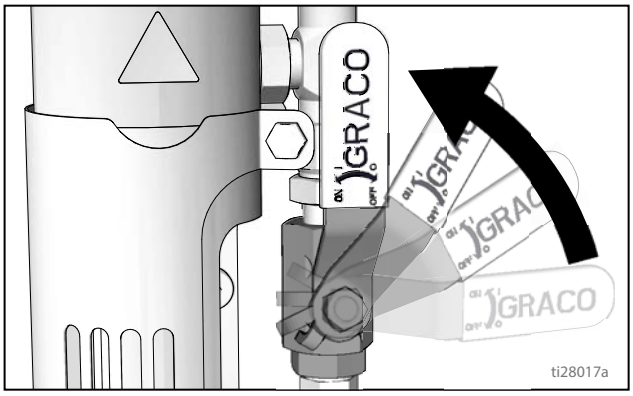
3. For both Filter Manifolds, unscrew cap, remove filter, and assemble without filter.



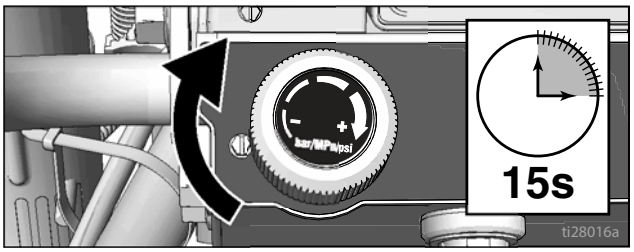
4. Set the Proportioning Valve to “non-proportioning”.



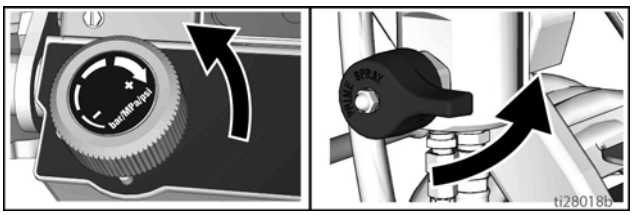
5. Place B side siphon tube set in grounded metal pail partially filled with acetone. Attach ground wire to true earth ground.
6. Set B side Pump Valve to **ON** (pump is now active).



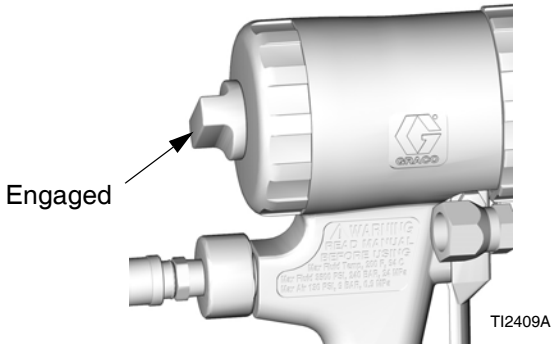
7. Increase Pressure Control enough to start pump. Pump is flushedwhen solvent flows from drain tube.



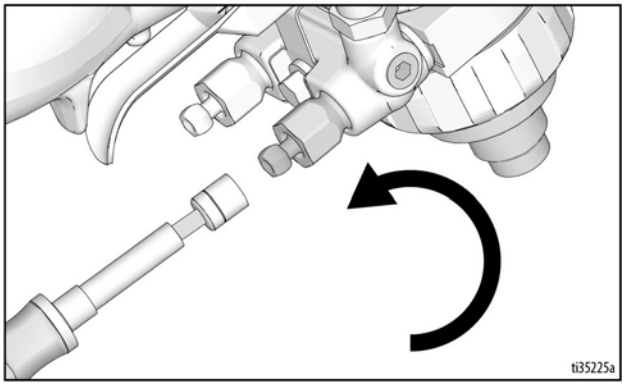
8. Turn pressure down, turn Prime Valve to spray.



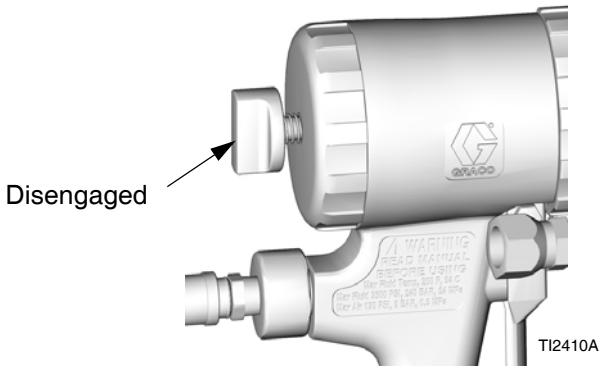
9. Return drain line to component B pail.
10. Engage Piston Safety Lock.



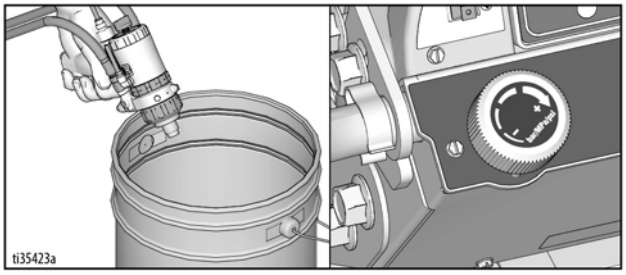
11. Open B Fluid Valve (about three full turns).



12. Disengage Piston Safety Lock.

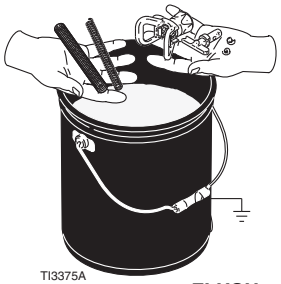


13. Hold gun against a grounded metal flushing pail. Trigger guns and increase fluid pressure slowly until pump runs smoothly.



14. Close B Fluid Valve, turn B Pump Valve OFF. Repeat steps 4-12 for A side pump and gun.

15. Clean mixing chamber, tip, and tip guard in acetone fluid.



FLUSH

16. Fill pump with Pump Armor and reassemble filter, guard and tip.

17. Remove hose manifold, see **Remove/Reinstall Hose Manifold**, page 45.

18. **Disassemble Front End of Fusion Gun**, page 48, step 3.

19. **Remove Mix Chamber & Side Seal Cartridges**, page 49, steps 6-8, place in acetone.

20. Lubricate o-rings, see **Lubrication**, page 48.

21. **Disassemble Check Valves**, page 51, step 5, place in acetone with tips and air cap.

22. Lubricate o-rings, see **Lubrication**, page 48.

23. **Reassemble Mix Chamber & Side Seal Cartridges**, page 50.

24. **Reassemble Check Valves**, page 52.

25. **Reassemble Front End of Fusion Gun**, page 48.

26. Reinstall hose manifold, see **Remove/Reinstall Hose Manifold**, page 45.

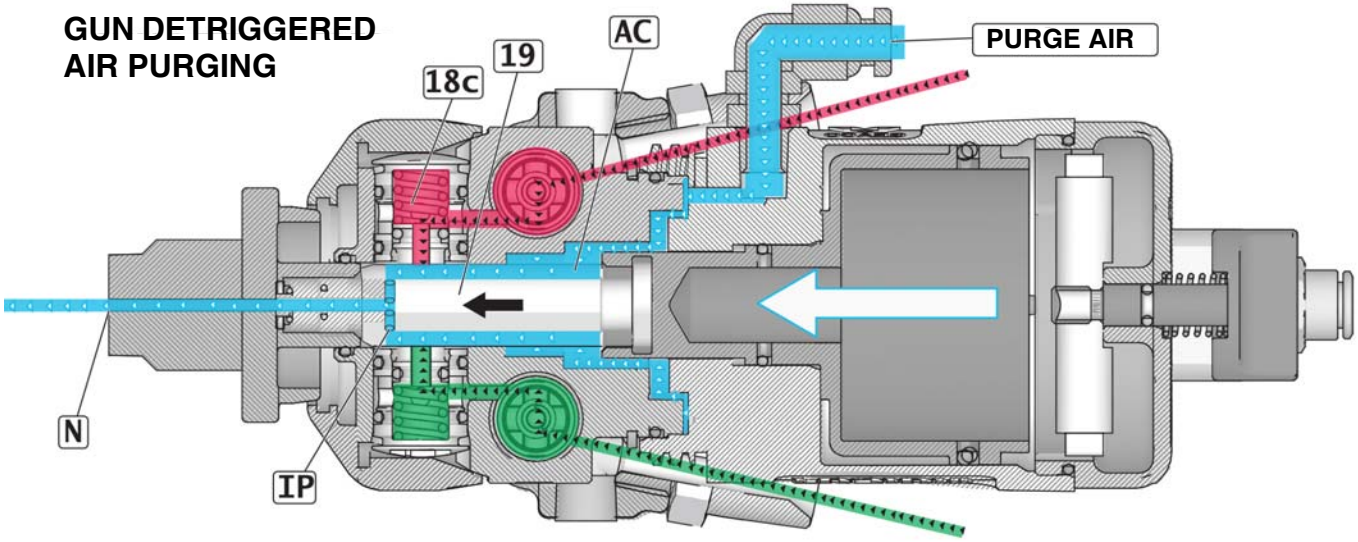
27. Each time you spray and store, fill throat packing nut with TSL to decrease packing wear.

For overnight shutdown

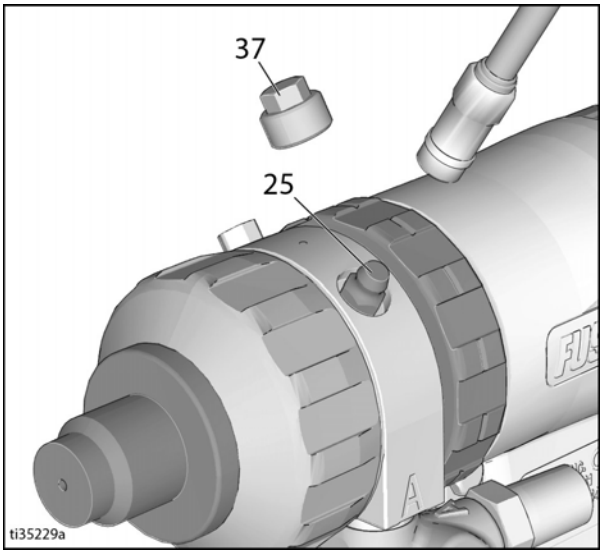
1. Perform **Pressure Relief Procedure**, page 12.
2. Leave Purge Air Valve turned on and gun detriggered while machine is still running.

NOTE: Grease gun daily to prevent 2 component curing and keep fluid passages clean. Purge air carries grease mist through air chamber (AC), impingement ports (IP), and out mix chamber nozzle (N), coating all surfaces. Use Graco 117773 Grease, see page 89.

NOTE: Flow paths are not shown to scale, for clarity. See Parts List, pages 72-74, for part numbers and reference locations.



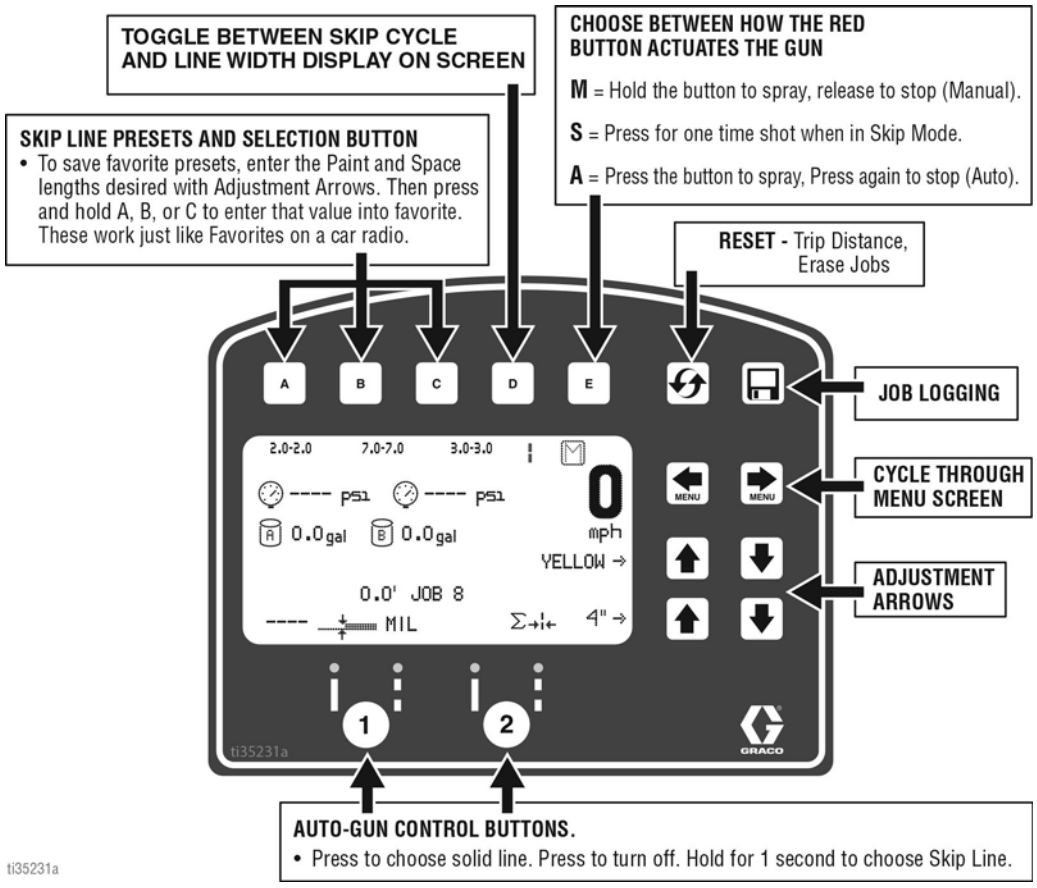
3. Remove Grease Fitting cap (37). Using grease gun, dispense grease into fitting (25) until grease mist sprays from mix chamber nozzle (N). Do not over-grease; use 2 shots maximum. Do not spray grease mist on sprayed material.

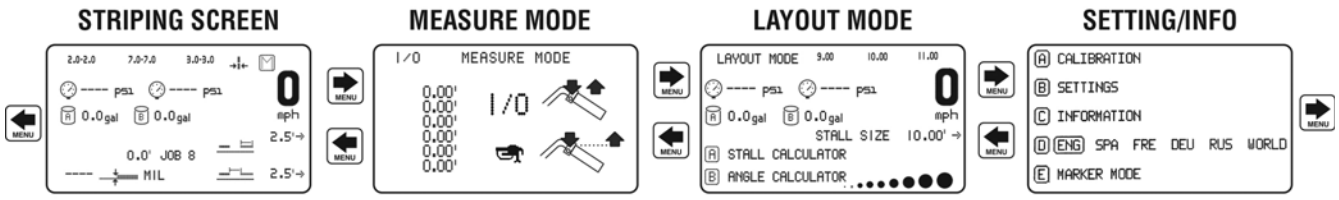


4. Replace grease cap (37).

LineLazer V LiveLook Display

HP Auto Series





- **Main striping screen.** Must be in this mode to electronically actuate guns.
- Automatic Skip Cycles can be laid from this screen. Choose skip line on the desired gun to fire. Enter the Paint and Space distance wanted and begin spraying.
- Press the E Button to choose how the red button actuates the guns.

M = Hold to spray, release to stop
S = Press for one time shot when in Skip Mode.
A = Press to start , press to stop

- **Measure Mode.** Ability to take up to 6 measurements by pressing the red button to start the measurement and pressing it again to end the measurement.
- If an Auto Gun is selected (see below) and the red button is held down, a dot will be dropped every 12" until the red button is released.

- **Layout Mode.** Drop a dot at a chosen distance to layout a parking lot.
- Enter stall size, activate an auto gun, press the red button, and roll the machine. To stop dotting, press the red button again. Favorites can be saved just like in the main screen.

Ⓐ STALL CALCULATOR
see page 36

Ⓑ ANGLE CALCULATOR
see page 37

- Settings and Information can be accessed from this screen.
- For accurate distance calculations the machine must be calibrated. Press A to calibrate the machine. Use a distance of at least 25' or more.

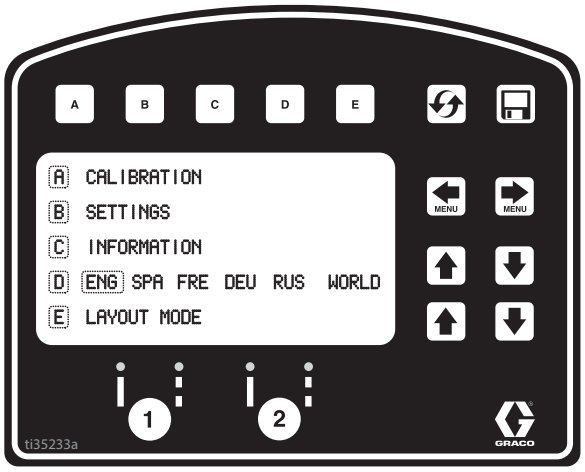
ti35232a

Initial Setup (HP Auto Series)

The initial setup prepares the striper for operation based on a number of user entered parameters. Language selections and the units of measure selections can be set before you start or changed later.

Language

From Setup/Information select appropriate language by pressing [D] until the language is outlined.

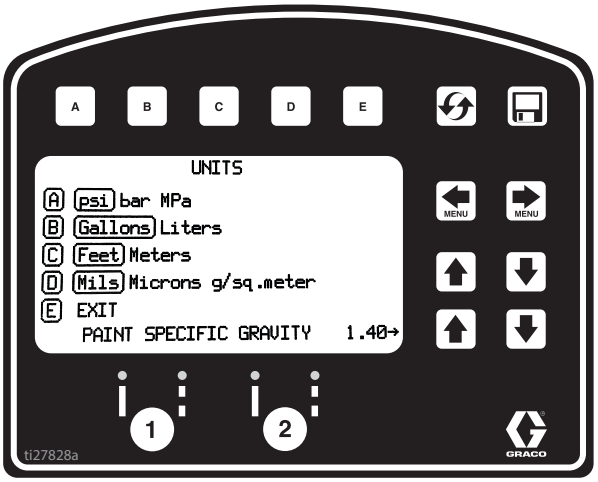


ENG = English
SPA = Spanish
FRE = French
DEU = German
RUS = Russian
WORLD = Symbols see **World Symbol Key**, page 91

NOTE: Language can be changed later.

Units

Press [B] to enter settings and then [B] again to enter units. Select appropriate units of measure.



US Units
- Pressure = psi
- Volume = gallons
- Distance = feet
- Line Thickness = mil

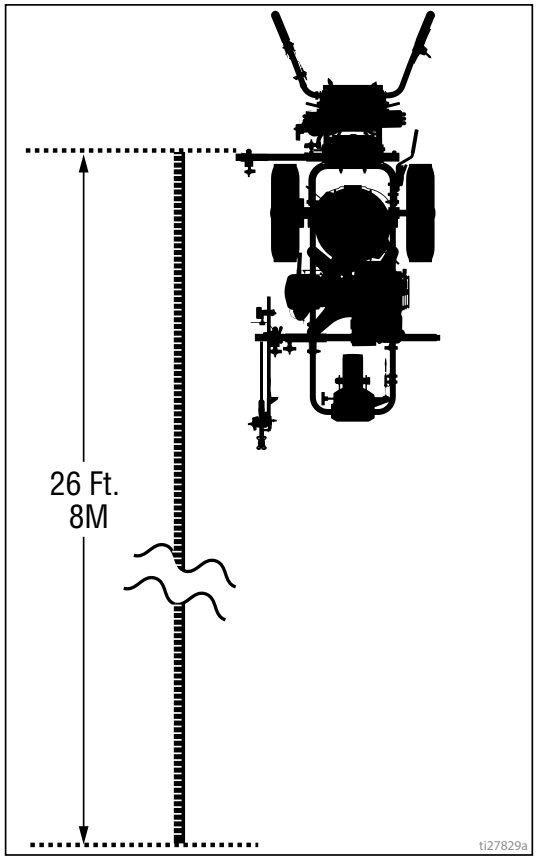
SI Units
- Pressure = bar (MPa available)
- Volume = liters
- Distance = meters
- Line thickness = micron (g/m^2 available)

Paint Specific Gravity = Use UP and DOWN arrows to set specific gravity. Required to determine paint thickness.

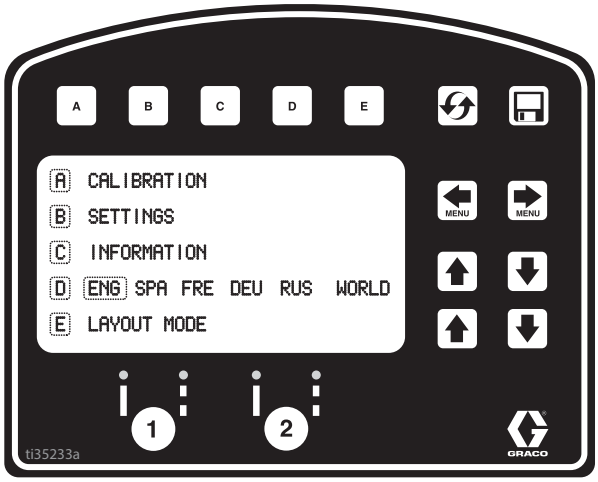
NOTE: All units can be changed individually at any time.

Calibration

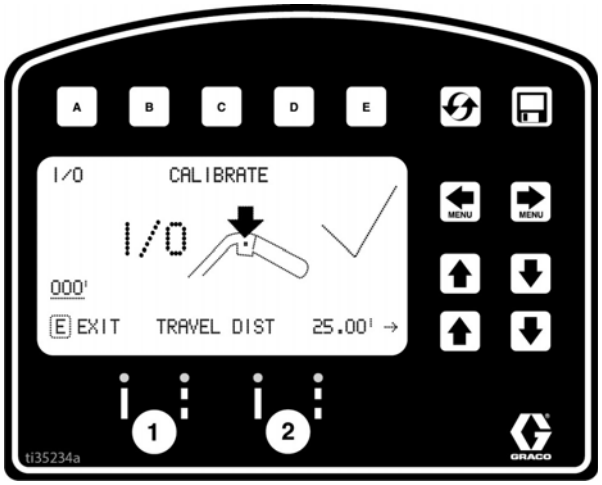
1. Check rear tire pressure 55 ± 5 psi (379 ± 34 kpa) and fill if necessary.
2. Extend steel tape to distance greater than 26 ft. (8m).



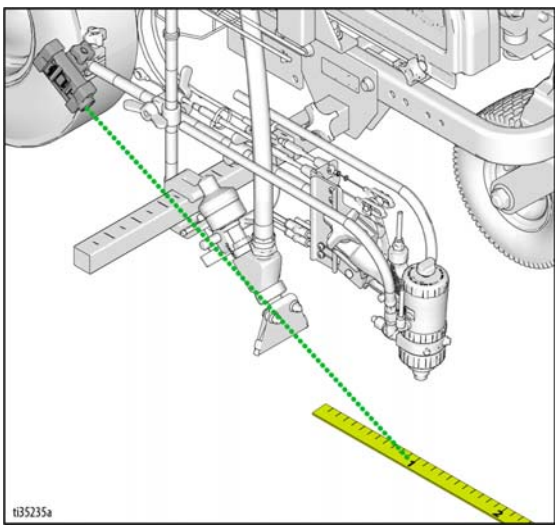
3. Press [◀ MENU] [▶ MENU] to select Setup/Information.



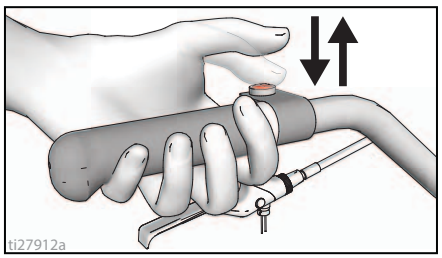
4. Press [A] for Calibration. Set TRAVEL DIST to 25 ft (7.6m) or longer. Longer distances ensure better accuracy, depending on conditions.



5. Turn on laser and align laser dot with 1 foot (30.5cm) on steel tape.

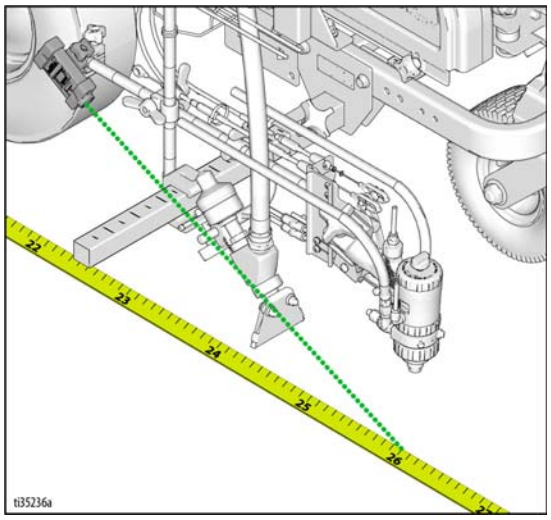


6. Press and release gun trigger control to start calibration.

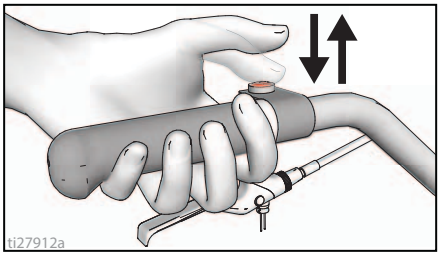


7. Move striper forward. Keep laser dot on steel tape.

8. Stop when laser aligns with 26-ft (8m) or distance entered on steel tape (25-ft / 7.6m distance).



9. Press and release gun trigger control to complete calibration.

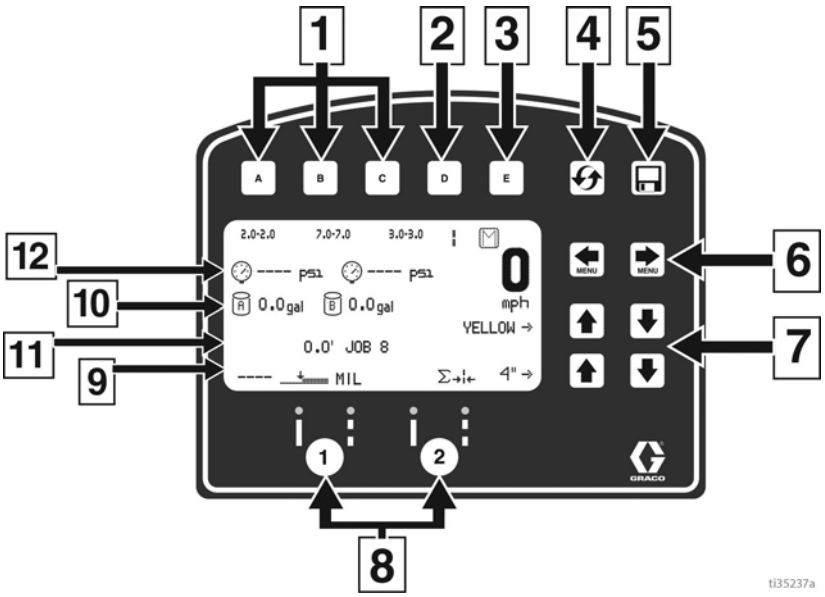


- Calibration is not complete when the exclamation symbol ⚠ is displayed.
- Calibration is finished when the check mark symbol ✓ is displayed.

10. Calibration is now complete.

Go to **Measure Mode (HP Auto Series)**, page 34, and verify accuracy by measuring the tape.

Striping Mode (HP Auto Series)



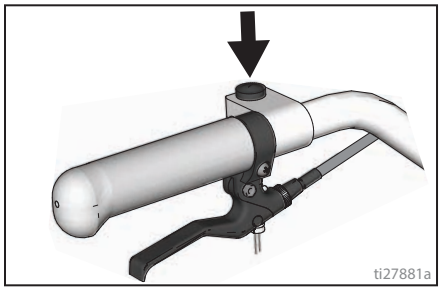
Ref.	Description
1	**Select** a “Favorite”, press for less than one second.
	Save a “Favorite”, press and hold for more than three seconds.
2	Cycles between viewing line width or paint and space value.
3	Cycles between Manual Mode, Semi-Automatic Mode, Automatic Mode.
	Manual Mode [M] **:** Press and hold gun trigger control to stripe.
	Semi-Automatic Mode [S] **:** Press and release gun trigger control to stripe the programmed length one time when in Skip Mode.
	Automatic Mode [A] **:** Press and release gun trigger control to start striping. Press and release button again to stop.
4	Resets trip distance.
5	Job Data Logger, page 43.
6	Scrolls between menu screens.
7	Paint and Space length **OR** line width adjustment buttons.
8	Auto guns activation buttons.
9	MIL thickness. While spraying “Instant MIL avg” is displayed. When stopped total “Job MIL avg” is displayed.
10	Total gallons (liters) sprayed, Pump A and B
11	Total line length sprayed.
12	Pressure, Pump A and B

Operating in Striping Mode

Striper must be running before activating gun trigger control.

1. Make sure engine is running.
2. Use gun activation buttons to select guns and line type.

3. Press gun trigger control to begin spraying.

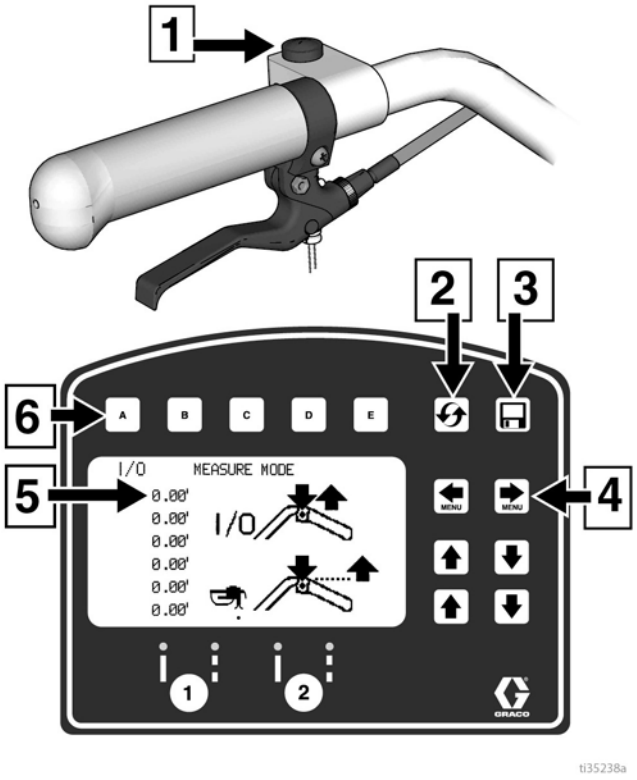


In Automatic Mode or Semi-Automatic Mode the [A] or [S] will flash when gun trigger control is pressed to signal mode is active.

Measure Mode (HP Auto Series)

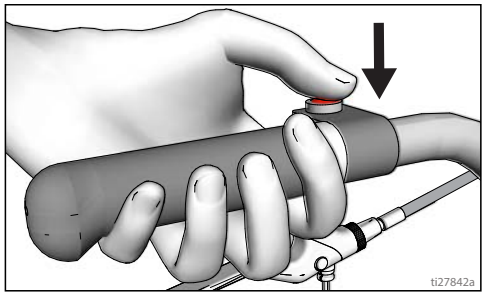
Measure Mode replaces a tape measure to measure distances when laying out an area to be striped.

1. Use MENU MENU to select Measure Mode.



Ref.	Description
1	Press to start measurement, Press to stop measurement.
2	Hold to reset values to zero.
3	Job Data Logger, page 43.
4	Scroll between main menu screens
5	Last measurement taken
6	Press to start measurement, press to stop measurement

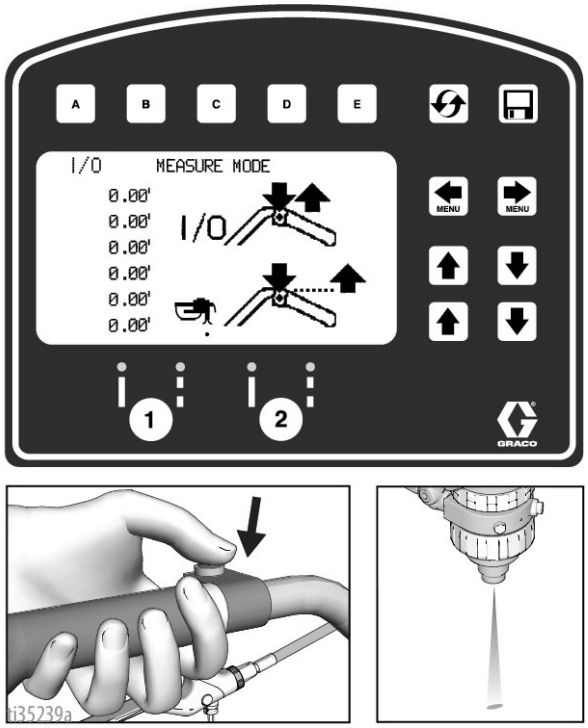
2. Press and release gun trigger control. Move striper forwards or backwards. (Moving backwards is a negative distance.)



3. Press and release gun trigger control to end measured length. Up to six lengths are viewable.

The most recent measured length is also saved as the measured distance in the Stall Calculator Display. See **Stall Calculator**, page 36.

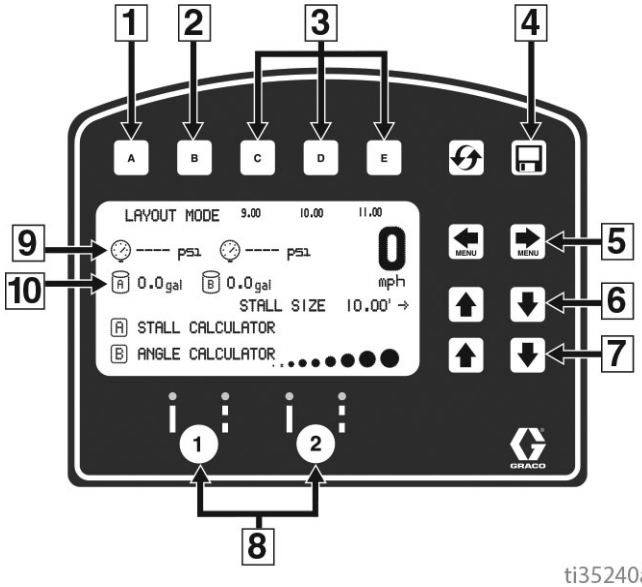
If an auto gun is activated, press and hold gun trigger control at any time to apply a dot. If trigger is held while striper is moving, a dot is marked every 12-inches (30.5cm).



Layout Mode

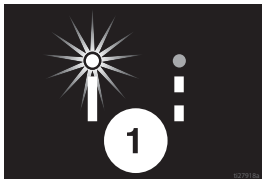
Layout Mode is used to calculate and mark parking lot stalls.

1. Use  to select Layout Mode.

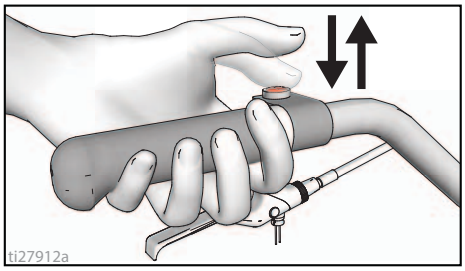


Ref.	Description
1	Opens Stall Calculator Menu. See **Stall Calculator**, page 36.
2	Opens Angle Calculator Menu. See **Angle Calculator**, page 37.
3	**Select** a “Favorite”, press for less than one second.
	Save a “Favorite”, press and hold for more than three seconds.
4	Job Data Logging, page 43.
5	Scroll between menu screens.
6	Adjust stall size/dot spacing.
7	Adjust dot size.
8	Auto Gun activation buttons.
9	Pressure, Pump A and B
10	Total gallons (liters) sprayed, Pump A and B

2. Use gun activation buttons to select guns.



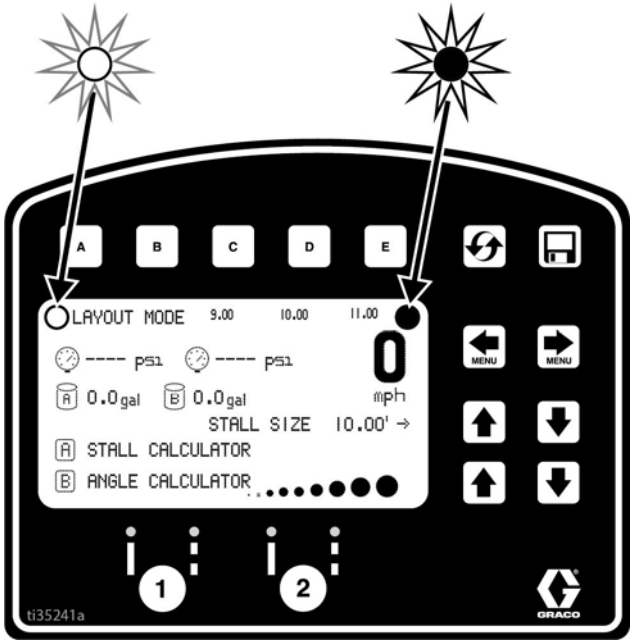
3. Press and release gun trigger control and move striper forward.



4. Striper default is to place a dot every 9.0 ft (2.7m) to mark the stall size. Stall size is adjustable.

5. Dots are laid down until gun trigger control is pressed and released again.

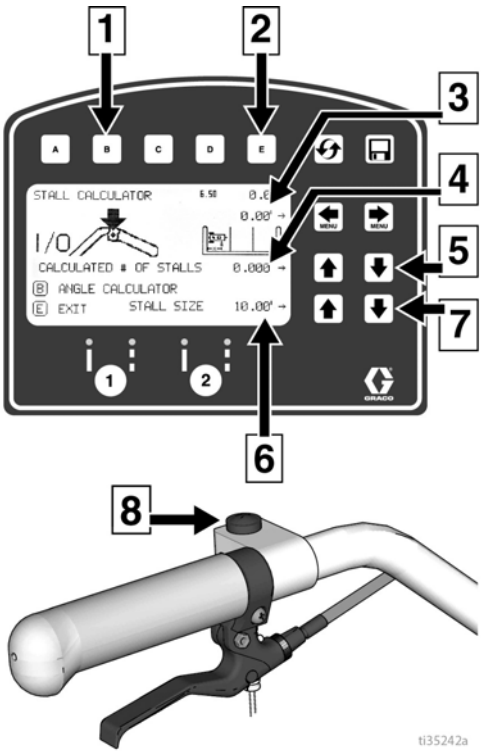
NOTE: An indicator on the screen alternately flash when gun trigger control is pressed to signal mode is active.



Stall Calculator

Stall Calculator is used to set the stall size. The striper divides the measured length by the stall size to determine the number of stalls that will fit in the length measured. User can adjust number of stalls to a round number and stall width is calculated.

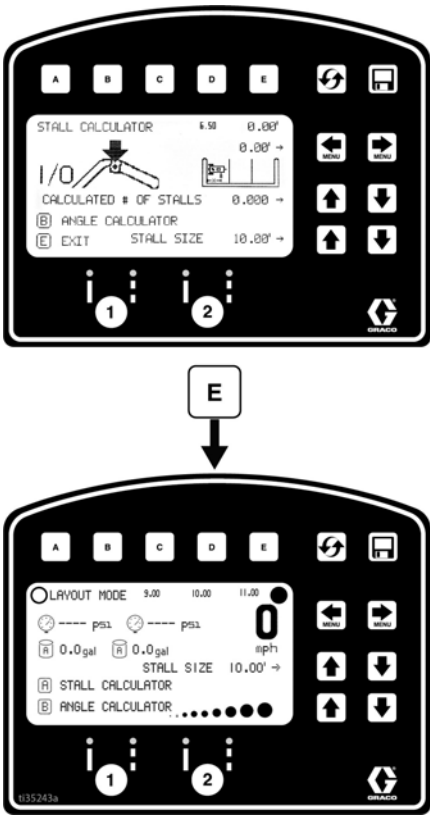
1. Use MENU MENU to select Layout Mode. Press A to open Stall Calculator Menu.



Ref.	Description
1	Opens Angle Calculator Menu. See **Angle Calculator**, page 37.
2	Exits and returns stall size to Layout Mode.
3	Measured distance.
4	Calculated # of stalls. Changing the number of stalls will change the stall size.
5	Adjusts number of stalls.
6	Stall size. Changing stall size changes the calculated # of stalls.
7	Adjusts stall size.
8	Press to start measurement, Press to stop measurement.
9	Adjust Offset (x)
10	Stores Offset (x). Hold for 2 seconds to store value.

2. The most recent length measured in Measure Mode is automatically displayed. Press gun trigger control to start a new measurement. Press again to stop measuring. When measuring between curbs, the distance from the back tire/curb to the gun/laser dot, can be accounted for by setting the Offset (x) value.
   a. Back the striper up to the curb, then use a tape measure to measure from where the tire touches the curb to the laser dot on the ground.
   b. Use MENU MENU to enter the offset (x) value.
   c. This value can be stored by holding D for 2 seconds.
   d. The value stored under D can be added to the measured distance before or after the measurement is taken between the curbs.
   e. The offset (x) value can also be adjusted before or after the measurement is taken by using MENU MENU.

   Stall size and calculated number of stalls are both adjustable.
3. Press E to return to Layout Mode. The Stall size is saved and displayed on the Layout Mode screen.

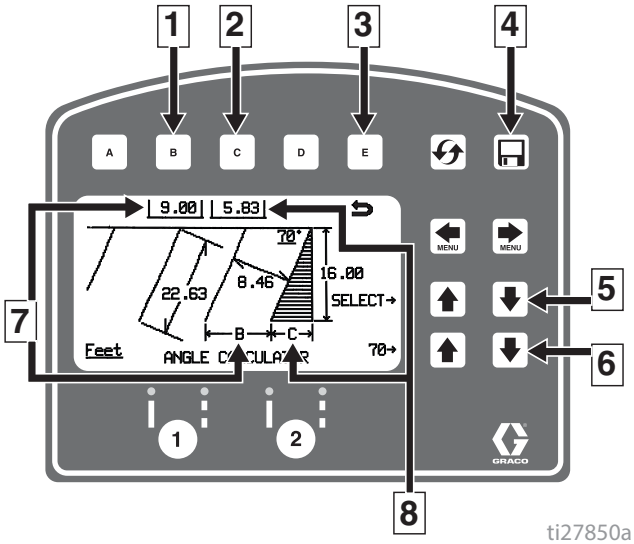


4. Press and release gun trigger control to start marking dots. Press and release gun trigger control again to stop.

Angle Calculator

Angle Calculator is used to determine the offset value and dot spacing value for a layout.

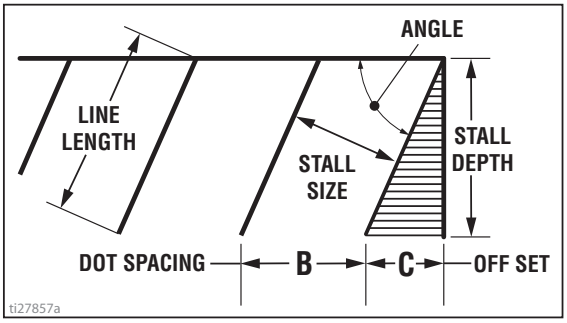
1. Use MENU to select Layout Mode. Press B to open Angle Calculator Menu.



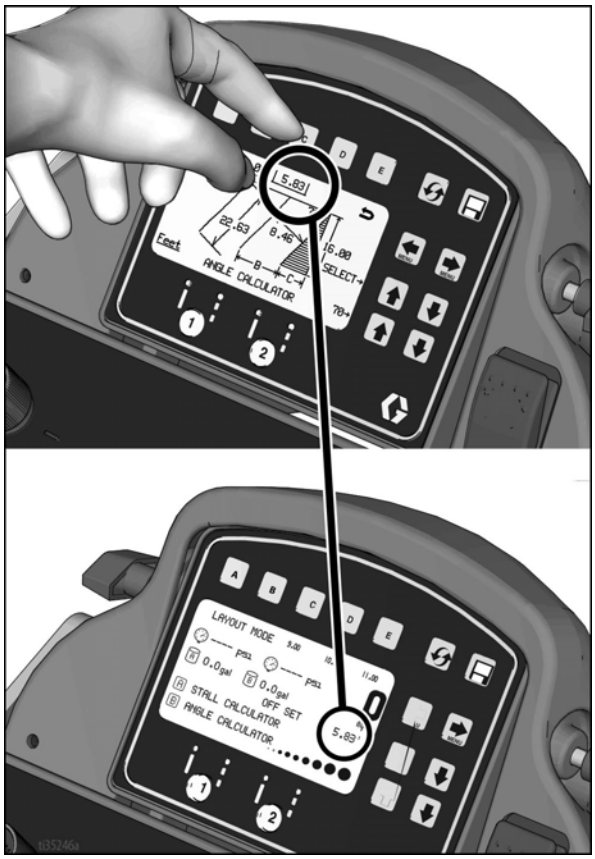
Ref.	Description
1	Transfers calculated dot spacing, B, to Layout Mode.
2	Transfers calculated offset, C, to Layout Mode.
3	Exits and returns to Layout Mode without transferring any values.
4	Data Logging.
5	Select input variables.
6	Adjust the variable selected.
7	Calculated dot spacing, B.
8	Calculated offset, C.

2. Dot spacing (B) and offset (C) are calculated based on the parameters entered:

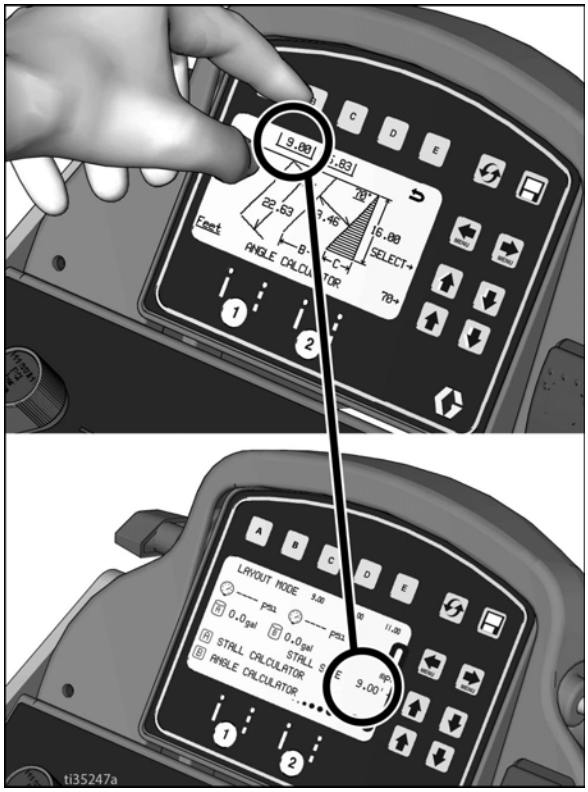
   Stall angle
   Stall depth
   Stall size (width)
   Line Length



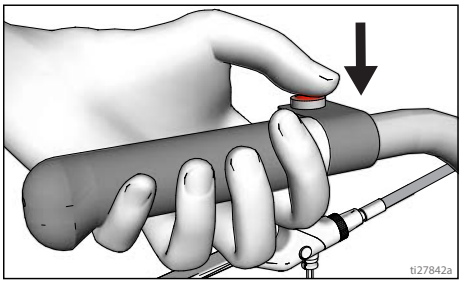
3. Press C to transfer calculated offset distance to Layout Mode. Save this value in favorites if desired.



4. Press [B] to transfer calculated dot spacing distance to Layout Mode. Save this value in favorites if desired.

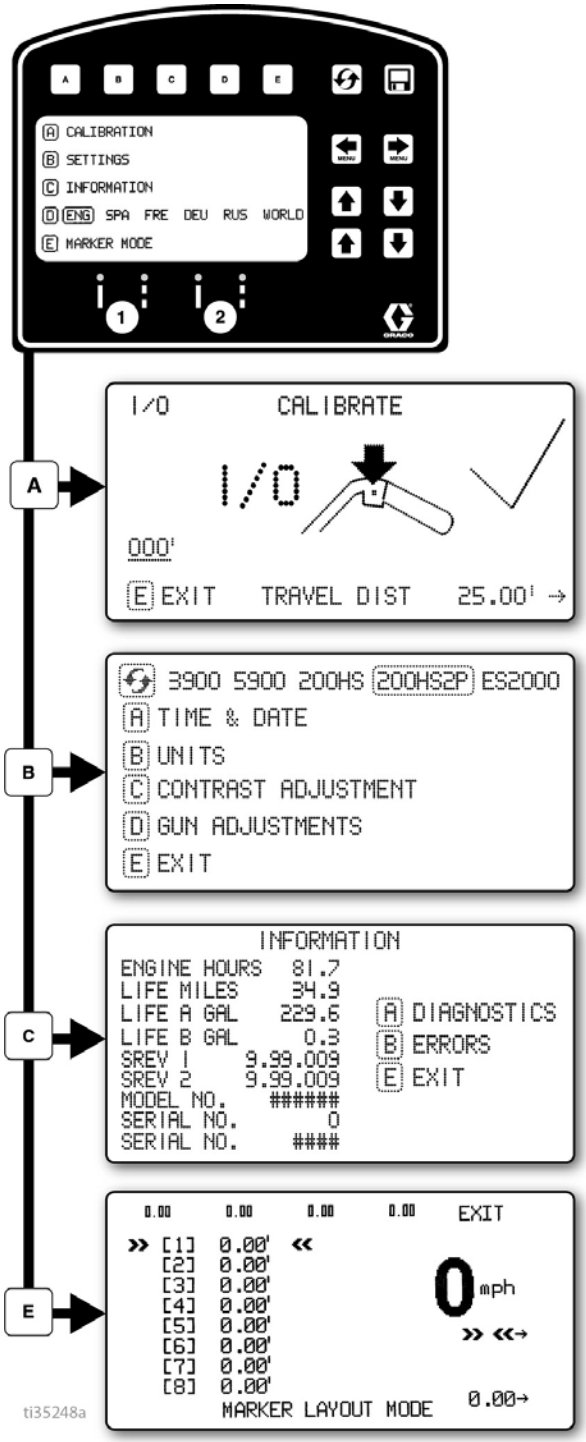


5. Press and release gun trigger control to start marking stall size dots. Press and release gun trigger control to stop marking.



Setup/Information

Use MENU MENU to select Setup/Information.



Press D to select Language.
See **Language**, page 31.

See **Calibration**, page 31.

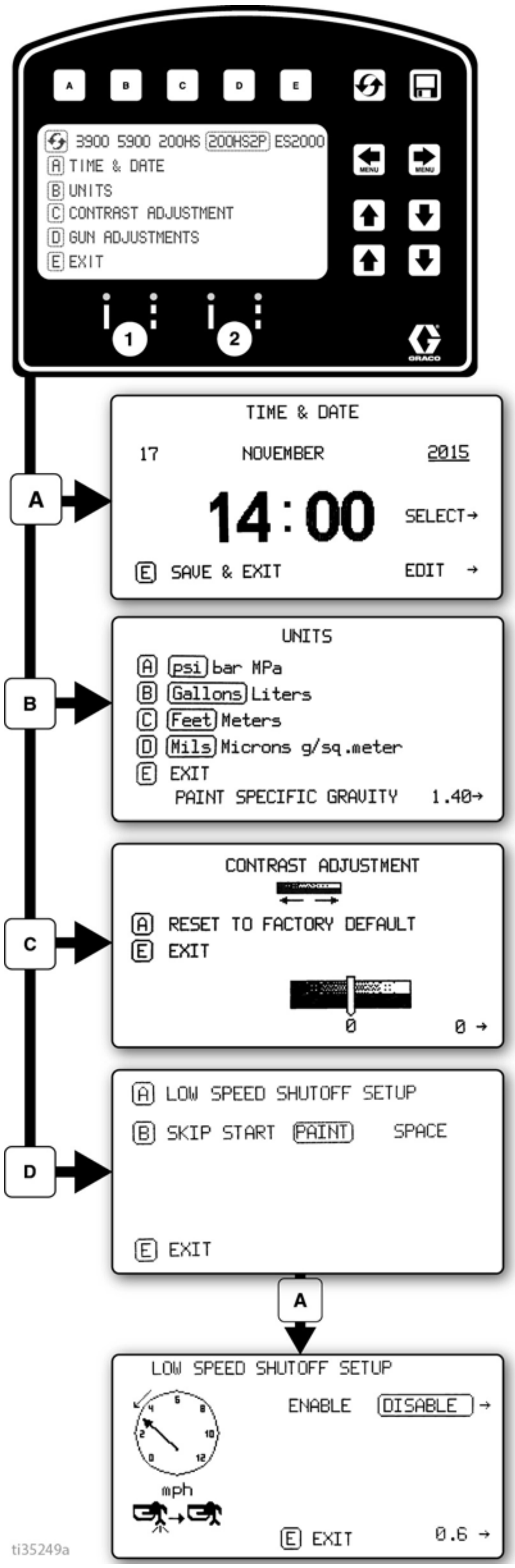
See **Settings**, page 40.

See **Information**, page 41.

See **Marker Layout Mode**, page 42.

Settings

Use to select Setup/Information. Press B to open Settings Menu.



Chooses the machine type. Necessary for accurate gallon counting.

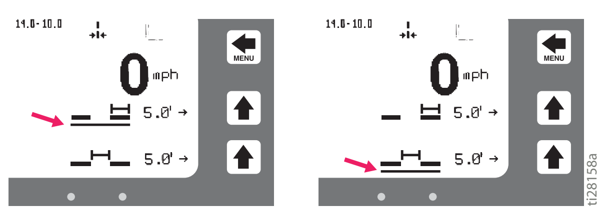
Use to set time and date. Needed for accurate Data Logging.

Set units with A B C D

Use to adjust screen contrast to the desired value.

For programmed skip lines, press B to choose:

Paint first **or** ***Skip first***



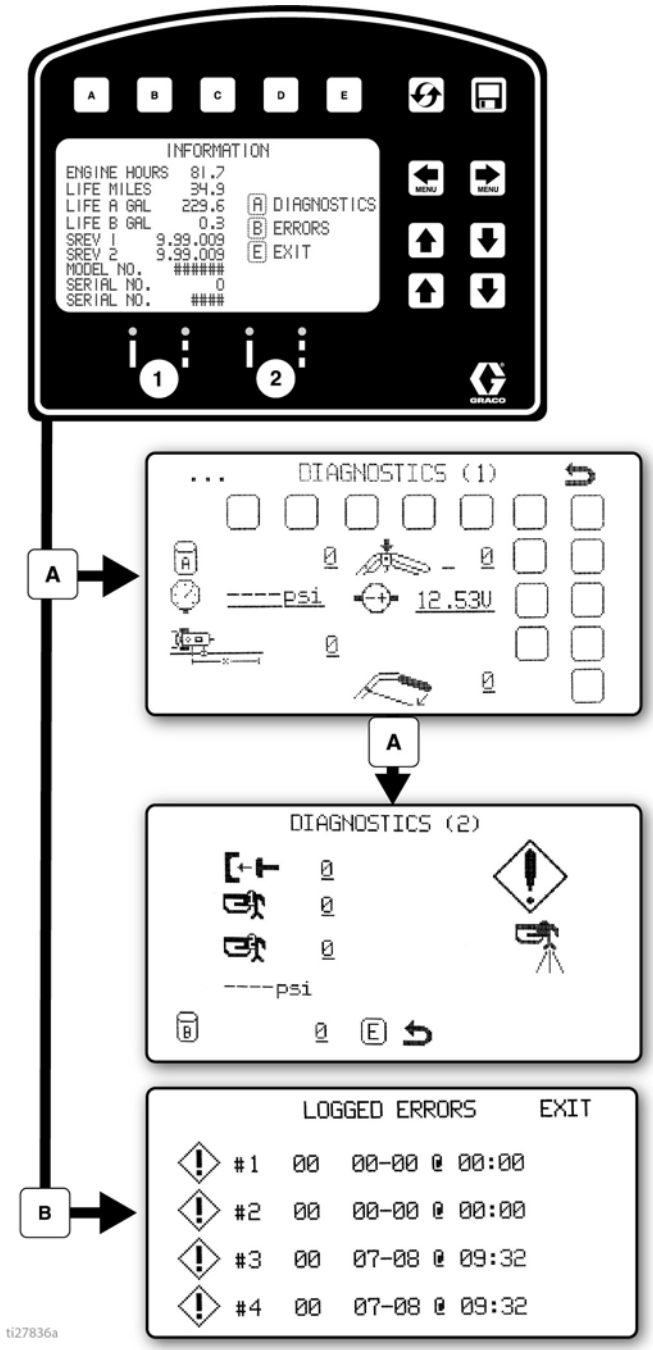
In Auto-mode, guns won't fire or will shut off if speed is below set value.

Enable or Disable Low Speed Shutoff

Adjust low speed setting.

Information

Use MENU MENU to select Setup/Information. Press C to open Information Menu.



Displays and logs life, data, and striper information.

View and test functionality of component

- Stroke Counter
- Touch Pad Buttons
- Pressure Transducer
- Engine Voltage
- Distance Sensor
- Battery Voltage

- Clutch
- Solenoid 1
- Solenoid 2
- Battery charge state

Logs last four error codes that occurred.

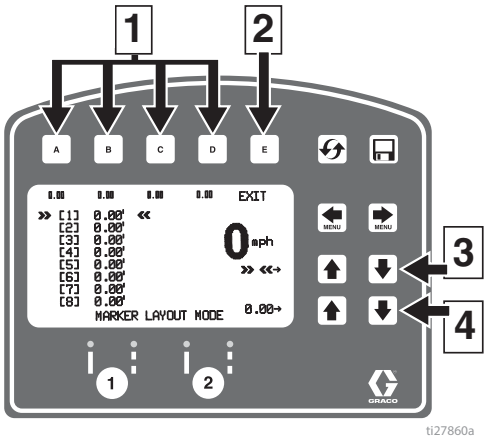
Code Description
02 = Over pressure
03 = No transducer detected

- Reset error codes

Marker Layout Mode

The Marker Layout Mode feature sprays a dot or a series of dots to mark an area.

1. Use MENU MENU to select Setup/Information. Press E to open Marker Layout Mode.



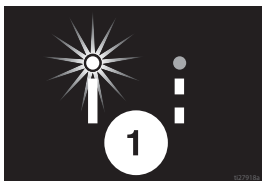
Ref.	Description
1	**Select** a “Favorite”, press for less than one second.
	Save a “Favorite”, press and hold for more than three seconds.
2	Exits and returns to Information Menu.
3	Select value to change.
4	Adjust spacing value.

2. Use arrow keys to set up a marker pattern.

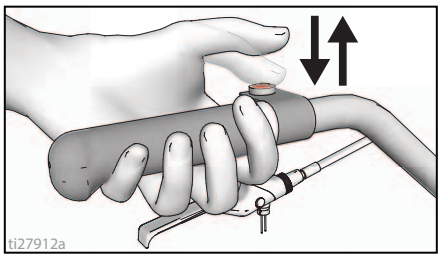
3. Marker layout example shows a typical lane layout for reflective markers. Set space sizes up to eight consecutive measurements. By leaving zeros in any space, Marker Layout Mode will skip to the next measurement in a continuous loop.

   Some other uses of Marker Layout Mode are:
   - Multiple spaced handicap stall layout
   - Double line stalls

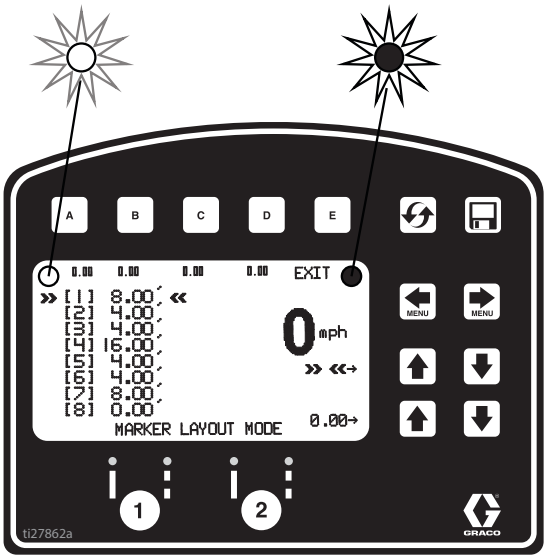
4. Set gun switch to skip line or solid line.

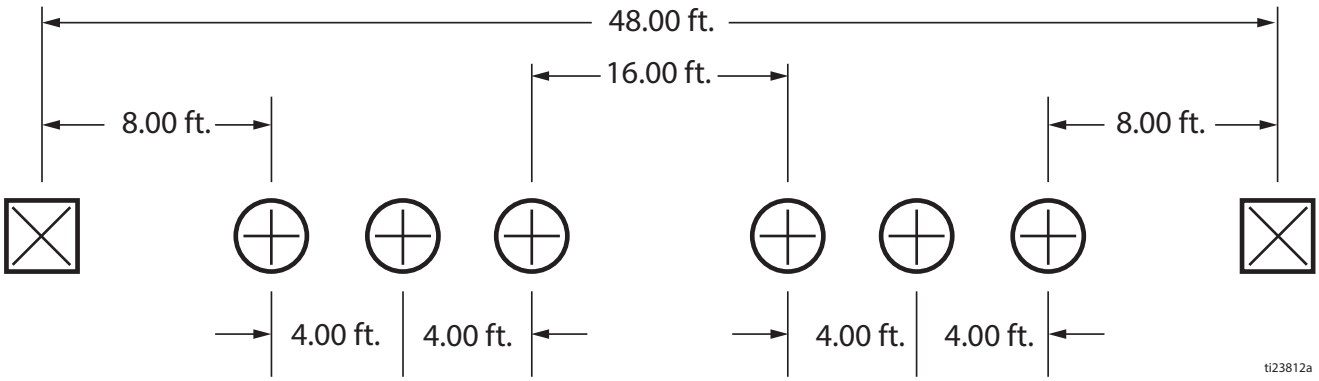


5. Press and release gun trigger control to start marking dots. Press and release gun trigger control again to stop.



An indicator before and after Marker Mode on the screen alternately flash when gun trigger control is pressed to signal mode is active.

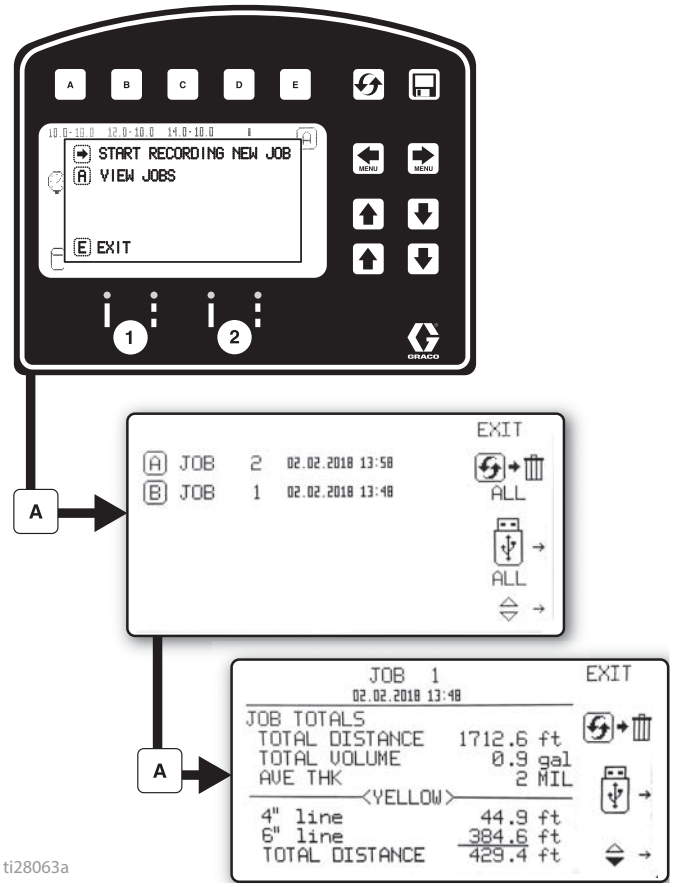




Data Logging

The LLV control is equipped with Data Logging, which allows the user to recall job data and export the data from the machine to a USB drive.

1. Press the to open the Data Logging pop up window.
2. Choose to start recording a new job or view jobs previously done.



Start recording a new job.

Erase all jobs

Export all jobs to USB

Erase jobs

Export job to USB

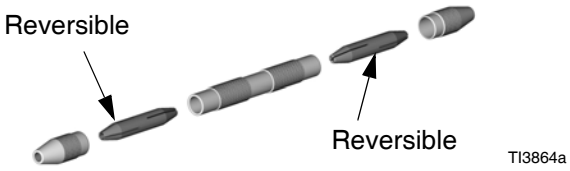
Job data is compiled while spraying. A summary of volume sprayed, distance sprayed and average mil thickness is displayed for the entire job. The job is also broken down by colors, line widths and stencil volume sprayed.

Maintenance

MMA Fusion Gun

Supplied Tool Kit

- Hex Nut Driver; 5/16
- Screwdriver; 1/8 blade
- Nozzle Drill Bit; See **Table 1: Nozzle Drill Bit Sizes**, page 46.
- Impingement Port Drill Bit; various sizes depending on port size. See **Table 3: Impingement Port Drill Bit Sizes**, page 48.
- 117661 Pin Vise; dual reversible chucks



- 551189 Grease Gun; with 3 oz grease

Keep Gun Clean

Keep gun clean with accessory gun cover, page 89.

Applying a light coat of lubricant will make cleaning easier.

As Needed

1. **Clean Outside of Gun**, page 45.
2. **Clean Mix Chamber Nozzle**, page 46, a minimum of once a day.
3. **Spray Tip Adapter**, page 45.
4. **Clean Muffler**, page 45.
5. **Clean Fluid Manifold**, page 46.
6. **Clean Passages**, page 46.
7. **Clean Impingement Ports**, page 47.

Daily

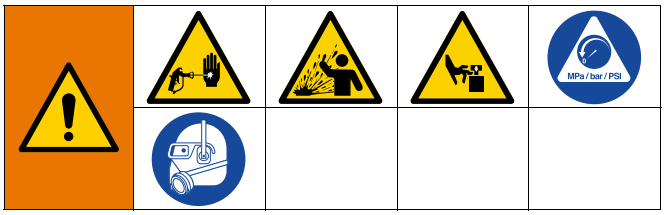
Follow **Striping Mode (HP Auto Series)**, page 33.

Weekly to Monthly

1. Clean Mix Chamber and Side Seal Cartridges, page 50. Check o-rings.
2. Clean/**Disassemble Check Valves**, page 51. Check o-rings and filters.

Flush Gun

If it is necessary to flush gun, use following procedure.



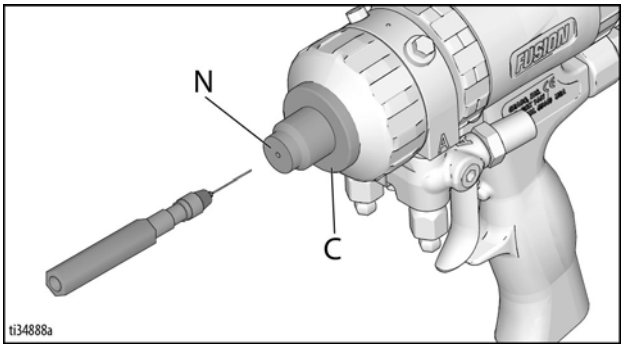
1. Follow **Grounding Procedure (For Flammable Flushing Fluids Only)**, page 12.
2. Flush with acetone into a grounded metal pail, holding a metal part of fluid manifold firmly to side of pail. Use the lowest possible fluid pressure when flushing.
3. Perform **Pressure Relief Procedure**, page 12.

Clean Outside of Gun

Wipe off outside of gun with acetone.

Spray Tip Adapter

Soak Spray Tip Adapter in acetone. If necessary, clean holes with 3/32” drill bit.

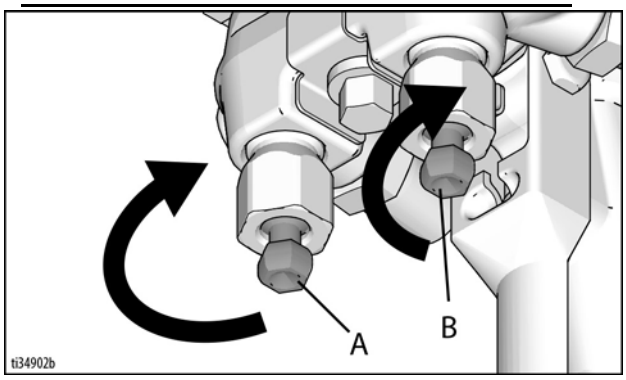


Clean Muffler

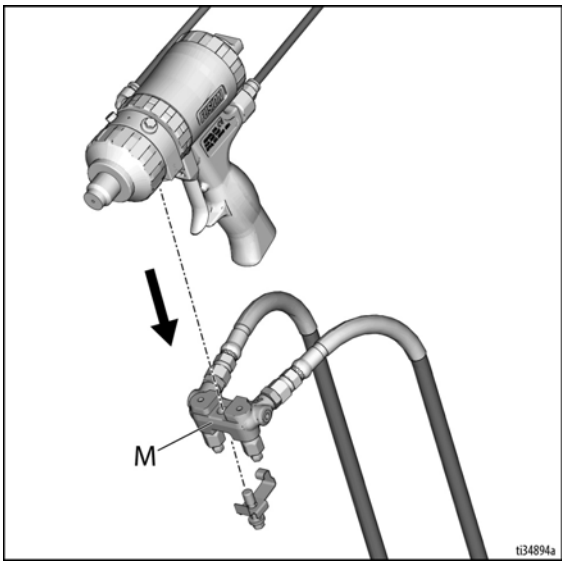
Remove and clean Muffler with acetone.

Remove/Reinstall Hose Manifold

1. Close Fluid Valves A and B.



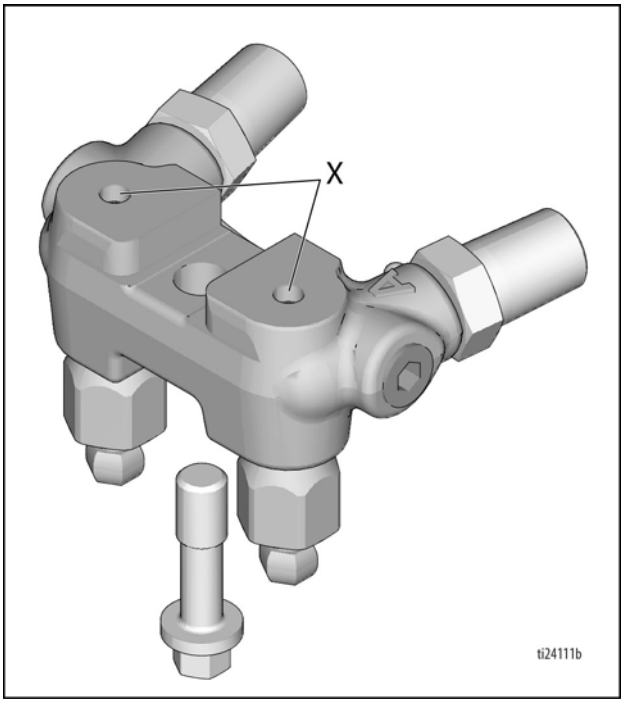
2. Loosening retaining bolt.



3. To reconnect hose manifold, tighten center bolt onto Fluid Housing of Fusion Gun.

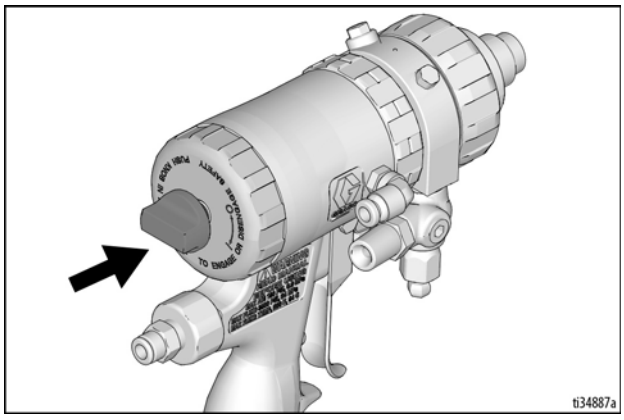
Clean Fluid Manifold

Clean fluid manifold sealing faces with acetone and a brush whenever removed from gun. Be sure to clean the two fluid ports (X) in the top mating surface. Do not damage the flat sealing surfaces. Coat with grease if left exposed, to seal out moisture.



Clean Mix Chamber Nozzle

1. Engage Piston Safety Lock, page 10.



2. Refer to **Table 1: Nozzle Drill Bit Sizes**, page 46. Also see identification chart under **Drill Bit Kits**, page 66. Use the appropriate size drill bit to clean mix chamber nozzle (N). If necessary, clean Spray Tip Adapter (C) gently with stiff brush. If necessary, remove tip adapter and clean mix chamber with drill bit.

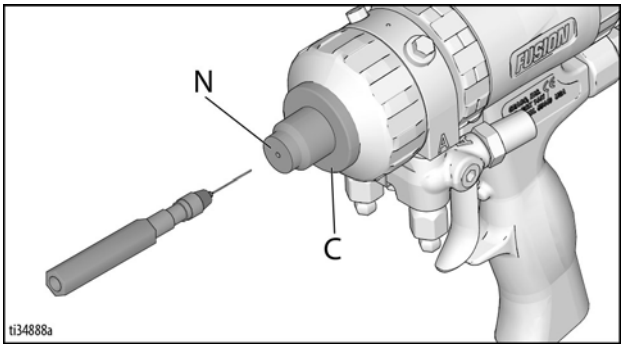


Table 1: Nozzle Drill Bit Sizes

Flat Spray	
Mix Chamber Part No.	**Drill Size in. (mm)**
AF2020	3/32, .094 (2.35)

Clean Passages

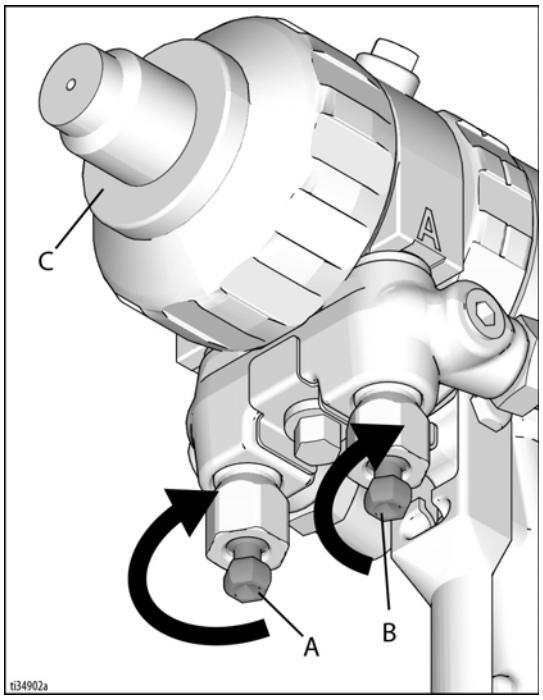
If necessary, clean out passages in Fluid Housing and handle with drill bits. Refer to **Table 2: Passage Diameters**, page 46 and to **Cutaway View - Gun**, page 72 for diameter and location of passages. All drill bits are available in an accessory kit. Order kit 248969 for **Air Purge Handle Cleanout Drill Kit**, page 66.

Table 2: Passage Diameters

Passage Description	Ref. Letter (page 72)	Diameter, in. (mm)
Optional Air Inlet	C	7/16, 1/8 (11.0, 3.1)
Purge Air	Not Shown	1/8 (3.1)
Piston Air	E, F	1/8 (3.1)
Air Exhaust	G	11/32, 1/8 (8.7, 3.1)
Air Valve Bore	H	9/32 (7.1)
Cleanoff Air	Not Shown	3/32 (2.35)
Check Valve Holes	Not Shown	3/32 (2.35)
Grease	Not Shown	3/32 (2.35)

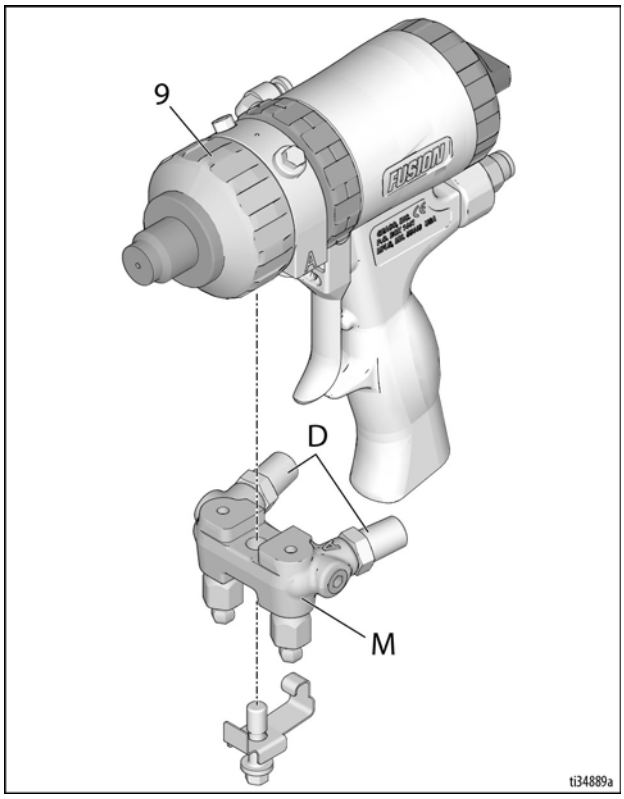
Remove Spray Tip Adapter

1. Perform **Pressure Relief Procedure**, page 12.
2. Close Fluid Valves A and B before turning Spray Tip Adapter (C).



Clean Impingement Ports

1. Follow **Pressure Relief Procedure**, page 12.
2. Disconnect both air lines and remove fluid manifold (M).



3. **Flush Gun**, page 45. If gun will not flush, see page 49.
4. **Disassemble Front End of Fusion Gun**, page 48.

5. Push mix chamber forward until impingement ports (IP) are visible. See **Table 3: Impingement Port Drill Bit Sizes**, page 48 for appropriate size drill to clean ports. Also see identification chart under **Drill Bit Kits**, page 66. Some mix chambers have counterbored holes (CB) and require two drill sizes to clean impingement ports completely.

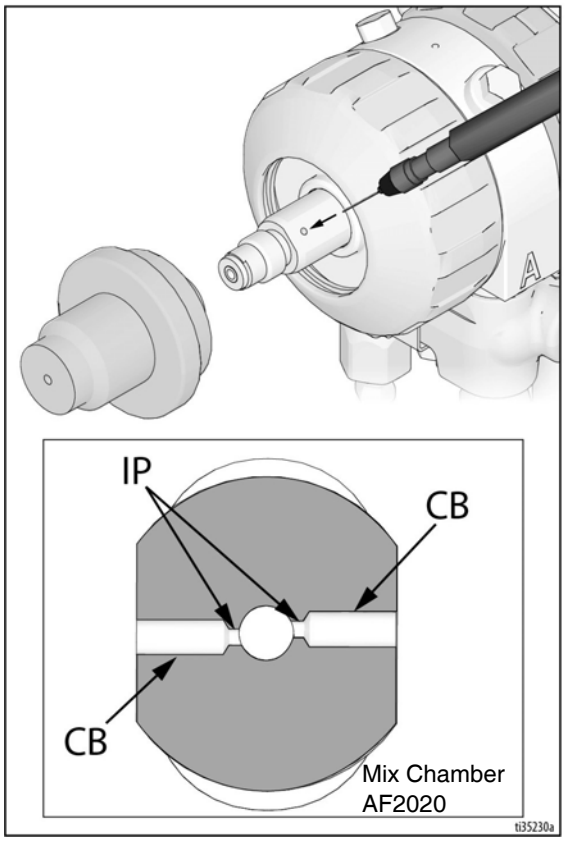


Table 3: Impingement Port Drill Bit Sizes

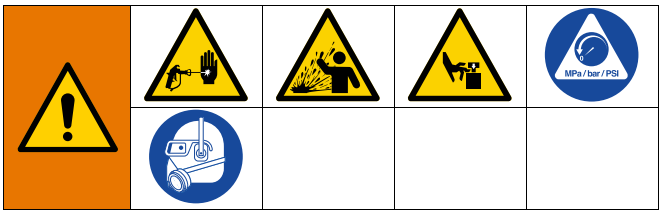
Mix Chamber Part No.	Impingement Port (IP) Drill Bit Size in. (mm)	Counterbore (CB) Drill Bit Size in. (mm)
AF2020	#76, .020 (0.50)	#53, .060 (1.50)

6. Push mix chamber back in position.
7. **Reassemble Front End of Fusion Gun**, page 48.
8. Attach fluid manifold. Connect air. Gun is ready for use.

Lubrication

Liberally lubricate all o-rings, seals, and threads. Lubricate threads and inside of retaining ring (9). See page 89 to order lubricant.

Disassemble Front End of Fusion Gun

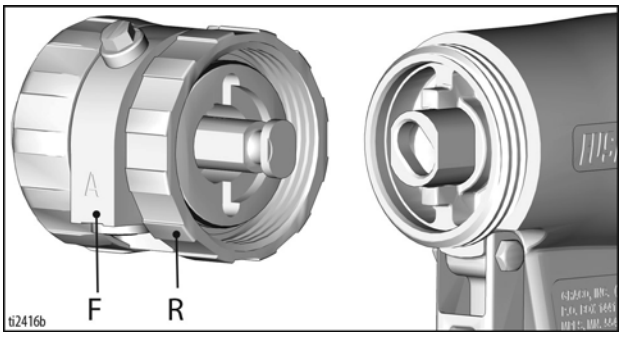


1. Perform **Pressure Relief Procedure**, page 12.
2. **Flush Gun**, page 45.

NOTICE

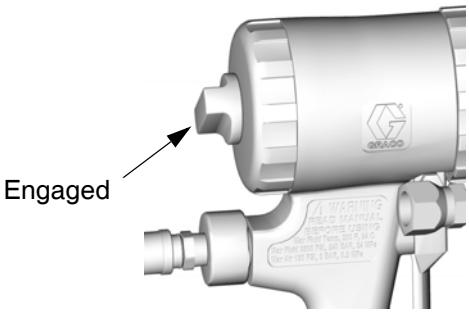
If lock ring (R) is stuck due to material buildup, do not force it by turning entire front end. Locating tabs (Z) may break off. Soak front of gun in solvent to soften cured material and free lock ring.

3. Unscrew lock ring (R) until front end of gun is loose. Turn Fluid Housing (F) 1/8 turn counterclockwise. Unscrew lock ring completely and remove front end of gun.

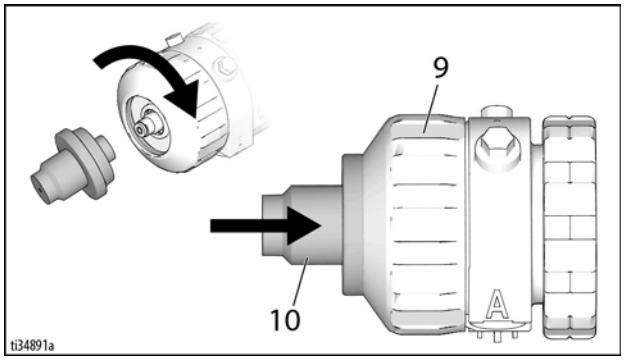


Reassemble Front End of Fusion Gun

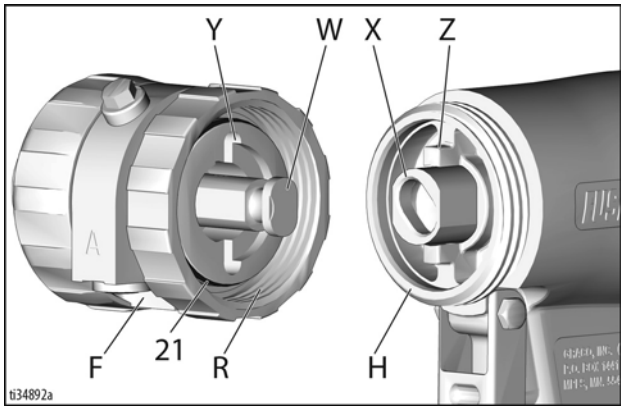
1. Engage **Piston Safety Lock**, page 10.



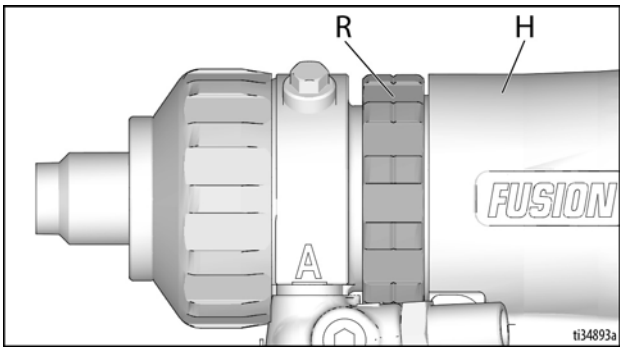
2. Thread on Spray Tip Adapter (10) to mixing chamber, and press in assembly until Spray Tip Adapter bottoms out on the retaining ring (9). This ensures that mix chamber is all the way back.



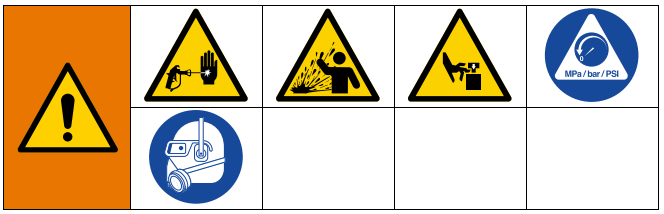
3. Check that o-ring (21) is in position. Liberally lubricate o-ring, threads of lock ring (R) and handle (H), and outside of lock ring. Orient front end (F) as required for desired fluid manifold mounting (bottom mounting is shown). Insert keyed end (W) of mix chamber in socket (X). Screw lock ring onto handle as far as possible by hand.



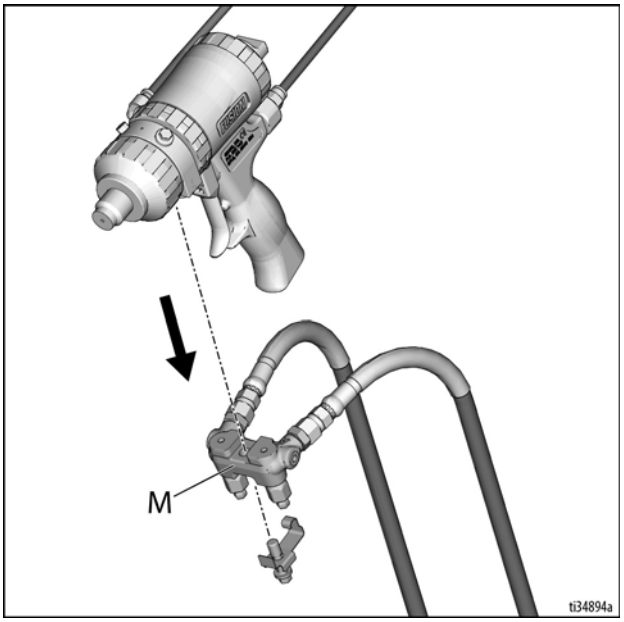
4. Turn Fluid Housing 1/8 turn clockwise to engage slots (Y) and tabs (Z). Push on front end to ensure it is properly seated. Continue screwing lock ring (R) onto handle (H) very securely. When properly assembled, lock ring is snug against handle.



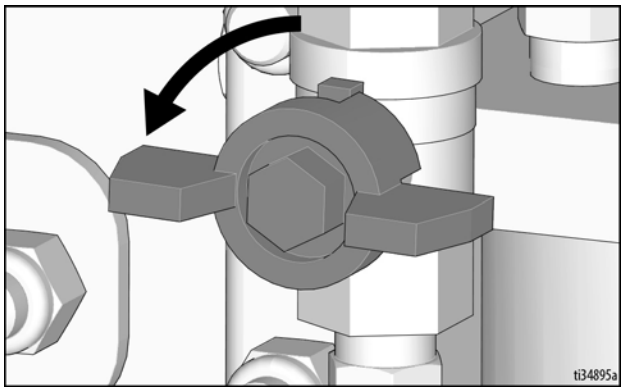
Remove Mix Chamber & Side Seal Cartridges



1. Perform **Pressure Relief Procedure**, page 12.
2. Remove fluid manifold (M). Leave air connected.

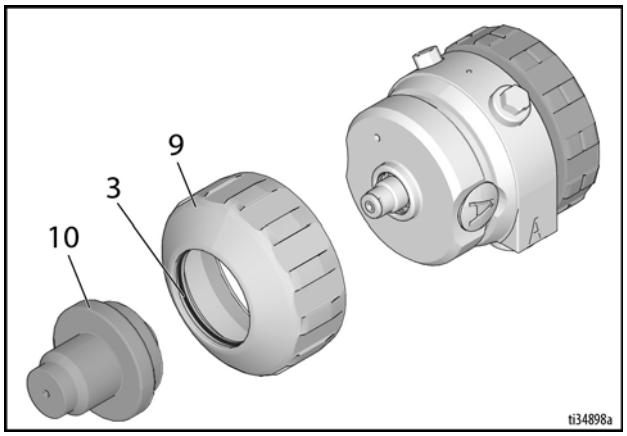


3. Flush gun to remove residual A and B components. Perform **Pressure Relief Procedure**, page 12.
4. Shut off air.



5. **Disassemble Front End of Fusion Gun**, page 48.

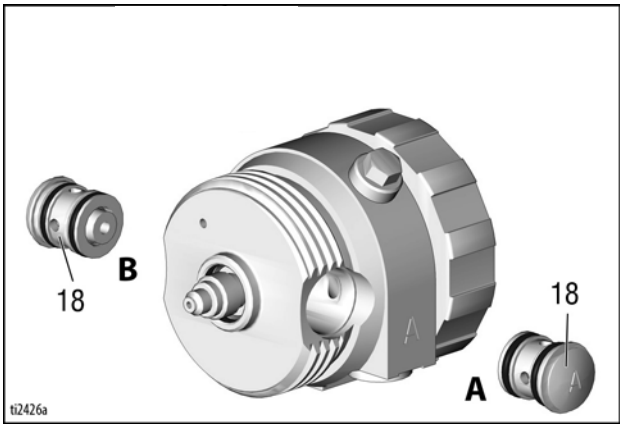
6. Remove Spray Tip Adapter (10) and retaining ring (9). Inspect o-ring (3) inside retaining ring.



NOTICE

To prevent cross-contamination of side seal cartridges, do not interchange A component and B component parts. The A component cartridge is marked with an A.

7. Pull out side seal cartridges (18).



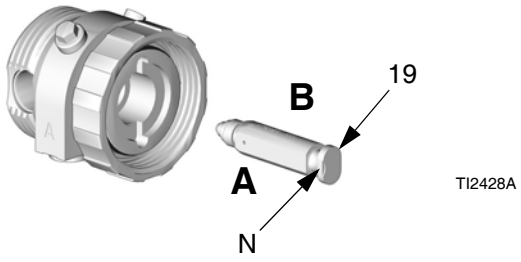
8. Pull mix chamber (19) out rear of Fluid Housing. Inspect for damage and clean ports, page 47. Inspect o-ring (23) in front of Fluid Housing.

NOTICE

To prevent cross-contamination of the gun's wetted parts, mix chamber is marked with an A and a notch (N) on back edge. Be sure the A side of mix chamber is on the A side of gun.

Reassemble Mix Chamber & Side Seal Cartridges

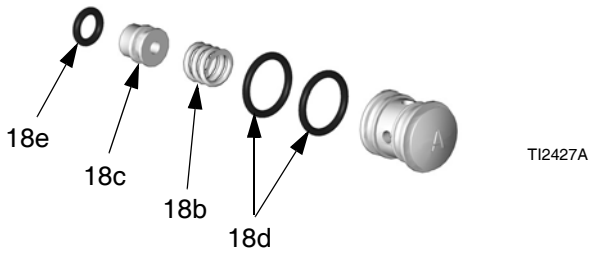
1. Apply thin coat of lubricant to mix chamber (19). Install mix chamber. Etched **A** and notch (N) must be on same side as **A** on Fluid Housing. Mix chamber is keyed to fit in Fluid Housing.



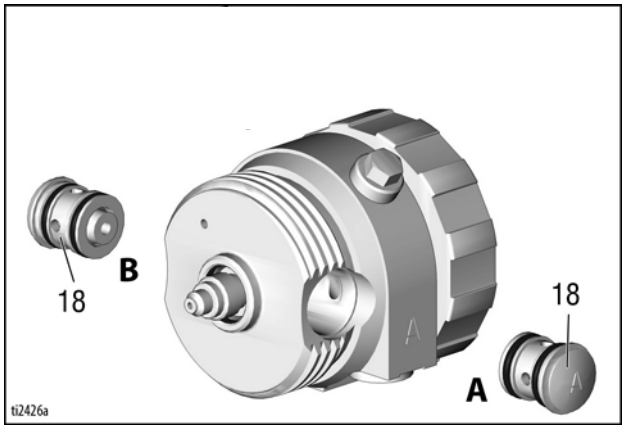
NOTICE

To prevent cross-contamination of side seal cartridges, do not interchange A component and B component parts. The A component cartridge is marked with an A.

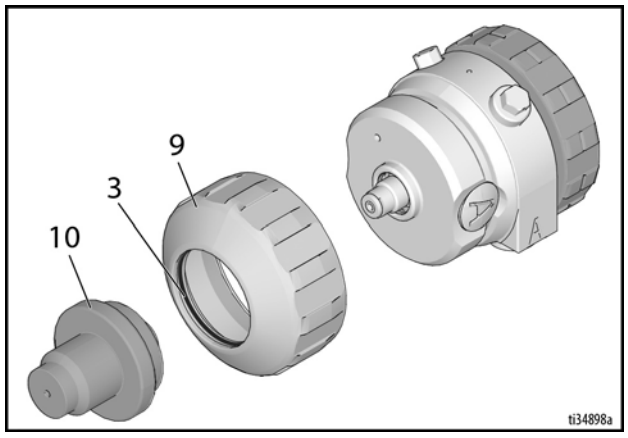
2. Carefully inspect side seal cartridge o-rings and surfaces. Replace worn or damaged parts. Liberally lubricate o-rings (18d, 18e) and reassemble. Press on side seal (18c) to check proper spring (18b) operation.



3. Liberally lubricate and reinstall side seal cartridges (18).



4. Lubricate all threads and reinstall retaining ring (9). Install Spray Tip Adapter (10).

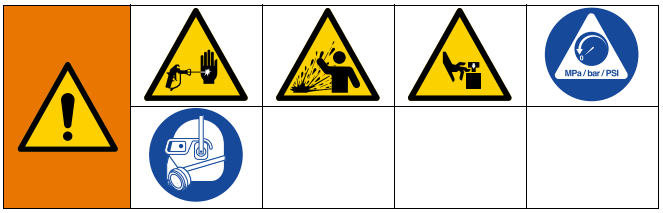


5. **Reassemble Front End of Fusion Gun**, page 48.

6. Connect air, and trigger the gun a few times to check for leaks. If either check valve pops out of its seated position, there is a poor fluid seal on that side of the mix chamber or side seal/cartridge components. Correct the problem before attaching the fluid manifold.

7. Attach fluid manifold. Connect air. Return gun to service.

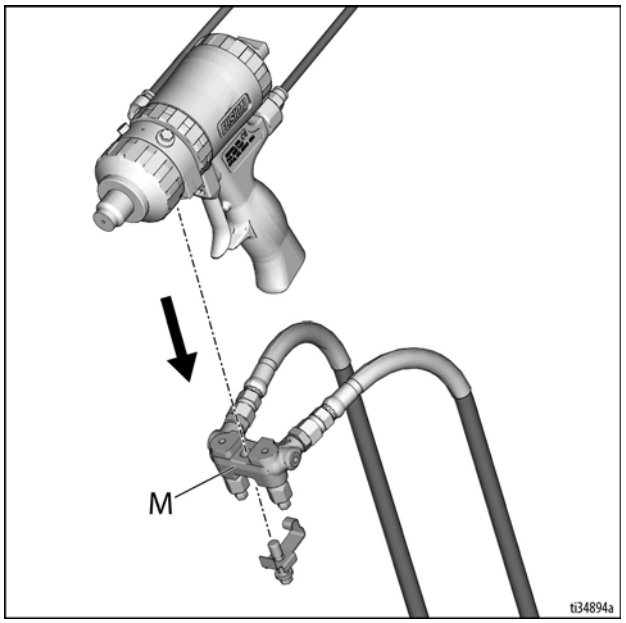
Disassemble Check Valves



NOTE: Before disassembling, press on ball (26c) to test check valve for proper movement and spring action.

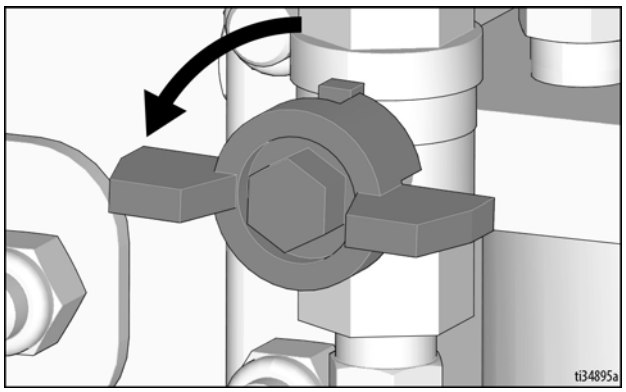
1. Perform **Pressure Relief Procedure**, page 12.

2. Remove fluid manifold (M). Leave air connected. **Clean Fluid Manifold**, page 46.



3. Flush gun to remove residual A and B components, page 45. Follow **Pressure Relief Procedure**, page 12.

4. Shut off air.



NOTICE

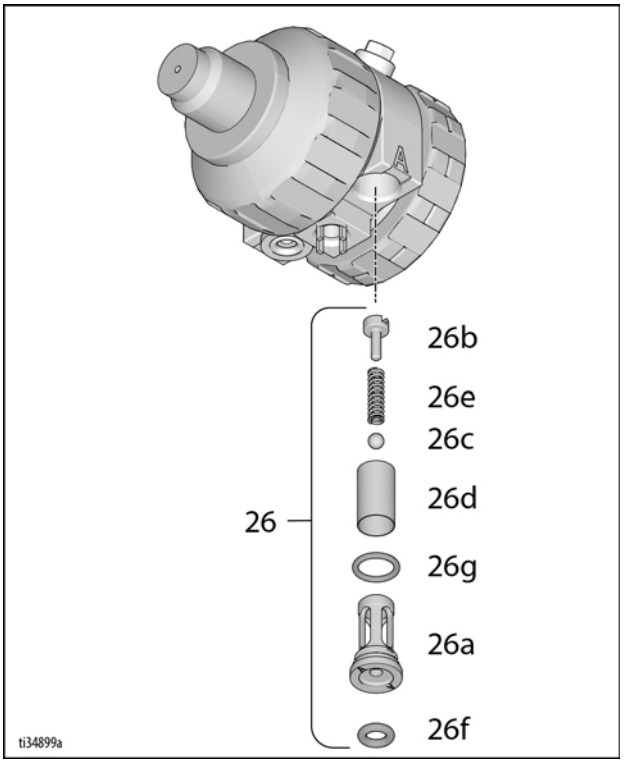
To prevent cross-contamination of the check valves, do not interchange A component and B component parts. The A component check valve is marked with an A.

5. Pry out check valves (26) at notch.

NOTICE

Damaged check valve o-rings (26f, 26g) may result in external leakage. Replace o-rings if any damage is seen.

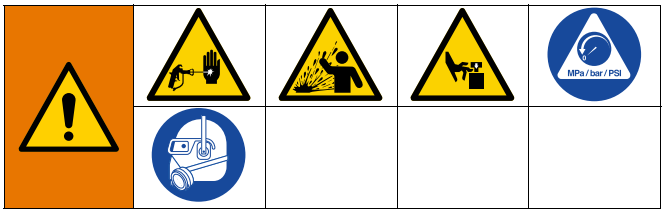
6. Slide filter (26d) off. Clean and inspect parts. Thoroughly inspect o-rings (26f, 26g). If necessary, remove screw (26b) and disassemble entire check valve.



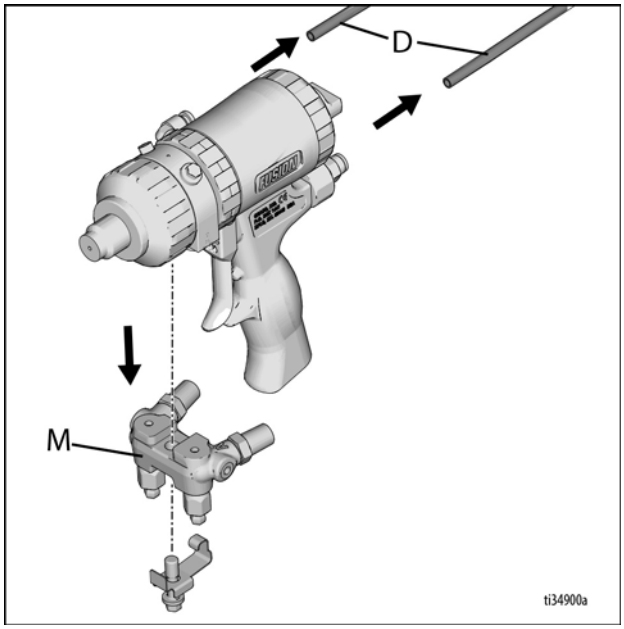
Reassemble Check Valves

1. Reassemble check valves. Screw (26b) should be flush (within 1/16 in. or 1.5 mm) of housing (26a) surface. Liberally lubricate o-rings (26f, 26g) and carefully reinstall in Fluid Housing.
2. Attach fluid manifold. Connect air. Return gun to service.

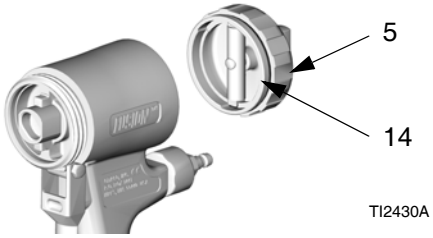
Piston



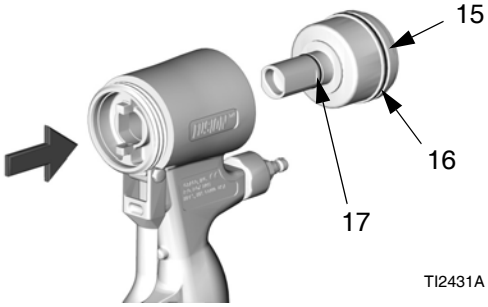
1. Perform **Pressure Relief Procedure**, page 12.
2. Disconnect air (D) and remove fluid manifold (M).



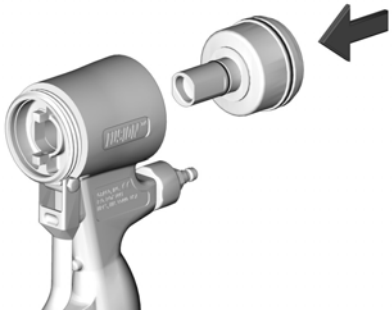
3. **Disassemble Front End of Fusion Gun**, page 48.
4. Unscrew cylinder cap (5) and inspect o-ring (14).



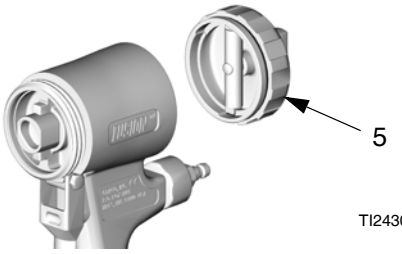
5. Push piston shaft to remove piston (15). Inspect piston o-ring (16) and shaft o-ring (17).



6. Liberally lubricate piston o-rings. Reinstall piston. Shaft is keyed for proper assembly. Push firmly to seat piston.



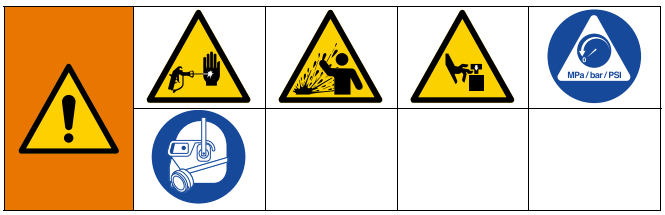
7. Install cylinder cap (5).



8. **Reassemble Front End of Fusion Gun**, page 48.

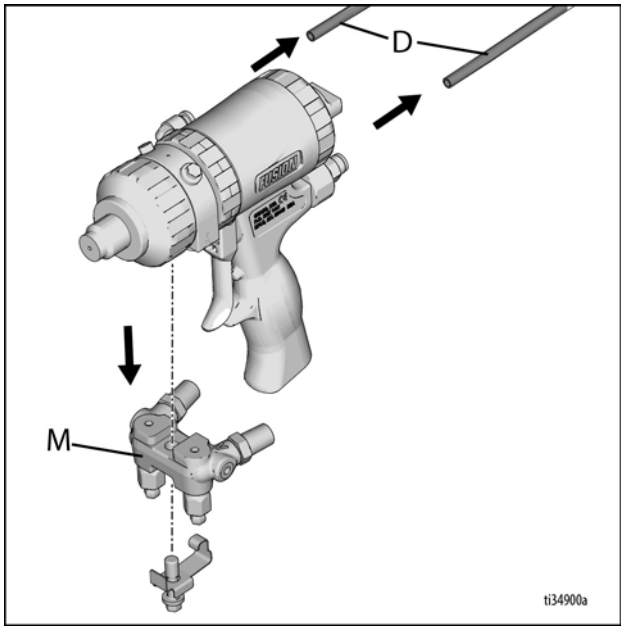
9. Attach fluid manifold. Connect air. Return gun to service.

Piston Safety Lock

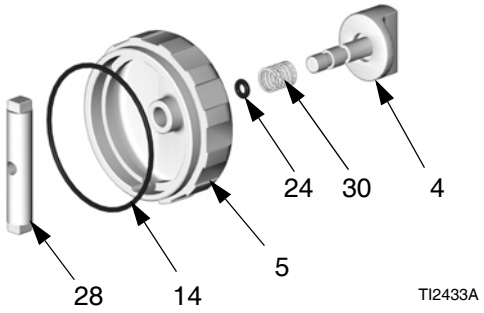


1. Perform **Pressure Relief Procedure**, page 12.

2. Disconnect air (D) and remove fluid manifold (M).



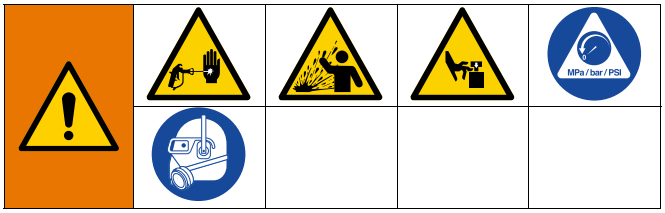
3. Unscrew cylinder cap (5). Hold piston stop (28) with wrench and unscrew from safety lock (4). Inspect spring (30) and o-rings (14, 24).



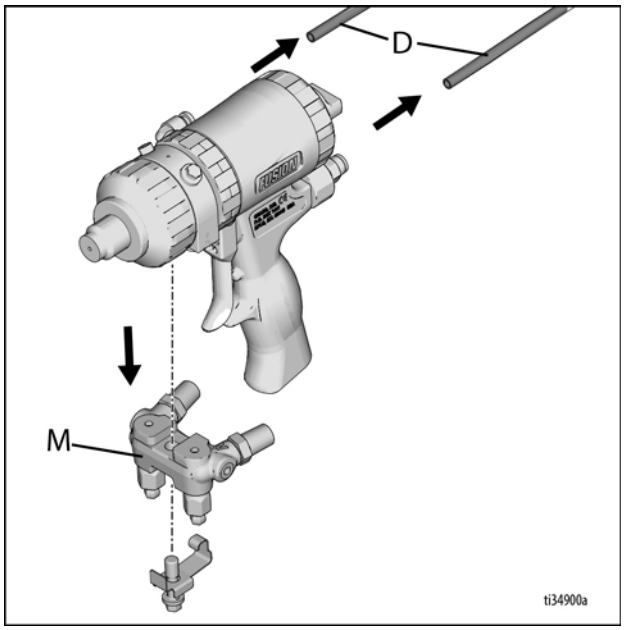
4. Liberally lubricate o-rings and reassemble. Clean threads with solvent or alcohol. Apply medium-strength sealant to threads on stop (28) and reassemble.

5. Attach fluid manifold. Connect air. Return gun to service.

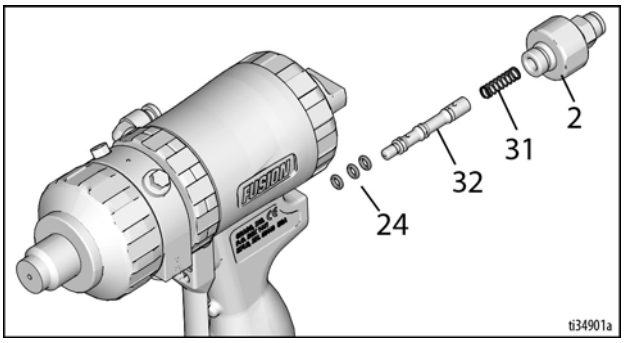
Air Valve



1. Perform **Pressure Relief Procedure**, page 12.
2. Disconnect air (D) and remove fluid manifold (M).



3. Unscrew air valve plug (2) and remove spring (31). Using a small diameter tool, push spool (32) out from front. Inspect o-rings (24).



4. Liberally lubricate o-rings and reassemble. Torque plug (2) to 125-135 in-lb (14-15 N•m).

Maintenance

LineLazer V 200MMA 1:1

Periodic Maintenance

DAILY: After every use, thoroughly clean gun and components with acetone.

DAILY: Check air lines for clear passage ways. Ensure paint is not backed into air hose/fittings.

DAILY: Check engine oil level and fill as necessary.

DAILY: Check hydraulic oil level and fill as necessary.

DAILY: Check hose for wear and damage.

DAILY: Check gun safety for proper operation.

DAILY: Check prime/spray drain valve for proper operation.

DAILY: Check and fill gas tank

DAILY: Check that displacement pump is tight.

DAILY: Top off TSL level in displacement pump packing nut to help prevent material buildup on piston rod and early wear of packing.

AFTER THE FIRST 20 HOURS OF OPERATION: Drain engine oil and refill with clean oil. Reference Honda Engines Owner's Manual for correct oil viscosity.

WEEKLY: Remove engine air filter cover and clean element. Replace if necessary. If operating in an unusually dusty environment, check filter daily.

WEEKLY/DAILY: Remove any debris from hydraulic rod.

AFTER EACH 100 HOURS OF OPERATION: Change engine oil. Reference Honda Engines Owner's Manual for correct oil viscosity.

SEMI-ANNUALLY: Check belt wear, replace if necessary.

YEARLY OR 2000 HOURS: Replace belt.

AFTER EACH 500 HOURS OR 3 MONTHS OF OPERATION: Replace hydraulic oil and filter. Use Graco hydraulic oil 169236 (5 gallon/20 liter) or 207428 (1 gallon/3.8 liter) and filter 246173. Oil change interval dependent on environmental conditions.

SPARK PLUG: Use only BPR6ES (NGK) or W20EPR--U (NIPPONDENSO) plug. Gap plug to 0.028 to 0.031 in (0.7 to 0.8 mm). Use spark plug wrench when installing and removing plug.

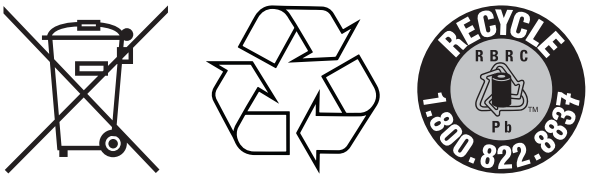
Caster Wheel

1. Once each year, tighten nut under dust cap until spring washer bottoms out, then back off the nut 1/2 to 3/4 turn.
2. Once each month, grease the wheel bearing.
3. Check pin for wear. If pin is worn out, there will be play in the caster wheel. Reverse or replace the pin as needed.
4. Check caster wheel alignment as necessary. To align; see page 25.

Recycling and Disposal

Rechargeable Battery Disposal

Do not place batteries in the trash. Recycle batteries according to local regulations. In the USA and Canada, call 1-800-822-8837 to find recycling locations or go to www.call2recycle.org.



End of Product Life

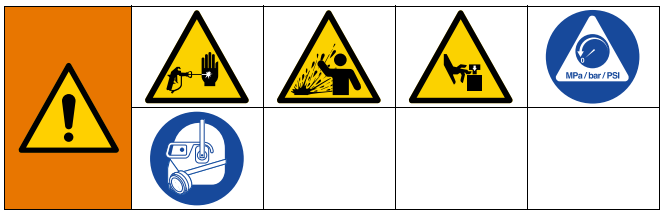
At the end of the product's useful life, dismantle and recycle it in a responsible manner.

- Perform the **Pressure Relief Procedure**, page 12.
- Drain and dispose of fluids according to applicable regulations. Refer to the material manufacturer's Safety Data Sheet.
- Remove motors, batteries, circuit boards, LCDs (liquid crystal displays), and other electronic components. Recycle according to applicable regulations.
- Do not dispose of batteries or electronic components with household or commercial waste.

  
- Deliver remaining product to a recycling facility.

Hydraulic Oil/Filter Change

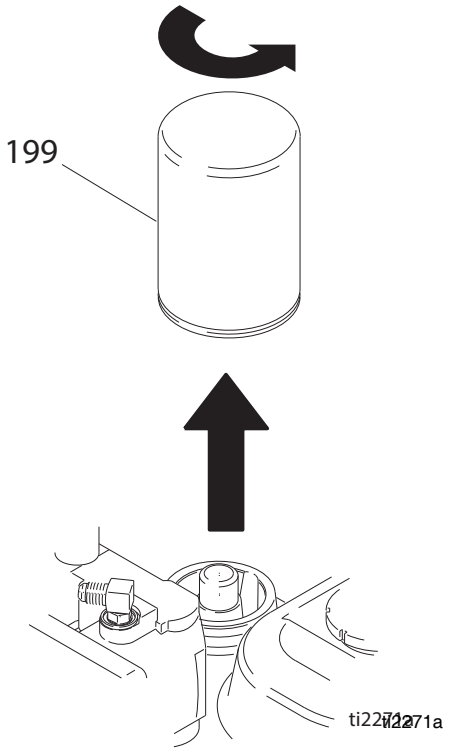
Removal



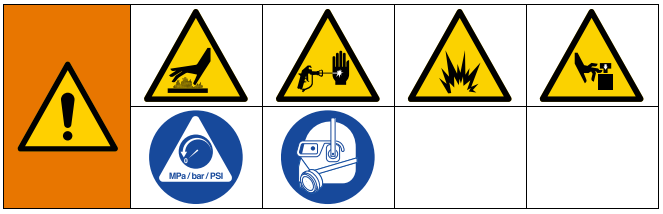
1. Perform **Pressure Relief Procedure**, page 12.
2. Place drip pan or rags under sprayer to catch hydraulic oil that drains out.
3. Remove drain plug. Allow hydraulic oil to drain.
4. Unscrew filter slowly - oil runs into groove and drains out rear.

Installation

1. Apply a light film of oil on oil filter gasket. Install drain plug and oil filter. Tighten oil filter 3/4 turn after gasket contacts base.
2. Fill tank with Graco synthetic hydraulic oil, ISO 46.
3. Check oil level.



Troubleshooting



Problem	Cause	Solution
Gas engine pulls hard (won't start).	Hydraulic pressure is too high.	Turn hydraulic pressure knob counterclockwise to lowest setting.
Engine won't start.	Engine switch is OFF.	Turn engine switch ON.
	Engine is out of gas.	Refill gas tank. See Honda Engines Owner's Manual.
	Engine oil level is low.	Try to start engine. Replenish oil, if necessary. See Honda Engine Owner's Manual.
	Spark plug cable is disconnected or damaged.	Connect spark plug cable or replace spark plug.
	Cold engine.	Use choke.
	Fuel shutoff lever is OFF.	Move lever to ON position.
	Oil is seeping into combustion chamber.	Remove spark plug. Pull starter 3 to 4 times. Clean or replace spark plug. Start engine. Keep sprayer upright to avoid oil spill.
Engine operates, but displacement pump does not operate.	Pump Valve is OFF.	Turn Pump Valve ON.
	Pressure setting is too low.	Turn pressure adjusting knob clockwise to increase pressure.
	Fluid filter is dirty.	Clean filter.
	Tip or tip filter is clogged.	Clean tip or tip filter. See spray gun manual.
	Displacement pump piston rod is stuck due to dried paint.	Repair pump. See pump manual.
	Belt worn, broken or off pulley.	Replace.
	Hydraulic fluid too low.	Shut off sprayer. Add Hydraulic fluid.
	Hydraulic motor not shifting.	Set Pump Valve OFF. Turn pressure down. Turn engine OFF. Pry rod up or down until hydraulic motor shifts.
Displacement pump operates, but output is low on upstroke.	Piston ball is not seating.	Service piston ball. See Manual 309277.
	Piston packings are worn or damaged.	Replace packings. See Manual 309277.

Problem	Cause	Solution
Displacement pump operates but output is low on down stroke and/or on both strokes.	Strainer is clogged.	Clean strainer.
	O-ring in pump is worn or damaged.	Replace o-ring. See Pump manual 309277.
	Intake valve ball is packed with material or is not seating properly.	Clean intake valve. See Pump manual 309277.
	Engine speed is too low.	Increase throttle setting.
	Suction tube air leak.	Tighten suction tube.
	Pressure setting is too low.	Increase pressure.
	Fluid filter, tip filter or tip is clogged or dirty.	Clean filter.
	Large pressure drop in hose with heavy materials.	Use larger diameter hose and/or reduce overall length of hose. Use of more than 100 ft of 1/4 in. hose significantly reduces performance of sprayer. Use 3/8 in. hose for optimum performance (22 ft minimum).
Pump is difficult to prime.	Air in pump or hose.	Check and tighten all fluid connections. Reduce engine speed and cycle pump as slowly as possible during priming.
	Intake valve is leaking.	Clean intake valve. Be sure ball seat is not nicked or worn and that ball seats well. Reassemble valve.
	Pump packings are worn.	Replace pump packings. See Pump manual.
	Paint is too thick.	Thin the paint according to the supplier's recommendations.
	Engine speed is too high.	Decrease throttle setting before priming pump.
High engine speed at no load.	Mis-adjusted throttle setting.	Reset throttle to 3700 - 3800 engine rpm at no load.
	Worn engine governor.	Replace or service engine governor.
Low stall or run pressure shown on display.	New pump or new packings.	Pump break-in period takes up to 100 gallons of material.
	Faulty transducer.	Replace transducer.
Excessive paint leakage into throat packing nut.	Throat packing nut is loose.	Remove throat packing nut spacer. Tighten throat packing nut just enough to stop leakage.
	Throat packings are worn or damaged.	Replace packings. See Pump manual 309277.
	Displacement rod is worn or damaged.	Replace rod. See Pump manual 309277.
Fluid is spitting from gun.	Air in pump or hose.	Check and tighten all fluid connections. Reprime pump.
	Tip is partially clogged.	Clear tip.
	Fluid supply is low or empty.	Refill fluid supply. Prime pump. Check fluid supply often to prevent running pump dry.
	Insufficient air pressure	Increase motor speed, check air caps, check air connections.
Excessive leakage around hydraulic motor piston rod wiper.	Piston rod seal worn or damaged.	Replace these parts.

Problem	Cause	Solution
Fluid delivery is low.	Pressure setting too low.	Increase pressure.
	Displacement pump outlet filter (if used) is dirty or clogged.	Clean filter.
	Intake line to pump inlet is not tight.	Tighten.
	Hydraulic motor is worn or damaged.	Bring sprayer to Graco distributor for repair.
	Large pressure drop in fluid hose.	Use larger diameter for shorter hose.
The sprayer overheats.	Paint buildup on hydraulic components.	Clean.
	Oil level is low.	Fill with oil.
Excessive hydraulic pump noise.	Low hydraulic fluid level.	Shut off sprayer. Add fluid.
Gallon (liter) counter not adding fluid volume.	Fluid pressure not high enough.	Must be over 800 psi (55 bar) for counter to add.
	Broken or disconnected pump counter wire, both pumps.	Check wires and connections. Replace any broken wires
	Missing or damaged magnet.	Reposition or replace magnet on pump, see Parts manual (Pump parts) for magnet location.
	Bad sensor, both pumps.	Replace sensor.
Sprayer operates, but display does not.	Bad connection between control board and Display.	Remove Display and reconnect.
	Display damaged.	Replace Display.
Distance not adding properly (Measure mode will be inaccurate and speed will be wrong).	Machine not calibrated.	Perform calibration procedure.
	Rear tire pressure is too low or too high.	Adjust tire pressure to 55 +/- 5 psi (380 +/- 34kPa).
	Gear teeth missing or damaged (right side when standing on platform).	Replace distance gear/wheel hub.
	Distance sensor is loose or broken.	Reconnect or replace sensor.
Mils not calculating or calculates wrong.	Distance sensor.	See “Distance counter not operating properly”.
	Gallon counter.	See “Gallon (liter) counter not adding fluid volume.”
	Line width not entered.	Set line width on main striping screen.
	Bad or damaged control board.	Replace control board.
Fluid spray starts after spray icon is shown on Display.	Interrupter.	Turn screw counterclockwise until spray icon synchronizes with fluid spray, page 23.
Spray icon does not show on Display when fluid is sprayed.	Loose connector.	Check that 5-pin connector and reed switch are properly connected.
	Interrupter (164) is improperly positioned.	Turn screw counterclockwise until spray icon synchronizes with fluid spray.
Spray icon is always shown on display.	Interrupter is improperly positioned.	Turn screw clockwise until spray icon is synchronized with fluid spray, page 23.
	Reed switch assembly is damaged.	Replace reed switch assembly.

Problem	Cause	Solution
Pumps are running at largely different speeds	Fluid filter is dirty.	Clean filter.
	Tip, Filter or Manifold is clogged.	Clean components, drill passages.
	Displacement pump is stuck.	Repair pump, see pump manual.
	Impingement ports clogged.	Clean, see page 47.
AUTO GUN MODE		
Auto Gun won't actuate when the red button is pressed.	Gun is not activated.	Press the 1 or 2 button on control to activate a gun.
	Cable is not adjusted properly.	Adjust Cable to properly actuate gun trigger, page 24.
	Not on main striping screen.	Go to main striping screen on control to Actuate Auto Guns.
	Low Speed Shut off is enabled.	Disable Low Speed Shutoff, page 40.
	Battery Voltage is too low.	Check Battery voltage on Diagnostic Screen, page 14, or with Volt meter. If below 11.5V, charge Battery or replace Battery.
	Cable is not adjusted properly.	Adjust Cable to properly actuate gun trigger, page 24.
	Red button is broken.	Test button functionality in Diagnostic screen, page 14. Replace if broken.
	Auto Gun Cable is broken or extremely kinked resulting in too much drag.	Replace Auto Gun Cable.
	Solenoid wire is disconnected or broken.	Check Wiring Diagram, page 90, repair or replace wires if necessary.
	Fuse to Battery is removed or blown.	Check and replace fuse.
	Solenoid is jammed.	Spray Lubrication on solenoid plunger.
	Solenoid is failed.	Check resistance across solenoid wires. Resistance should be between. 2 and .26 ohms. If it's not, replace solenoid.
	Control board is failed.	Replace Control board.
	Gun is not receiving air.	Check air pressure. Open air valve on gun.
	Air pressure too low.	Increase motor speed, check air connections & air cap.
Line Spacing is not accurate	Wrong line pattern loaded.	Reload the correct pattern.
	Machine is out of calibration.	Calibrate the machine, page 14.

Problem	Cause	Solution
Battery won't stay charged.	Accessories are left on and drain the Battery when unit is not running.	Turn off accessories when machine is not in use.
	Throttle is not set high enough.	Make sure engine is being ran above 3300 rpm, NO LOAD for proper power supply.
	Power consumption from accessories is higher than engine output.	Reduce accessories or charge Battery when necessary.
	Wiring is broken or disconnected.	Check Wiring Diagram, page 90, repair or replace wires if necessary.
	Charger is not working.	Check Charging state in diagnostics, page 36, to see if charger is properly working. Replace Board.
Auto Gun won't shut off	Cable is kinked.	Repair or replace cable.
	Solenoid is jammed.	Lubricate solenoid plunger, Check for solenoid damage.
	Low air pressure.	Increase motor speed, check air connections.
LAYOUT MODE		
No dots or poor dots in Layout and Marking Mode.	Too small of Dot setting.	Increase Dot size, page 36.
	Gun is not activated.	Press the 1 or 2 button on control to activate a gun.
	Cable is not adjusted properly.	Adjust Cable to properly actuate gun trigger, page 24.
	Tip clog.	Clear tip or Replace tip.
	Battery voltage is too low.	Charge Battery or replace Battery.

Gun Troubleshooting

1. Perform **Pressure Relief Procedure**, page 12.
2. Check all possible problems and causes before disassembling gun.

NOTICE

To prevent cross-contamination of the gun's wetted parts, do not interchange A component and B component parts.

Problem	Cause	Solution
Gun does not fully actuate when triggered.	Safety lock engaged.	Disengage safety lock, page 10.
	Plugged Muffler (22).	Clean, page 45.
	Damaged air valve o-rings (24).	Replace, page 54.
	Low air pressure.	Check air connections, increase throttle.
Fluid does not spray when gun is fully actuated.	Closed Fluid Valves (12b).	Open.
	Plugged impingement ports.	Clean, page 47.
	Plugged check valves (26).	Clean, page 51.
Gun actuates slowly.	Plugged Muffler (22).	Clean, page 45.
	Damaged piston o-rings (16, 17).	Replace, page 52.
	Dirty air valve, or damaged o-rings (24).	Clean air valve or replace o-rings, page 54.
	Low air pressure.	Check air connections, increase throttle.
Gun delays, then actuates abruptly.	Cured material around side seals (18).	Inspect side seals (18c) and mix chamber (19) for scratches. Replace, page 49.
	Retaining ring (9) not bottomed out.	Tighten retaining ring until bottomed out.
Loss of flat pattern.	Plugged spray tip.	Clean incompatible solvent, page 49.
	Worn tip.	Replace, page 49.
	Dirty mix chamber nozzle.	Clean, page 49.
Leakage between flat tip and mix chamber.	Tip not seated properly.	Reassemble, page 49.
	Damaged/missing o-ring (40).	Replace, page 49.
Pressure imbalance.	Plugged impingement ports.	Clean, page 47.
	Plugged check valves (26).	Clean, page 51.
	Viscosities not equal.	Adjust temperature to compensate.
	Hoses are plugged.	Flush system with acetone, replace hoses.

Problem	Cause	Solution
A and/or B fluid in gun air section.	Damaged side seals (18c).	Replace, page 49.
	Damaged mix chamber (19).	Replace, page 49.
	Damaged side seal o-rings (18d, 18e).	Replace, page 49.
	Tightened Spray Tip Adapter with Fluid Valves (12b) open.	Close valves first.
Fluid mist from mix chamber or Spray Tip Adapter.	Damaged side seals (18c).	Replace, page 49.
	Damaged side seal o-rings (18d, 18e).	Replace, page 49.
	Damaged mix chamber (19).	Replace, page 49.
Excessive cleanoff air when Fluid Valves are closed and gun is triggered.	Damaged/missing Fluid Housing o-ring (23).	Replace, page 49.
Fluid does not shut off when Fluid Valves are closed.	Damaged Fluid Valves (12b).	Replace.
Burst of air from Muffler when gun is triggered.	Normal.	No action required.
Steady air leakage from Muffler.	Damaged air valve o-rings (24).	Replace, page 54.
	Damaged piston o-rings (16, 17).	Replace, page 52.
Air leakage from front air valve.	Damaged air valve o-rings (24).	Replace, page 54.
Air leak around lock ring.	Damaged o-ring (21).	Replace, page 49.
Cannot tighten retaining ring (9) until it bottoms out.	Spray Tip Adapter (10) assembled before retaining ring (9).	Install retaining ring (9) first, then Spray Tip Adapter (10), page 50.
Streaking in spray pattern.	Too small spray orifice.	Increase tip size.
	Too low pressure.	Increase spray pressure.
	Too cold of material.	Check material recommended spray temperature.

Gun Repair Kits

Read the chart left to right and top to bottom to find the quantity of each part in the kits.

Ref. No.	Bulk O-ring Kits, (qty)	246347 Side Seal Cartridge O-ring Kit	246348 Side Seal Kit	246351 Check Valve O-ring Kit	246355 Complete O-ring Kit
3	248137 (6)				1
14	248136 (6)				1
16	248135 (6)				1
17	248134 (6)				1
18c			2		
18d	248130 (6)	4			4
18e	248128 (6)	2	2		2
21	248132 (6)				1
23	248131 (6)				1
24	246354 (6)				5
26f	248133 (6)			2	2
26g	248129 (6)			2	2
40	246360 (3)				

Check Valve Filter Screen Kits

Kits include 10 filter screens.

40 mesh filter screen is standard with gun.

246357 40 mesh (.015 in., 375 micron)

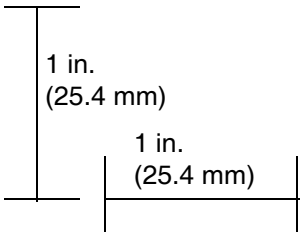
246358 60 mesh (.010 in., 238 micron)

246359 80 mesh (.007 in., 175 micron)

Drill Bit Kits

For cleaning gun ports and orifices. Illustrations are for diameter comparison. Actual length may vary.

NOTE: Not all sizes are used with your gun.



Kit Part No.	Qty in Kit	Drill Bit Size			Illustration
		nominal	in.	mm	
246624	3	3/32	.094	2.39	
246627	6	#53	.060	1.52	
246631	6	#76	0.20	0.51	

Drill Bit Kit

119386

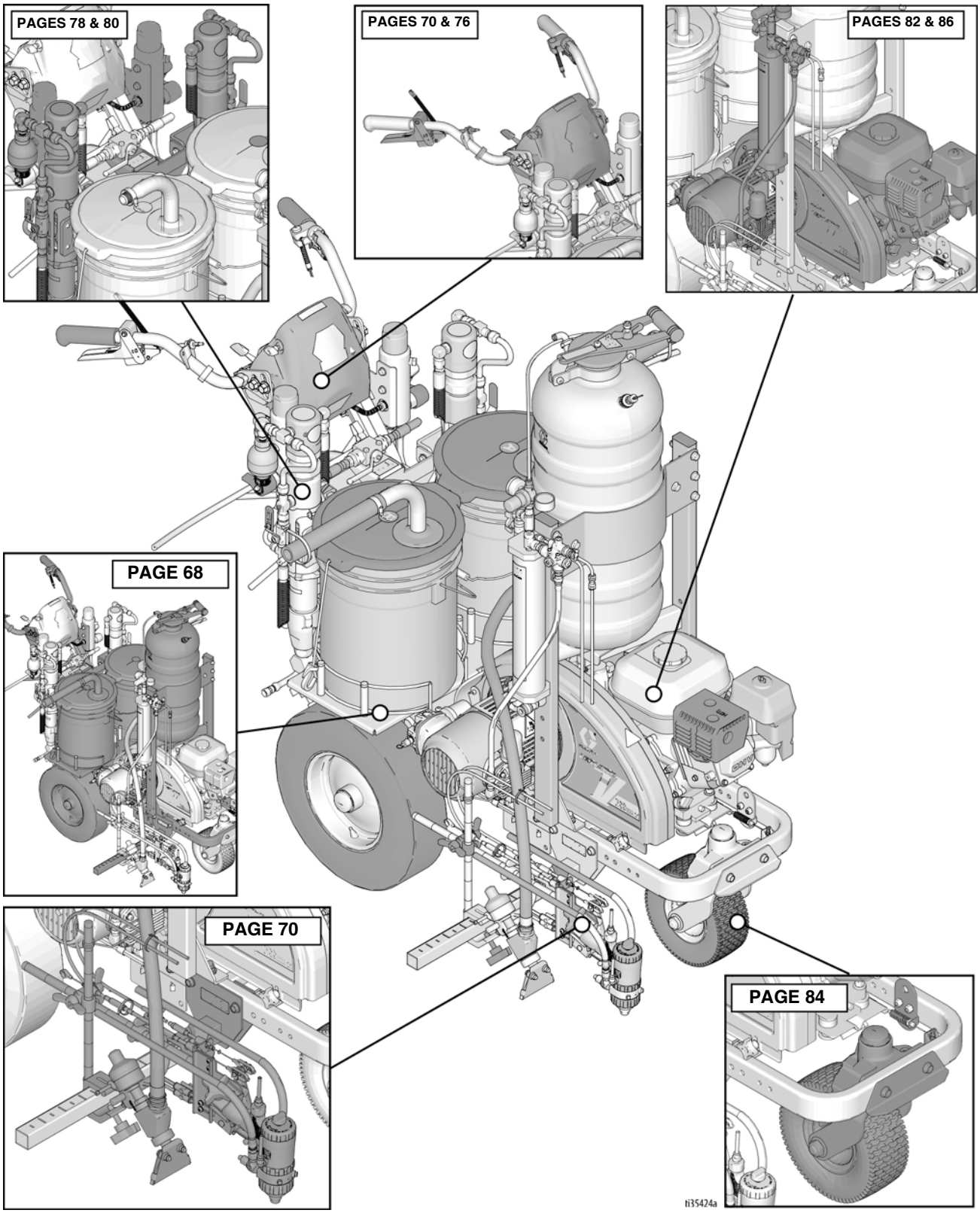
Kit includes 20 cleanout drill bits ranging in sizes of #61 through #80.

Air Purge Handle Cleanout Drill Kit

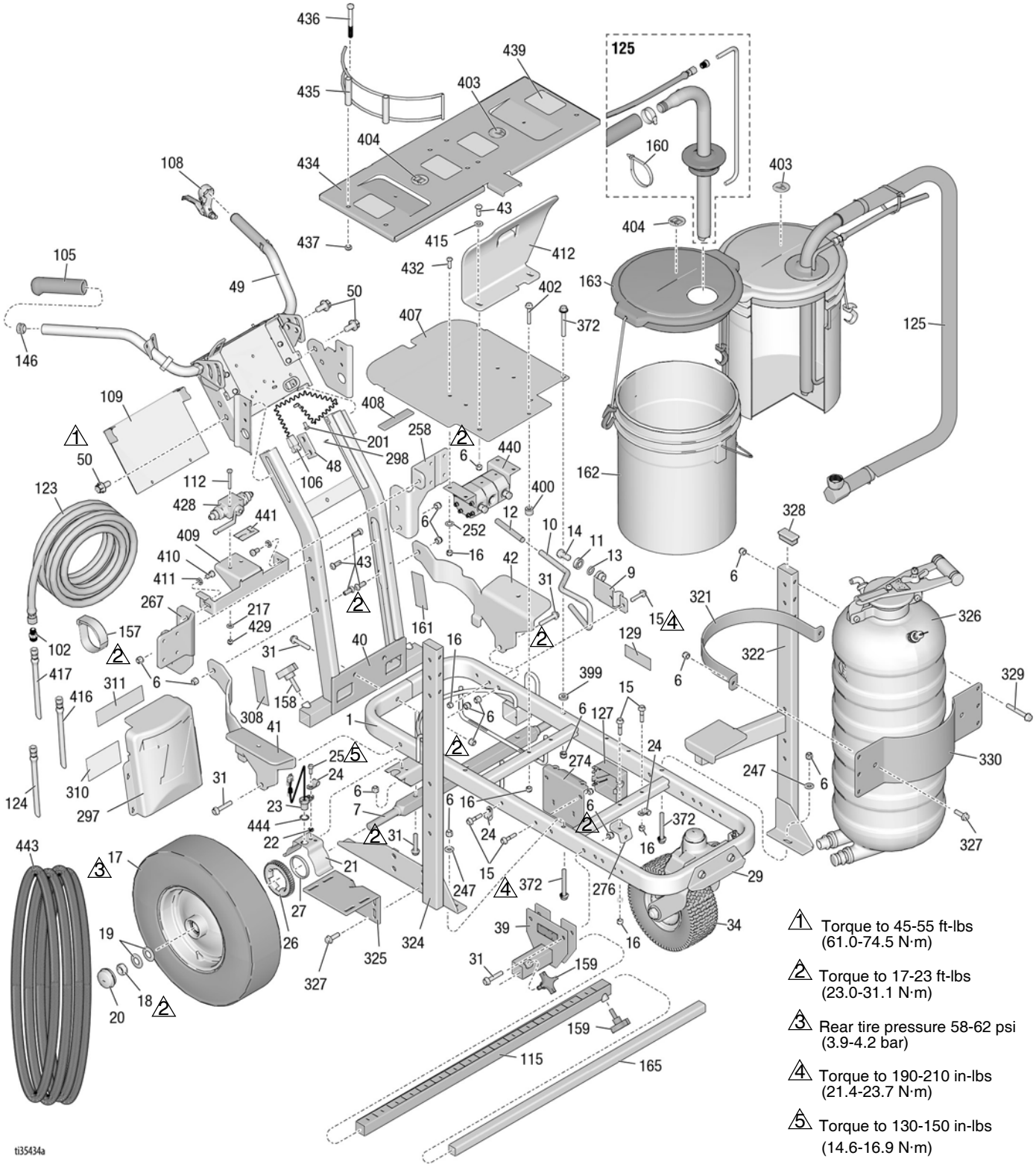
248969

Kit includes all 5 drill bits of extra long length needed to clean out the air passages in the Air Purge Gun Handle and Fluid Housing. See **Clean Passages**, page 46.

LineLazer V 200MMA 1:1



Parts Drawing - Frame Assembly

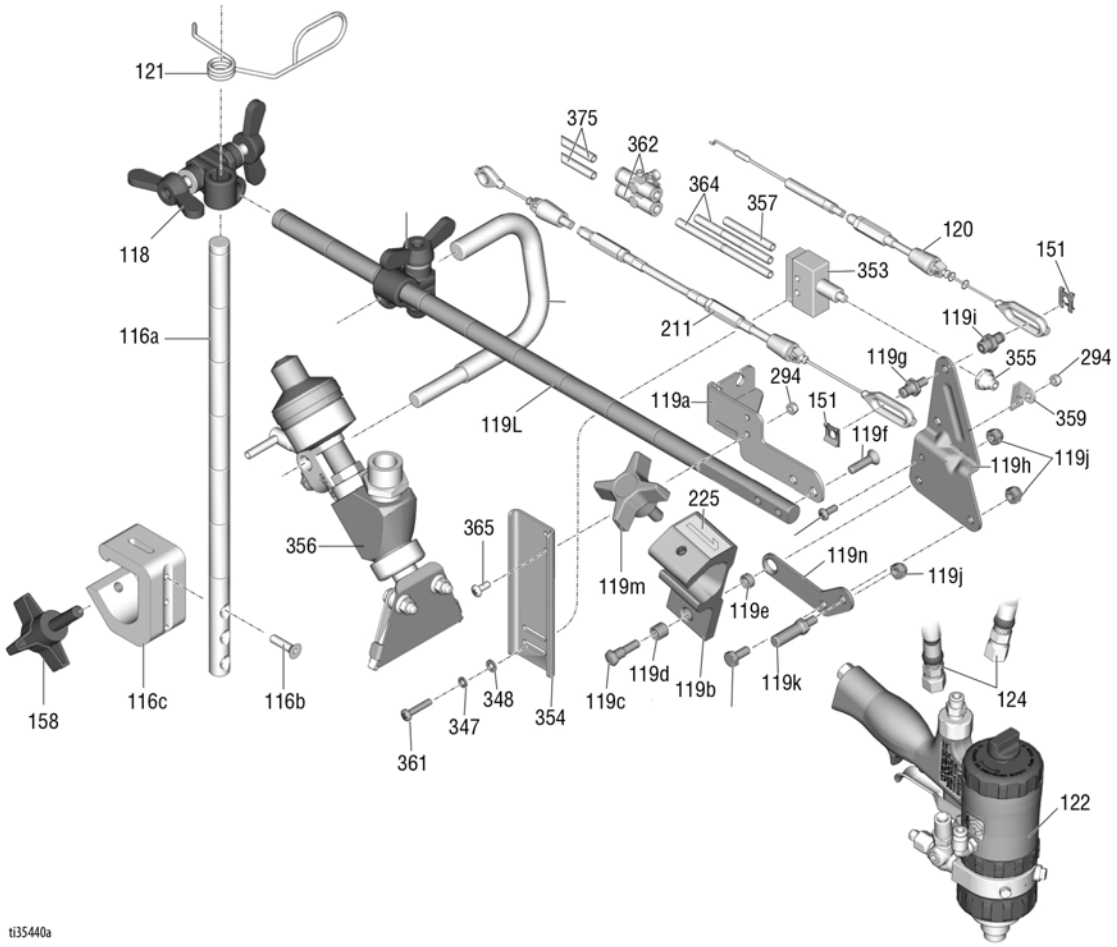


Parts List - Frame Assembly

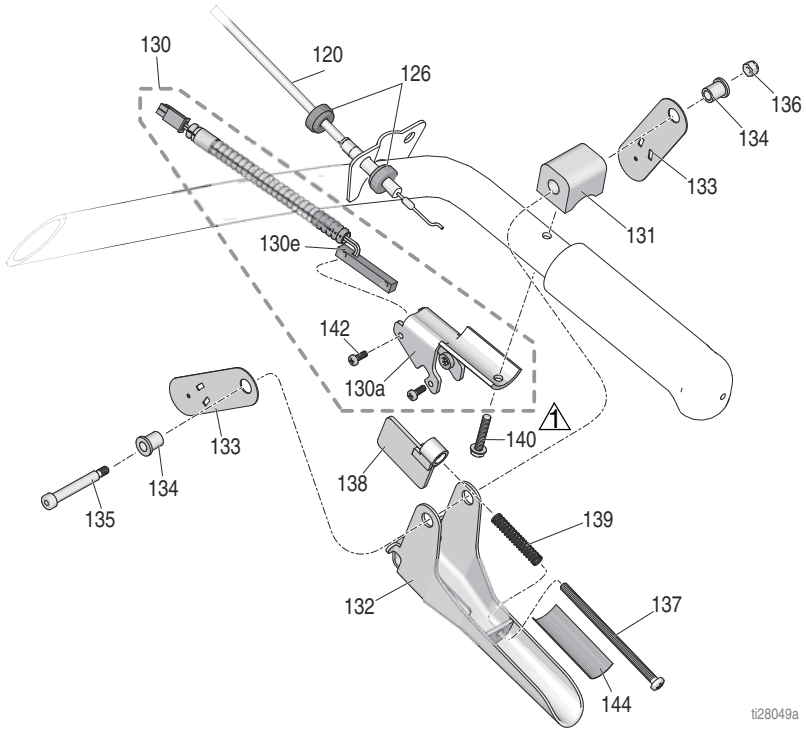
Ref.	Part	Description	Qty.
1	287623	FRAME, linestriper, painted	1
6	101566	NUT, lock	12
7	193405	AXLE	1
9	198891	BRACKET	1
10	198930	ROD, brake (includes 12)	1
11	198931	BEARING	1
12	114808	CAP, vinyl	1
13	195134	SPACER	1
14	113961	SCREW, cap, hex hd	1
15	112960	SCREW, flange, hex	5
16	111040	NUT, lock, insert, nylock, 5/16	8
17	111020	WHEEL, pneumatic w/o sensor ring	1
	255162	WHEEL, pneumatic w/ sensor ring	1
18	112405	NUT, lock	2
19	112825	WASHER	4
20	114648	CAP, dust	2
21	15J088	SHIELD, distance sensor	1
22	15K452	SPACER, round	1
23	15K357	SENSOR, distance	1
24	108868	CLAMP, wire	2
25	260212	SCREW, hex washer hd, thd form	2
26	15J578	GEAR, signal	1
27	15K700	RING, sensor gear	1
29	240991	BRACKET, caster, front	1
31	114982	SCREW, cap, flange hd	6
34	114549	WHEEL, pneumatic	1
39	17H528	BRACKET, gun arm	1
40	24Y665	FRAME, handle upright, painted	1
41	17Y059	BRACE, right, painted	1
42	17Y058	BRACE, left, painted	1
43	128977	SCREW, cap button hd	6
48	17J125	BRACKET, slide	2
49	24Y641	BAR, handle	1
50	17J136	SCREW, hex, flange head	8
102	196176	ADAPTER, nipple	2
105	114659	GRIP, handle	2
106	237686	WIRE, ground	1
107	107257	SCREW, thread forming, hex hd	1
108	194310	LEVER	1
109	17J123	PLATE, cover	1
112	110982	SCREW, cap, hex	2
115	17J407	ARM, extension, bar, weldment	1
123	191239	HOSE, cpld, 3/8” x 11’10”	2
124	245227	HOSE, cpld, 1/4” x 7’	2
125	24V064	HOSE, suction / drain (includes 125a-125i)	2
125a	15F149	TUBE, suction	2
125b	194306	HOSE, fluid	2
125c	198119	FITTING, elbow, barbed	2
125d	101818	CLAMP, hose	2
125f	16X071	TUBE, drainline	2
125g	278722	GASKET, pail	2
125h	248008	HOSE, cpld, 1/4” x 44”	2
125i	196180	BUSHING	2
127	15F369	BOX	1
129	189919	BLANK, label, kit	2
146	120151	PLUG, tube	2
157	114271	STRAP, retaining	2
158	108471	KNOB, pronged	1
159	111145	KNOB, pronged	2
160	404989	STRAP, tie	6
161▲	17K394	LABEL, gmax warning fire & skin	1
162	115077	PAIL, plastic	2
163	24U241	KIT, pail, cover	2
165	17J408	ARM, extension, third gun	1
201	107257	SCREW, thd, forming	11
217	110755	WASHER, plain	4
247	100023	WASHER, flat	7
252	100527	WASHER, plain	6
258	17y409	BRACKET, mount, pump, hydraulic	1
267	17Y047	BRACKET, mount, pump, hydraulic, right	1
274	17J549	BRACKET, reservoir	1
276	15F441	BRACKET, frame	1
277	119696	SPRING, extension	1
297	17K377	COVER, battery, painted	1
308▲	17K392	LABEL, safety, warning	1
310	17K397	LABEL, notice, electrical usage	1
321	16T580	BAND, clamping, bead tank	1
322	16T763	FRAME, tank, LL200, painted, left	1
324	16T762	FRAME, bead tank, LL200, painted, right	1
325	16T579	BRACKET, compressor, LL200	1
326	16T629	TANK, bead	1
327	111193	SCREW, cap, flang hd	6
328	115087	PLUG, tubing	2
329	121488	SCREW, hex hd, flanged	6
330	16T593	BRACKET, bead tank, LL200, painted	1
331	120757	SCREW, carriage	4
372	125626	SCREW, hex hd, flanged	4
399	16A719	WASHER, flat	1
400	197449	SPACER	1
402	114653	SCREW, cap, flange head	1
403	17Y328	LABEL, identification, letter “A”	4
404	17Y329	LABEL, identification, letter “B”	4
407	17Y054	PLATE, bucket holder	1
408	17P800	BUMPER, (.88 wide x .17 thick)	4
409	17Y350	BRACKET, reservoir, support, rear, MMA	1
410	100133	WASHER, lock 3/8	2
411	100575	SCREW, cap, hex hd	2
412	17Y055	SUPPORT, reservoir, front	1
415	100731	WASHER	1
416	17C466	TUBE, poly, heat-shrink, green	2
417	17C465	TUBE, poly, heat-shrink, blue	2
428	120140	VALVE, ball, assembly	1
429	110982	SCREW, cap, hex hd	2
432	125112	SCREW, cap, btn hd, 5/16 x 1	4
434	25N603	KIT, bracket, 5 gallon, dual color	1
435	17N536	HOLDER, bucket	4
436	867517	SCREW, hex head, 3/8-16 x 3.5”	8
437	125205	NUT, lock, nylon, 3/8-16	8
439	15R409	PAD, non-slip, brake	4
440	131818	MANIFOLD, flow drivider, hydraulic	1
441	17Y487	LABEL, instructions, valve	1
443	16M606	JACKET, blue, 14’	1

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Parts Drawing - Gun Arm & Gun Trigger



⚠1 Torque to 18-22 in-lbs (2.0-2.4 N·m)



Parts List

Gun Holder and Arm

Ref.	Part	Description	Qty.
6	101566	NUT, lock (not shown)	2
31	114982	SCREW, cap, flange hd (not shown)	2
39	17H528	BRACKET, gun arm (not shown)	1
115	17J407	ARM, extension, bar (not shown)	1
116	17J424	BAR, height adjustment, assy	1
116a	17J139	BAR, gun, height, adjustment	1
116b	113428	SCREW, mach, hex, hd	3
116c	17J153	BRACKET, gun holder	1
118	24Y645	KIT, clamp, double wing nut	1
119	25A529	ARM, gun holder, linelazer (includes 151)	1
119a	24Y919	BRACKET, cable	1
119b*	17Y418	HOLDER, gun	1
119c	17J575	FASTENER, special	1
119d*	119664	BEARING, sleeve	1
119e	17J576	SPACER, special	1
119f	119647	SCREW, cap, socket	2
119g	17H673	STUD, cable, gun	1
119h	15F214	LEVER, actuator	1
119i	17H674	ADAPTER, cable, gun	1
119j	102040	NUT, lock hex	2
119k	15F209	STUD, pull, trigger	1
119l	17J145	ARM, holder, gun	1
119m*	15F750	KNOB, holder, gun	1
119n	131827	BRACKET, gun, support	1
120	25A488	CABLE, gun, manual (includes 126, 151)	1
121	188135	GUIDE, cable	1
122	25E471	GUN, air purge, MMA	1
124	245227	HOSE, coupled 1/4” x 7’	2
128▲	16P136	LABEL, safety, warning, ISO	1
151	126111	RETAINER, cir clip, external, 8mm	2
158	108471	KNOB, pronged	1
159	111145	KNOB, pronged (not shown)	2
165	17J408	ARM, extension, third gun (not shown)	1
211	25A487	CABLE, gun, automatic (includes 151, 212, 213)	1
225	17C043	LABEL, number “1”	1
	17C046	LABEL, number “2”	1
294	115483	NUT, lock	2
347	100020	WASHER, lock	2
348	116876	WASHER, flat	2
353	16T646	SWITCH, air	1
354	16T804	BRACKET, switch, air	1
355	16T771	BOOT, button, push	1
356	16R963	KIT, gun, bead, sub-assembly	1
357	16U274	HOSE, pneumatic	1
359	16T816	BRACKET, switch, air	1
361	104387	SCREW, mach, pnh	2
362	16V046	RESTRICTOR, air flow, adjustable	2
364	16V047	HOSE, pneumatic	2
365	116610	SCREW, mach, phil, pan, #10	2
375	190010	TUBE	2

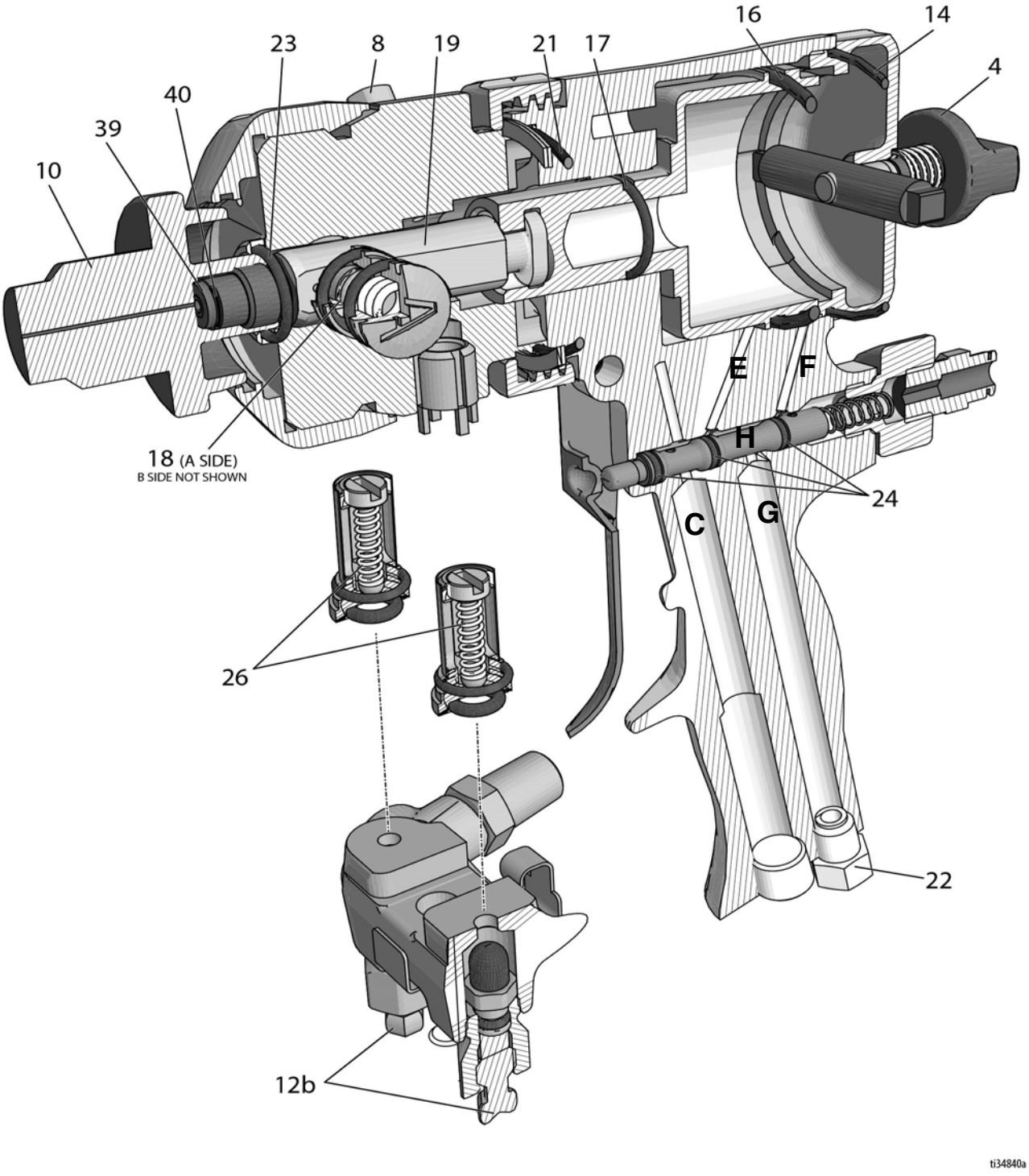
* *Included in Gun Holder Repair Kit 17Y878*

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Gun Trigger

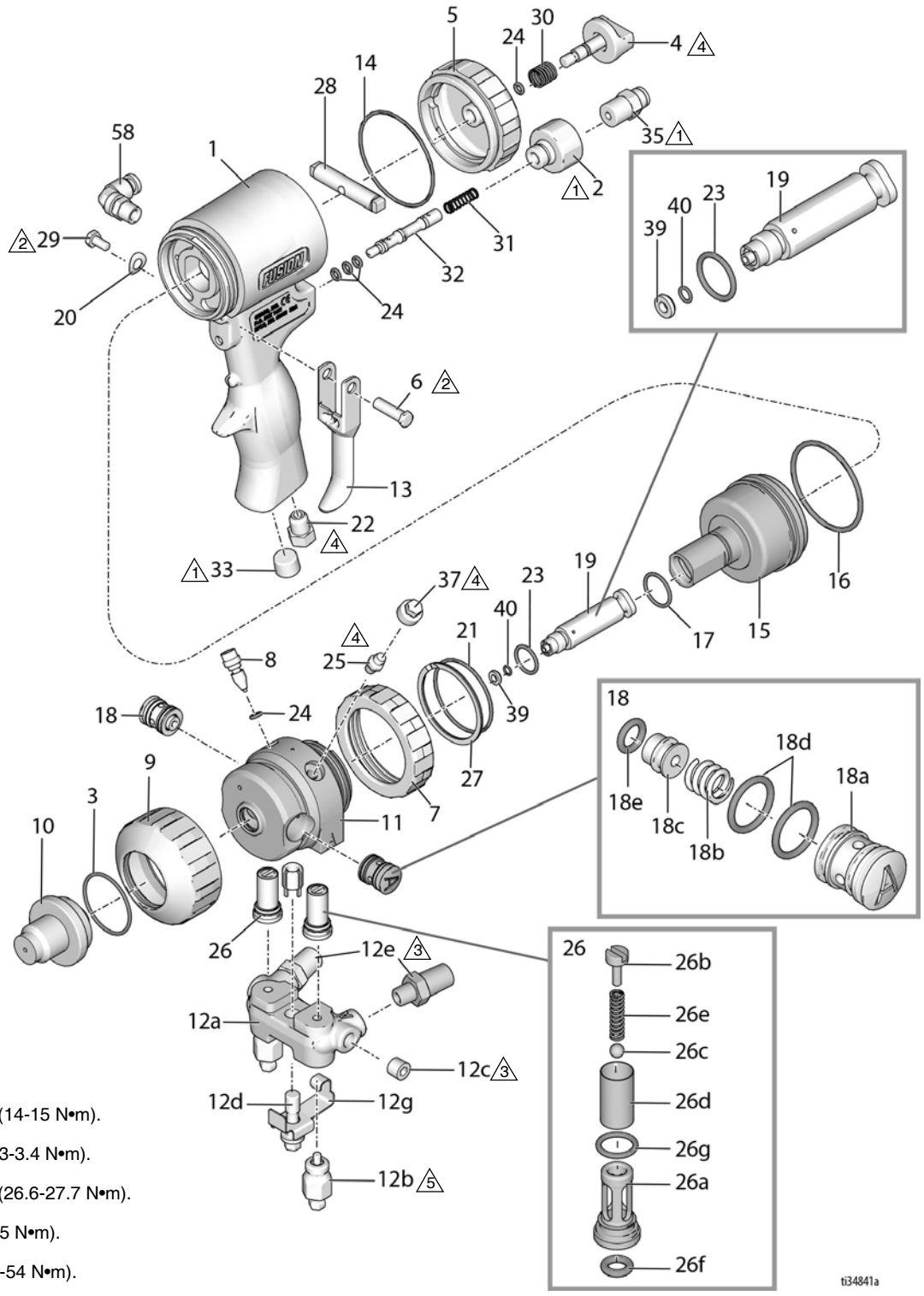
Ref.	Part	Description	Qty.
120	25A488	CABLE, gun, manual (includes 126, 151)	1
126	15F624	NUT, cable, gun (knurled)	2
130	25A636	BRACKET, trigger w switch	1
130a	276907	BRACKET, magnet	1
130e	17J237	SWITCH, reed	1
131	198896	BLOCK, mounting	1
132	245676	HANDLE	1
133	198895	PLATE, lever, pivot	2
134	111017	BEARING, flange	2
135	116941	SCREW, shoulder, skt hd	1
136	116969	NUT, lock	1
137	112381	SCREW, mach, pan head	1
138	117268	BRACKET, interrupter	1
139	117269	SPRING	1
140	128803	SCREW, thd forming, hex washer	1
142	117317	SCREW, plastite, pan head	2
144	17K587	LABEL, notice, adjustment	1

Cutaway View - Gun



NOTE: Part numbers and descriptions are on page 74.

Parts Drawing - Gun



1 Torque to 125-135 in-lb (14-15 N•m).

2 Torque to 20-30 in-lb (2.3-3.4 N•m).

3 Torque to 235-245 in-lb (26.6-27.7 N•m).

4 Torque to 35-45 in-lb (4-5 N•m).

5 Torque to 32-40 ft-lb (43-54 N•m).

Parts List - Gun

Ref.	Part No.	Description	Qty.
1	17Y968	HANDLE	1
2	15B208	PLUG, air valve	1
3	248137	O-RING; PTFE; package of 6	1
4★	15B206	LOCK, safety	1
5★	15B204	CAP, cylinder	1
6	192272	PIN	1
7	15B215	RING, lock	1
8❄	15B223	VALVE, cleanoff air	1
9	15B211	RING, retaining	1
10	17Y509	ADAPTER, Tip Guard	1
11	246491	HOUSING, fluid	1
12	17Y678	MANIFOLD, fluid, 2-hose; includes 12a-12g	1
12a†		. MANIFOLD	1
12b	246356	. VALVE, fluid	2
12c	100139	. PLUG, pipe; 1/8-27 npt	2
12d	15B221	. BOLT; 5/16-24	1
12e	151519	. FITTING, nipple, reducing	2
12g	15B993	. SPRING, ring, lock	1
13	15B209	TRIGGER	1
14*★	248136	O-RING, cylinder cap; package of 6	1
15	15B203	PISTON	1
16*	248135	O-RING, piston; package of 6	1
17*	248134	O-RING, piston shaft; package of 6	1
18	246349	CARTRIDGE, seal, A side, SST; includes 18a-18e	1
	246350	CARTRIDGE, seal, B side, SST; includes 18a-18e	1
18a†		. CARTRIDGE BODY	1
18b	117491	. SPRING	1
18c*†		. SEAL KIT; see page 88	1
18d*	248130	. O-RING, cartridge body; package of 6	1
18e*	248128	. O-RING, side seal; package of 6	1
19	AF2020	CHAMBER, mix, round	1
20	15C480	WASHER, wave	1
21*	248132	O-RING; package of 6	1
22	119626	MUFFLER	1
23*	248131	O-RING; package of 6	1
24*★	246354	O-RING; package of 6	1
25	100846	FITTING, grease	1
26	17Y963	VALVE, check, A side; includes 26a-26g	1
	17Y964	VALVE, check, B side; includes 26a-26g	1
26a†		. HOUSING	1
26b†	15B214	. SCREW; 5/16-18 x 1/2 in. (13 mm)	1
26c	257420	. BALL; carbide; package of 10	1
26d		. SCREEN; see page 65.	1
26e	117490	. SPRING	1
26f*	248133	. O-RING, check valve face; package of 6	1
26g*	248129	. O-RING, check valve housing; package of 6	1
27	116550	RING, retaining	1
28★	15B205	STOP, piston	1
29	203953	SCREW; 10-24 x 3/8 in. (10 mm)	1
30★	114070	SPRING	1
31	117485	SPRING	1
32	15B202	SPOOL, valve	1
33	100721	PLUG, pipe; 1/4-18 npt; round and flat pattern guns only	1
35	117509	QUICK-DISCONNECT, male, air; 1/4 npt(m); round and flat pattern guns only	1
36▲	222385	CARD, Medical Alert; not shown	1
37	15B689	COVER, grease fitting	1
39	248018	TIP, extension, seal, flat; package of 5	1
40*	246360	O-RING; PTFE; flat tip models only; package of 3	1
43	117661	VISE, pin; dual reversible chucks; see **Supplied Tools**, page 75.	1
46	117792	GREASE GUN; not shown	1
50	112307	ELBOW, street; 1/8 npt (m x f); round and flat pattern guns only	2
58	118486	FITTING, elbow, push to connect	1

See **Detail Views - Gun**, page 75, for additional parts.

* *These parts are only available in repair kits. To select a kit, refer to page 65.*

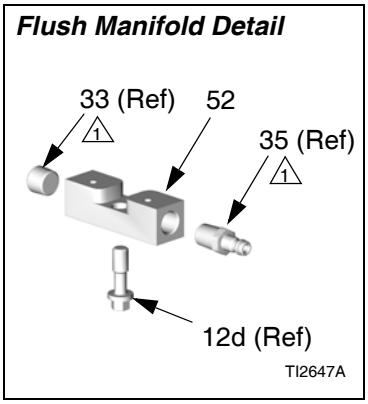
† *These parts are not available individually.*

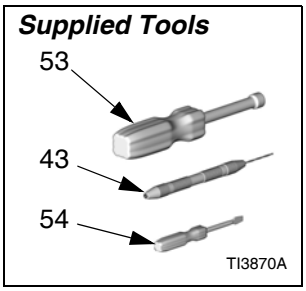
★ *Included in Safety Stop Assembly 248064 (includes 1 of item 24).*

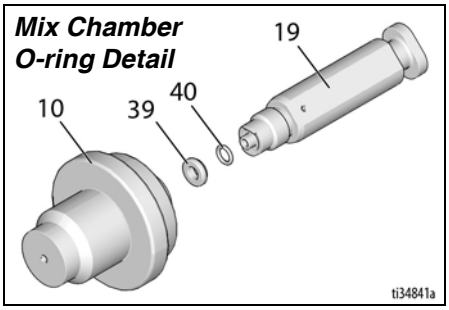
❄ *Sealed, non-adjustable*

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Detail Views - Gun





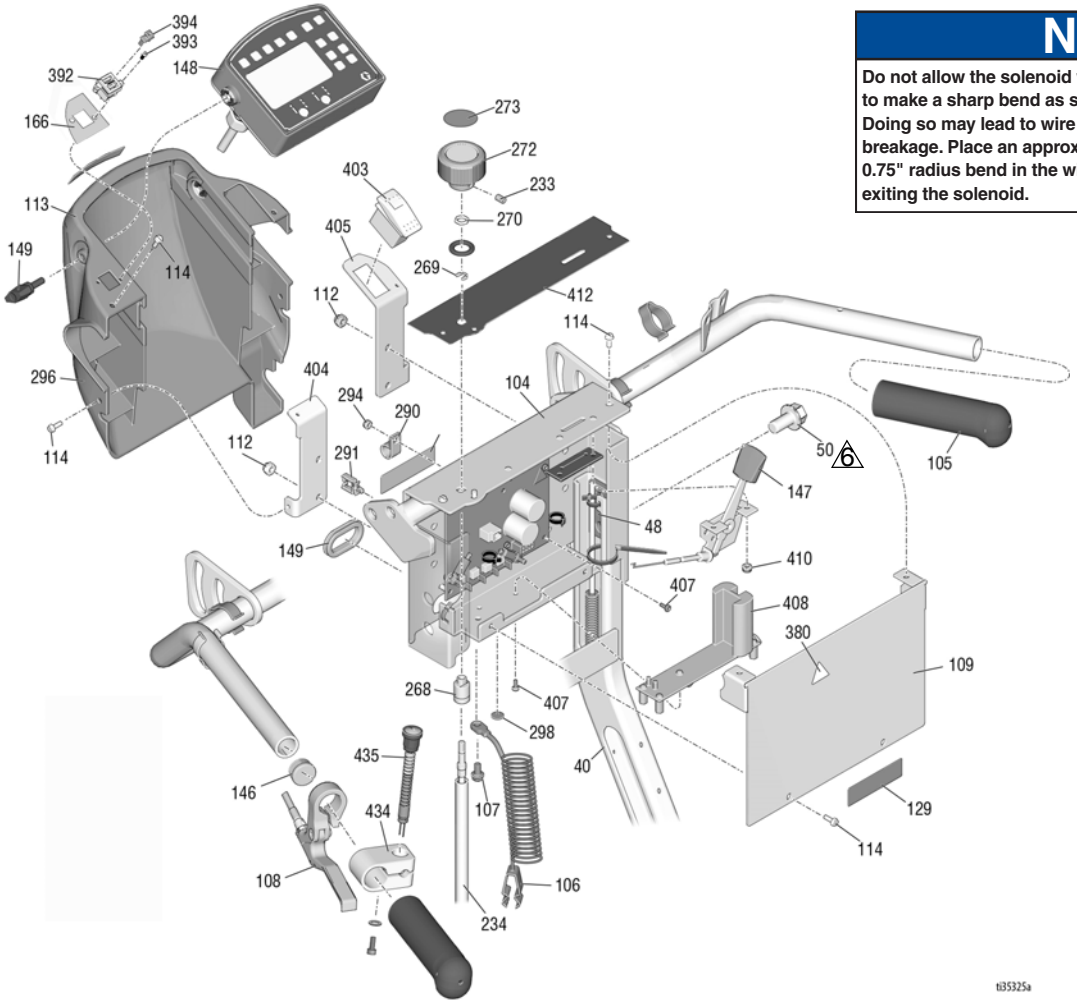


1 Torque to 125-135 in-lb (14-15 N•m).

Ref.	Part No.	Description	Qty.
52	15B817	MANIFOLD, gun flush; round and flat pattern guns only	1
53	117642	NUT DRIVER, hex; 5/16	1
54	118575	SCREWDRIVER; 1/8 blade	1
55▲	172479	TAG, warning; not shown	1
57	117773	GREASE CARTRIDGE; 3 oz; not shown; MSDS sheet available at www.graco.com	1

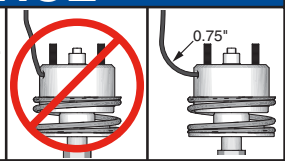
▲ *Replacement safety labels, tags, and cards are available at no cost.*

Parts Drawing - Handle/Controls

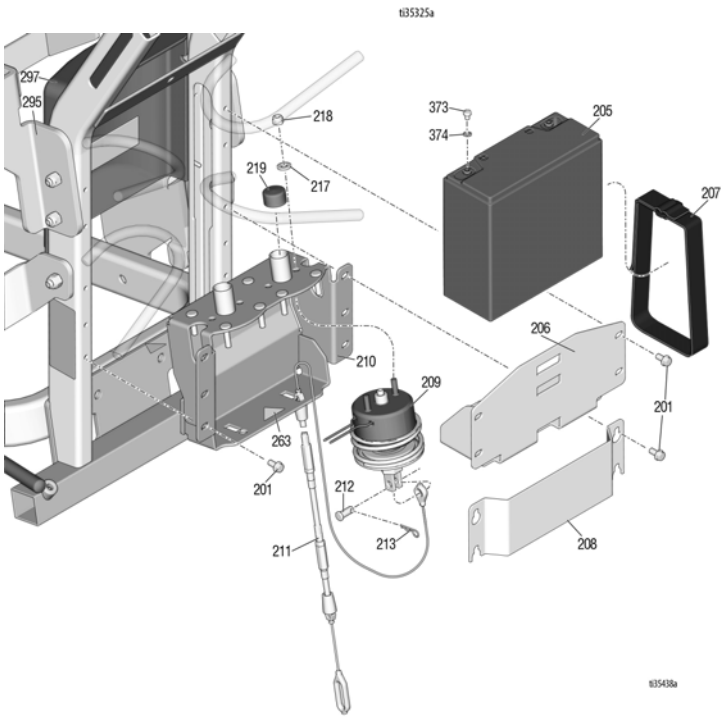


NOTICE

Do not allow the solenoid wires to make a sharp bend as shown. Doing so may lead to wire breakage. Place an approximate 0.75" radius bend in the wires exiting the solenoid.



1. Torque to 35-45 ft-lbs (47.4-61.0 N·m)
2. Torque to 190-210 in-lbs (21.4-23.7 N·m)
3. Torque to 365-385 in-lbs (41.2-43.4 N·m)
4. Torque to 25-30 in-lbs (2.8-3.3 N·m)
6. Torque to 18-22 in-lbs (2.0-2.4 N·m)
7. Torque to 45-55 ft-lbs (61.0-74.5 N·m)
8. Torque to 130-150 in-lbs (14.6-16.9 N·m)
9. Torque to 65-75 in-lbs (7.3-8.4 N·m)

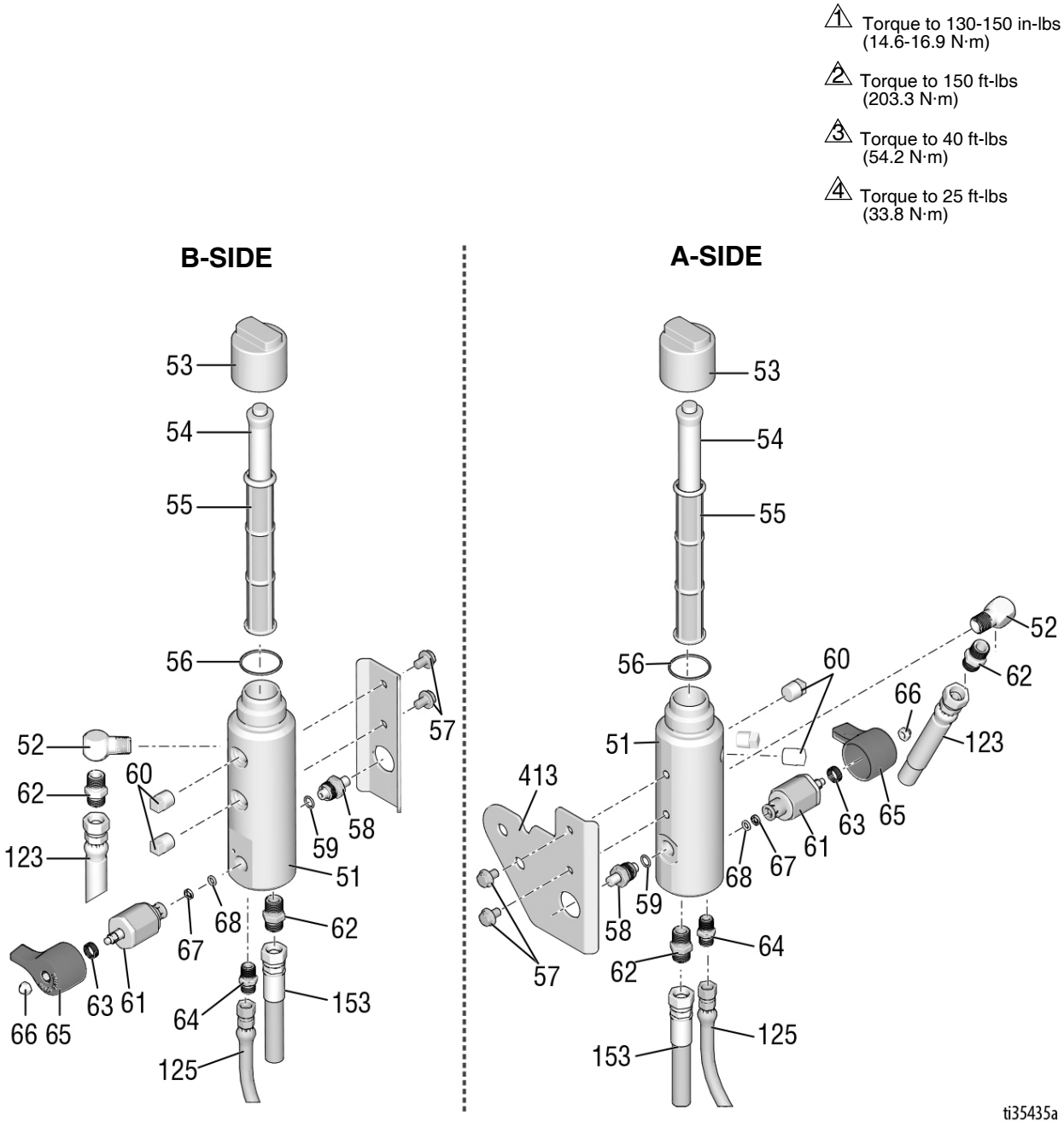


Parts List - Handle/Controls

Ref.	Part	Description	Qty.
40	24Y665	FRAME, handle upright, painted	1
48	17J125	BRACKET, slide	2
50	17J136	SCREW, hex, flange head	8
104	17J120	PLATE, control	1
105	114659	GRIP, handle	2
106	237686	WIRE, ground, assy.	1
107	107257	SCREW, thd forming	1
109	17J123	PLATE, cover	1
112	102040	NUT, lock, hex	4
113	17V517	COVER, control, usb, painted	1
114	128978	SCREW, mach, slot hex wash hd	12
129	189919	KIT, blank, label	1
146	120151	PLUG, tube	2
147	17J134	CONTROL, throttle	1
148	25N791	BOX, control assembly (includes 149)	1
149	17H701	GROMMET, oval	1
149	16W408	KNOB, t-handle, 1/4-20 thd stud	2
166	17V520	LABEL, usb	1
169	17J617	WIRE, harness	1
201	107257	SCREW, thd forming	10
205	24X370	BATTERY, 22 AH, sealed (includes 373, 374)	1
206	17H644	SHELF, battery	1
207	126949	STRAP, battery	1
208	17H650	COVER, solenoid, automatic	1
209	25A486	SOLENOID, module	1
210	24Y777	BRACKET, solenoid	1
211	24A487	CABLE, gun, solenoid, auto (includes 151, 212, 213)	1
212	128711	PIN, clevis, 5/16	1
213	15R598	CLIP, cotter, hairpin	1
217	110755	WASHER, plain	2
218	121114	NUT, hex, self locking	2
219	128712	CAP, dust cover	2
233	101962	SCREW, set, sch	2
234	25A255	SHAFT, flexible	1
263▲	15H108	LABEL, safety, warning, pinch	1
268	17H698	BUSHING, pressure control, mount	1
269	119775	NUT, panel	1
270	115999	RING, retaining	1
272	16Y408	KNOB, pressure control	1
273	15A464	LABEL, control	1
290	128856	CLAMP	2
291	114687	CLIP, retainer	2
294	115483	NUT, lock	2
295	17K378	LABEL, brand, LLV, battery cover	1
296	17K379	LABEL, brand, console, shroud	1
297	17K377	COVER, battery, painted	1
298▲	16W503	LABEL, safety, ground	1
310	17K397	LABEL, notice, electrical usage	1
311▲	17K396	LABEL, safety	1
373	128131	SCREW, cap, hex head	2
374	111307	WASHER, lock, external	2
380▲	189930	LABEL, caution	1
392	172084	BOARD, assembly (includes 166, 393, 394)	1
393	17V519	SCREW, pan hd	2
394	131718	COVER, dust, usb	2
403	128855	SWITCH, rocker	1
404	17J126	BRACKET, shroud	1
405	17J128	BRACKET, switch	1
407	120593	SCREW, mach, torx pan hd	4
410	109466	NUT, lock, hex	2
412	17J456	LABEL, control	1
434	15K162	BLOCK	1
435	17J236	SWITCH, push button	1

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Parts Drawing - Filters A & B



Parts List - Filters A & B

Ref.	Part	Description	Qty.
51	17K166	MANIFOLD, filter	2
52	196179	FITTING, elbow, street	1
53	15C765	CAP, filter	2
54	16C766	TUBE, diffusion	2
55	24V455	FILTER, fluid	2
56	117285	PACKING, o-ring	2
57	111801	SCREW, cap, hex hd	4
58	248024	TRANSDUCER, pressure control	2
59	111457	PACKING, o-ring	2
60	15G331	PLUG, pipe	4
61	287879	VALVE, drain, assy	2
62	196178	ADAPTER, nipple	2
63	114708	SPRING, compression	2
64	196181	FITTING, nipple	2
65	15G563	HANDLE, valve	2
66	116424	NUT, cap	2
67	193709	SEAT, valve	2
68	193710	SEAL, seat, valve	2
123	191239	HOSE, cpld, 3/8” x 11’10”	2
125	24V064	HOSE, suction/drain	2
153	245226	HOSE, coupled 3/8 x 3’	1
413	17Y104	BRACKET, manifold	1

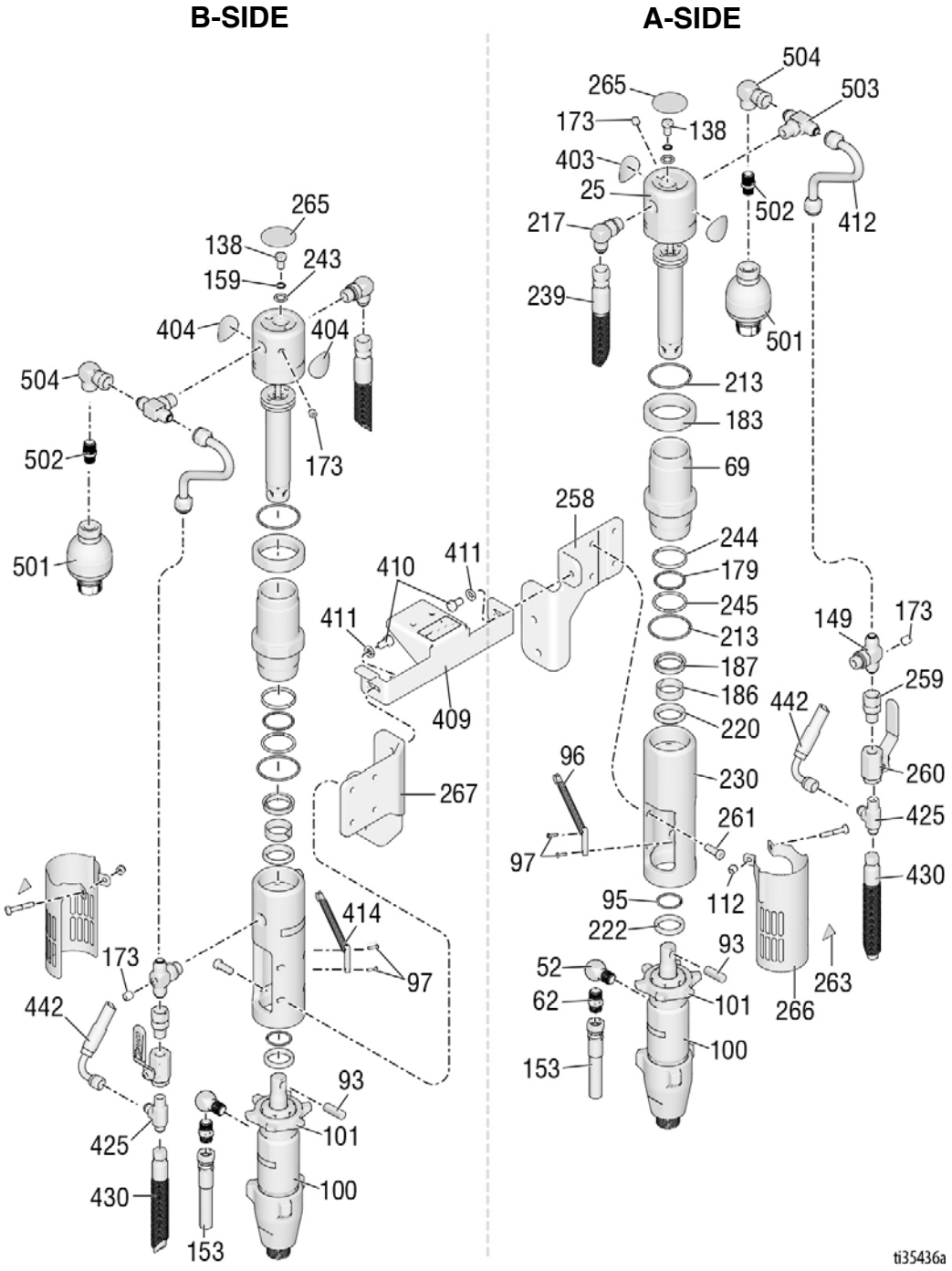
Parts Drawing - Fluid Pumps A & B

1 Torque to 130-150 in-lbs (14.6-16.9 N·m)

2 Torque to 150 ft-lbs (203.3 N·m)

3 Torque to 40 ft-lbs (54.2 N·m)

4 Torque to 25 ft-lbs (33.8 N·m)



Parts List - Fluid Pumps A & B

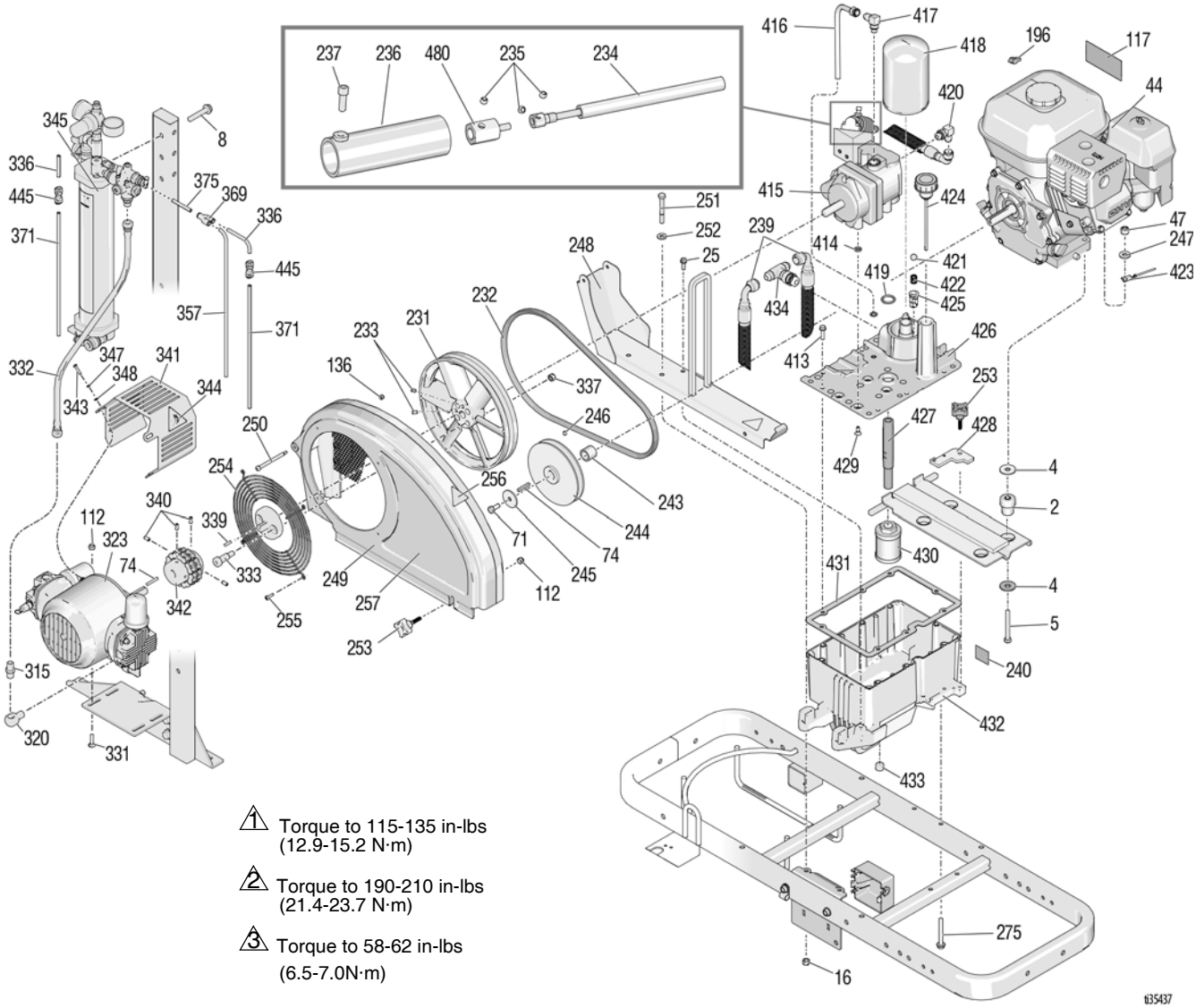
Ref.	Part	Description	Qty.
25	288754	KIT, repair, trip rod/piston	1
52	196179	FITTING, elbow, street	2
62	196178	ADAPTER, nipple	2
69	246176	KIT, repair, sleeve, cylinder	1
93	197443	PIN, pump	1
95	116551	RING, retainer	1
96	119720	SWITCH, reed w/ connector	1
97	114528	SCREW, mach, phillips, pnhd	2
100	277068	PUMP, displacement	1
101	193394	NUT, retaining	1
112	102040	NUT, lock, hex	2
138*	106276	SCREW, cap, hex head	1
149	119841	FITTING, tee, branch, str thd	1
159*	155685	PACKING, o-ring	1
153	245226	HOSE, coupled 3/8 x 3’	1
173	100139	PLUG, pipe	1
179*‡	108014	PACKING, o-ring	1
183	15A726	NUT, jam	1
186*	112342	BEARING, rod	2
187‡	112561	PACKING, block	1
213*‡	117283	PACKING, o-ring	2
217	117607	FITTING, elbow, std thd	2
220*‡	117739	WIPER, rod	1
222	287186	KIT, repair, magnet	1
230	15A728	MANIFOLD, adapter	1
243*	178179	WASHER, sealing	1
239	287176	KIT, repair, hose	2
244*‡	178207	BEARING, piston	1
245*‡	178226	SEAL, piston	1
258	17Y049	BRACKET, mount, pump, left	1
259	117328	FITTING, nipple, straight	1
260	117441	VALVE, ball	1
261	107210	SCREW	4
263*▲	15H108	LABEL, warning, pinch point	2
265▲	15B063	LABEL, safety, warning, hot surface	1
266	24X474	COVER, assy, pump rod	1
267	17Y047	BRACKET, mount, pump, right	1
403	17Y328	LABEL, “A”	1
404	17Y329	LABEL, “B”	1
410	100133	WASHER, lock 3/8	2
411	100575	SCREW, cap, hex	2
412	15F519	TUBE, hydraulic, supply	1
414	131774	SWITCH, reed	1
425	131817	FITTING, tee	2
430	17Y306	HOSE, hydraulic, supply	2
442	15G784	HOSE, coupled	2
501	131814	ACCUMULATOR, diaphragm	2
502	115829	ADAPTER, swivel, 90°	2
503	113584	TEE, branch	2
504	131815	ADAPTER, straight	2

* *Included in Trip Rod/Piston/Cap Repair Kit 288754*

‡ *Included in Hydraulic Seal Repair Kit 246174*

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Parts Drawing - Engine & Compressor



1 Torque to 115-135 in-lbs (12.9-15.2 N·m)

2 Torque to 190-210 in-lbs (21.4-23.7 N·m)

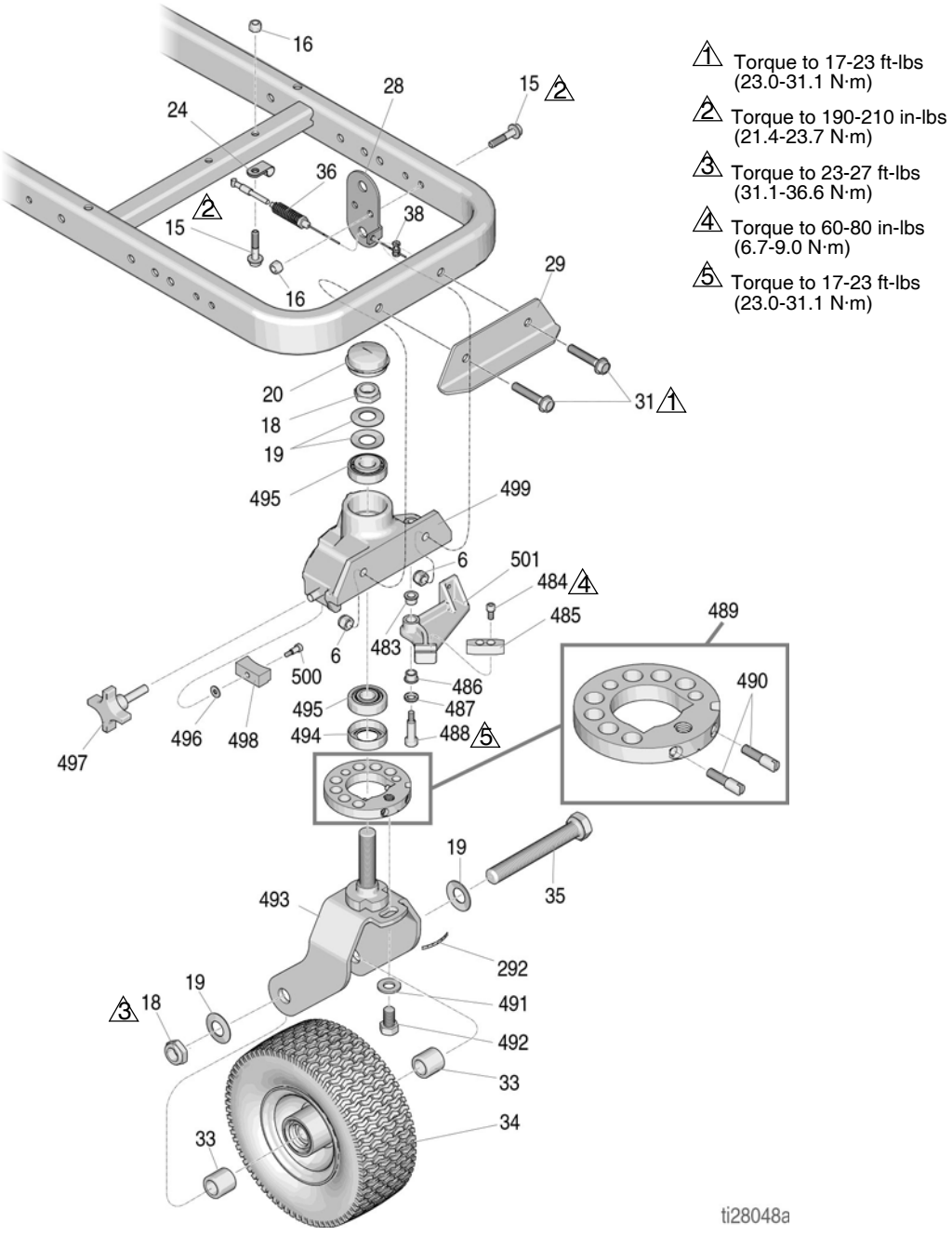
3 Torque to 58-62 in-lbs (6.5-7.0N·m)

Parts List - Engine & Compressor

Ref.	Part	Description	Qty.
2	15E888	DAMPENER, motor mount	4
4	108851	WASHER, plain	8
5	113664	SCREW, cap, hex hd	4
8	111194	SCREW, cap, flang hd	2
16	111040	NUT, lock, insert, nylock, 5/16	2
25	260212	SCREW, hex, washer hd, thd form	2
44	116080	ENGINE	1
	25P296	ENGINE, gas, 6.5HP, Honda, China	1
47	110838	NUT, lock	4
71	108842	SCREW, cap, hex hd	1
74	117632	KEY, square, 3/16 x 1.25	1
112	102040	NUT, lock, hex	1
117▲	194126	LABEL, warning	1
136	116969	NUT, lock	2
196	114956	TERMINAL, wire tap, insulated	1
231	16U205	PULLEY, fan	1
232	119433	BELT	1
233	120087	SCREW, set, 1/4 x 1/2	2
234	25A255	SHAFT, flexible, hydraulic control	1
235	112303	SCREW, set, socket w/ patch	3
236	15C958	GUARD, pressure control	1
237	112166	SCREW, cap, sch	7
239	15C364	HOSE, hydraulic, return	2
240	15K440	LABEL, brand, GH EH cooling	1
243	15B314	SLEEVE, motor shaft	1
244	15E758	PULLEY, 5.50 in.	1
245	112717	WASHER	1
246	100002	SCREW, set, sch	1
247	100023	WASHER, flat	4
248	288261	RAIL, belt guard, assy	1
249	288734	GUARD, belt (includes 136, 250, 254, 255)	1
250	119434	SCREW, shoulder, skt hd	1
251	802277	SCREW, machine	2
252	100527	WASHER, plain	2
253	15D862	NUT, hand	2
254	117284	GRILL, fan, guard	1
255	115477	SCREW, mach, torx pan hd	4
256▲	16M768	LABEL, warning, iso, pinch hazard	2
257	17H689	LABEL, brand, LLV 200HS, shroud	1
275	120981	SCREW, mach, hex washer hd	2
315	156971	FITTING, nipple, short	1
320	187357	ELBOW, street	1
323	126789	COMPRESSOR, piston air, 1.7 hp (6 cfm)	1
331	120757	SCREW, carriage	4
332	16T939	HOSE, coupled	1
333	126833	SCREW, shoulder, socket head	2
336	16U273	HOSE, pneumatic	3
337	112958	NUT, hex, flanged, 3/8-16	2
339	120376	KEY, square .188	1
340	120087	SCREW, set, 1/4 x 1/2	4
341	16X197	GUARD, pneumatic pump	1
342	16X252	COUPLER, roller chain	1
343	867489	SCREW, pan head, phillips	3
344	16C394	LABEL, safety, warning, entangle	1
345	17Y644	TANK, pressure, MMA	1
347	100020	WASHER, lock	5
348	116876	WASHER, flat	5
357	16U274	HOSE, pneumatic	1
369	115287	FITTING, Y tube	1
371	17C065	TUBE, air, 1/4 OD	3
375	190010	TUBE	2
445	16F366	FITTING, 1/4 ptc to 1/4 ptc, fda	2
413	119426	SCREW, mach, hex washer hd	8
414	107188	PACKING, o-ring	4
415	287179	KIT, repair, pump (includes 235, 414, 419, 429, 480)	1
416	246167	KIT, repair, case drain	1
417	110792	FITTING, elbow, male, 90°	1
418	246173	KIT, repair, oil filter	1
419	156401	PACKING, o-ring	1
420	116829	FITTING, elbow, hydraulic	1
421	100084	BALL, metallic	1
422	116967	SPRING, compression	1
423	240997	CONDUCTOR, ground	1
424	120726	CAP, breather, filler	1
425	198841	RETAINER, ball, pressure bypass	1
426	15M057	COVER, reservoir, 200HS	1
427	15E587	TUBE, suction	1
428	15E476	BRACKET, retainer, motor	1
429	117471	SCREW, mach, hex flat head	4
430	116919	FILTER, screen, suction	1
431	120604	GASKET, reservoir	1
432	15J513	TANK, reservoir	1
433	101754	PLUG, pipe, 3/8 nptf	1
434	126061	FITTING, #8 JIC tee, swivel	1
445	16F366	FITTING, 1/4 ptc to 1/4 ptc	2

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Parts Drawing - EZ Align Swivel Wheel



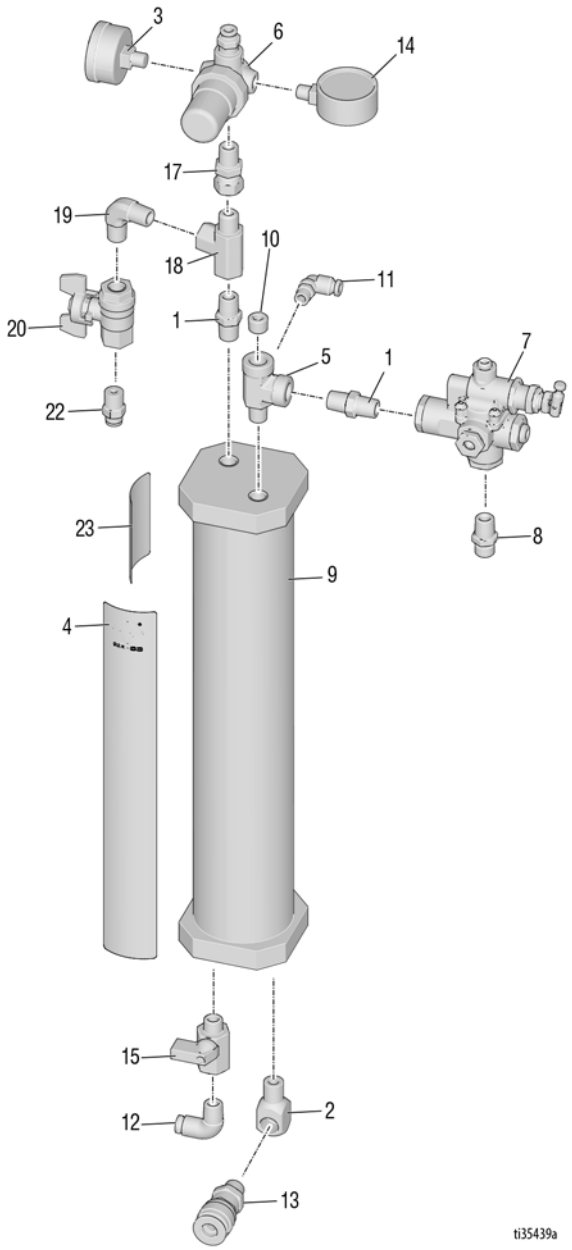
Parts List - EZ Align Swivel Wheel

Ref.	Part	Description	Qty.
6	101566	NUT, lock	2
15	112960	SCREW, cap, flange hd	3
16	111040	NUT, lock, insert, nylon, 5/16	3
18*‡	112405	NUT, lock	2
19*‡	112825	WASHER	4
20*‡	114648	CAP, dust	1
24	108868	CLAMP, wire	1
28‡	15F910	BRACKET, cable	1
29	240991	BRACKET, caster, front	1
31	114982	SCREW, cap, flange hd	2
33*‡	193658	SPACER, seal	2
34*	114549	WHEEL, pneumatic	1
35*	113471	SCRE, cap, hex hd	1
36‡	241445	CABLE	1
38‡	114802	STOP, wire	1
292*‡	17H489	LABEL, disk adjustment	1
483*‡	114548	BEARING, bronze	2
484*‡	110754	SCREW, cap, sch	2
485*‡	193662	STOP, wedge	1
487*‡	15J603	SPACER, round	1
488*‡	120476	BOLT, shoulder	1
489*‡	17H486	DISK, adjuster, assembly	1
490*‡	17G762	SCREW, disk adjuster	1
491*‡	113962	WASHER	1
492*	114681	SCREW, cap, hex hd	1
493*‡	17H485	FORK	1
494*‡	113484	SEAL, grease	1
495*‡	113485	BEARING, cup/cone	2
496*‡	112776	WASHER, plain	1
497*‡	181818	KNOB, pronged	1
498*‡	193661	JAW	1
499*‡	15G952	CASTER	1
500*‡	108483	SCREW, shoulder	1

* *Included in Swivel Wheel Repair Kit 240719*

‡ *Included in Swivel Wheel Repair Kit 241105*

Parts Drawing - Pressure Tank



Parts List - Pressure Tank

Ref.	Part	Description	Qty.
1	156971	FITTING, nipple, short	2
2	187357	ELBOW, street	1
3	16W088	GAUGE, air pressure	1
4	194666	LABEL, LineLazer, EZ bead system	1
5	17C463	FITTING, tee, street	1
6	16U375	REGULATOR	1
7	126804	REGULATOR, unloader	1
8	162453	FITTING, 1/4 npsm x 1/4 npt	1
9	16U174	TANK, pressure	1
10	101971	PLUG, pipe	1
11	118486	FITTING, elbow, push	1
12	113321	FITTING, elbow, tube	1
13	116720	COUPLER, quick disconnect	1
14	104655	GAUGE, press air	1
15	15B565	VALVE, ball	1
16	070408	SEALANT, pipe, sst	1
17	156823	FITTING, union, swivel	1
18	116504	FITTING, tee, run	1
19	110249	ADAPTER, male elbow, 90°	1
20	122946	VALVE, shut off	1
21	101566	NUT, lock (not shown)	2
22	128637	FITTING, ptc, straight, 1/4	1
23	17Y520	LABEL, instructions, valve position	1

Accessories - Gun

Stainless Steel Side Seal Kits

Kits include a packing o-ring for each stainless steel seal.

Kit Part No.	Description	No. of Seals Per Kit
246348	SEAL KIT, SST	2
277299	SEAL KIT, SST	50

Polycarballoy Side Seal Kits

Kits include a packing o-ring for each polycarballoy seal. The optional high wear, non-metallic polycarballoy seals are for alternate fluids.

Kit Part No.	Description	No. of Seals Per Kit
249990	SEAL KIT, Polycarballoy	2
277298	SEAL KIT, Polycarballoy	50

Gun Cover

244914 Covers

Keeps gun clean while spraying. Pack of 10.

Lubricant for Gun Rebuild

248279, 4 oz (113 gram) [10]

High adhesion, water resistant, lithium-based lubricant. SDS sheet available at www.graco.com.

Grease Cartridge for Gun Shutdown

248280 Cartridge, 3 oz [10]

Specially formulated low viscosity grease flows easily through gun passages, to prevent 2 component curing and keep fluid passages clean. See page 29.

Flushing Manifold

15B817 Manifold Block

See ref. no. 52, page 75.

Solvent Flush Canister Kit

248139, 1 qt (0.95 liter) Solvent Cup

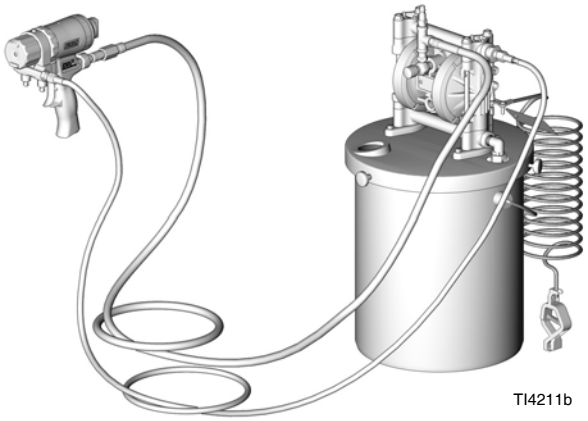
Complete with15B817 Flushing Manifold to flush gun with solvent. Portable for remote flushing. See manual 309963.

TI4165a

Solvent Flush Pail Kit

248229 5.0 gal. (19 liter) Pail

Includes flush manifold with individual A and B shutoff valves, and air regulator. See manual 309963.



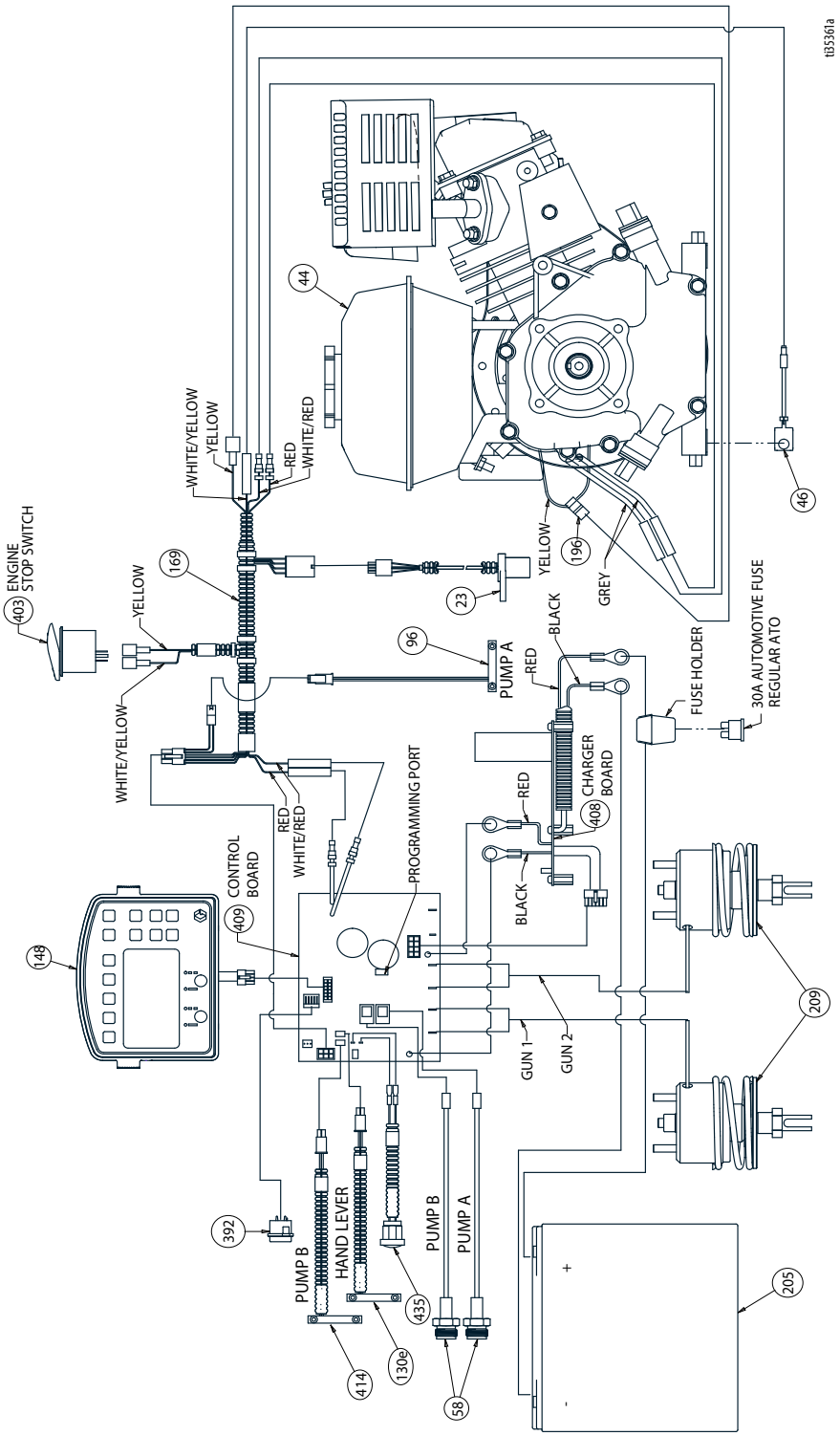
TI4211b

Gun Cleaning Kit

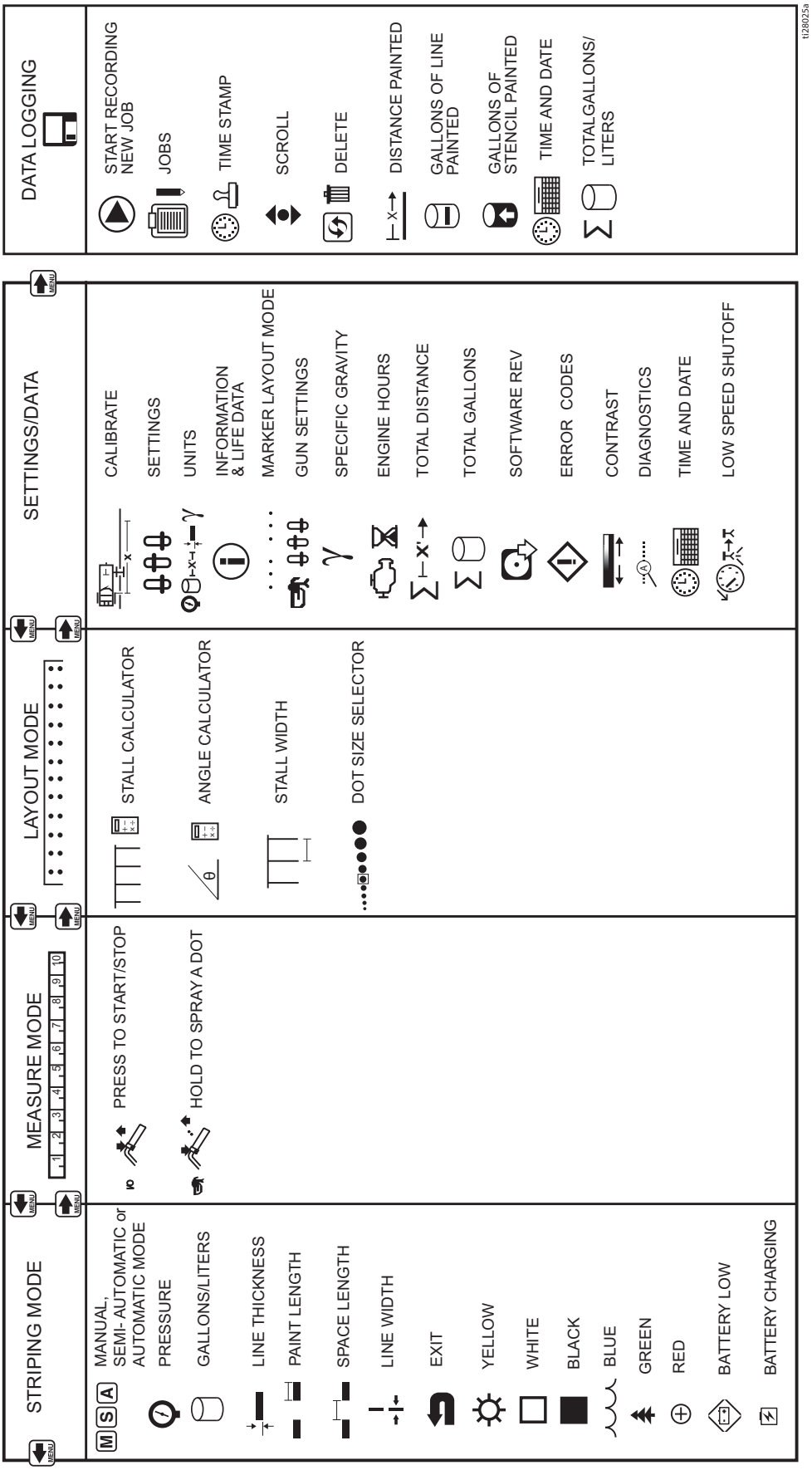
15D546

Kit includes 11 tools and brushes to clean the gun.

Wiring Diagram



World Symbol Key



Technical Specifications

LineLazer V 200 MMA (Models 17Y234, 17Y513, 17Y233, 17Y514)		
	U.S.	**Metric**
Dimensions		
Height (with handle bar down)	Unpackaged - 44.5 in. Packaged - 52.5 in.	Unpackaged - 113.03 cm Packaged - 133.35 cm
Width	Unpackaged - 34.25 in. Packaged - 37.0 in.	Unpackaged - 87.0 cm Packaged - 93.98 cm
Length	Unpackaged - 68.75 in. Packaged - 73.5 in.	Unpackaged - 174.63 cm Packaged - 186.69 cm
Weight (dry - no paint)	Unpackaged - 554 lbs Packaged - 621 lbs	Unpackaged - 251 kg Packaged - 282 kg
Noise (dBa)		
Sound Power per ISO 9614:	99.0	
Sound Pressure per ISO 9614:	85.5	
Vibration (m/s^2) (8 hours daily exposure)		
Hand Arm (per ISO 5349)	Left hand 1.71 Right hand 2.23	
Whole Body (per ISO 2631)	0.4	
Power Rating (Horse Power)		
Power Rating (Horse Power) per SAE J1349	6.5 HP @ 3600 rpm	4.84 kW @ 3600 rpm
Maximum Delivery	2.15 gpm	8.14 lpm
Maximum Tip Size 1 gun 2 gun	 .047 .035	
Inlet paint strainer	16 mesh	1190 micron
Outlet paint strainer	40 mesh	297 micron
Pump inlet size	1 in. NSPM (m)	
Pump outlet size	3/8 NPT (f)	
Maximum working pressure	3300 psi	228 bar, 22.8 MPa
Maximum fluid working pressure	3300 psi	228 bar, 22.8 MPa
Maximum free-flow delivery	2.15 gpm	8.14 lpm
Cycles per gallon/liter	62 cpg	16.4 cpl
Hydraulic reservoir capacity	1.25 gallons	4.73 liters
Hydraulic pressure	1825 psi	124 bar
Electrical Capacity	84 W@ 3600 rpm	
Battery	12V, 22Ah, Sealed lead acid, Deep cycle	

Wetted Parts: PTFE, Nylon, polyurethane, V-Max, UHMWPE, fluoroelastomer, acetal, leather, tungsten carbide, stainless steel, chrome plating, nickel-plated carbon steel, ceramic

Technical Specifications - Gun

Category	Data
Maximum Fluid Working Pressure	3500 psi (24.5 MPa, 245 bar)
Minimum Air Inlet Pressure	80 psi (0.56 MPa, 5.6 bar)
Maximum Air Inlet Pressure	130 psi (0.9 MPa, 9 bar)
Maximum Fluid Temperature	200° F (94° C)
Air Inlet Size	1/4 push-to-connect
A Component Inlet Size	1/4 NPT
B Component Inlet Size	1/4 NPT
Sound Pressure	81.1 dB(A), using AR5252 at 100 psi (0.7 MPa, 7 bar)
Sound Power, measured per ISO 9416-2	91.0 dB(A), using AR5252 at 100 psi (0.7 MPa, 7 bar)
Dimensions	7.5 x 8.1 x 3.3 in. (191 x 206 x 84 mm)
Weight	2.5 lb (1.1 kg)
Wetted Parts	Aluminum, stainless steel, carbon steel, carbide, chemically resistant o-rings

All other brand names or marks are used for identification purposes and are trademarks of their respective owners.

California Proposition 65

CALIFORNIA RESIDENTS

⚠ **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

Graco Information

For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor or call 1-800-690-2894 to identify the nearest distributor.

All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM
Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

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