



Mobile Sealant Delivery System Manual



Warnings

The following are general warnings related to the setup, use, grounding, maintenance and repair of this equipment. Additional, more specific warnings may be found throughout the body of this manual where applicable. Symbols appearing in the body of the manual refer to these general warnings. When these symbols appear throughout the manual, refer back to these pages for a description of the specific hazard.

WARNING

FIRE AND EXPLOSION HAZARD

- Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:
- Use equipment only in well-ventilated area.
- Eliminate all ignition sources such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Sprayer generates sparks. When flammable liquid is used in or near the sprayer or for flushing or cleaning, keep sprayer at least 20 feet (6 m) away from explosive vapors.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground equipment and conductive objects in work area. Read grounding instructions in the following section.
- If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem.
- Keep a fire extinguisher in the work area.

ELECTRIC SHOCK HAZARD

- Improper grounding, setup, or usage of the system can cause electric shock.
- Turn off and disconnect power cord before servicing equipment.
- Use only grounded electrical outlets.
- Use only 3-wire extension cords.
- Ensure ground prongs are intact on sprayer and extension cords.
- Do not expose to rain. Store indoors.

SKIN INJECTION HAZARD

- High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.
- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Engage trigger lock when not spraying.
- Follow Pressure Relief Procedures in this manual when you stop spraying and before cleaning, checking, or servicing equipment.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. Read Technical Data in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. Read Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine replacement parts only.
- Do not alter or modify equipment.
- 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 overbend hoses or use hoses to pull equipment.
- Comply with all applicable safety regulations.
- Keep children and animals away from work area.
- Do not operate the unit when fatigued or under the influence of drugs or alcohol.

PRESSURIZED ALUMINUM PARTS HAZARD

Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use can cause serious chemical reaction and equipment rupture, and can result in death, serious injury, and property damage.

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 MSDS's 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.

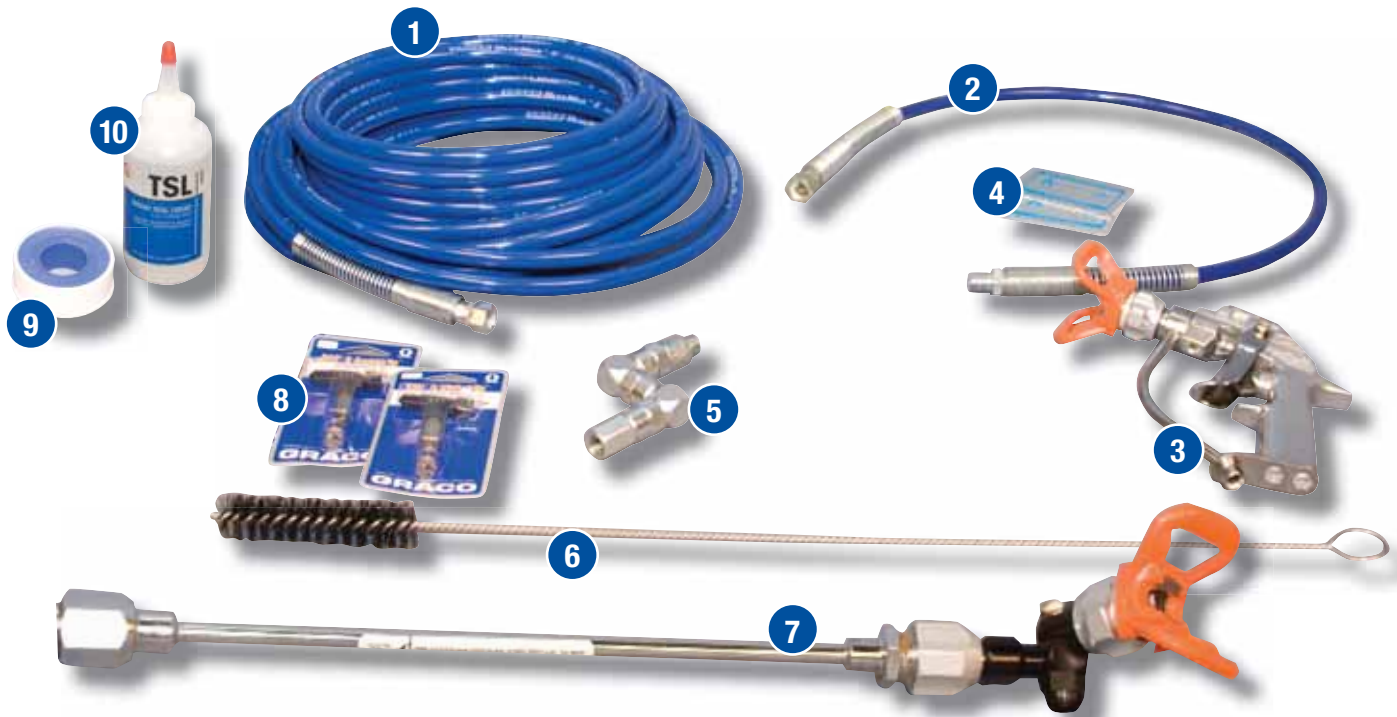
PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to protect yourself from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:

- Protective eye wear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection



Spray Sealant Delivery System Standard Package



#	Part Description
1	50 ft. Hose
2	Whip Hose
3	Spray Gun w/Guard
4	2 Mil Thickness Gauges
5	Z Swivel
6	Cleaner Brush
7	12" Extension w/Swivel Head & Guard
8	2 Reversible Spray Tips
9	Teflon Tape
10	TSL Throat Seal Liquid
11	Standard Pump

Note: Custom packages available. Contact your Hardcast distributor for a quote.

Spray Sealant Delivery System Junior Package



#	Part Description
1	50 ft. Hose
2	1 Spray Gun w/Guard
3	2 Spray Tips
4	2 Mil Thickness Gauges
5	Cleaner Brush
6	Teflon Tape
7	TSL Throat Seal Liquid
8	Jr. Pump

Standard Specifications



Specifications	
Motor	1.6 HP (Gen 2), B1:C10 HP (Gen 1)
Voltage	100–120 V units require 100-120 VAC, 50/60 Hz, 15A, 1 phase
Amp Draw	15 Amps
Max GPM (LPS)	0.70 (2.6)
Max PSI (BAR)	3300 (227)
Weight	133 lbs.
Dimensions	28" W x 28" L x 48" H

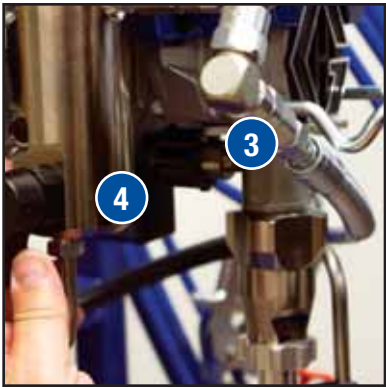
Note: Gen 2 pumps shipped after 3/2015



Specifications	
Motor	1.2 HP (Gen 2), 1 HP (Gen 1)
Voltage	100–120 V units require 100-120 VAC, 50/60 Hz, 15A, 1 phase
Amp Draw	13 Amps
Max GPM (LPS)	0.60 (2.3)
Max PSI (BAR)	3300 (227)
Weight	133 lbs.
Dimensions	28" W x 28" L x 48" H

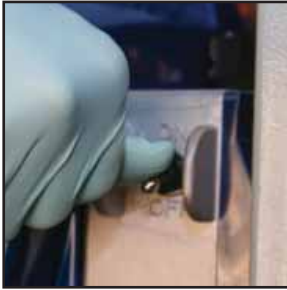
Note: Gen 2 pumps shipped after 3/2015

Components



#	Component
1	On/Off Switch
2	Pressure Control
3	Fluid Outlet
4	Prime/Spray Valve
5	Prime Tube
6	Siphon Tube
7	Pump
8	Trigger Lock

ProConnect is a new system designed to allow for quick and easy pump removal and replacement. This feature allows the lower pump section to be replaced as an assembly instead of disassembling and rebuilding the lower pump packings and seals. The ProConnect system allows for change-out in under 5 minutes.



Turn power OFF and unplug sprayer.



Turn pressure to lowest setting.



Trigger gun to relieve pressure.



Turn prime valve down slowly to direct product through prime tube.



Loosen threaded nut on pump housing.



Open pump access door on front of pump.



Remove the lower pump assembly.



Remove the pressure hose from the lower pump assembly.

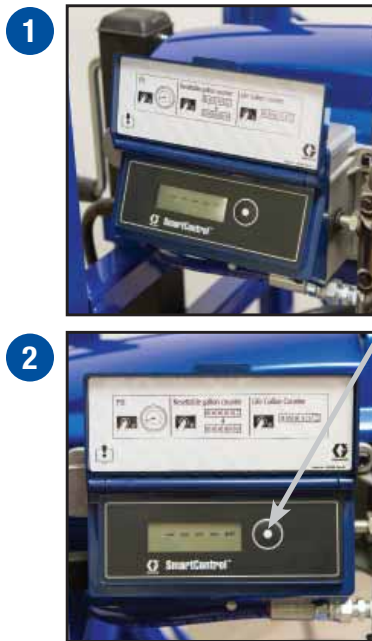
Installation is the reverse of removal.

FastFlush is a new setting to allow for high flowrate flushing of the sprayer. This will allow the system to be cleaned faster and more thoroughly.



Smart Control 2.5 is a new digital display to give the owner more information about your Hardcast Mobile Sealant Delivery System. Display will show gallons sprayed, pressure the machine is set at, total in-service hours of the pump, diagnostic codes and error messages. The user can also change from English to Metric units if desired.

While In Use



1. Default display will be pressure. Note that when pressure is below 200 PSI the display will only show dashes.
2. Press the button quickly once and you will see JOB briefly followed by the number of gallons that have been sprayed for your JOB. To reset this to zero simply press and hold the button until the display reads 0. Note that gallons sprayed for the JOB will only display gallons that were sprayed at 1,000 PSI or above.
3. Press the button quickly again and you will see LIFE briefly followed by the number of gallons that have been sprayed over the LIFE of the unit. Note that gallons sprayed over the LIFE of the pump will only display gallons that were sprayed at 1,000 PSI or above.
4. To change pressure units from English to Metric simply hold the display button for eight seconds until the desired units appear. Note that when pressure is changed to Metric (bar or MPa), the gallons unit of measurement will change to Liters x 10.

When Not In Use and/or To Check Error Codes

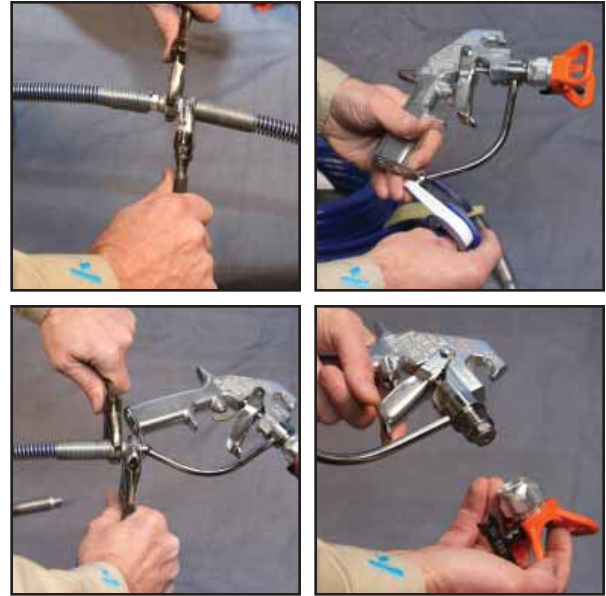
1. Perform the pressure relief procedure.
2. While pressing the display button, turn the pump to the ON position.
3. Pump model and serial number will display.
4. Press the button quickly and any error codes (if existing) will display.
5. To clear an error code press and hold the display button.
6. To exit from the error codes please turn the pump to the OFF position.

Error Codes

Code	Message	Action
02	High Pressure Detected – Relieve Pressure	Check for clogs
03	Pressure Transducer Not Detected	Check transducer connection
05	Motor Not Spinning	Check motor electrical connections and for mechanical failure
06	Motor Overheated	Turn pump to the OFF position. Check motor connections, verify vents on motor housing are not blocked. Note that pump may take up to 1 hour to fully cool



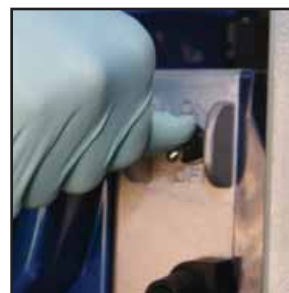
Connect z-swivel using teflon tape to sprayer then attach airless hose to z-swivel. Tighten securely. (All fittings require teflon tape.) Install hose to z-swivel.



Connect short whip hose using teflon tape to other end of airless hose, then to gun. Tighten securely. Remove tip guard.



Fill throat packing nut with TSL to prevent premature packing wear. Maintain pump oil level.



Turn power OFF. Plug power supply cord into a properly grounded electrical outlet.

Startup



Raise pump housing to accommodate pail.
Lower siphon tube through the pour spout on lid of Hardcast sprayable pail.



Turn pressure control to lowest pressure (counter clockwise).



Turn power ON.



Turn prime valve horizontal. Take spray gun trigger safety OFF.



Set dial to Fast Flush and trigger gun into pail.



Turn pressure down.

Inspect for leaks. Do not stop leaks with hand or a rag! If leaks occur, follow pressure relief procedure. Tighten fittings. Repeat startup procedure.

Tip & Guard Assembly



Set trigger lock on.



Insert metal seal into tip guard.



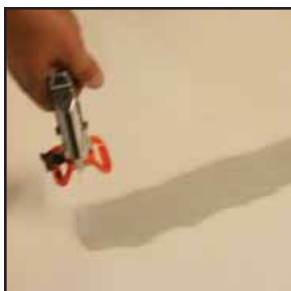
Insert reversible spray tip into tip guard.



Screw assembly onto gun. Hand tighten.



Spray test pattern. Start with pressure turned to its lowest setting, then gradually increase pressure until you achieve a consistent spray pattern without heavy edges.



Wrap a moistened cloth around siphon tube to prevent exposure to air.

Clearing a Clog



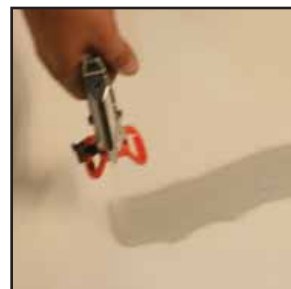
Release trigger, put safety ON.



Rotate reversible spray tip. Take safety OFF.



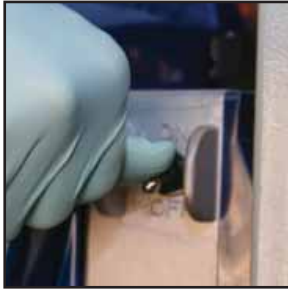
Trigger gun to clear clog. Never point gun at your hand or into a rag!



Put safety ON. Return reversible spray tip to original position. Take safety OFF and continue spraying.

Pressure Relief Procedure

To reduce risk of injury from injection, follow this procedure whenever you are instructed to relieve pressure, stop spraying, service equipment or install or clean spray tip.



Turn power OFF and unplug sprayer.



Turn pressure to lowest setting.



Trigger gun to relieve pressure.



Turn prime valve down slowly to direct product through prime tube.

Hint



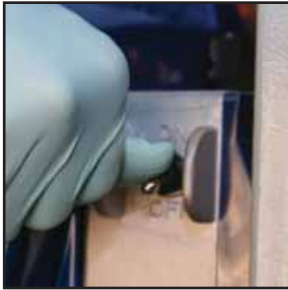
Figure A



Figure B

If you suspect spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the above pressure relief procedure, **VERY SLOWLY** loosen tip guard (Figure A) retaining nut or hose end coupling (Figure B) to relieve pressure gradually, then loosen completely. Now clear tip or hose obstruction.

To store equipment while there is remaining Hardcast sprayable product in pail and syphon tube is submerged in the remaining sealant.



Turn power OFF and unplug sprayer.



Turn pressure to lowest setting.



Trigger gun to relieve excess pressure.



Wrap a moistened cloth around siphon tube to prevent exposure to air.



Set trigger lock on.



Remove tip guard assembly.



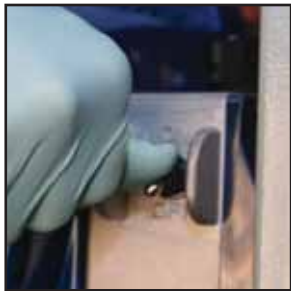
Apply petroleum jelly to exposed spray gun tip.



Remove reversible spray tip and bushing to clean with water.

Cleanup

To store equipment without remaining sealant in pail.



Turn power OFF and unplug sprayer.



Set trigger lock on.



Remove tip guard assembly.



Remove reversible spray tip and bushing to clean with water.



Replace Hardcast sprayable pail with pail of clean water.



Set dial to Fast Flush and trigger gun into pail.



Spray until water runs clear from pump and hose by triggering gun into empty pail.



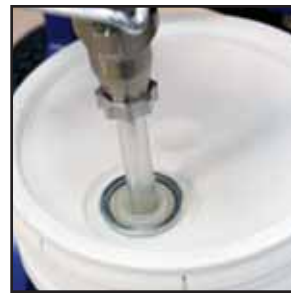
Turn prime valve down and allow flushing fluid to circulate for 15 to 30 seconds to clean drain tube.



Close prime valve.



Trigger gun to relieve pressure.



Remove siphon tube.



Remove flat washer, ball bearing and clover leaf bearing from lower pump housing and clean each part. Reassemble.



Clean siphon tube with brush and reassemble.



Remove cap from fluid outlet housing.



Clean with brush. Replace cap.

Routine Maintenance (recommended Bi-Monthly)

IMPORTANT: Follow instructions on page 12 before the following steps.



In a clean pail, combine MEK and mineral spirits at 1:1 ratio.



Place siphon tube into pail of cleaning solution.



Flush cleaning solution through pump, hose and gun.

To Clean Pump Only



Place prime tube into pail.
Turn prime valve down.

Leave cleaning solution in pump, hose and gun for weekend storage.

Flush cleaning solution prior to next start up (see Startup procedure on page 8).

Pump Will Not Run:

1. Verify the pump power cord is connected to an appropriate outlet. The Standard and Deluxe pump systems pull a maximum of 15 amps and the Junior pump pulls a maximum of 13 amps
(Note: Do not remove or bypass the grounding pin on the connector).
2. If pump is connected to an appropriate outlet, verify the outlet has power.
3. If there is no power at the outlet, verify the circuit breaker is not tripped. If it is, reset and attempt to power the unit. If powering the unit trips the breaker, find a different outlet on a separate circuit to power the unit.
4. If the above steps do not allow the pump to run, verify that the power cord was not pulled loose from the controller. This can happen when the power cord is wrapped tightly around the cart and the pump is raised using the lift system.

If the power cord is pulled loose:

- A. Disconnect the power cord.
 - B. Remove the screws holding the side panel on the pump controller.
 - C. Re-attach green, white and black wires. See Figure 1.
5. If the power cord connections are connected, verify the pump power supply board and/or the control board does not have burn spots anywhere on the board. A burn spot shows a short circuit or failure within the board. If you find a burn spot, remove and contact Customer Service at 877.495.4822 for a replacement (covered under warranty if within the 1-year warranty period).

Figure 1



Piston Rod is Moving But Pump Will Not Spray/Prime or is Pumping at a Lower Pressure Than Setting:

1. Verify the selector switch on side of pump is solidly in the pump or the prime location – horizontal to spray, vertical down to bypass/prime. See Figure 2 for appropriate positions.
2. Ensure the pump drop tube is not blocked.
3. Verify that the pump drop tube is connected tightly to the pump.
4. If the drop tube is tight, remove the drop tube and verify the check ball is present.
5. If check ball is present:
 - A. Sometimes the check ball will stick, so verify that it can move freely.
 - B. Verify the condition of the o-rings on the drop tube assembly. There are two o-rings to check: a white plastic o-ring at the base of the male portion of the pump and a black rubber o-ring where the drop tube connects to the female portion of the pump. See Figure 3. A nick on the surface or a broken o-ring will allow the pump to pull air instead of pulling product.
6. If the above steps do not allow the pump to spray or prime, remove the threaded section on the manifold and add water. See Figure 4. Re-install the threaded section and then pump/prime. Sometimes this additional water will give the pump enough fluid to begin pumping.
7. If the above step does not work, pull the drop tube assembly from the pump, insert a small screwdriver into the male connection on the pump and tap lightly. There is an additional check ball in the male portion of the pump that can stick. See Figure 5.
8. If the above step does not work contact Technical Services at 877.495.4822 for additional assistance.

Figure 2



Horizontal Back Spray



Bypass Setting



Horizontal Front Spray

Figure 3



Lower O-ring



Bypass Setting

Leaks:

1. For any leaks on the pump, gun or hose, verify that the fittings and connections are tight. The drop tube, the manifold and the gun safety guard need to be minimum “hand-tight”.
2. If the leak is emanating from the end of the gun after the trigger is released:
 - A. There may be foreign matter in the tip of the gun. Turn the pump off, relieve the pressure in the system, remove the safety guard and tip and remove the foreign matter.
 - B. If there is no foreign matter in the tip of the gun, the gun may need to be rebuilt. Contact Customer Service for assistance.

Figure 4



Figure 5





The following are general warnings related to the setup, use, grounding, maintenance and repair of Sprayer equipment. Additional, more specific warnings may be found throughout the body of this manual where applicable. Symbols appearing in the body of the manual refer to these general warnings. When these symbols appear throughout the manual, refer back to these pages for a description of the specific hazard.

WARNING

FIRE AND EXPLOSION HAZARD

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

- Use equipment only in well-ventilated area.
- Eliminate all ignition sources such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Sprayers generate sparks. When flammable liquid is used in or near the sprayer or for flushing or cleaning, keep sprayer at least 20 feet (6 m) away from explosive vapors.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground equipment and conductive objects in work area. Read grounding instructions in the following section.
- If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem.
- Keep a fire extinguisher in the work area.

ELECTRIC SHOCK HAZARD

Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power cord before servicing equipment.
- Use only grounded electrical outlets.
- Use only 3-wire extension cords.
- Ensure ground prongs are intact on sprayer and extension cords.
- Do not expose to rain. Store indoors.

SKIN INJECTION HAZARD

High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.

- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the extrusion tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Place gun where trigger cannot be accidentally pressed when not extruding.
- Follow Pressure Relief Procedures in this manual when you stop extruding and before cleaning, checking, or servicing equipment.

Cartridge Killer Extrusion Kit Warnings

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. Read Technical Data in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. Read Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine replacement parts only.
- Do not alter or modify equipment.
- 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 overbend hoses or use hoses to pull equipment.
- Comply with all applicable safety regulations.
- Keep children and animals away from work area.
- Do not operate the unit when fatigued or under the influence of drugs or alcohol.

PRESSURIZED ALUMINUM PARTS HAZARD

Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use can cause serious chemical reaction and equipment rupture, and can result in death, serious injury, and property damage.

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 SDS's 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.

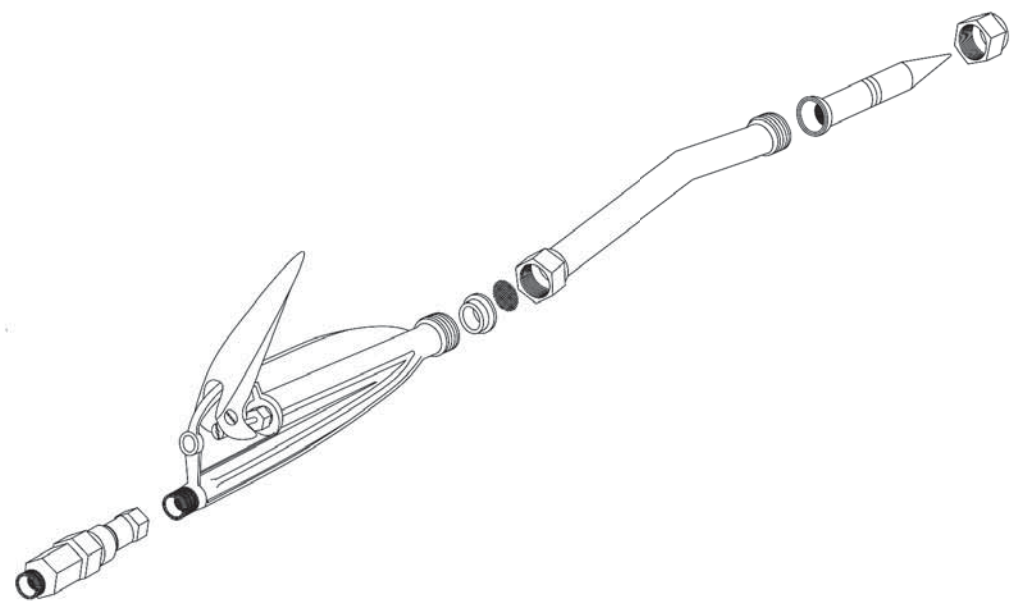
PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to protect yourself from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. The spray equipment typically includes but is not limited to:

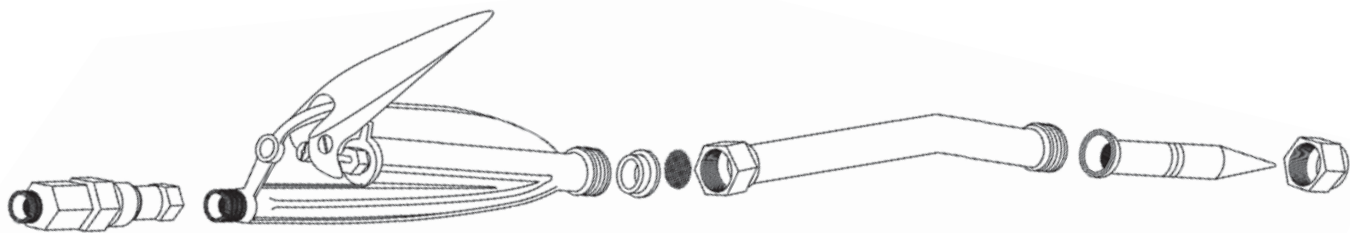
- Protective eye wear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection
- Always refer to the spray equipment manufacturer's user manual to verify required PPE.



#	Part Description	Kit Quantity
1	Gun - lightweight, palm-held	1
2	Rotating Swivel	1
3	8" Wand Extension	1
4	0.012" orifice 304SS Custom Extrude Tip	2
4	0.017" orifice 304SS Custom Extrude Tip	2
4	0.022" orifice 304SS Custom Extrude Tip	2
5	Stainless Steel Mesh Filter Screens	25



Assembly of Cartridge Killer Kit



1. Remove contents from box.
2. Verify all components are in the kit per right:
3. Install straight rotating swivel onto the inlet side of the gun.
 - a. Note - take care to not cross-thread when installing. This may potentially cause permanent damage and make the assembly unable to seal and unsafe to use.

Part Description	Kit Quantity
Gun - lightweight, palm-held	1
Rotating Swivel	1
Stainless Steel Mesh Filter Screens	25
8" Wand Extension	1
0.012" orifice 304SS Custom Extrude Tip	2
0.017" orifice 304SS Custom Extrude Tip	2
0.022" orifice 304SS Custom Extrude Tip	2

4. Wrap Teflon tape (supplied) around threaded outlet of gun.
 - a. Note - Care must be taken to cover only the threaded section. If the Teflon tape is allowed to cover over the outlet this can potentially cause clogging issues with the Cartridge Killer gun assembly.
5. Verify fluid shut-off grommet is installed in the end of the gun.
 - a. Note - The white gasket goes towards the gun with the flat surface away from the gun.
If this is installed incorrectly the gun will not have a positive pressure shut-off when releasing the gun trigger
 - b. Note - It may be necessary to depress the trigger slightly to get the shut-off grommet to set in the end of the gun.
6. Install the preferred orifice size stainless steel extrusion tip (sizing and marking notated on the drawing) into the extrusion cap tip.
 - a. Note - The stainless steel extrusion tip will fit snugly into the extrusion cap tip.
7. Install the filter mesh within the female end of the 8" wand extension (or within the female end of the extrusion cap if the extension is not used).
 - a. Note - The wire mesh will fit tightly within the female end of the extension and cap.
8. Install Teflon tape over the male end of the 8" extension, if using the 8" extension, or the male end of the Cartridge Killer gun.
 - a. Note - Not installing the Teflon tape will allow the sealant to leak around the connection point.
9. If using the 8" extension - thread the female end of the 8" extension over the threaded end of the gun. Use the appropriate tools to tighten down the extension.
 - a. Note - If the extension is not tightened down the Cartridge Killer system will likely leak sealant from this location.
10. Install the stainless steel extrusion tip and extrusion cap over the threaded end of the gun, or extension if being used. Use the appropriate tools to tighten down the extrusion cap.
 - a. Note - If the extrusion cap is not tightened down the Cartridge Killer system will likely leak sealant from this location.
11. You have completed the assembly of the Cartridge Killer kit.

Connecting and Using the Cartridge Killer Kit

WARNING - when using the Cartridge Killer kit **DO NOT EXCEED 500 PSI** of pressure into the gun assembly. Pressures above this can cause irreparable damage to system and poses a danger to the user.

Connecting Cartridge Killer kit onto your sprayer equipment

1. Verify that your spray equipment is turned off and any residual pressure relieved.
2. Remove existing spray gun from your spray equipment. Use appropriate tools to keep from damaging the hose and gun assembly.
3. Install the Cartridge Killer gun assembly onto the spray equipment hose using the rotating swivel as the attachment connection. Use appropriate tools.
 - a. Note - if the rotating swivel is not tightened down properly the Cartridge Killer system will likely leak sealant from this location.
 - b. The rotating swivel is designed to install without Teflon tape.
 - i. Note - if you decide to use Teflon tape, care must be taken to cover only the threaded section as this can potentially cause clogging issues with the Cartridge Killer gun assembly if the Teflon tape is allowed to cover over the inlet of the rotating swivel.
4. You have completed the installation onto your spray equipment.

Using the Cartridge Killer system

WARNING - ALWAYS start your spray equipment with the pressure dial set to zero or to the lowest setting. This will insure you do not over-pressurize the Cartridge Killer system.

1. Follow your standard procedures for startup of your spray equipment.
2. Starting with the pressure set to zero or to the lowest setting, trigger the Cartridge Killer gun into a waste pail. Slowly increase your pressure until you get the appropriate bead size and flow desired.
3. The Cartridge Killer system is designed with a palm-style gun so that it allows the user to utilize their thumb to control the amount the trigger is depressed.
4. As you begin using the Cartridge Killer system on joints and seams adjust your pressure setting accordingly.
5. The speed at which the user moves the stainless steel tip across the joint or seam is also a key control feature. Once the user is using a consistent speed adjust the pressure accordingly.
 - a. Note - each user will have their preferred speed and pressure setting.
6. On first trigger pull, with the spray equipment set to the desired pressure, the user will see a slight initial increase in sealant being delivered. This is inherent to the design as the pressure comes to a steady-state with the trigger depressed. This initial slight increase will immediately dissipate and the user will be able to lay down a consistent bead of sealant.
7. Care must be taken to insert the tip as close to or within the joints and seams being sealed. This will allow the sealant to penetrate into the joints and seams.

Cleaning the Cartridge Killer System

Cleaning the Cartridge Killer system

WARNING - ALWAYS turn the pump off and relieve the pressure in the spray equipment before attempting any maintenance.

1. Follow the spray equipment manufacturer's directions for cleaning your pump equipment.
2. If you do not have those directions, you can follow the steps outlined in the Hardcast [Mobile Sealant Delivery System User Manual](#) or watch the YouTube video of the process on Hardcast's [YouTube channel](#).



Hardcast Mobile Sealant Delivery System User Manual:

Go to goo.gl/o2vbPm or scan QR code below.







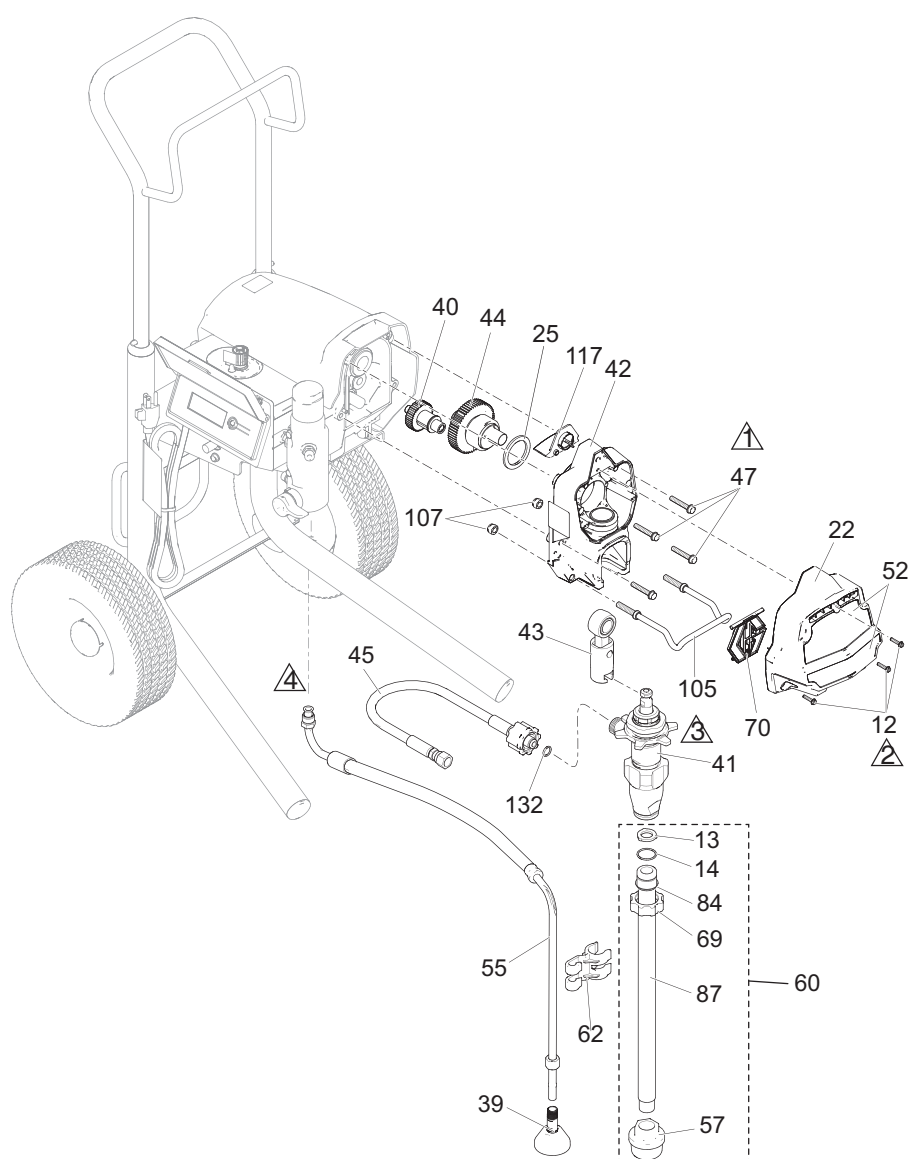
Hardcast YouTube channel:

Go to www.youtube.com/user/CarlisleHVAC or scan QR code below.

3. During the pump cleaning process, you will have utilized water or a solvent to flush the system. When flushing through the spray hose simply flush directly through the Cartridge Killer system.
4. Once the pump equipment and Cartridge Killer system are flushed then remove the extrusion cap and extension wand (if used). Rinse and clean the cap, extension, wire mesh and stainless steel tip.

Generation 2







Ref.	Torque
	140-160 in-lb (15.8 - 18.1 N•m)
	30-35 in-lb (3.4 - 4.0 N•m)
	Hammer tight
	25-30 ft-lb (33.8 - 40.6 N•m)

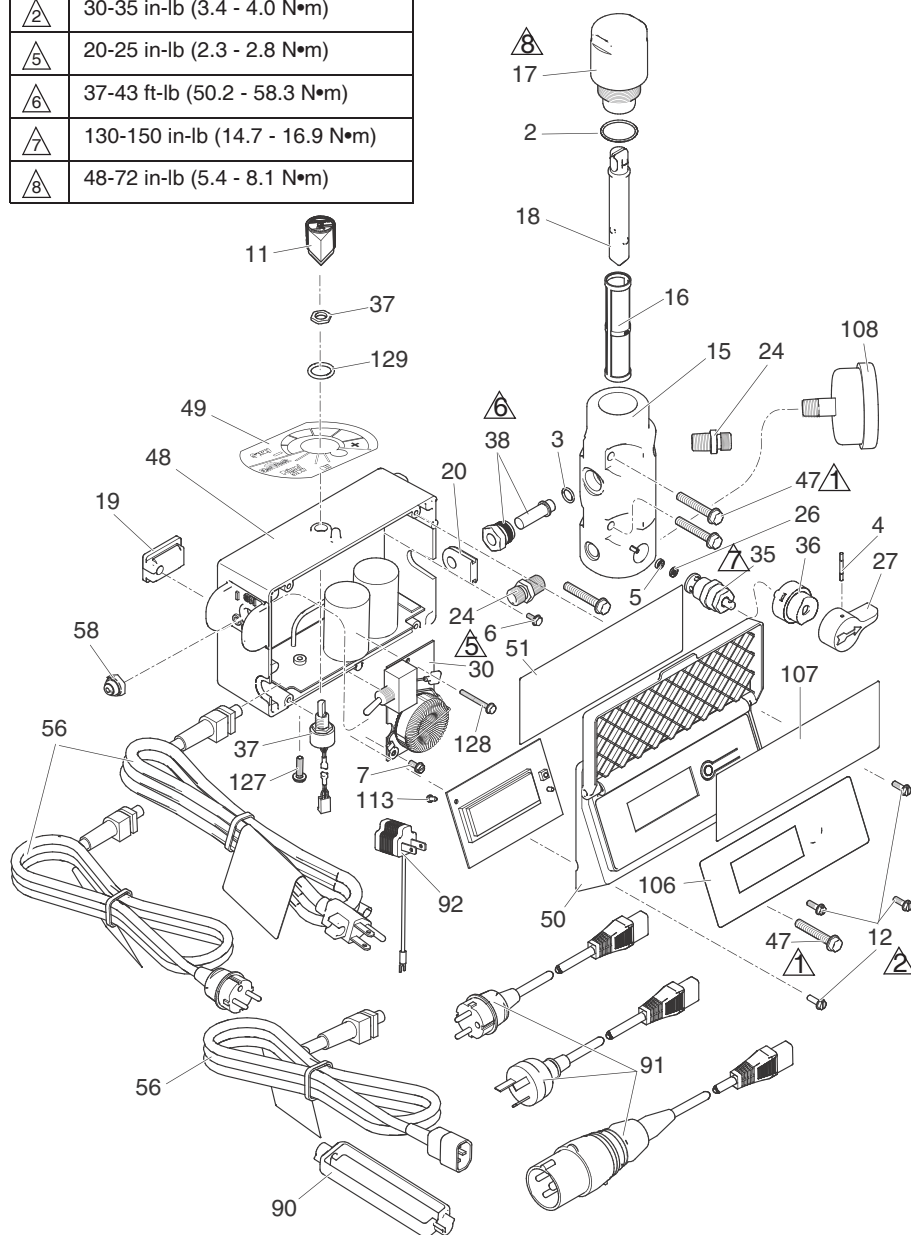


Parts List

13	115099	WASHER, hose	1	60	17C992	KIT, stinger tube. <i>includes 13, 14, 57, 69, 76, 84, 87</i>	
14	103413	O-ring	1				
22	17C541	COVER, front, painted	1	61	See page 50	GUN, spray (not shown)	1
23	15G449	SHIELD, motor, painted	1	62	276888	CLIP, drain line	1
25	180131	BEARING, thrust	1	63▲	See page 50	LABEL, danger	1
33	206994	FLUID, TSL (not shown)	1	65▲	See page 50	LABEL, warning	1
34▲	See page 50	CARD, medical alert (not shown)	1	67	109032	SCREW, pan hd	4
39	241920	DEFLECTOR, threaded	1	69	15E813	NUT, jam	1
40	249194	GEAR, reducer	1	70	17C483	COVER, pump rod	1
41		PUMP, displacement, PC	1	74	287489	HANDLE	1
	17C487	North America		75	108691	PLUG, tubing	2
	17C488	Europe		81	106062	WHEEL	2
	17C489	Asia/ANZ/Japan		82	15B999	CLIP, retaining	2
42	24W817	HOUSING, drive, PC, <i>includes 12, 47, 70</i>	1	83	104811	CAP, hub	2
43	24W640	ROD, connecting, PC	1	84	15B652	WASHER, suction	1
44		KIT, repair, crankshaft, <i>includes 25</i>	1	87	17C281	TUBE, suction	1
	24X020	Models 395/490/495		105	17C990	HANGER, pail	1
	24X021	Model 595		107	111040	NUT, lock, insert, nylon	2
45	24W830	KIT, hose, cpld, PC, <i>includes 132</i>	1	114	15D281	HANGER, stand (on select models)	1
46	See page 50	HOSE, cpld, 1/4 in. x 50 ft (not shown)	1	115	15C982	CAM, cart (on select models)	2
47	117493	SCREW, mach, hex washer hd	8	116	114531	SCREW, mch, hex (on select models)	4
52	See page 50	LABEL, front, upper/lower	1	117	15G447	PLUG, tubing	1
53	See page 50	LABEL, side	1	122	118852	SCREW, thd forming (on select models, not shown)	3
54*		MOTOR, <i>includes 54a, 54b</i>	1	123	287184	TOOL BOX (on select models, not shown)	1
	24S022	395/490/495		132	16H137	PACKING, O-ring	1
	287807	595		139	127914	SCREW, mach, slot, hex	3
54a	15D088	FAN, motor	1	▲Replacement Danger and Warning labels, tags, and cards are available at no cost.			
54b	115477	SCREW, mach, torx, painted	1	* For motor brush kit order 287735			
55	244240	HOSE, drain, <i>includes 39</i>	1				

Control Box

Ref.	Torque
 1	140-160 in-lb (15.8 - 18.1 N•m)
 2	30-35 in-lb (3.4 - 4.0 N•m)
 5	20-25 in-lb (2.3 - 2.8 N•m)
 6	37-43 ft-lb (50.2 - 58.3 N•m)
 7	130-150 in-lb (14.7 - 16.9 N•m)
 8	48-72 in-lb (5.4 - 8.1 N•m)



Control Box Parts List

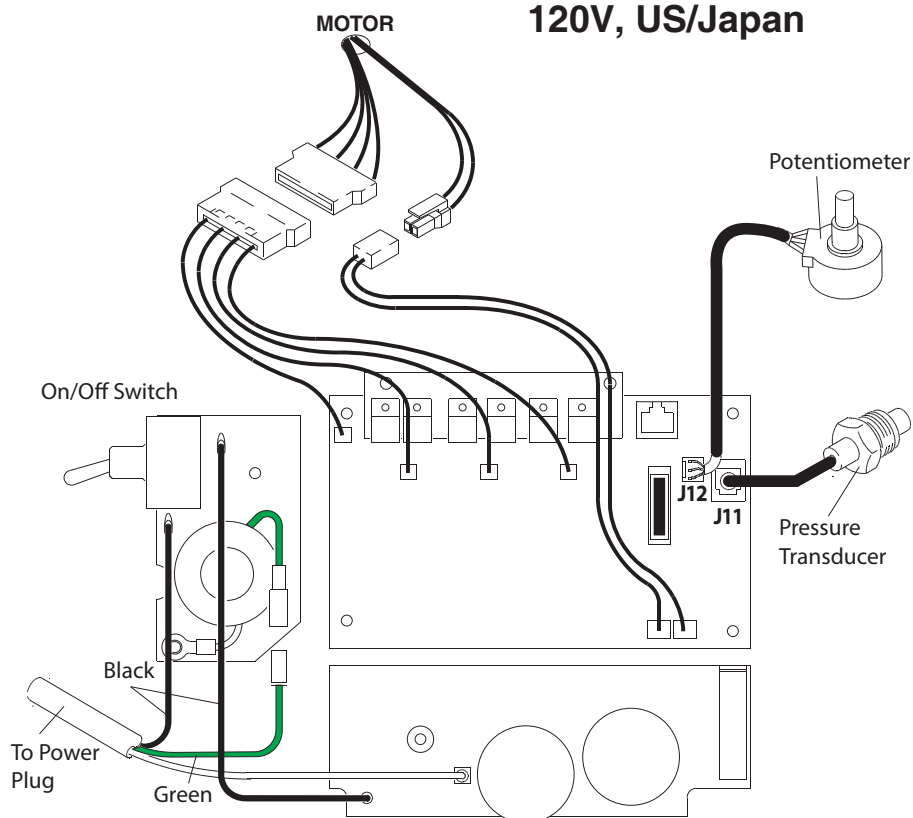
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
2	117828	PACKING, o-ring	1	37	256219	POTENTIOMETER, adj, pressure with nut	1		287121	Italy, Denmark, Sweden	
3	111457	PACKING, o-ring	1	38	243222	TRANSDUCER, pressure control, <i>includes 3</i>	1	92	244285	ADAPTER, Japan	1
4	111600	PIN, grooved	1					106	15G861	LABEL, smart control display	1
5	277364	GASKET, seat, valve	1	47	117493	SCREW, mach, hex washer hd	4	107	15G588	LABEL, digital tracking system	1
6	120405	SCREW, mach, Phillips, pan hd	5	48		BOX, control board <i>includes 6, 7, 11, 19, 30, 37, 49, 58, 127, 128, 129</i>	1	108	115523	GAUGE, pressure, fluid (on select models)	1
7		SCREW, slot, hex, wash hd	1		24W893	120V, 490/495 models, US/Japan <i>includes 19</i>		127	120165	SCREW, mach, Phillips, pan hd	1
	115498	230V and UK models						128	120406	SCREW, mach, hex washer hd	1
	123850	120V US/Japan models			24W894	120V, 595 models, US/Japan <i>includes 19</i>		129	158674	O-RING, packing KIT, ProGuard+, 230V models only (not shown)	1
11	116167	KNOB, potentiometer	1		24W895	230V			24W090	CEE 7/7	
12	117501	SCREW, mach, hex washer hd	6		24W896	110V, UK	1		24W755	Multicord, IEC-320	
15		MANIFOLD, fluid	1	49	17D154	LABEL, control, w/FastFlush	1				
	15G455	Models without pressure gauge		50		COVER, control	1				
	15T811	Models with pressure gauge			277229	Models without display					
16		FILTER, fluid	1		24W892	DIGITAL, display <i>includes 51, 106, 107</i>					
	246425	30 mesh		51		LABEL, control	1				
	246384	60 mesh, original			17C964	Models without display					
	246382	100 mesh			17C875	Models with display					
	246383	200 mesh		56		CORD, power	1				
17	287902	KIT, repair, filter cap <i>includes 18</i>	1		253367	US, 490/495 models					
18	15B071	INSERT, filter	1		253371	US, 595 models					
19	15G562	BUSHING, control box	1		253378	Japan					
20	15B120	GROMMET, transducer	1		253373	Multicord, Asia/ANZ					
24	162453	NIPPLE, (1/4 npsm x 1/4 npt)	2		242001	Europe					
26	15E022	SEAT, valve	1		253369	CEE 7/7					
27	187625	HANDLE, valve, drain	1		253370	Multicord, Europe					
30		BOARD, filter	1	58	195428	BOOT, toggle	1				
	287911	120V, GFI, US/Japan		90	195551	RETAINER, plug, adapter					
	287912	110V, UK				Multicord models	2				
	287913	230V				CEE 7/7 models	1				
35	239914	VALVE, drain <i>includes 5, 26</i>	1	91		CORD SET, adapter	1				
36	224807	BASE, valve	1		253368	UK					
					242005	Australia					

Wiring Diagrams

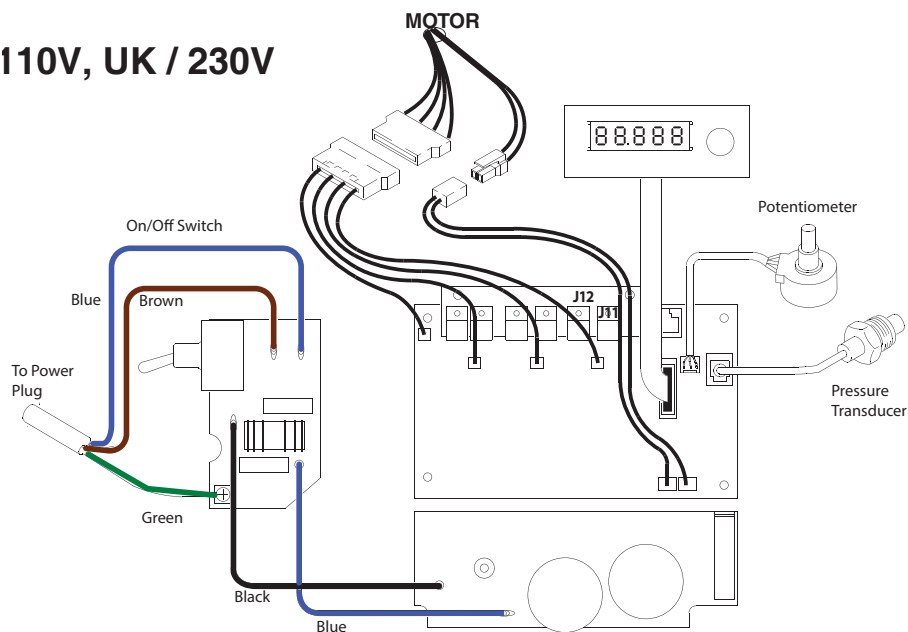
NOTICE

Heat from inductor coil of filter board may destroy wire insulation that comes in contact with it. Exposed wires could cause shorts and component damage. Bundle and tie loose wires so none lay in contact with inductor coil on the filter board.

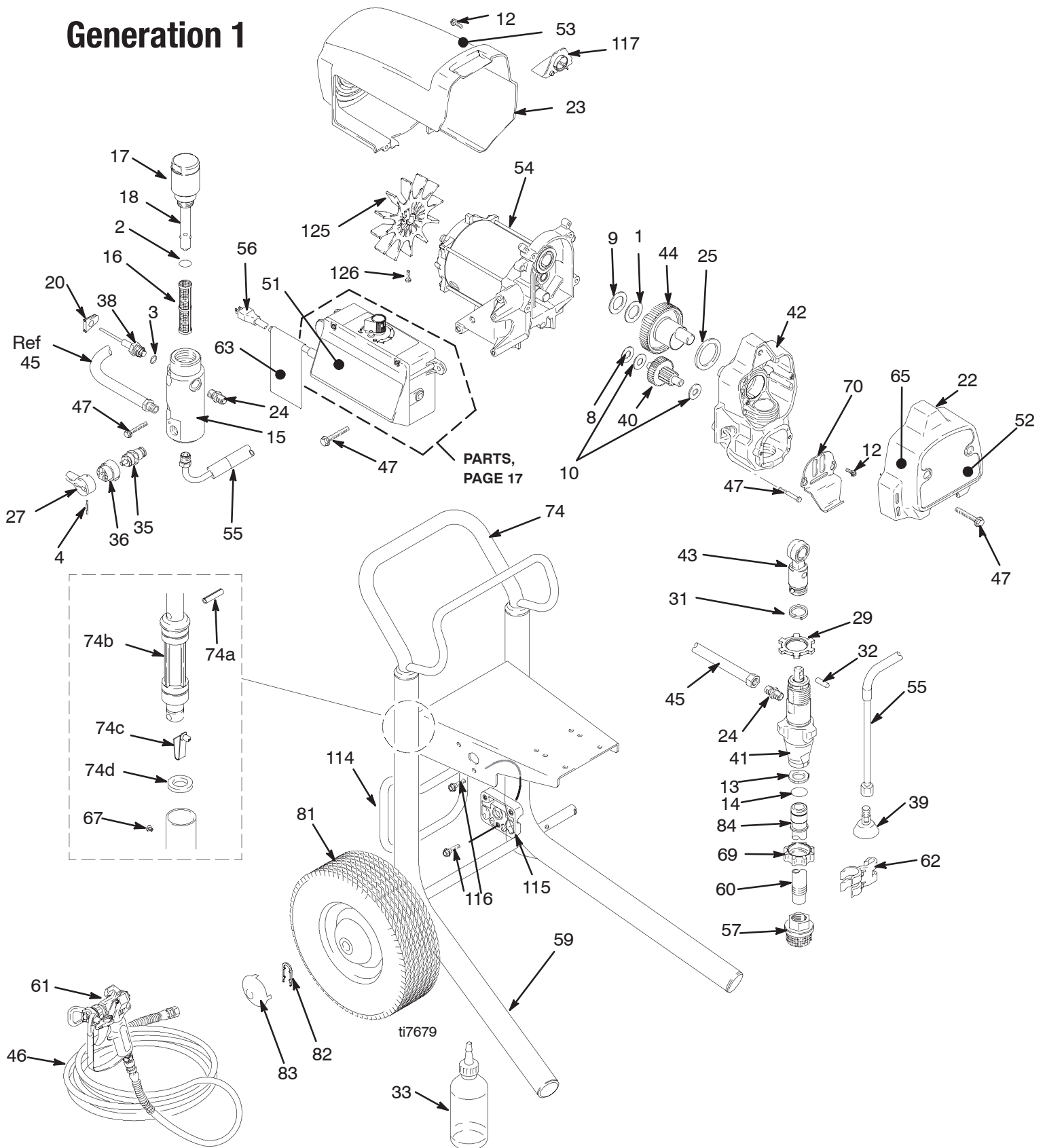
120V, US/Japan



110V, UK / 230V

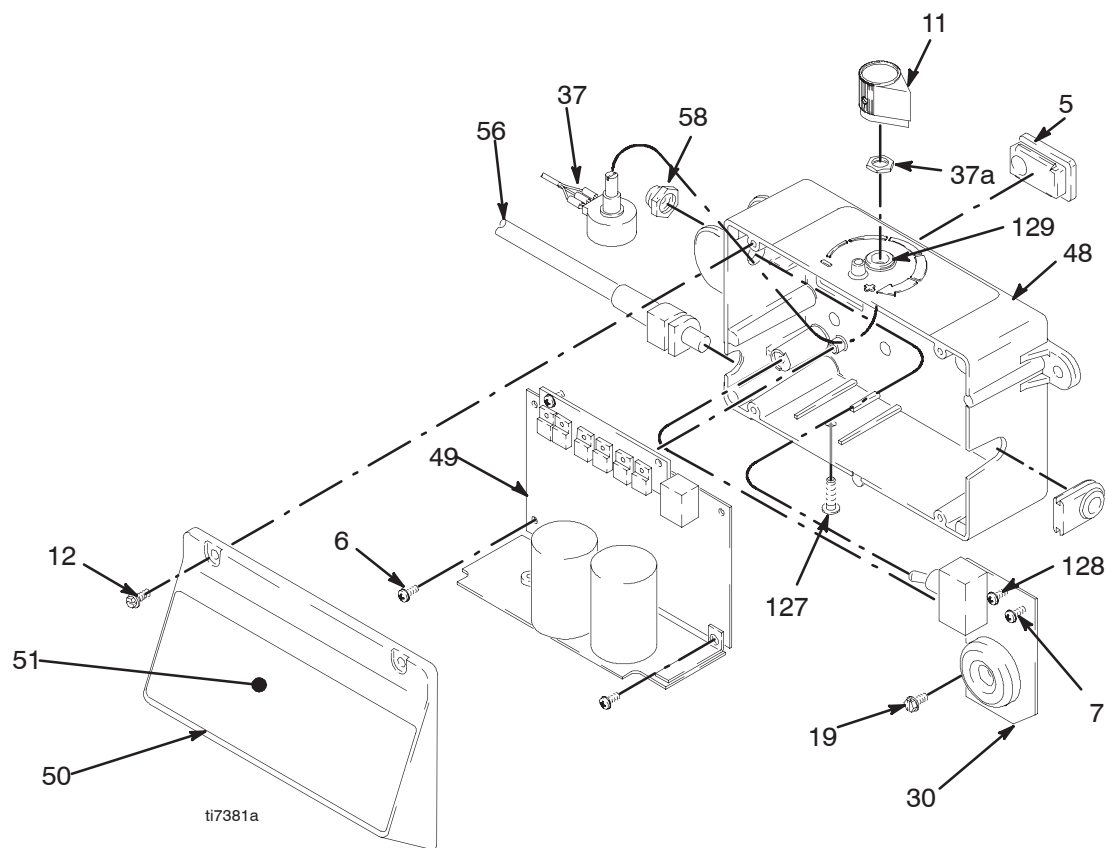


Generation 1



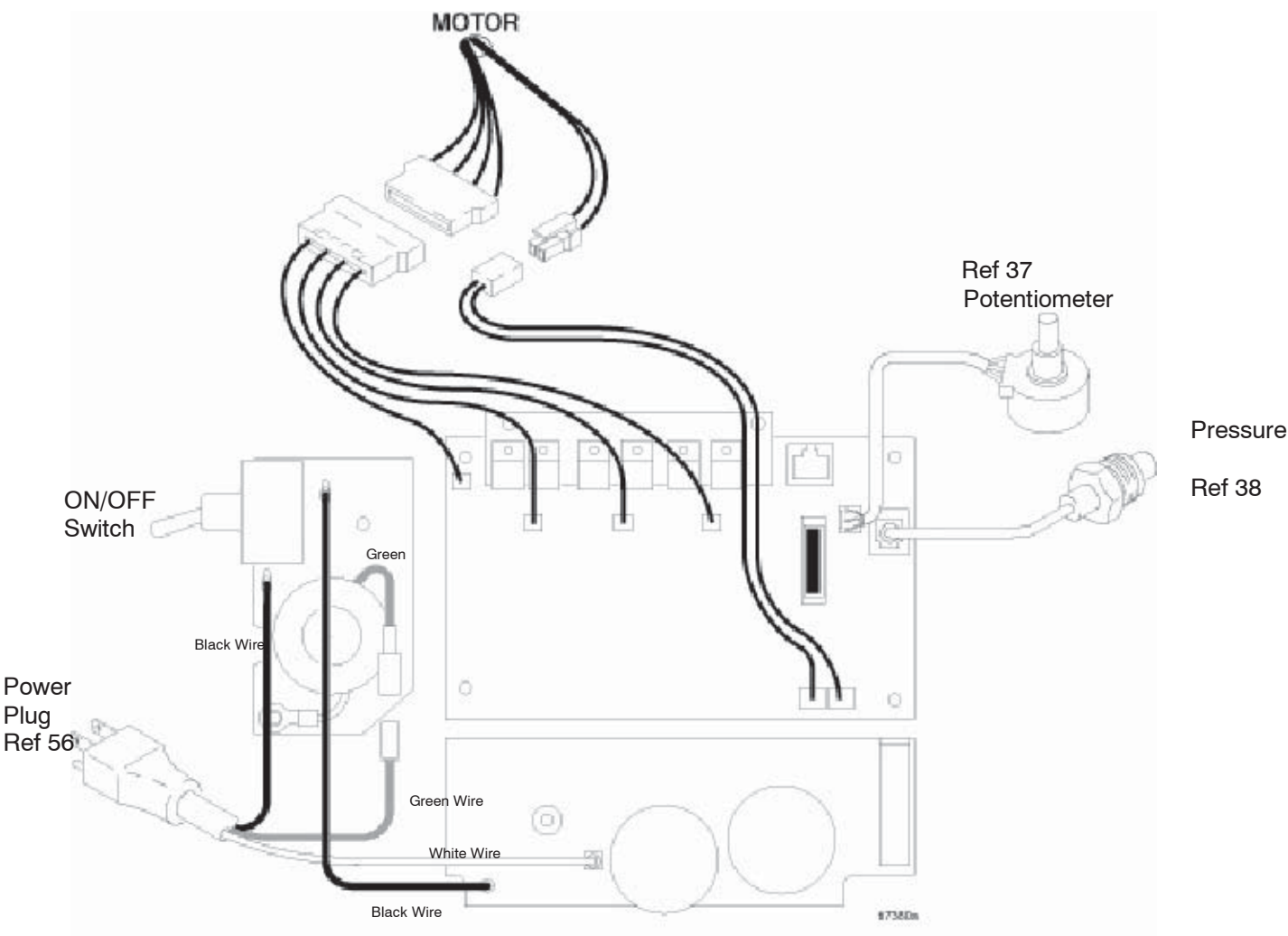
Parts List

Ref				Ref			
No.	Part No.	Description	Qty	No.	Part No.	Description	Qty
1	107434	BEARING, thrust	1	51▲	15G827	LABEL, Ultra Max II Smart Control	1
2	117828	PACKING, o-ring	1	52		LABEL, front, Graco	
3	111457	PACKING, o-ring	1		15K372	490	1
4	111600	PIN, grooved	1		15K371	495	1
8	116073	WASHER, thrust	1		15K370	595	1
9	116074	WASHER, thrust	1	53		LABEL, side, Graco	1
10	116079	BEARING, thrust	2		15K376	490	1
12	117501	SCREW, mach, hex washer hd	8		15K377	495	1
13	115099	WASHER, hose	1		15K378	595	1
14	103413	O-RING	1	54		MOTOR, 120V	
15	15G455	MANIFOLD, ST Pro	1			includes 125, 126	
16	246384†	FILTER, fluid, 60 mesh	1		287805	490/495	1
17	287902	KIT, repair, filter cap, includes 18	1		287807	595	1
18		INSERT, filter	1	55	243993	HOSE, drain	1
20	15B120	GROMMET, transducer	1			includes 39	
22	287901	COVER, front, Graco, paint	1	56	15B258	CORD, power, 490/495 (Lo/Hi Boy)	1
		includes 12, 65			15D029	CORD, power, 595	1
23	287900	SHIELD, motor, painted	1	57	246385	STRAINER, 7/8-14 unf	1
		includes 12		59	287779	FRAME, cart, HI	1
24	162453	NIPPLE, (1/4 npsm x 1/4 npt)	2	60	15B506	TUBE, suction	1
25	180131	BEARING, thrust	1			includes 13, 14, 57, 69, 84	
27	187625	HANDLE, valve, drain	1	61	246220	GUN, includes manual 309639	1
29	195150	NUT, jam, pump	1	62	276888	CLIP, drain line	1
31	196750	SPRING, retaining	1	63▲	15H085	LABEL, danger	1
32	196762	PIN, straight	1	65▲	195793	LABEL, warning	1
33	206994	FLUID, TSL	1	67	109032	SCREW, pan hd	4
34▲	222385	TAG, warning (not shown)	1	69	15E813	NUT, jam	1
35	235014	VALVE, drain	1	70	15C146	HOOK, pail	1
		includes 5, 26		74	287489	HANDLE	1
36	224807	BASE, valve	1	74a	108068	PIN, spring, straight	2
38	243222	TRANSDUCER, pressure control	1	74b	192027	SLEEVE, cart	2
		includes 3		74c	179777	BUTTON, snap	2
39	241920	DEFLECTOR, threaded	1	74d	183350	WASHER	2
40	287057	GEAR, reducer	1	81	106062	WHEEL	2
		includes 8, 10		82	15B999	CLIP, retaining	2
41	246428	PUMP, displacement, ST	1	83	104811	CAP, hub	2
42	287899	HOUSING, drive	1	84	15B652	WASHER, suction	1
		includes 12, 47		114	15D281	HANGER, stand	1
43	287053	ROD, connecting	1	115	15C982	CAM, cart	2
		includes 31, 32		116	114531	SCREW, mch, hex	4
44		GEAR, crankshaft	1	117	15G447	PLUG, tubing	2
		includes 1, 9, 25		125	15D088	FAN, motor	1
	287054	490/495	1	126	115477	SCREW	1
	248231	595	1				
45	287003	HOSE, cpld	1	▲ Extra Danger and Warning tags and labels available free.			
46	240794	HOSE, cpld, 1/4 in. x 50 ft	1	† Other filters available: 246382, 100 mesh; 246383, 200 mesh; 246425, 30 mesh			
47	117493	SCREW, mach, hex washer hd	12				

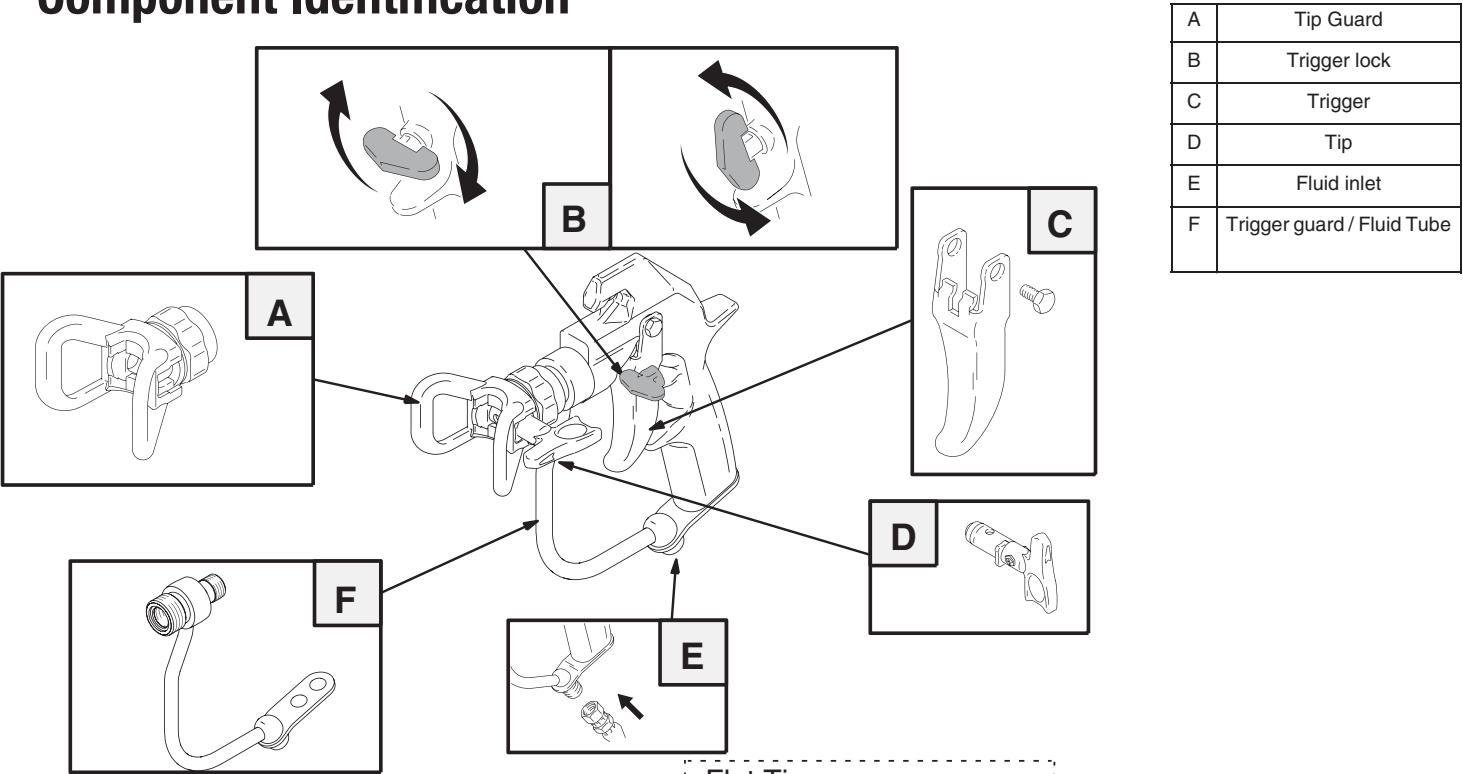


Parts List

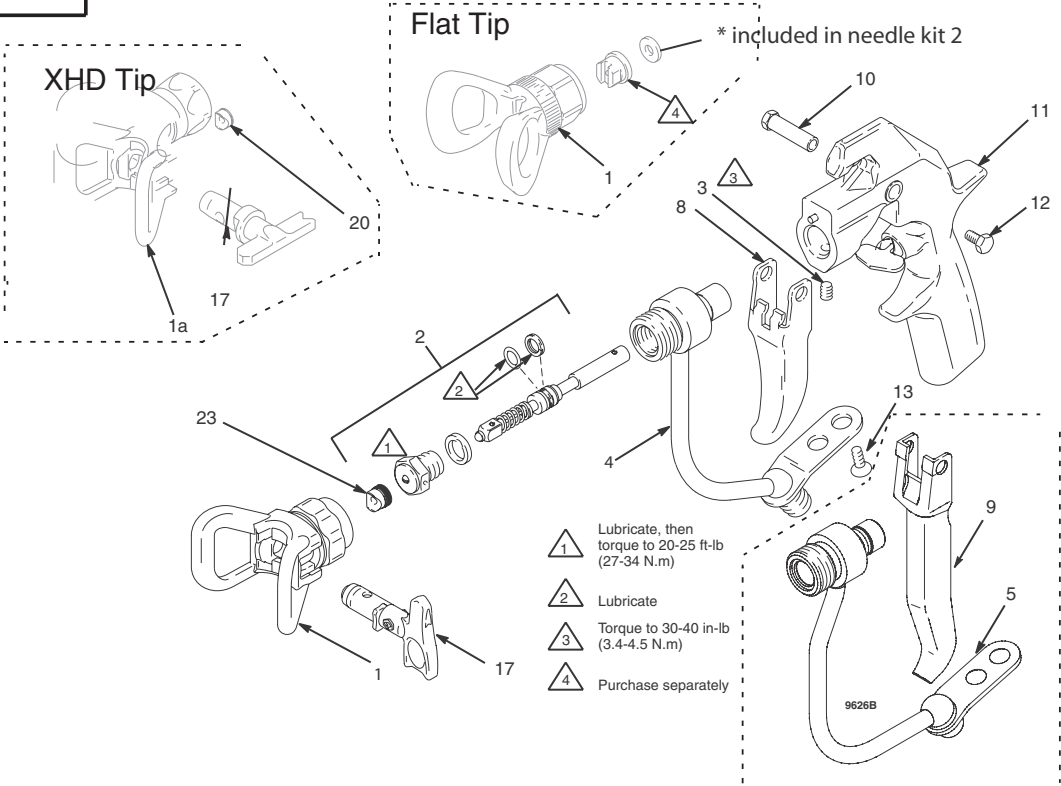
REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
5	15G562	BUSHING, control box	1	48		BOX, control, ST	
6	115494	SCREW, mach, phillips, pan hd	5		287905	Ultra Max II 490/495, models 249911, 239913, 249914, 249915, 249916 and 249917	1
7	15H176	SCREW	1		287906	Ultra Max II 595, model 249918 and 249919	1
11	116167	KNOB, potentiometer	1	49	287909	KIT, control board, 120V ST	1
12	117501	SCREW, mach, hex washer hd	4	50	277229	COVER, control	1
19	115498	SCREW, mch, slot, hex, wash hd	1	51▲	15K383	LABEL, Ultra Max II Smart Control	1
30	287911	BOARD, filter, 120V GFI	1	56	253366	CORD, power, 490/495	1
37	236352	POTENTIOMETER, adjust, pressure includes 37a	1		253367	CORD, power, Lo/Hi-boy 490/495	1
37a	112382	NUT, potentiometer	1		253371	CORD, power, 595	1
				58	195428	BOOT, toggle	1
				127	120165	SCREW, mach, phillips, pan hd	1
				128	120313	SCREW	1
				129	158674	O-RING	1



Component Identification



Parts



Parts



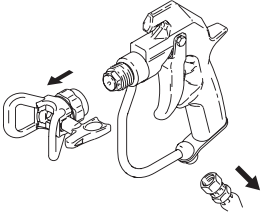
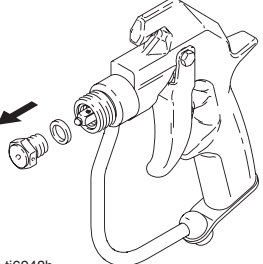
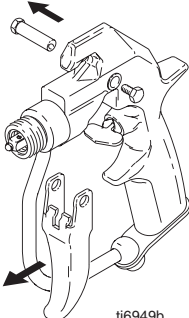
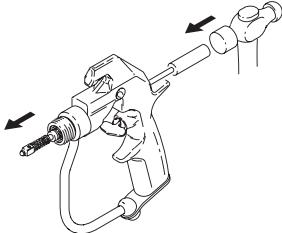
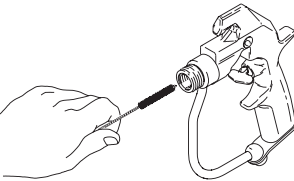

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	220247	TIP GUARD, fine finish, <i>model 235462 only</i>	1		187346	WARNING TAG, <i>not shown, models 246240, 243283, 234237, and 246468 only</i>	1
	220251	TIP GUARD, standard, <i>models 235458, 235460, and 235461</i>	1	15	222385	WARNING CARD <i>not shown</i>	1
	246215	HANDTITE TIP GUARD, RAC X <i>models 246240 and 246468</i>	1	17	LTX517	RAC X SwitchTip, size 517, <i>models 246240 and 246468</i>	1
	243161	HANDTITE TIP GUARD, RAC V <i>models 243283 and 234237</i>	1		XHD617	HEAVY DUTY SwitchTip, size 617, <i>model 235464 only</i>	1
1a	XHD001	HEAVY DUTY RAC tip assembly, <i>models 235464, 238591, and 257093</i>	1		XHD619	HEAVY DUTY SwitchTip, size 619, <i>model 238591 only</i>	1
2	235474	NEEDLE KIT, <i>all models except 235462</i>	1		XHD665	HEAVY DUTY SWITCH TIP, size 665, <i>model 257093 only</i>	1
	235475	NEEDLE KIT, <i>model 235462 only</i>	1		286517	RAC V Switch Tip, size 517, <i>models 243283 and 234237</i>	1
3	102207	SETSCREW, 1/4-20	1		FFT210	RAC X Fine Finish Tip, <i>model 249941 only</i>	1
5	235483	FLUID HOUSING	1	20	178161	SEAT, tip, included with 17, <i>not shown</i>	1
6	191872	ADAPTER, <i>models 235458 and 246468 only</i>	1	23	246453	OneSeal, RAC X, (5 pack), <i>models 246240 and 246468</i>	1
7	187972	FLUID HOUSING, <i>models 235458 and 246467 only</i>	1		243281	OneSeal, RAC X, (5 pack), <i>models 243283 and 234237</i>	1
8*	187985	TRIGGER, two finger	1	25	218139	HOSE HOLDER, <i>models 235458 and 246468 only</i>	1
9*	188127	TRIGGER, four finger	1	26	107257	CAPSCREW, 1/4-20 x 1/2, <i>models 235458 and 246468 only</i>	1
10	187965	PIVOT PIN	1				
11	235471	GUN HANDLE	1				
12	203953	SCREW, hex washer hd, 10-24	1				
13	107091	SCREW, 1/4-20	2				
14	187987	WARNING TAG <i>not shown, all models except 246468</i>	1				

Technical Data

Maximum pressure	345 bar, 34,5 MPa (5000 psi)
Wetted parts	Stainless steel, Polyethylene, Polyurethane, Nylon, PTFE
Weight	18 oz (510 g)
Inlet	1/4 npsm(m)
Maximum material temperature	120 F (50 C)
*Sound power	87dB(A)
*Sound pressure	78dB(A)
*Measured while spraying water-base paint, specific gravity 1.36, using a 517 tip at 3000 psi (207 bar, 20.7MPa) per ISO-3744.	

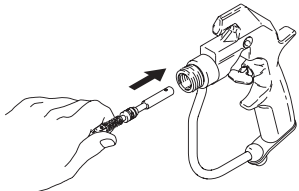
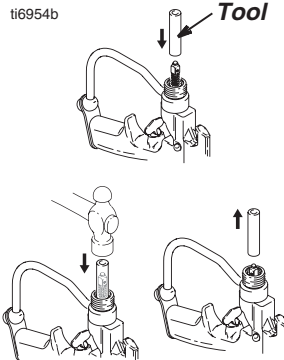
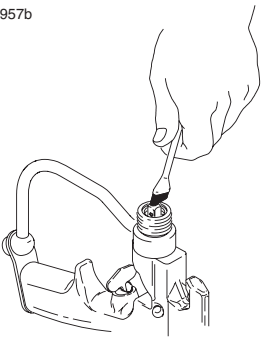
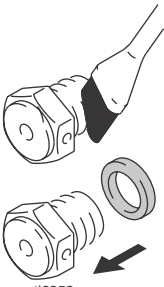
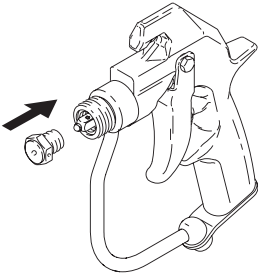
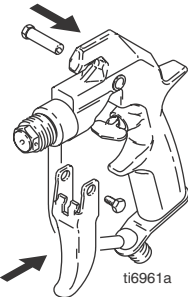
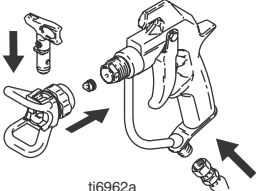
Repair

Needle Replacement

<div></div> <div> ti6932a</div>	<div> ti6947b</div>		<div> ti6948b</div>
<div><div><div>1. Relieve pressure, page 15.</div><div>2. Engage trigger lock.</div></div><div><div>3. Remove tip and guard and disconnect gun from fluid hose.</div><div>4. Flush gun with cleaning fluid. See sprayer instructions for flushing procedure.</div></div><div><div>5. Unscrew diffuser/seat and remove.</div></div></div>			
<div> ti6949b</div>	<div> ti6950b</div>	<div> ti6951b</div>	<div> ti6952a</div>
<div><div><div>6. Unscrew pivot pin from screw and remove trigger.</div><div>7. Insert punch into rear of gun. Tap out needle.</div></div><div><div>8. Clean internal pas- sages of gun.</div><div>9. Grease o-rings of new needle using a <i>non- silicon</i> grease.</div></div></div>			

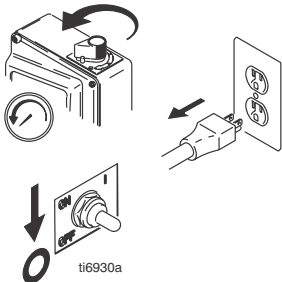

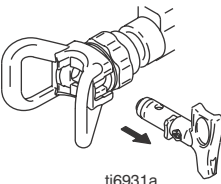

Repair

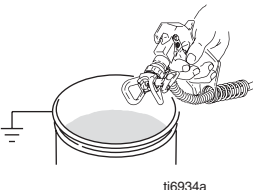

Needle Replacement

 <p>ti6953b</p>		 <p>ti6954b</p> <p>Tool</p>	 <p>ti6957b</p>
<p>10. Guide new needle into gun.</p>	<p>An insertion tool is provided in needle kit 235474. This tool helps prevent damage to needle.</p>	<p>11. Position insertion tool from kit over end of needle. Tap end of tool using a non-sparking hammer until needle is securely in place.</p>	<p>12. Grease tip of new needle.</p>
 <p>ti6958a</p>	 <p>ti6960b</p>	 <p>ti6961a</p>	 <p>ti6962a</p>
<p>13. Grease threads of diffuser/seat. Place gasket on diffuser/seat.</p>	<p>14. Screw diffuser/seat onto gun nozzle. Torque to 20-25 ft-lb.</p>	<p>15. Slide trigger into place and attach with pivot pin and screw.</p>	<p>16. Attach tip and guard and attach gun to fluid hose.</p>

Pressure Relief Procedure



 ti6930a	 ti6932a	 ti6931a	 ti6933a
1. Turn pressure to lowest setting. Turn sprayer OFF. Unplug.	2. Engage trigger lock.	3. Remove tip.	4. Disengage trigger lock.

 ti6934a	 ti6932a
5. Trigger gun into grounded metal bucket.	6. Engage trigger lock.

English




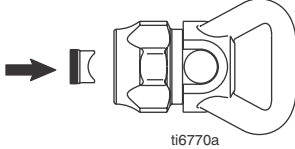
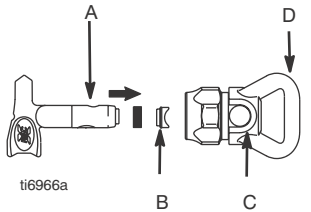
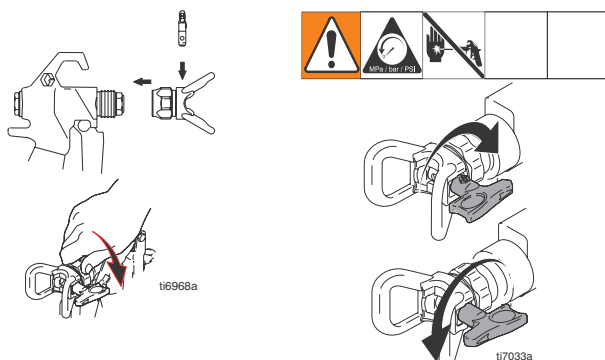
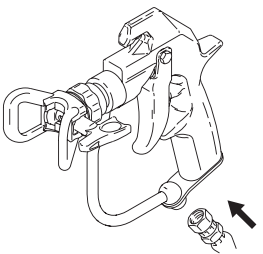
IMPORTANT

To reduce the risk of injury, follow this **Pressure Relief Procedure** whenever you:

- Are instructed to relieve pressure
- Stop spraying
- Service equipment
- Install / clean spray tip
- Disconnect / connect hose.

Setup


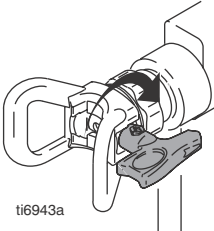

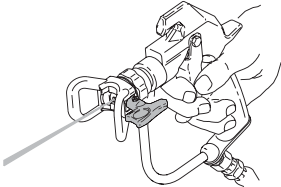

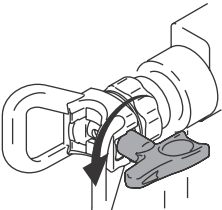
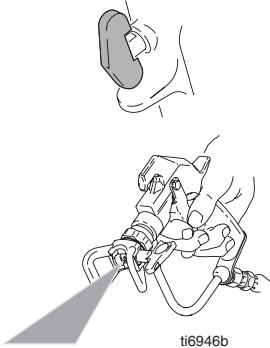
Installing Tip and Guard

	 <p>ti6932a</p>	
<h3>WARNING</h3>		
<ul style="list-style-type: none"> Do not exceed 5000 psi (345 bar, 34.5 MPa) mwp. 	<ul style="list-style-type: none"> Failure to install or use the RAC™ tip guard assembly correctly may result in an undirected spray of fluid into operator's eyes or on skin. 	<ol style="list-style-type: none"> Engage trigger lock. If you have been using sprayer and gun, relieve pressure. Pg. 15.
 <p>ti6770a</p>	 <p>ti6966a</p>	 <p>ti6968a</p> <p>ti7033a</p>
<h3>WARNING</h3>		
<ol style="list-style-type: none"> Always replace OneSeal™ when replacing worn SwitchTip. 	<ol style="list-style-type: none"> Use end of SwitchTip (A) to press OneSeal™ (B) into tip guard (D) with curve matching tip bore (C). 	<ol style="list-style-type: none"> Insert SwitchTip in tip bore. Firmly thread assembly onto gun. Hand tighten. <ul style="list-style-type: none"> Be sure you fully insert SwitchTip (A) into tip bore (C) in guard. Do not trigger gun with SwitchTip handle between Spray and Clear positions.
 <p>ti6966a</p>		<ul style="list-style-type: none"> The trigger force is less than 10 Lbs (4,5 Kg) to activate the gun trigger at 3,000 psi (207 bar) pressure with a 2-finger model. The activating force for a 4-finger trigger model will be significantly less
<ol style="list-style-type: none"> Connect hose to gun. Check all connections for tightness. 	<ol style="list-style-type: none"> Refer to sprayer operation manual to start and prime sprayer. 	

Spray Instructions

<h1>Align Spray</h1> <div></div>	<p>ti6938a</p>	<p>ti6939a</p>	<p>ti7034a</p>
<div><div>1. Relieve pressure, page 15.</div><div>• Turn tip guard horizontally to spray a horizontal pattern.</div><div>• Turn tip guard vertically to spray a vertical pattern.</div><div>2. Before spraying, verify tip guard is tight. Tighten if necessary.</div></div>			
<h1>Adjust Spray</h1> <p>ti6932a</p>	<p>ti6970a</p>	<p>ti6933a</p>	<p>ti6940b</p>
<div><div>1. Engage trigger lock.</div><div>2. Install tip and guard if not already installed. See pg. 17.</div><div>3. Disengage trigger lock.</div><div>4. Trigger gun.</div></div>			
<div></div> <p>ti6941a</p>	<p>ti6942a</p>		
<div><div>5. Hold gun perpendicular and approximately 12 in. (304 mm) from surface. Move gun first, then pull gun trigger to spray.</div><div>6. Slowly increase pump pressure until coverage is even and uniform.</div></div>			

Clear Cog

 ti6932a	 ti6943a	 ti6933a	 ti6944b
1. Engage trigger lock.	2. Rotate tip 180°.	3. Disengage trigger lock.	4. Trigger gun into pail or ground to remove clog.
 ti6932a	 ti6945a	 ti6946b	
5. Engage trigger lock.	6. Rotate tip 180°.	7. Disengage trigger lock. Trigger gun into pail or ground to verify tip is clear.	

This image shows a single page from a notebook or ledger. It features approximately 20 evenly spaced horizontal blue lines across its entire width, providing a guide for writing. The margins are uniform on all sides, and there are no vertical lines or other markings present.

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