

## A3 ELECTRIC SPRAY PUMP

### OPERATING INSTRUCTIONS & SERVICE MANUAL



#### Important Safety Instructions

Read all warnings and instructions in this manual.  
Do not proceed until you fully understand its contents  
These WARNINGS are included for the health and safety of  
the operator and those in the immediate vicinity.  
Save these instructions.





**Storm Machinery**





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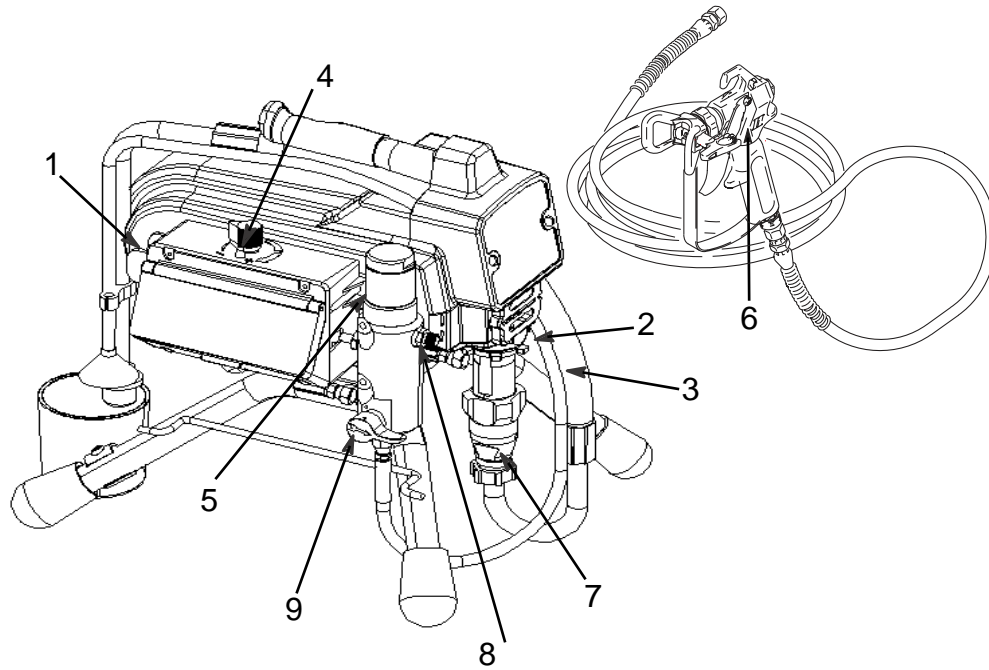
# Warnings

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.

	<b>WARNING</b>
	<p><b>FIRE AND EXPLOSION HAZARD</b></p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• 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.</li> <li>• Keep work area free of debris, including solvent, rags, and gasoline.</li> <li>• Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.</li> <li>• Ground equipment and conductive objects in work area. Read <b>Grounding</b> instructions.</li> <li>• If there is static sparking or you feel a shock, <b>stop operation immediately</b>. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a fire extinguisher in the work area.</li> </ul>
	<p><b>ELECTRIC SHOCK HAZARD</b></p> <p>Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> <li>• Turn off and disconnect power cord before servicing equipment.</li> <li>• Use only grounded electrical outlets.</li> <li>• Use only 3-wire extension cords.</li> <li>• Ensure ground prongs are intact on sprayer and extension cords.</li> <li>• Do not expose to rain. Store indoors.</li> </ul>
	<p><b>SKIN INJECTION HAZARD</b></p> <p>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. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Do not point gun at anyone or at any part of the body.</li> <li>• Do not put your hand over the spray tip.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Engage trigger lock when not spraying.</li> <li>• Follow <b>Pressure Relief Procedure</b> in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.</li> </ul>

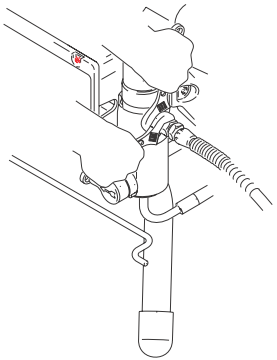
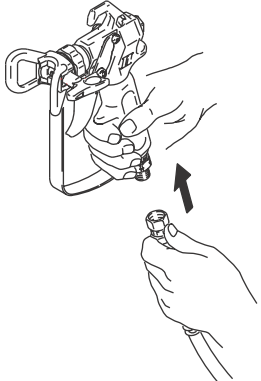
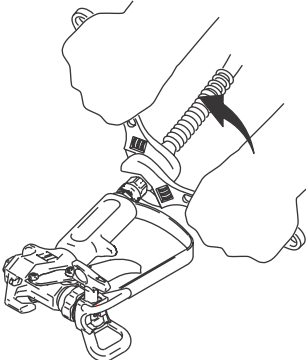
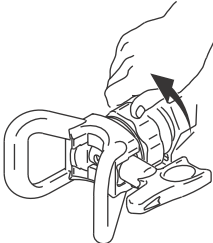
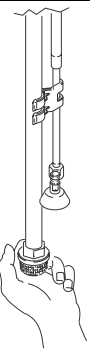
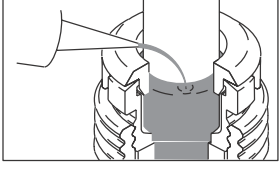
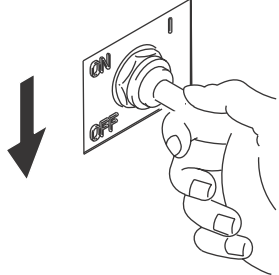
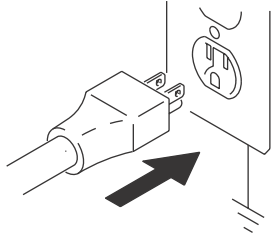
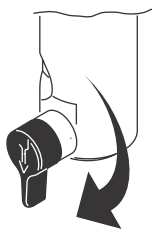
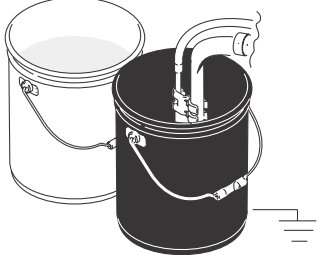
	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. Read <b>Technical Data</b> in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. Read <b>Technical Data</b> in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately.</li> <li>• Do not alter or modify equipment.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or overbend hoses or use hoses to pull equipment.</li> <li>• Comply with all applicable safety regulations.</li> <li>• Keep children and animals away from work area.</li> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> </ul>
	<p><b>PRESSURIZED ALUMINUM PARTS HAZARD</b></p> <p>Do not use 1,1,1-trichloroethane, methylene chloride, and/or other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use can cause serious chemical reaction and equipment rupture, and result in death, serious injury, and/or property damage.</p>
	<p><b>TOXIC FLUID OR FUMES HAZARD</b></p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> <li>• Read MSDS's to know the specific hazards of the fluids you are using.</li> <li>• Store hazardous fluid in approved containers and dispose of it according to applicable guidelines.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eye wear</li> <li>• Clothing and respirator as recommended by the fluid and solvent manufacturer</li> <li>• Gloves</li> <li>• Hearing protection</li> </ul>

# Component Identification

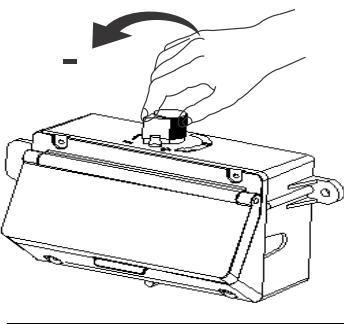
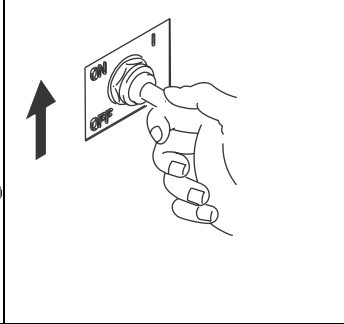
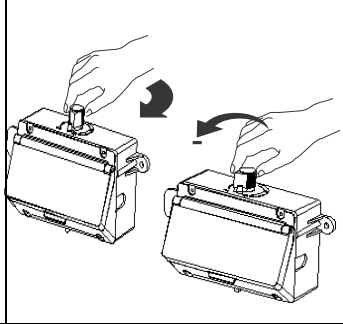
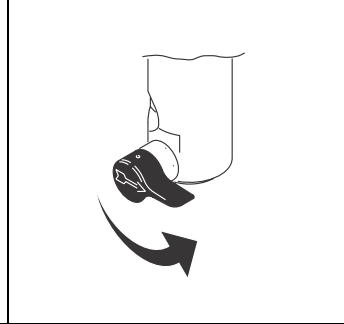
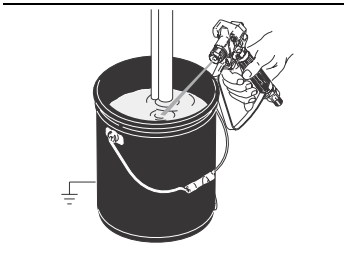
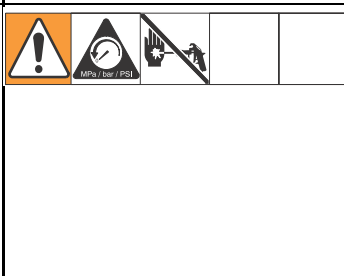
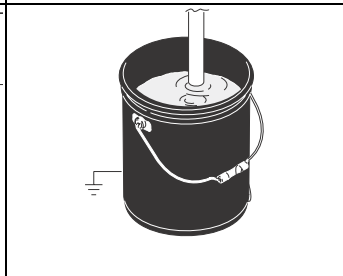
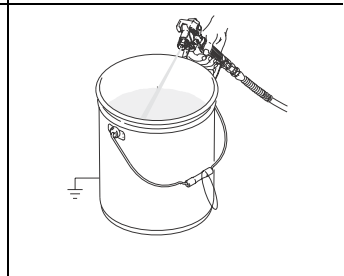


FN	Component
1	ON/OFF switch
2	Prime tube
3	Suction tube
4	Pressure control
5	Filter
6	Trigger lock
7	Pump
8	Fluid outlet
9	Prime/Spray valve

# Setup / Installation

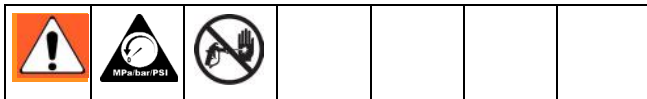
			
	2 Connect other end of hose to gun.	3 Tighten securely.	4 Remove tip guard.
			
5 Check inlet strainer for clogs and debris.	6 Fill throat packing nut with TSL to prevent premature packing wear. Do this each time you spray.	7 Turn power OFF.	8 Plug power supply cord into a properly grounded electrical outlet.
			
9 Turn prime valve down.	10 Place siphon tube set in grounded metal pail partially filled with flushing fluid. Attach ground wire to pail and to true earth ground. Do 1. - 5. of <b>Startup</b> to flush out storage oil shipped in sprayer. Use water to flush water-base paint and mineral spirits to flush oil-base paint and storage oil.		

## Startup

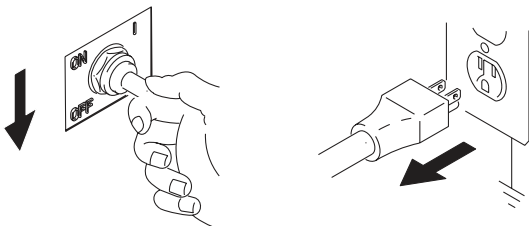
			
1 Turn pressure control to lowest pressure.	2 Turn power <b>ON</b> .	3 Increase pressure 1/2 to start motor and allow fluid to circulate through drain tube for 15 seconds; turn pressure down.	4 Turn prime valve horizontal. Take spray gun trigger safety OFF.
			
5 Hold gun against grounded metal flushing pail. Trigger sure to 1/2. Flush 1 minute.	Inspect for leaks. Do not stop leaks with hand or a rag! If leaks occur, do Pressure Relief. Tighten fittings. Do <b>Startup</b> , 1. - 5. If no leaks, proceed to 6.	6 Place siphon tube in paint pail.	7 Trigger gun again into flushing pail until paint appears. Move gun to paint pail and trigger for 20 seconds. Set gun safety ON. Assemble tip and guard,

## Pressure Relief Procedure

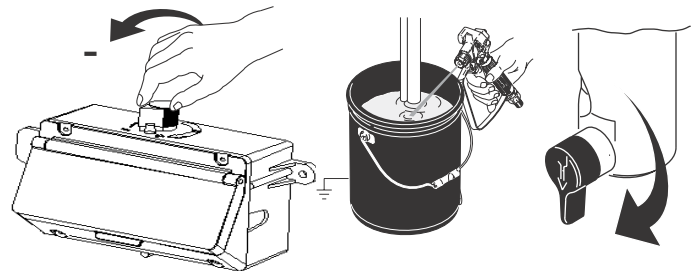
To reduce risk of injury from injection, follow this procedure whenever you are instructed to relieve pressure, stop spraying, service equipment or install or clean spray tip. Read warnings.



1. Turn power switch OFF and unplug power cord.



2. Turn pressure to lowest setting. Hold gun to side of grounded metal flushing bucket. Trigger gun to relieve pressure, turn prime valve down.

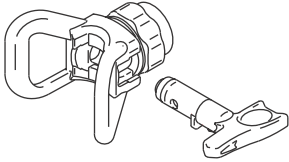
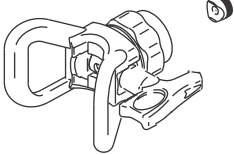
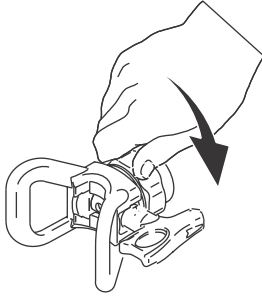


3. Engage gun trigger lock if unit is being shut down or left unattended.

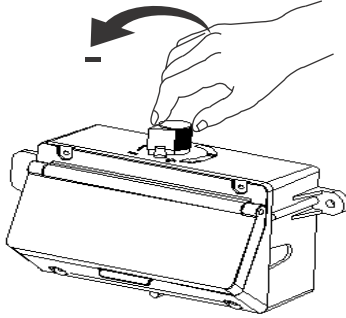
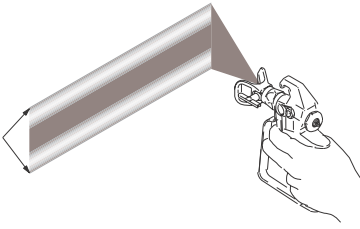
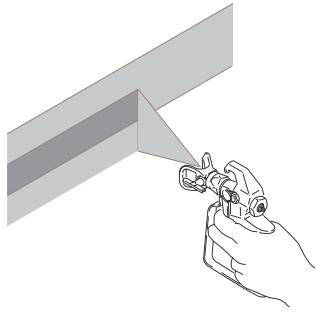
Leave Spray - Prime/Drain valve in the PRIME/DRAIN position until you are ready to spray again.

*If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction.*

## Tip and Tip Guard

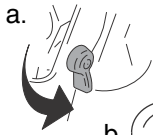
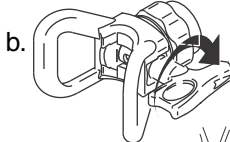
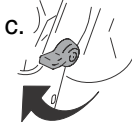

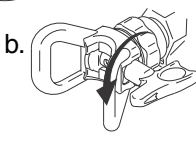
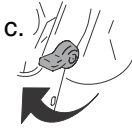
			
1 Insert SwitchTip.	2 Insert metal seal and OneSeal.	3 Screw assembly onto gun. Tighten.	

## Spray

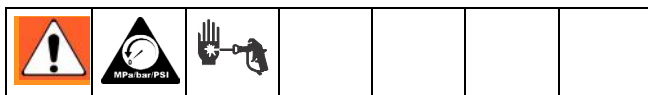
 	
1 Spray test pattern. Adjust pressure to eliminate heavy edges. Use smaller tip size if pressure adjustment can not eliminate heavy edges.	2 Hold gun perpendicular, 10-12 in. from surface. Spray back and forth. Overlap by 50%. Trigger gun after moving and release before stopping.

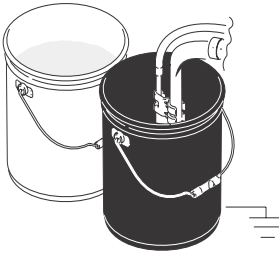
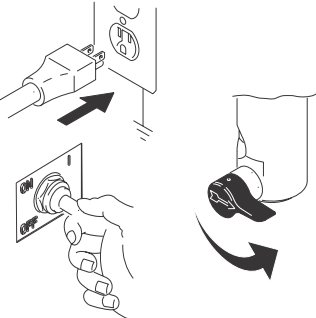
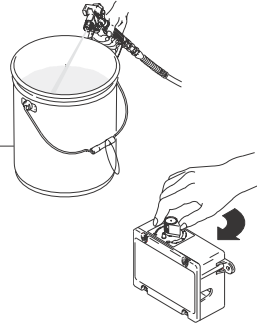
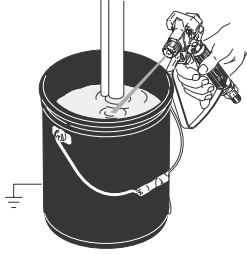
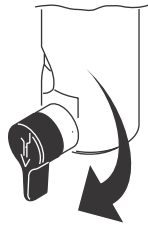
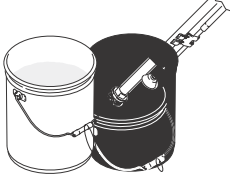
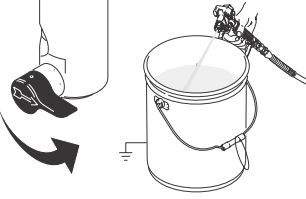
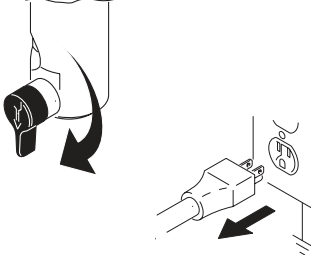
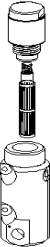
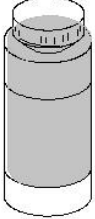

## Clear Clog



  	  
1 Release trigger, put safety ON. Rotate SwitchTip. Take safety OFF. Trigger gun to clear clog. Never point gun at your hand or into a rag!	2 Put safety ON. Return SwitchTip to original position. Take safety OFF and continue spraying.

# Cleanup



			
<p>1 Do <b>Pressure Relief</b>, steps 1 - 4. Remove siphon tube set from paint and place in flushing fluid.</p>	<p>NOTE: Use water for water base paint and mineral spirits for oil base paint.</p> <p>2 Turn power <b>ON</b>. Turn prime valve horizontal.</p>	<p>3 Increase pressure to 1/2. Hold gun against paint pail. Take trigger safety <b>OFF</b>. Trigger gun until flushing fluid appears</p>	<p>4 Move gun to wastepail, hold gun against pail, trigger gun to thoroughly flush system. Release trigger and put trigger safety <b>ON</b>.</p>
			
<p>5 Turn prime valve down and allow flushing fluid to circulate for 15 seconds to clean drain tube.</p>	<p>6 Raise siphon tube above flushing fluid and run sprayer for 15 to 30 seconds to drain fluid.</p>	<p>7 Close drain valve. Trigger gun into flushing pail to purge fluid from hose. Turn power <b>OFF</b>.</p>	<p>8 Open prime valve. Unplug sprayer.</p>
			<p>11 Wipe sprayer, hose and gun with a rag soaked in water or mineral spirits.</p>
<p>9 Remove filters from gun and sprayer, if installed. Clean and inspect. Install filters.</p>	<p>10 If flushing with water, flush again with mineral spirits, or Pump Armor, to leave a protective coating to prevent freezing or corrosion.</p>		



# General Repair Information

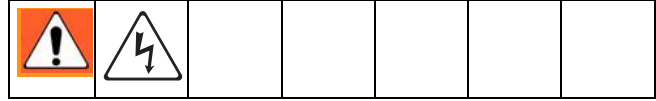


Flammable materials spilled on hot, bare motor could cause fire or explosion. To reduce risk of burns, fire or explosion, do not operate sprayer with cover removed.

## CAUTION

To reduce risk of pressure control malfunction:

- Use needle nose pliers to disconnect wire. Never pull on wire, pull on connector.
- Mate wire connectors properly. Center flat blade of insulated male connector in female connector.
- Route wires carefully to avoid interference with other connections or pressure control. Do not pinch wires between cover and control box.
- Keep all screws, nuts, washers, gaskets, and electrical fittings removed during repair procedures. These parts usually are not provided with replacement kits.
- Test repairs after problems are corrected.
- If sprayer does not operate properly, review repair procedure to verify you did it correctly. See **Troubleshooting**
- Install motor shroud before operation of sprayer and replace if damaged. Motor shroud directs cooling air around motor to prevent overheating. It can reduce risk of burns, fire or explosion, or cut fingers.



To reduce risk of serious injury, including electric shock:

- Do not touch moving or electric parts with fingers or tools while testing repair.
- Unplug sprayer when power is not required for testing.
- Install all covers, gaskets, screws and washers before you operate sprayer.

## CAUTION

- Do not run sprayer dry for more than 30 seconds. Doing so could damage pump packings.
- Protect the internal drive parts of this sprayer from water. Openings in the cover allow for air cooling of the mechanical parts and electronics inside. If water gets in these openings, the sprayer could malfunction or be permanently damaged.
- Prevent pump corrosion and damage from freezing. Never leave water or water-base paint in sprayer when its not in use in cold weather. Freezing fluids can seriously damage sprayer. Store sprayer with Pump Armor to protect sprayer during storage.

# Troubleshooting



Type of Problem	What to Check (if check is OK, go to next)	What to Do (When check is not OK, refer to this column)
Basic fluid pressure problems	Pressure control knob setting. Motor will not run if at minimum setting (fully counter-clockwise).	Slowly increase pressure to see if motor starts.
	Spray tip or fluid filter may be clogged.	<b>Relieve pressure</b> , page 5 and clear clog, or clean filter; refer to separate gun or tip instruction manual.
Basic Mechanical Problems	Pump frozen or paint hardened in pump.	Thaw sprayer if water or water-based paint has frozen in sprayer. Place sprayer in warm area to thaw. Do not start sprayer until thawed completely. If paint hardened (dried) in sprayer, replace pump packings. See page 12, <b>Displacement Pump Replacement</b> .
	Displacement pump connecting rod pin must be completely pushed into connecting rod and retaining spring must be firmly in groove of pump pin. See page 12.	Push pin into place and secure with spring retainer.
	Motor. Remove drive housing assembly. See page 14. Try to rotate fan by hand.	Replace motor if fan won't turn. See page 15.
	Motor control board. Board shuts down and displays error code.	See <b>Motor Control Board Diagnostics</b> , page 17.
Basic Electrical Problems	Extension cord. Check extension cord continuity with volt meter.	Replace extension cord.
	Sprayer power supply cord. Inspect for damage such as insulation or wires.	Replace power supply cord
	Motor leads are securely fastened and properly mated.	Replace loose terminals; crimp to leads. Be sure terminals are firmly connected.  Clean circuit board terminals.  Securely reconnect leads.

Type of Problem	What to Check (if check is OK, go to next)	What to Do (When check is not OK, refer to this column)
Low Output	For worn spray tip.	<b>Relieve pressure</b> , page 5. Then replace tip. See your separate gun manual for additional instruction.
	Verify pump does not continue to stroke when gun trigger is released.	Service pump.
	Filter clogged.	<b>Relieve pressure</b> , page 5. Check and clean filter.
	Prime valve leaking.	<b>Relieve pressure</b> , page 5. Repair prime valve.
	Suction hose kinks and/or loose connection.	Correct kink and/or tighten any loose connections.
	Extension cord size and length; must be at least 12 gauge wire and no longer than 300 ft. Longer cord lengths reduce sprayer performance.	Replace with a correct, grounded, extension cord.
	Leads from motor to pressure control circuit board for damaged or loose wires or connectors. Inspect wiring insulation and terminals for signs of overheating.	Be sure male terminal blades are centered and firmly connected to female terminals. Replace any loose terminal or damaged wiring. Securely reconnect terminals.
	Low stall pressure.	Do either or both:  a. Turn pressure control knob fully clockwise. Make sure pressure control knob is properly installed to allow full clockwise position.  b. Try a new transducer.
Motor runs and pump strokes	Low paint supply.	Refill and reprime pump.
	Intake strainer clogged.	Remove and clean, then reinstall.
	Suction tube or fittings loose.	Tighten; use thread sealant or sealing tape on threads if necessary.
	See if intake valve ball and piston ball are seating properly. See pump manual.	Remove intake valve and clean. Check balls and seats for nicks, replace if necessary. Strain paint before using to remove particles that could clog pump. See pump manual.
	Leaking around throat packing nut which may indicate worn or damaged packings. See pump manual.	Replace packings. Also check piston valve seat for hardened paint or nicks and replace if necessary. Tighten packing nut/wet-cup. See pump manual.
	Pump rod damage.	Replace pump, page 12.

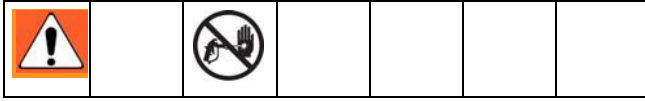
Type of Problem	What to Check (if check is OK, go to next)	What to Do (When check is not OK, refer to this column)
Motor runs but pump does not stroke	Displacement pump pin damaged or missing.	Replace pump pin if missing. Be sure retainer spring is fully in groove all around connecting rod, page 15.
	Connecting rod assembly damaged.	Replace connecting rod assembly. See pump manual.
	Gears or drive housing, page 14.	Inspect drive housing assembly and gears for damage and replace if necessary, page 14.
Motor is hot and runs intermittently	Determine if sprayer was operated at high pressure with small tips, which causes low motor RPM and excessive heat buildup.	Decrease pressure setting or increase tip size.
	Be sure ambient temperature where sprayer is located is not more than 90°F (32.22°C) and sprayer is not located in direct sun.	Move sprayer to shaded, cooler area if possible.
Building circuit breaker opens as soon as sprayer switch is turned on  <b>CAUTION</b>  Any short in any part of the motor power circuit will cause the control circuit to inhibit sprayer operation. Correctly diagnose and repair all shorts before checking and replacing control board.	All electrical wiring for damaged insulation and all terminals for loose fit or damage. Also, wires between pressure control and motor.	Repair or replace any damaged wiring or terminals. Securely reconnect all wires.
	For missing inspection plate gasket, , bent terminal forks or other metal to metal contact points which case a short.	Correct faulty conditions.
	Motor control board by performing control board diagnostics. See page 17. If diagnostics indicate, substitute with a good board.  <b>CAUTION:</b> Do not perform this check until motor armature is determined to be good. A bad motor armature can burn out a good board.	Replace with a new pressure control board.
Building circuit breaker opens as soon as sprayer is plugged into outlet and sprayer is NOT turned on.	Basic Electric Problems, page 9 of <b>Troubleshooting</b> .	Perform necessary procedures.
	ON/OFF switch. <b>Be sure sprayer is unplugged!</b> Disconnect wires from switch. Check switch with ohmmeter. Reading must be infinity with ON/OFF switch OFF, and zero when switch is ON.	Replace ON/OFF switch.
	For damaged or pinched wires in pressure control.	Replace damaged parts.
Sprayer quits after sprayer operates for 5 to 10 minutes.	Basic Electric Problems.	Perform necessary procedures.
	Tightness of pump packing nut. Over tightening tightens packings on rod, restricts pump action, and overloads motor.	Loosen packing nut. Check for leaking around throat. Replace pump packings, if necessary. See pump manual.

# Displacement Pump Replacement

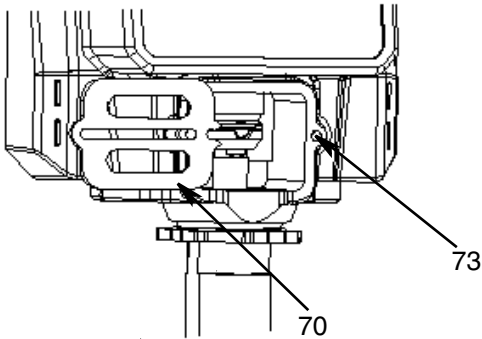
## Removal

See manual for pump repair instructions.

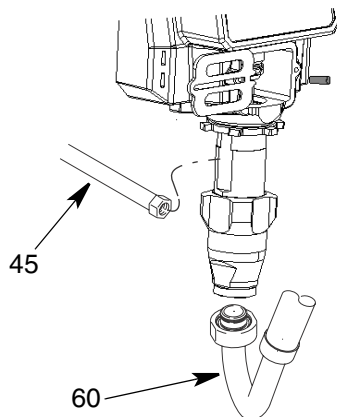
1. Flush pump (13).



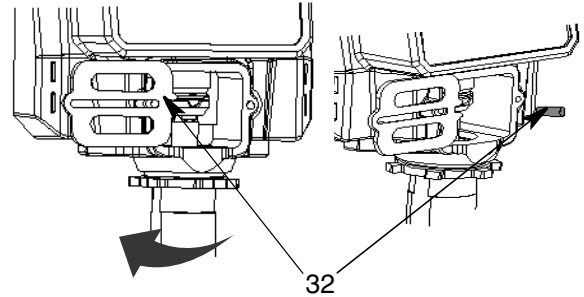
1. **Relieve pressure**, page 5.
2. Loosen screws (10) and rotate cover (70).



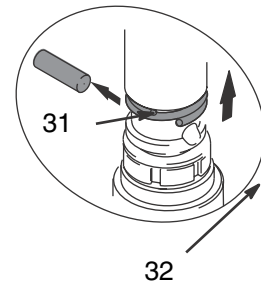
3. Remove suction tube (60) and hose (45).



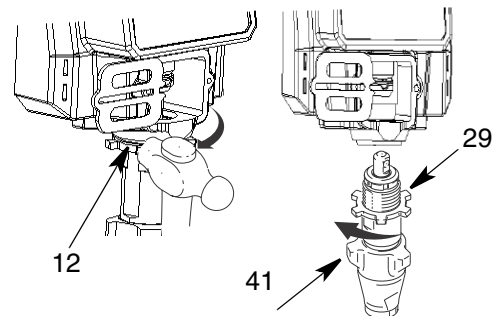
4. Cycle motor until pump pin (32) is in position to be removed.



5. Disconnect power cord from outlet.
6. Using a flat screwdriver, push retaining spring (31) up. Push out pump pin (32).



7. Loosen pump jam nut (29). Unscrew and remove pump (41).



## Installation



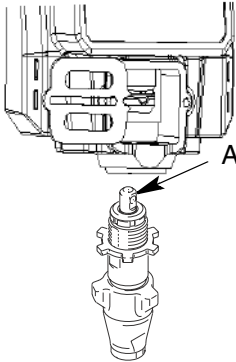
### WARNING

If pump pin works loose, parts could break off due to force of pumping action. Parts could project through air and result in serious injury or property damage.

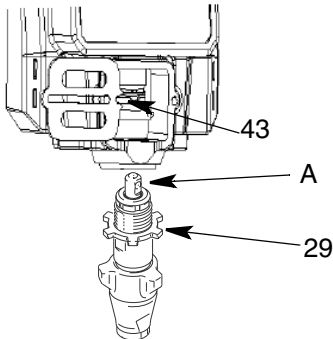
### CAUTION

If the pump jam nut loosens during operation, the threads of the drive housing will be damaged.

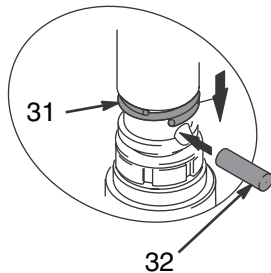
1. Extend pump piston rod full. Apply grease to top of pump rod at (A) or inside connecting rod (43). Install jam nut (29) on pump threads.



2. Install pump rod (A) into connecting rod (43).

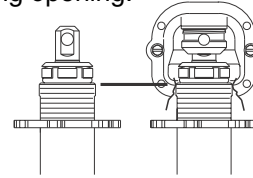


3. Install pump pin (32). Slide retainer spring (31) down into groove over pump pin.

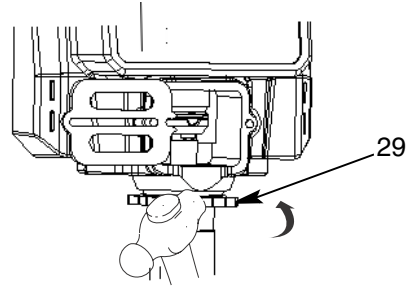


4. Push pump (41) up until pump threads engage.

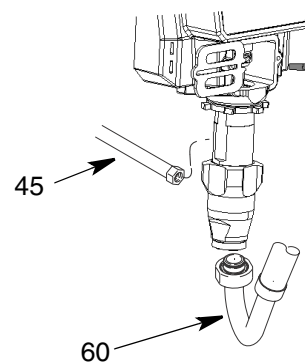
5. Screw in pump until threads are flush with top of drive housing opening.



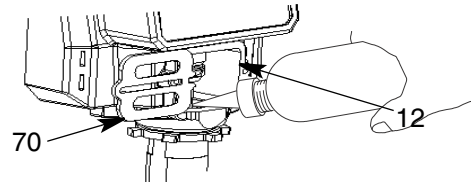
6. Align pump outlet to back.



7. Turn jam nut (29) counter-clockwise until it stops. Tighten jam nut by hand, then tap 1/8 to 1/4 turn with a 20 oz (maximum) hammer to approximately 75 ft-lb (102 N•m).
8. Install suction tube (60) and high pressure hose (45). Tighten fittings.



9. Fill packing nut with TSL until fluid flows onto top of seal.



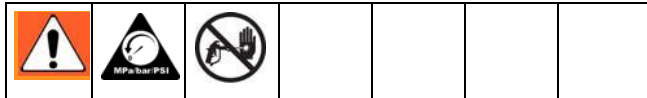
10. Rotate cover (70). Tighten screws (12).

# Drive Housing Replacement

## CAUTION

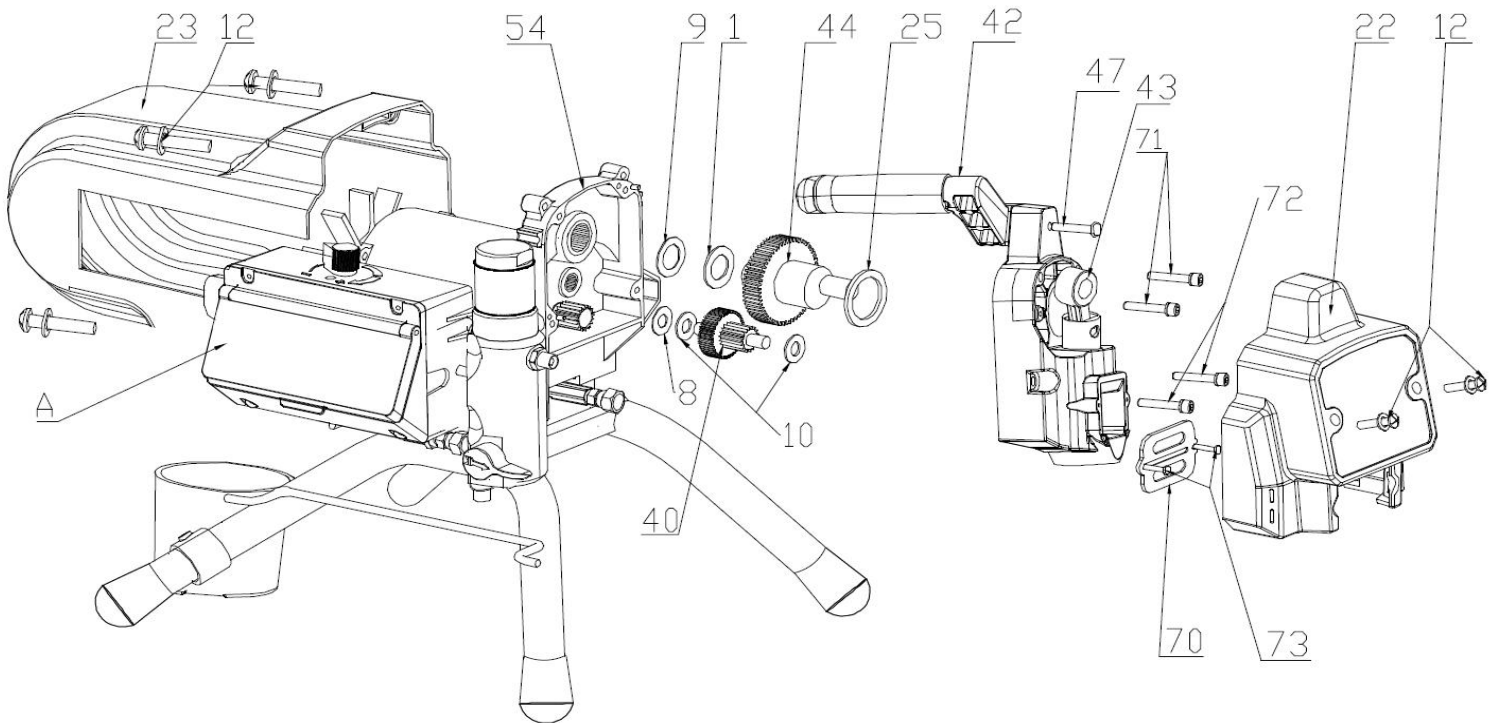
Do not drop gear cluster (44) and (40) when removing from drive housing (42). Gear cluster may stay engaged in motor front end bell or drive housing.

## Removal



1. **Relieve pressure**, page 5.
2. Disconnect power cord from outlet.

3. Remove screws (73) and pump rod cover (70).
4. Remove pump (41), **Displacement Pump Replacement**, page 15
5. Remove screws (12) from shroud (23).
6. Remove screws (12) from front cover (22).
7. Remove screws (47,71,72).
8. Pull drive housing (42) off motor (54).
9. Remove gear cluster (44) and (40) and thrust washer (25) from drive housing.



## Installation

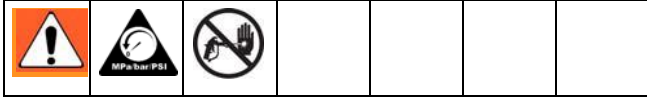
1. Apply a heavy coat of grease to gears and needle bearing surfaces.
2. Install washers (8, 10) on back of gear (40). Install gear in motor end bell. Using grease for retention, place washer (10) over bearing inside housing (40).
3. Install washers (1, 9) on back of gear (44). Install in motor endbell.
4. Install thrust washer (25) on gear (44). Install washer (10) on gear (40).
5. Push drive housing (42) on motor endbell as you guide gear crank (44) through hole in connecting rod (43).
6. Install screws (47,71,72).
7. Install housing cover (23) and screws (12).
8. Install front cover (22) and screws (12).
9. Install pump (41); **Displacement Pump Replacement**, page 15.
10. Install pump rod cover (70) with screws (73).

# Motor Replacement

## CAUTION

Do not drop gear cluster (44) and (40) when removing from drive housing (42). Gear cluster may stay engaged in motor front end bell or drive housing.

## Removal

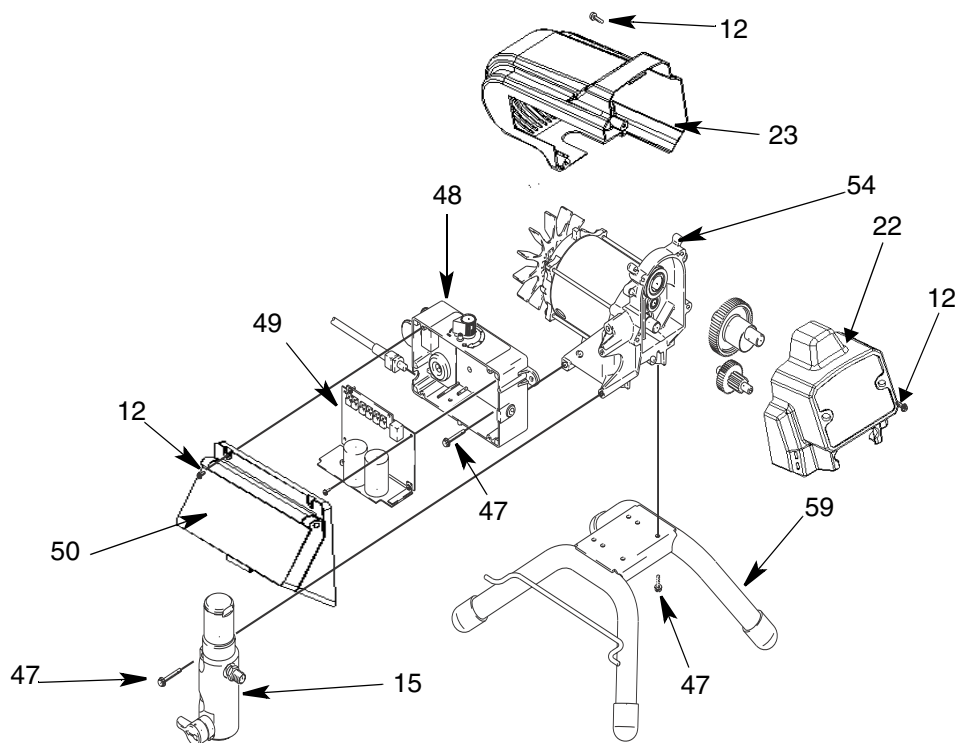


1. **Relieve pressure**, page 5.
2. Remove 4 screws (12) and shroud (23).
3. Remove 2 pcs screws (12) and front cover (22).
4. Remove pump (41); **Displacement Pump Replacement**, page 15
5. Remove drive housing (42); **Drive Housing Replacement**, page 17.

6. Remove screws (47) and control box (48).
7. Remove screws (47) and manifold (15).
8. Remove screws (47) and motor (54) from frame (59).

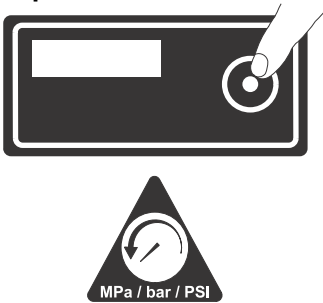
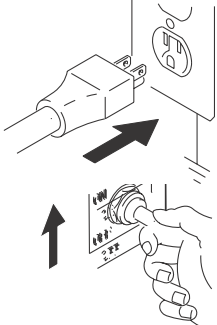




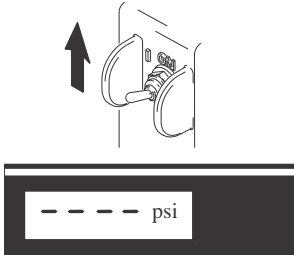
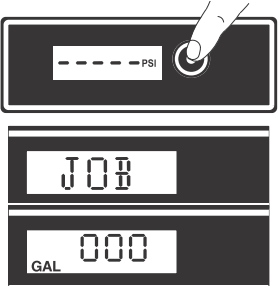
## Installation

1. Install new motor (54) on frame (59) with screws (47).
2. Install control housing (48) with screws (47).
3. Install manifold (15) with screws (47).
4. Install board (49) with screws. Connect all leads to board.
5. Install drive housing (42); **Drive Housing Replacement**, page 17.
6. Install pump (41); **Displacement Pump Replacement**, page 15.
7. Install front cover (22) with screws (12).
8. Install motor cover (23) with screws (12).

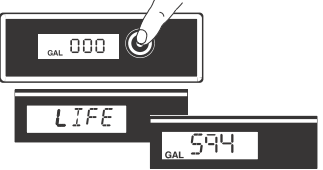





# Digital Display (only for EP230/495/310S/795S)

<p><b>Operation</b></p> 			
<p>1 Follow <b>Pressure Relief</b> Proceduer, page 5.</p>	<p>2 Plug sprayer in to grounded outlet. Turn power <b>ON</b></p>	<p>3 The pressure is displayed Dashed indicate pressure is less than 200 psi (14bar, 1.4MPa)</p>	<p>4 Press and hold display button to change pressure units(psi,bar or Mpa)</p>
			

## Operation Main Menu

<p>Short press moves to next display.Press and hold(5seconds) changes units or resets data.</p>	<p>1 Follow <b>Pressure Relief</b> Proceduer, page 5.</p>	<p>2 Turn pwern ON. Pressure display appears.Dashes appear when pressure is less than 200 psi(14bar,1.4MPa)</p>	<p>3 Short press DTS button to move to Job Gallons(or Litersx10) <b>NOTE:</b> JOB displays briefly, then the number of gallons sprayed above 1000psi(70bar,7MPa)</p>
	<p><b>Operation Main Menu</b></p> <p>4 Press and hold to reset to zero, or short press DTS button to move to Lifetime Gallons (or Litersx10)</p>	<p><b>NOTE:</b></p> <p>LIFE displays briefly,then the number of gallons sprayed above 1000psi(70bar,7MPa)</p>	

## Motor Control Board Diagnostics

						
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- NOTE:
- Keep a new transducer on hand to use for test.
  - No display does not mean the sprayer is not pressurized. Before repair, **relieve pressure**, page 5.

CAUTION
Do not allow sprayer to develop fluid pressure without transducer installed. Leave drain valve open if test transducer is used.

- For sprayers with digital display, see Digital Display Messages.
- Remove screws and cover.
- Turn ON/OFF switch ON.
- Observe LED operation and reference following table:

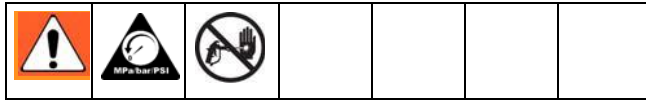
DISPLAYLED	BLINKS	SPRAYER OPERATION	INDICATES	WHAT TO DO
No Display	Never blinks	Sprayer stops. Power is not applied. Sprayer must be pressurized.	Loss of power.	Check power source. Relieve pressure before repair or disassembly.
psi/bar/MPa	Once	Sprayer is pressurized. Power is applied. (Pressure varies with tip size and pressure control setting.)	Normal operation	Do nothing
E=02*	Two times repeatedly	Sprayer may continue to run. Power is applied.	Pressure out of control Pressure greater than 4500psi (310 bar, 31 MPa) or damaged pressure transducer	Replace control board or pressure transducer
E=02**		indicate when power on. machine cant work	control board program goes wrong	Replace control board or update control board program.
E=03	Three times repeatedly	Sprayer stops and LED continues to blink three times repeatedly	Pressure transducer is faulty or missing	Check transducer connection. Open prime valve. Use new transducer to check. If sprayer runs, replace transducer
E=04*	Four times repeatedly	Sprayer stops and LED continues to blink four times repeatedly. Power is applied.	Wire voltage is too high	Check voltage supply
E=05	Five times repeatedly	Sprayer can not start or stops and LED continues to blink five times repeatedly. Power is applied.	Motor or PCB fault	Check for locked rotor, shorted wiring or disconnected motor. Repair or replace failed parts.
E=06*	Six times repeatedly	Sprayer stops and LED blinks six times repeatedly. Power is applied.	Motor is too hot or there is a fault in motor thermal device	Allow sprayer to cool. If sprayer runs well rectly after cooling, check motor fan function and air flow. Keep sprayer in cool location. If sprayer does not run after cool and continues to blink six times, replace motor.
- - -		Power is applied.	Pressure less than 200 psi (14 bar, 1.4 MPa).	Increase pressure if desired. prime valve may be open.
E=07**		Sprayer stops. Power is applied.	Pressure is too high when cleaning or didn't do pressure relief	Turn on the prime valve or check whether monifold filter is clogged
E=08**		Sprayer stops. Power is applied.	Wire voltage is too low	Check voltage
E=09**		Sprayer stops. Power is applied.	Machine protect procedure start up.	Add paint, turn the Power off, and restart the machine
E=11**		Sprayer stops. Power is applied.	Wire voltage is too high	Check voltage

\* Only for EP230/310S, HB495/795S.

\*\* Only for EP230A/270/310, HB495A/695/795.

## Pressure Control Transducer

### Removal



1. **Relieve pressure**, page 5.
2. Remove screws and cover.
3. Disconnect transducer lead from motor control board
4. Slide transducer grommet out of control box
5. Remove pressure control transducer and o-ring from filter housing.

### Installation

1. Install o-ring and pressure transducer in filter housing. Torque to 30-35 ft-lb.
2. Thread transducer lead plastic connector through transducer grommet and slide grommet into slot in control box housing.
3. Install filter housing with screws.
4. Connect transducer lead to motor control board.
5. Install cover with screws.

## Pressure Adjust Potentiometer

### Removal



1. **Relieve pressure**, page 5.
2. Remove screws from cover.
3. Disconnect potentiometer lead from motor control board.
4. Remove potentiometer knob, nut and pressure adjust potentiometer.

### Installation

1. Install pressure adjust potentiometer and nut.
  - a. Turn potentiometer fully clockwise.
  - b. Install knob at full clockwise position.
2. Connect potentiometer lead to motor control board,
3. Install cover with screws.

## Technology Data

Mode	220–240 V Ø, A, Hz	Power HP (W)	Maximum Flow gpm (lpm)	Maximum Tip Size	Fluid outlet Size npsm	Box Rule cm
EP230/HB495 EP230A/HB495A	1, 6, 50	1 7/16(1100)	0.60(2.3)	0.021	1/4 in.	50 × 41 × 54
EP270/HB695	1, 7, 50	1 3/4(1300)	0.71(2.7)	0.025	1/4 in.	50 × 41 × 54
EP310/HB795 EP310S/HB795S	1, 10, 50	2 15/16(2200)	0.82(3.1)	0.029	1/4 in.	50 × 41 × 54

