

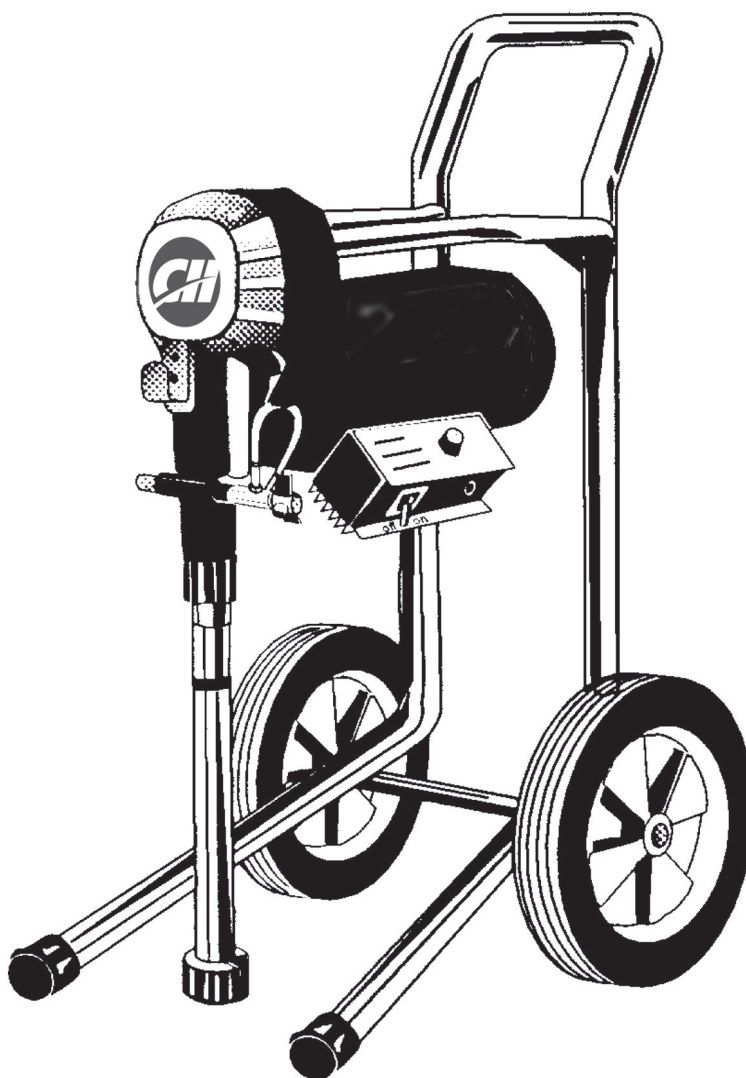
Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.



Airless Paint Systems

Thank you for purchasing a Campbell Hausfeld product. If you have any technical questions about this product, please call 1-800-626-4401.

For Parts and Accessories: 1-800-626-4401



REMINDER: Keep your dated proof of purchase for warranty purposes! Attach it to this manual or file it for safekeeping.

Airless Paint Systems

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Description

Airless paint sprayers are capable of spraying a wide variety of latex, oil-based, and alkyd paints, as well as stains, preservatives and other non-abrasive finishes.

These sprayers are also powerful and versatile enough to be used with a variety of options (roller attachment, extra lengths of hose, etc.) to make it an even more efficient tool.

NOTE: Guns pictured in illustrations may be different than the one included with your unit.

Specifications

Max. Pressure	3000 psi
Output (Free Flow)	0.8 GPM
Output (At Pressure)	0.6 GPM
Tip Size	1 gun up to 0.023
Motor Output . . DC. TEFC. 1.3 HP Peak	
Weight	65 lbs.

Safety Guidelines

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

▲DANGER *Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.*

▲WARNING *Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

▲CAUTION *Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.*

NOTICE *Notice indicates important information, that if not followed, MAY cause damage to equipment.*

Unpacking

After unpacking the unit, inspect carefully for any damage that may have occurred during transit. Make sure to tighten fittings, bolts, etc., before putting unit into service.

▲WARNING *Do not operate unit if damaged during shipping, handling or use. Damage may result in bursting and cause injury or property damage.*

General Safety Information

1. Read all manuals included with this product carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
2. Always wear a mask or respirator and eye protection when painting. Be certain mask or respirator will provide necessary protection against inhalation of harmful vapors.
3. Keep visitors away and NEVER allow children or pets in the work area.

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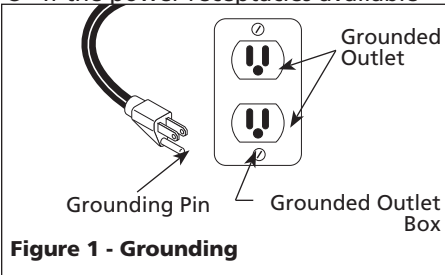
General Safety Information (Cont.)

4. Do not smoke or eat when spraying paint, insecticides, or other flammable substances.
5. Always work in a clean environment. To avoid injury and damage to the workpiece, do not aim the spray gun at any dust or debris.
6. When spraying and cleaning, always follow the instructions and safety precautions provided by the material manufacturer (Refer to MSDS).

⚠ DANGER

ELECTRICAL SHOCK HAZARD:

- Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and in the United States, the Occupational Safety and Health Act (OSHA).
- This product requires a grounded 120V, 15 Amp circuit (See Figure 1).
- If the power receptacles available



- will not fit this equipment's power cord, then have an appropriate power receptacle installed by a certified electrician.
- Only qualified electricians or service personnel should perform maintenance on the electrical components of this equipment.
 - If using an extension cord, use only grounded three wire extension cords that are in good condition. See

Table 1 on page 4 for information on proper extension cord gauges.

- Do not modify any of the electrical components of this equipment.
- Do not use a power cord adapter with this equipment.
- Check with a qualified electrician or service person if the grounding instructions are not completely understood or you are in doubt as to whether the equipment is properly grounded.



⚠ WARNING

SKIN INJECTION HAZARD:

- High pressure spray can inject toxins into blood stream. If injection occurs, seek emergency medical treatment.



⚠ WARNING

Use a face mask/respirator and protective clothing when spraying. Always spray in a well ventilated area to prevent health and fire hazards. Refer to Material Safety Data Sheets (MSDS) of spray material for details.



- Never try to stop leaks with any part of your body.
- This system is capable of producing 3000 psi. Use only Campbell Hausfeld replacement parts rated at 3000 psi or higher.
- Never spray without tip guard.
- Ensure trigger lock is functioning properly.
- Always engage trigger lock when not spraying.
- Do not remove spray tip while cleaning pump.
- Never leave equipment pressurized while unattended.

PRESSURE RELIEF PROCEDURE

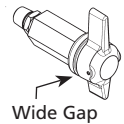
Before servicing or resting unit, relieve pressure from system by following this procedure:

1. Engage gun trigger lock.
2. Turn unit off and disconnect power.
3. Disengage gun trigger lock.
4. Trigger gun into grounded pail to relieve pressure in hose and



gun. While doing so, hold metal part of gun in contact with pail. Use the smallest amount of pressure possible.

5. Turn Prime/Pressure Relief Valve (PR Valve) to the open (priming) position to relieve pressure.



NOTE: There will be a wider gap between valve handle and cam body when in open position.

6. Engage gun trigger lock. Close Prime/Pressure Relief Valve.

NOTE: If spray tip or hose is clogged, follow step 1 to 5. If you suspect pressure has not been relieved after following this procedure, take your unit to a Campbell Hausfeld Service Center.

- Do not clean spray tip while it is attached to the spray gun. Remove spray tip from gun to clean tip guard.
- Ensure tightness of high pressure connections.

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General Safety Information (Cont.)

- Do not use pliers to tighten or loosen high pressure connections.
- Motor is equipped with an automatic thermal overload. Motor will restart without warning, after cooling.

⚠WARNING *Never aim or spray at yourself or anyone else or serious injury could occur.*

⚠WARNING

FIRE OR EXPLOSION HAZARD:

- Do not use solvents with flash points less than 70°F (21°C) to clean this equipment (examples of acceptable cleaning solvents are water, mineral spirits, lacquer thinner, Xylene and high flash napha. A partial example list of unacceptable cleaning solvents are low flash napha, mek, acetone, alcohol and toluene).

⚠WARNING

Do not spray flammable materials in vicinity of open flame or near ignition sources.



Motors, electrical equipment and controls can cause electrical arcs that will ignite a flammable gas or vapor. Never store flammable liquids or gases in the vicinity of the unit.

⚠WARNING *Do not spray acids, corrosive materials, toxic chemicals, fertilizers or pesticides. Using these materials could result in death or serious injury.*

- Paints and solvents containing HALOGENATED HYDROCARBONS can react explosively with aluminum. Do not use halogenated hydrocarbons with this equipment. Consult the paint or solvent product label or Material Safety Data Sheets (MSDS) to help determine if it contains halogenated hydrocarbons.
- Do not use fuels to clean this equipment.
- Keep spraying area well ventilated. Keep doors and windows open.
- Remove all ignition sources (i.e. Static electricity, pilot lights, cigarettes and electrical arcing).
- Airless spraying can cause static electricity. Always ground the pump and spraying surface. Always use a 3-wire grounded extension cord and power receptacle.
- Do not use solvents containing halogenated hydrocarbons.

⚠CAUTION *Keep hose away from sharp objects. Bursting hoses may cause injury. Examine hoses regularly and replace if damaged.*

- Check hoses for weak or worn condition before each use, making certain that all connections are

secure.

Pre-Operation

FLUSHING

1. **NEW SPRAYER:** Your sprayer was factory tested in an oil solution which was left in the pump. Before using oil-based paint, flush with mineral spirits only. Before using water-based paint flush with mineral spirits, followed by soapy water, then a clean water flush.
2. **CHANGING COLORS:** Flush with a compatible solvent such as mineral spirits or water.
3. **CHANGING FROM WATER-BASED TO OIL-BASED PAINT:** Flush with soapy water, then mineral spirits.
4. **CHANGING FROM OIL-BASED TO WATER-BASED PAINT:** Flush with mineral spirits, followed by soapy water, then a clean water flush.
5. **STORAGE:** Always relieve pressure (See pressure relief procedure on page 3) prior to storage or when machine is unattended. Follow the storage procedure based on the kind of paint you used:
 - Oil-based paint: Flush with mineral spirits. Make sure that there is no pressure in the unit. Then close the prime/pressure relief valve.
 - Water-based paint: Flush with water, then mineral spirits. For longer term storage use a 50/50

Extension Cord Requirements

Amperage Rating	Length of Cord (Ft.)									G A U G E
	25	50	100	150	200	250	300	400	500	
5 - 6	18	16	12	12	10	10	8	8	6	
6 - 8	18	16	12	10	10	8	6	6	6	
8 - 10	18	14	12	10	8	8	6	6	4	
10 - 12	16	14	10	8	8	6	6	4	4	

Table 1 - Extension Cord Gauges

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mixture of mineral spirits and motor oil. Always ensure that there

Pre-Operation (Cont.)

is no pressure in the unit, and close the prime/pressure relief valve for storage.

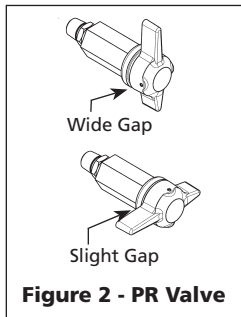
WARNING *Never leave pump unattended while it is under pressure!*

6. **START UP AFTER STORAGE:** Before using water-base paint, flush with soapy water and then a clean water flush. Before using oil-base paint, flush out the mineral spirits with the material to be sprayed.

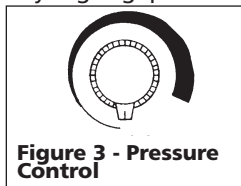
HOW TO FLUSH

IMPORTANT COMPONENTS

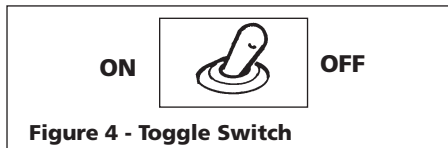
- Prime/Pressure Relief Valve (Prime/PR Valve, Figure 2). Used to relieve



pressure from gun, hose and tip and to prime the unit when in OPEN position. (It is in open position when there is a wider gap between valve handle and cam body.) When in CLOSED position, there is only a very slight gap between handle and body. When closed, the system is pressurized.



- Pressure Control Knob (Figure 3). Used to adjust pressure. Turn clockwise to increase pressure and

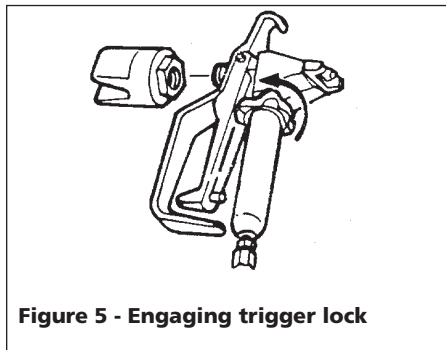


counterclockwise to decrease it.

- Toggle Switch (Figure 4).

PROCEDURE

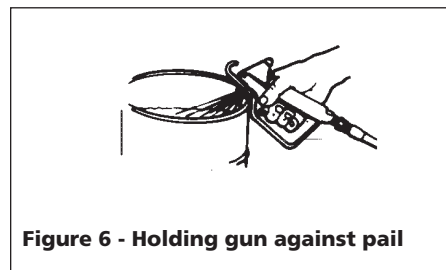
1. Make sure the gun trigger lock is engaged and there is no spray tip in the gun. Refer to Figure 5. (Refer to Figure 10 for information on how



to lock the trigger lock and the gun's safety features.)

WARNING *To reduce the risk of static sparking, which can cause fire or explosion, always hold a metal part of the gun firmly against the grounded pail when flushing. (This also reduces splashing.)*

2. Pour enough clean, compatible solvent into a large, empty pail to fill the pump and hoses.
3. Place the suction tube into the pail.
4. Turn the Prime/Pressure Relief (PR) Valve to the "OPEN", priming position. Refer to Figure 3.



5. Point the gun into the pail and hold a metal part of the gun firmly against the pail. Refer to Figure 6.

6. Disengage the gun safety latch and squeeze the gun trigger. Turn the ON-OFF Toggle Switch to the "ON" position (Figure 4) and turn Pressure Control Knob (Figure 3) clockwise to increase pressure just enough to start the pump.
7. Turn the Prime/PR Valve to the "CLOSED" position. This will allow solvent to be flushed through the pump, hoses and gun. Allow the unit to operate until clean solvent comes from the gun.
8. Release the trigger and engage the gun trigger lock.
9. If you are going to start spraying, place the suction tube into the supply container. Release the gun safety latch and trigger the gun into another empty, metal container, holding a metal part of the gun firmly against the pail and force the solvent from the pump and hose. Engage the gun safety latch until you are ready to spray.
10. If you are going to store the sprayer, remove the suction tube from the solvent pail, holding a metal part of the gun firmly against the pail and force the solvent from the pump and hose. Engage the gun safety latch. Refer to "Storage" Procedure on page 4.
11. Whenever you shut off the sprayer, follow the "PRESSURE RELIEF PROCEDURE" on page 3.

SETTING UP

1. Connect the hose and gun.
 - a. Remove the plastic cap plug from the outlet tee and screw a conductive or grounded 3000 psi airless spray hose onto fluid outlet.

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- b. Connect an airless spray gun to the other end of the hose.

Pre-Operation (Cont.)

NOTE: Do not use thread sealer on swivel unions as they are made to self-seal. Use thread seal on tapered male threads only.

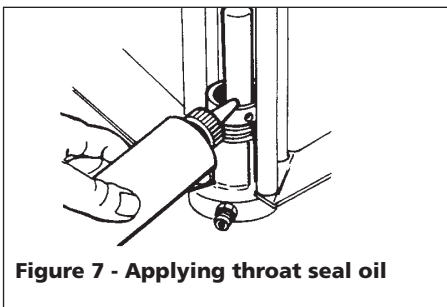


Figure 7 - Applying throat seal oil

2. Fill the Packing Nut/Wet Cup 1/3 full with Throat Seal Oil (TSO) supplied (see Figure 7).
3. Check the electrical service. Make sure that the electrical service is 120 VAC, 15 amp minimum, and that the outlet you are using is properly grounded.

WARNING *Make sure that all sprayer components, work pieces, spray material containers, and electrical outlets are properly grounded before operating unit.*

4. Flush the sprayer according to the Flushing section (New Sprayer) and How to Flush section.

SPRAY TIP SELECTION

See Tip Selection Chart on Page 7.

Spray tip selection is based on paint viscosity, paint type, and job needs. For light viscosity (thin paints), use a smaller tip. For heavier viscosities (thicker paints), use a larger tip size.

Spray tip size is based on how many gallons of paint per minute can be sprayed through the tip. Do not use a tip larger than the maximum pump

flow rate or capacity the sprayer can accommodate. Pump flow rate is measured in gallons per minute (GPM).

PATTERN WIDTH

Thickness of the paint coat is determined by spray tip “fan width,” rate of the spray gun movement, and distance to surface.

SPRAY TIP SELECTION

Two tips having the same tip size, but different pattern widths, will deliver the same amount of paint over a different area (wider or narrower strip).

A spray tip with a narrow pattern width makes it easy to spray in tight places.

SPRAY TIP REPLACEMENT

During use, especially with latex paint, high pressure will cause the orifice to grow larger. This destroys the pattern. Replace tips before they become excessively worn. Worn tips waste paint, cause overspray, make cutting-in difficult, and decrease sprayer performance.

Operation

STARTING UP

1. Learn the functions of the controls (See How to Flush section, Important Controls).
2. Prepare the material according to the material manufacturer’s instructions. Place the suction tube into the material container.

WARNING *Make sure gun is pointed into empty bucket at all times.*

Never point gun toward people or animals. Avoid pointing toward dust and debris. Avoid pointing toward other objects .

3. Start the sprayer as follows:
 - a. Prime/PR Valve must be “OPEN” in the priming position.
 - b. Turn to the ON-OFF Toggle Switch to the “ON” position.

WARNING *To stop unit in an emergency, turn motor off. Then relieve fluid pressure in pump and hose as instructed on page 3.*

4. Prime the pump.
 - a. Allow pump to operate until paint comes from gun.
 - b. Release the trigger and engage the gun safety latch.
 - c. Turn Prime/PR Valve OPEN to the prime position ensuring the pressure is released from the system.
 - d. Turn Pressure Control Knob to minimum pressure.
 - e. Install spray tip onto gun.
 - f. Close the Prime/PR Valve to the pressure position.
 - g. Turn the pressure control knob to desired spray pressure.
 - h. Disengage the gun safety lock and you are ready to start spraying.

CAUTION *If spraying into the paint bucket, use the lowest spray pressure possible and maintain firm metal-to-metal contact between gun and container as shown in Figure 6.*

5. Adjust pressure.
 - a. Turn Pressure Control Knob clockwise to increase pressure and counterclockwise to decrease it.
 - b. Always use the lowest pressure necessary to completely atomize the material.

NOTICE *Operating the sprayer at higher pressure than necessary wastes material, causes early tip wear, and shortens the life of the sprayer.*

- c. If more coverage is needed, use a larger spray tip rather than increasing the pressure.

- d. Check the spray pattern. The tip size and angle determine the



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pattern width and flow rate.

- If spray tip is clogged, clean only after removing it from the gun.

AWARNING

To reduce risk of spray injection, never hold

Operation (cont.)

hand, body fingers or hand in front of spray tip when cleaning or checking for

a cleared tip. Always point the gun toward the ground or into an empty container when checking to see if the tip is cleared or when using a self-cleaning tip. Always remove tip before cleaning.

NOTE: When pausing during a paint job, keep tip clean by locking the gun and submerging the tip in a small bucket of paint thinner. This will help reduce buildup and drying of paint in tip, tip guard, and gun.

- When shutting off the sprayer,

follow this procedure.

- Whenever you stop spraying, even for a short break, follow the Pressure Relief Procedure on page 3.
- Clean the tip and gun as recommended by your separate gun instruction manual.
- Flush the sprayer at the end of each work day if the material you are spraying is waterbased, or if it could harden in the sprayer

Tip Selection Chart													
Quadraflow™ Tip Fan Width (in.)	for painting (12" from surface) (mm)	Orifice Size (inches)											
		.009	.011	.013	.015	.017	.019	.021	.023	.025	.027	.029	.031
4-6	102-152												
6-8	152-203	AL3116	AL3117	AL3119	AL3122	AL3125							
8-10	203-254		AL2211	AL2213		AL3126		AL3131					
10-12	254-305		AL3118	AL3120	AL2215	AL2217	AL3130	AL3132	AL3135	AL3137		AL3139	
12-14	305-356			AL3121	AL3124	AL3127	AL2219	AL2221	AL3136	AL3138		AL3140	
14-16	356-406												
16-18	406-457							AL3134					
Gun Filter	2 types (part #)	-----AL086101AJ-----				-----AL086100AJ-----				REMOVE FILTER			
Wood Interior	Lacquer, Varnish		•										
	Stain, Sealer		•	•									
	Enamel				•	•							
Wood Exterior	Exterior Stain				•	•							
	Vinyl, Acrylic, Latex						•	•					
Masonry	Vinyl, Oil Base Alkyd				•	•							
	Latex, Acrylic				•	•	•						
	Block Filler							•	•	•	•	•	
	Elastomer							•	•	•	•	•	•
Ceiling	Hi Build, Mil White							•	•				
Structural Steel	Heavy Coatings							•	•	•	•	•	•
Water Flow Rate (water @ 2000psi, 138 bar)	(gpm)		.12	.18	.24	.31	.38	.47	.57	.67	.77	1.03	1.31
	(lpm)		.49	.69	.91	1.17	1.47	1.79	2.15	2.54	2.96	3.90	4.98
Paint Flow Rate (latex paint @ 2000psi, 138 bar/1.36 spec. gr.)	(gpm)		.10	.15	.21	.27	.33	.40	.49	.58	.66	.88	1.12
	(lpm)		.38	.57	.79	1.02	1.25	1.51	1.85	2.20	2.50	3.33	4.24
Pump Minimum Output*	(gpm)		.25	.25	.33	.40	.50	.60	.75	.88	1.00	1.25	1.50
	(lpm)		1.00	1.00	1.25	1.50	1.90	2.30	2.80	3.30	3.80	4.70	5.70

*pump will support tip worn to next larger size.

Consult your paint manufacturer for application recommendation

Table 2 - Tip Selection Chart

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overnight. See "Flushing" page 4. Use a compatible solvent to flush, then fill the pump and hoses with an oil based solvent such as mineral spirits.

d. For long term shutdown or storage, refer to page 4.

WARNING Be sure to relieve pressure in the pump after filling with mineral spirits.

Operation (Cont.)

SPRAY TECHNIQUE

Good Spray Gun Technique is at the core of any spray paint operation. Operator skill and efficiency is as important as good equipment and good paint. Good spray technique is a skill that can be developed by following these simple instructions.

If you are not familiar with spraying techniques, study this section of your manual and practice the proper technique on pieces of cardboard or a suitable surface.

Hold the spray gun 12 - 15 inches away from the work surface and keep it perpendicular (straight) to the surface. Move the spray gun parallel to the work and at a right angle to the surface. (See Figure 8).

Move the gun at a steady rate in order to apply a good coverage. The wet coat should be just under the thickness at which a run or sag will occur. Slow gun movement or gun held too close will result in an overly wet or thick wet or thick coat coverage that is likely to run or sag.

Do not wave the spray gun. This waving is called arching. Instead, hold the spray gun at a 12 to 15 inch distance perpendicular from the work. (See Figure 9.)

The closer the spray gun is held to the work, the thicker the paint is deposited and the faster the gun must be moved to prevent sags and runs. Holding the gun too far from the work will cause excessive fog, overspray, and a thin and grainy coat.

It is important to "trigger" the gun after gun movement (arm movement) has started and release trigger (shut gun off) before gun movement ends. Gun movement is always longer than actual paint (spray) stroke. In that manner, even blending and uniform paint coat thickness is achieved over the entire surface. When the gun is in motion as the trigger is pulled, it deposits an even amount of paint.

Overlap the previous pass by half the

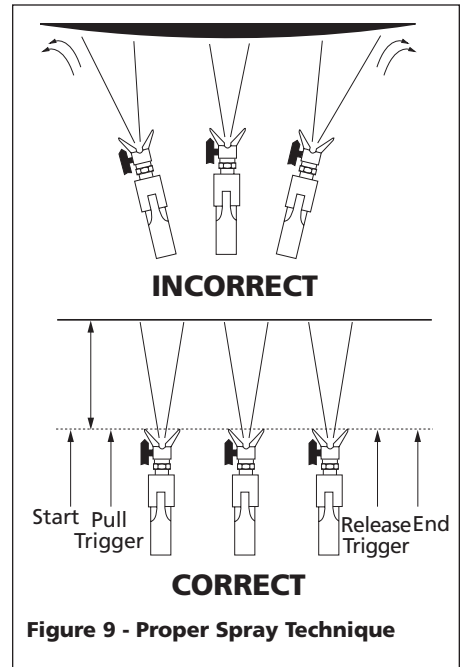


Figure 9 - Proper Spray Technique

width of the spray pattern. Aim at the bottom of the previous pass.

Adjust Pressure Control Knob so that paint is completely atomized from the spray gun. Insufficient pressure will result in "tailing." Too much pressure will result in excess fog and overspray, excessive tip wear, and increased sprayer wear and tear.

Always use the lowest pressure possible to obtain desirable results. Test the spray pattern on a piece of cardboard or other surface.

To cover "inside" and "outside" corners (on walls or other objects), aim the spray gun toward the center of the corner. The spray pattern is divided in half, and the edges of the spray pattern on both walls are the same.

Electrical System

ELECTRICAL BOARD CALIBRATION

NOTE: Anytime a sensor, pressure control assembly (board) or both are replaced, the following calibrations must be performed.

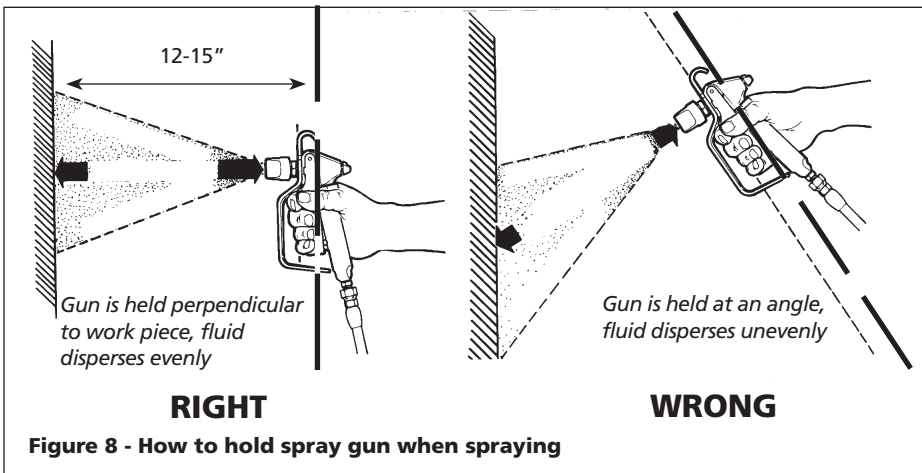


Figure 8 - How to hold spray gun when spraying

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ZERO CALIBRATION

1. Place prime/pressure relief valve in the prime (open) position.
2. Set the pressure control knob to the minimum setting (CCW).
3. Remove the screws and lower the pressure control assembly.
4. Ensure the jumper is on the "P-ZR" terminal. Note: This jumper comes with a new pressure control

Electrical System

(Cont.)

- assembly (board) and is installed on the "P-ZR" terminals. If you are "Zero Calibrating" a pressure control assembly presently in the unit, remove jumper from single terminal P-ZR and place on both terminals P-ZR. When Zero Calibration is complete, replace jumper on a single terminal of P-ZR.
5. Turn machine "ON" and ensure it is not cycling.
 6. If the yellow zero light on the electrical board is ON, use an insulated screwdriver to turn the "ZERO" trimpot counterclockwise until the light goes out. Then turn it clockwise until the light just comes back on. If so equipped, look at the LCD Display and if "0000" is showing the Zero Calibration is complete. If the display shows more than "0000", turn the Zero Trimpot CCW until "0000" is showing. If "-- -- --" is showing, turn the zero trimpot CW until "0000" is displayed.
 7. If the yellow light is OFF, turn the "Zero" trimpot clockwise, just until the light comes on and stop. Confirm "0000" is displayed.

NOTE: If the yellow light remains constantly "ON" or "OFF" during this

calibration, the sensor is defective and should be replaced.

8. **IMPORTANT:** When calibration is complete, move jumper from both "PZ-R" terminals to single terminal on P-ZR.

PRESSURE CALIBRATION

1. Complete the ZERO calibration, as per "ZERO CALIBRATION" prior to commencing this calibration.
2. Attach a 50', 1/4" airless hose, airless gun with 0.017 tip and a 5000 psi glycerin filled pressure gauge to the pump.
3. Place the suction tube into a bucket of Coro-chek and water.
4. Turn Prime/Pressure Relief Valve to the prime (open) position.
5. Turn Pressure Control Knob clockwise until machine starts to prime.
6. Place the Prime/Pressure Relief Valve in the pressure (closed) position.
7. While watching pressure gauge, slowly adjust the pressure trimpot (clockwise to increase and counterclockwise to decrease) until the maximum static pressure is 3000 psi, with the pressure control knob fully clockwise. Trigger the gun into pail several times to ensure pressure returns to 3000 psi.

LIQUID CRYSTAL DISPLAY (LCD) CALIBRATION

NOTE: Your unit may or may not be equipped with an LCD.

1. Complete the "ZERO CALIBRATION" and "PRESSURE CALIBRATION" procedures prior to starting this calibration.
2. Turn Pressure Control Knob up until system pressure is above 2500 psi

(as indicated on glycerin filled pressure gauge) and the machine is not cycling.

3. Use an insulated screwdriver to adjust the Set trimpot. Turn trimpot counterclockwise until it clicks, and then adjust to match pressure against pressure gauge reading.
4. Move the pressure control knob to different settings and trigger the gun several times into pail. This will ensure that the LCD continues to match the pressure gauge reading.

PHASE LIMIT TRIMPOT CALIBRATION (formerly known as the Low Voltage or Master Voltage Calibration)

1. Attach a 50', 1/4" airless hose, airless gun with .017 tip and a 5000 psi glycerin filled pressure gauge to the pump.
2. Place the suction tube into a bucket of Pump Conditioner and water.
3. Turn pump ON and turn up Pressure Control until the machine starts to prime.
4. Place the Prime/Pressure Relief Valve in the pressure (closed) position.
5. Pressurize pump to 600 psi.
6. Trigger the gun several times noting the deadband (the amount of pressure drop before the pump rebuilds to set pressure).
7. If deadband is greater than 100 psi, adjust the low pressure voltage trimpot so that the deadband is less than 100 psi and the pressure increase after the gun trigger is released is less than 200 psi. These pressures are guidelines and may vary slightly from pump to pump.
8. Reattach Pressure Control Assembly being careful not to pinch wires.

NOTE: The 331-315-99 Pressure Control Assembly has a reddish brown terminal

Airless Paint Systems

labelled "Inhibit Switch." At all times there should be a jumper on the two left terminals, which are the closest to the "S2" connection. Also on the Revision E is a terminal labelled "ON-SL." This terminal should never have a jumper on it.

ELECTRICAL TROUBLESHOOTING

A variety of causes can lead to problems with your sprayer's electrical system. Sometimes, it will not start. See page 15 for a list of possible problems and solutions to fix them.

Electrical System

(Cont.)

REPLACEMENT OF ELECTRICAL COMPONENTS

NOTE: Refer to Electrical System Diagram (page 20) and LCD Diagram (page 22).

PRESSURE CONTROL ASSEMBLY (ELECTRICAL CONTROL BOARD)

1. Unplug machine's power cord.
2. Remove four screws from pressure control assembly.
3. Disconnect all leads from pressure control assembly.
4. Reassemble in reverse order.

SENSOR

1. Remove the screws and lower the pressure control assembly.
2. Disconnect swivel from sensor by holding sensor with 7/8" wrench and loosening swivel with 11/16" wrench.
3. Disconnect sensor lead from the board. Carefully pull sensor lead out of the terminal box and remove sensor.
4. Reassemble in reverse order.

POTENTIOMETER

1. Lower pressure control assembly as described above.

2. Disconnect potentiometer lead from pressure control assembly.
3. Use a 1/16" allen wrench, loosen set screw in the potentiometer knob and remove knob and spacer.
4. Using a 1/2" wrench or deep socket, remove the nut from the potentiometer shaft assembly.
5. Pull entire potentiometer assembly out of terminal box.
6. Replace in reverse order.

LIQUID CRYSTAL DISPLAY (LCD)

1. Lower pressure control assembly as described above.
2. Unscrew the four nuts (6/32") and remove LCD Display assembly.
3. If unable to loosen the four nuts, hold them and unscrew the four screws. Then remove the LCD Display Assembly. If the display is removed in this manner, the mylar label must be replaced.
4. Reassemble in reverse order, while making sure that the four spacers and the four washers are in place. Tighten the four nuts handtight and seal with blue loctite. **DO NOT** overtighten the nuts as this will damage the display.

ON-OFF TOGGLE SWITCH

1. Lower the pressure control assembly as described above.
2. Disconnect the two wires on the switch.
3. Use a 9/16" wrench to loosen the nut on the toggle switch shaft.
4. Reassemble in reverse order.

FUSE HOLDER

1. Lower pressure control assembly as described above.
2. Disconnect the two wires on the holder.
3. Remove holder cover and fuse.
4. Use 11/16" wrench to remove the

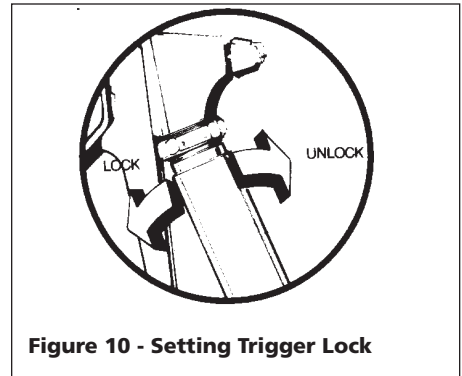


Figure 10 - Setting Trigger Lock

- nut from the holder shaft.
5. Reassemble in reverse order.

Service

SPRAY GUN

Prior to servicing gun: Attach spray gun to hose and tighten fittings securely. Set the gun trigger lock. The gun trigger lock should always be set when the gun is not being triggered (see Figure 10).

Hold gun with trigger locked and push trigger against the lock. Then adjust nut so that the retainer will move freely back and forth approximately 1/32" to allow valve spring unit to seat the valve ball.

IMPORTANT: Readjust nut periodically for wear of valve seat and valve ball. Otherwise, leakage will occur.

REPLACING VALVE BALL HOLDER

Kit #2-007

Parts Needed: 3 Tip Washers, 1 Valve Seat, 1 Valve Ball Holder, 2 Seals-PTFE

Dismantling:

1. Unscrew rev guard and remove spray tip and seal.
2. Unscrew valve seat with 1/2" socket wrench.

NOTICE *When removing and replacing valve seat, hold the trigger in the open position so that the valve ball is lifted off the valve seat. Failure*

Airless Paint Systems

to life the ball off the seat will result in a scratched, leaky valve.

3. Unscrew valve ball together with the brass part of the assembly. Do not pull on the parts or the packing may get damaged.

4. Unscrew the valve ball from the brass part of the assembly.

Reassembling is done in reverse sequence. Screw the new valve ball with holder into the brass part.

NOTICE *Tighten valve ball and brass part on threaded end of the shaft by hand until you feel a positive stop. Do not tighten*

Service (Cont.)

with a wrench since this could result in breaking the shaft.

NOTE: It is recommended that you change the valve seat and valve ball at the same time.

REPLACING VALVE SPRING UNIT

Kit #3-007

Parts Needed: 3 Tip Washers, 1 Valve Seat, 1 Valve Ball Holder, 1 Valve Spring Unit

1. Repeat dismantling procedure as outlined above under Steps 1 through 3.
2. Unscrew nut, remove retainer with retainer pins and push shaft of the valve spring unit out of the gun head.
3. Clean gun head bore with solvent and small brush. Do not use any sharp objects to scrape away dried paint, as they would cause leakage around the seal.

Reassembling is done in reverse sequence.

IMPORTANT: When reassembling, install valve spring unit with spring loose.

Push firmly into gun head by hand.

Install retainer pins, retainer, and nut loosely onto valve spring unit. By hand, turn front of valve spring unit clockwise, tightening the valve spring unit until you feel a positive stop. At that point, continue tightening the valve spring another 1/8 turn, expanding the PTFE seals against body of gun.

NOTICE *Do not tighten valve spring beyond 1/8 turn, as doing so can break the valve spring unit shaft. Continue reassembly and adjustment as described above.*

FLUID PUMP

NOTE: Check the Troubleshooting Chart on page 14 before disassembling the Fluid Pump.

FLUID PUMP DISCONNECT

1. Flush out the material you are spraying, if possible.
2. Follow the "Pressure Relief Procedure" on page 3.
3. Remove the suction tube assembly from the paint pump by unscrewing the suction nut. Disconnect sensor assembly by holding sensor with 7/8" wrench and unscrewing swivel connector with an 11/16" wrench.
4. Move the piston rod to its lowest stroke position by rotating the motor fan or by cycling rod to lowest position.
5. Unscrew the two screw from cover assembly.
6. Remove retaining ring. Slide sleeve down off crosshead assembly. Remove pin out of crosshead allowing removal of fluid pump from unit.

FLUID PUMP REINSTALLATION

1. Loosen packing nut and extend piston rod to its upper position in paint pump. Slip sleeve and retaining ring over piston rod.
2. Push piston rod up into crosshead

assembly and align holes. Insert pin through crosshead assembly and piston. Slip sleeve up over pin and insert retaining spring into groove on crosshead assembly.

3. Secure paint pump to cover assembly by two screws, up through tube spacers and screw into cover assembly.
4. Tighten screws evenly and alternating to 20 ft. lbs.
5. Reassemble the Lower Check Valve assembly by placing the Suction Seat Assembly, O-ring, ball and retainer in the suction nut and screw nut onto pump body.
6. Reconnect sensor assembly to fluid pump. Hold sensor with 7/8" wrench while tightening swivel connector.
7. Start the pump and operate slowly to check the Piston Rod for binding. Adjust screws holding pump assembly to cover assembly if necessary to eliminate binding.
8. Tighten the packing nut until resistance is felt against the Belleville springs, then 1/2 turn more CW (approximately three threads showing). Fill the wet cup of Packing Nut 1/3 full of Throat Seal Oil (TSO).
9. Run unit at full pressure for several minutes, release pressure and repeat step 4. Readjust packing nut according to paragraph above.

GEAR AND PUMP ASSEMBLY

AWARNING *Do not operate machine without cover guard in place.*

1. Disconnect Fluid Pump as instructed in Fluid Pump Disconnect.
2. Place piston in block (Tool Part No. 331-195) with the 3/8" dowel pin (Tool Part No. 331-196) and hold in vise. See diagram on page 21.

NOTE: DO NOT use smaller diameter pin than Part No. 331-196 to hold piston.

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3. Place a 1/4" allen wrench into bottom of piston. Unscrew retainer from piston. Clean all parts and inspect them carefully for wear and damage. Inspect the surface of piston and seat for wear or damage. Replace these parts if needed. If repacking pump, replace ball and O-ring with new parts from Packing Kit.
4. Lay unit on its back and disassemble gearbox.
5. Inspect bearings and Crosshead Assembly Gearcrank and sleeve bearing inside cover assembly for wear or damage.

Service (cont.)

Replace worn or damaged parts.

6. If gear grease needs replacing, replace with gear grease (Part No. 331-132)
7. Clean mating surfaces of cover and box thoroughly. Stick Seal the mating surfaces with gasket sealer.
8. Reassemble in reverse order.

PISTON ROD, UPPER CHECK VALVE

1. Disconnect fluid pump as shown on page 11.
2. Place piston in block (Tool PN 331-195) with the 3/8" dowel pin (Tool PN 331-196).

NOTE: Do NOT use smaller diameter pin than PN 331-196 to hold piston.

3. Place a 1/4" allen wrench into bottom of piston. Unscrew retainer from piston. Clean all parts and inspect them for wear and damage. Inspect the surface of piston and seat for wear or damage.
4. To disassemble the piston assembly, place in block using dowel pin and hold in vise. Install ball, seat and O-ring in this order. Use blue loctite 242 on retainer and screw into piston. Tighten to 20 ft. lbs.

LOWER SUCTION VALVE

1. Unthread suction nut and remove suction assembly from pump body.
2. Remove suction seat assembly, O-ring, ball and retainer.
3. Clean all parts and inspect them for wear or damage, replacing parts as needed.
4. If lower seat needs replacing, you can replace the suction seat assembly (PN 331-292).
5. Clean inside of pump body.
6. If no further pump service is needed, reassemble the lower check valve assembly, O-ring, ball and retainer in the suction nut and screw nut onto pump body. Tighten suction nut with rod tool.

Maintenance

REGULAR MAINTENANCE

1. Keep the displacement pump packing nut/wet cup 1/3 full of TSO (Throat Seal Oil) at all times. The TSO helps protect the packings and rod.
2. **Inspect the packing nut daily.** Your pump has a patented Triple Life Packing System. Packing life will be extended a minimum of three times if the following "Packing Tightening" procedure is followed:

Inspect packing nut. (Do NOT spray while inspecting.) If seepage of paint into the packing nut and/or movement of the piston upward is found, the packing nut should be tightened enough to stop leakage. Do not overtighten, as this will damage the packings and reduce the packing life.

ELECTRIC MOTOR MAINTENANCE

1. **LUBRICATION:** This motor is supplied with prelubricated ball bearings, lubricated for life of bearing.

2. **MOTOR BRUSHES:** These need periodic inspection and replacement according to wear. Brush wear is influenced by individual application. It is recommended that brush wear be checked at early intervals of operation. This will help determine when inspections will be needed in the future. Standard Leeson brushes for this motor have an initial length of 3/4". When the brushes are worn to a length of 3/8", they should be replaced.
3. **CHANGING BRUSHES:** Follow these instructions:
 - a. Unplug machine.
 - b. Open the two covers at the rear of motor.
 - c. Loosen the screw holding the brush terminal and remove the brush lead.
 - d. Push the brush retainer clip in and remove.
 - e. Remove the worn brushes (one on each side of motor).
 - f. Install new brushes in reverse order and replace covers.

NOTE: For longer life, new brushes (Part No. 331-131) need to have a "run-in" period. After changing brushes, set up the machine for spraying. Use a bucket of water and Coro-chek mixture, a 50 ft x 1/4" airless hose, and airless spray gun with 0.017 tip on unit. Turn the Prime/PR Control Valve to the prime position and turn unit on. Turn Pressure Control Knob to maximum pressure (fully clockwise position). Let the pump cycle at high speed in the prime position for 20 minutes. This will allow the brushes to "run in" properly and increase the life of the brushes.

V-PACKING REPLACEMENT

DISASSEMBLY

1. Remove the Fluid Pump as per "Fluid Pump Disconnect"

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instructions on page 11.

2. Unscrew the packing nut and suction assembly. Push piston rod out through bottom of pump body. Remove the upper packings, belleville springs, tube spacer and lower packing set using packing removal tool (PN 331-153).
3. Disassemble and clean all parts for reassembly. Discard old packings, adapters and O-Rings.
4. Place piston in block (PN 331-195) with the 3/8" dowel pin (PN 331-196) and hold in vise.

NOTE: Do not use smaller diameter pin to hold piston.

Maintenance (Cont.)

5. Place a 1/4" allen wrench into insert and unscrew insert from piston. Clean piston and seat, and then inspect them carefully for wear and damage. Replace these parts if needed.

REASSEMBLY

1. To reassemble the piston assembly, place in block using dowel pin and hold in vise. Install ball, seat and O-Ring in this order. Use blue loctite 242 on retainer and screw into piston. Tighten to 20 ft. lbs.

NOTE: For pumps manufactured prior to Year 2000 Install, Piston Rod Assembly PN 331-093 Only. Assembly PN 331-093 includes all new valve parts that will update the old pumps to present design.

2. Lubricate piston rod with oil or multi-purpose grease.
3. Soak leather packings in throat seal oil or other light-weight oil for 10-15 minutes.
4. Reassemble all parts onto piston rod in following order (see page 24 for picture):

- a. Start with lower male adapter.
 - b. Five V-Packings, "V" inverted.
 - c. Female adaptor.
 - d. FiveV-Packing, "V" up.
 - e. Male Adaptor.
 - f. Slide on tube spacer.
 - g. Three Belleville Springs starting with the first spring facing down (\frown), second one facing up (\smile), and the third one facing down (\frown).
 - h. Upper male adaptor.
 - i. Five V-Packings, "V" inverted.
 - j. Place O-rings onto seal holder.
 - k. Lubricate outside diameter of V-packings with white lithium or multipurpose grease.
 - l. Slide seal holder (2) over Upper Packing Set.
 - m. Lubricate threads on inside of pump body with white lithium or Multipurpose grease.
5. Hold pump body in one hand upside down and slide entire piston assembly with packings up into pump body, while rotating piston and packing assembly.
 6. Install packing nut, handtight only. Push piston rod up to its upper position.
 7. Connect the fluid pump onto Unit as per "Fluid Pump Reinstall" Procedures on page 11.

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Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Unit does not prime	1. Air leak due to: <ol style="list-style-type: none"> Loose suction nut. Worn O-rings. Hole in suction hose. 2. Stuck or faulty balls.	<ol style="list-style-type: none"> Tighten suction nut. Replace O-ring (PN 106-011) on suction seat. Replace suction hose. 1. Service lower and upper check valves.
Unit primes, but has no pressure or poor pressure	1. Pressure set too low. 2. Filters are clogged. 3. Upper check valve faulty or worn. 4. Prime/Pressure Relief Valve bypassing. 5. Packings and/or piston worn.	1. Turn up pressure. 2. Clean or replace gun filter, inlet filter and/or manifold filter. 3. Service upper check valve. 4. Clean or replace Prime/Pressure Relief Valve. 5a. Tighten packing nut. b. Repack unit.
Unit does not maintain good spraying pressure	1. Blown spray tip. 2. Packings and/or piston worn. 3. Upper seat worn.	1. Replace spray tip. 2. Repack unit. 3. Replace upper seat.
Unit does not run	1. Blown fuse. 2. Electrical failure.	1. Replace fuse (20A SlowBlow). 2. See electrical troubleshooting on page 15.

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Electrical Troubleshooting

If your machine **will not start**, follow these guidelines to help determine a cause and find a possible solution.

Possible Cause	Corrective Action
Control Settings	STEP 1: Ensure that the on-off toggle switch is in the "ON" position and that the Pressure Control Knob is fully counterclockwise (maximum pressure). Also check that the unit is plugged in.
Fuse	STEP 2: Test the fuse for continuity or replace with a new fuse. If fuse is good, go to Step 3. STEP 3: Remove screws and lower the pressure control assembly and check to see if the red power light on the board is lit. If the light is "OFF," proceed to Step 4. If the light is "ON," go to Step 7.
Power Source	STEP 4: Use a multimeter to check for 110 volts VAC across the L1 AND L2 terminals on the board. If there is no voltage at these leads, there is no power to the unit. Check power source (outlet, breakers, extension cord and power cord). If there is voltage on L1 and L2, go to Step 5.
Thermal Overload	STEP 5: Disconnect the two red motor leads (S1 and S2) and test for continuity between the two leads. Continuity shows that the motor's thermal coupler has not tripped. No continuity means that the thermal coupler has opened due to excessive motor heat. If the motor is still hot to touch, allow to cool and retest. If the motor is cool and there is no continuity on the red leads, contact the nearest Campbell Hausfeld Service Center to repair or replace the thermal coupler.
Pressure Control Assembly (Board)	STEP 6: If all checks out fine in Steps 1 through 5 and the red light is still out, the pressure control assembly is defective and must be replaced.
Motor	STEP 7: Remove motor Brush Covers. Turn unit on with Pressure Control Knob fully clockwise to max. pressure position. Check for DC voltage across both brush terminals. If you have greater than 80 VDC turn unit off and unplug. Ensure that the brushes are evenly worn and make solid contact with motor commutator. Replace the brushes if they are less than 3/8" long. If the brushes are okay, replace the motor. If you do not have DC voltage at the brush terminals go to Step 8.
Sensor	STEP 8: If the redlight is "ON", the power source, fuse, on/off switch and thermal coupler are okay. Plug another sensor into board. If the unit starts, the sensor was faulty and must be replace. When a replacement sensor is not available, use a multimeter to test the resistance between the BLACK and RED wires on the sensor lead. The resistance should be approximately 1.5 - 3.5 kohms. A faulty sensor usually reads no continuity (open). Conduct the Zero calibration procedure. If unit cannot be zero calibrated, that ensures sensor is bad. If sensor check is good, go to Step 9.
Pressure Control Knob (Potentiometer)	STEP 9: With the machine still "OFF", remove the potentiometer lead from the board and read the resistance between the red and black wires. This must be 8 - 12 kohms. If outside this range, replace the potentiometer. NOTE: A bad POT usually show no continuity (open).
Pressure Control Assembly (Board)	STEP 10: If you do not have DC voltage at the motor brushes and all components check good in Steps 8 and 9, the Pressure Control Assembly needs to be replaced.

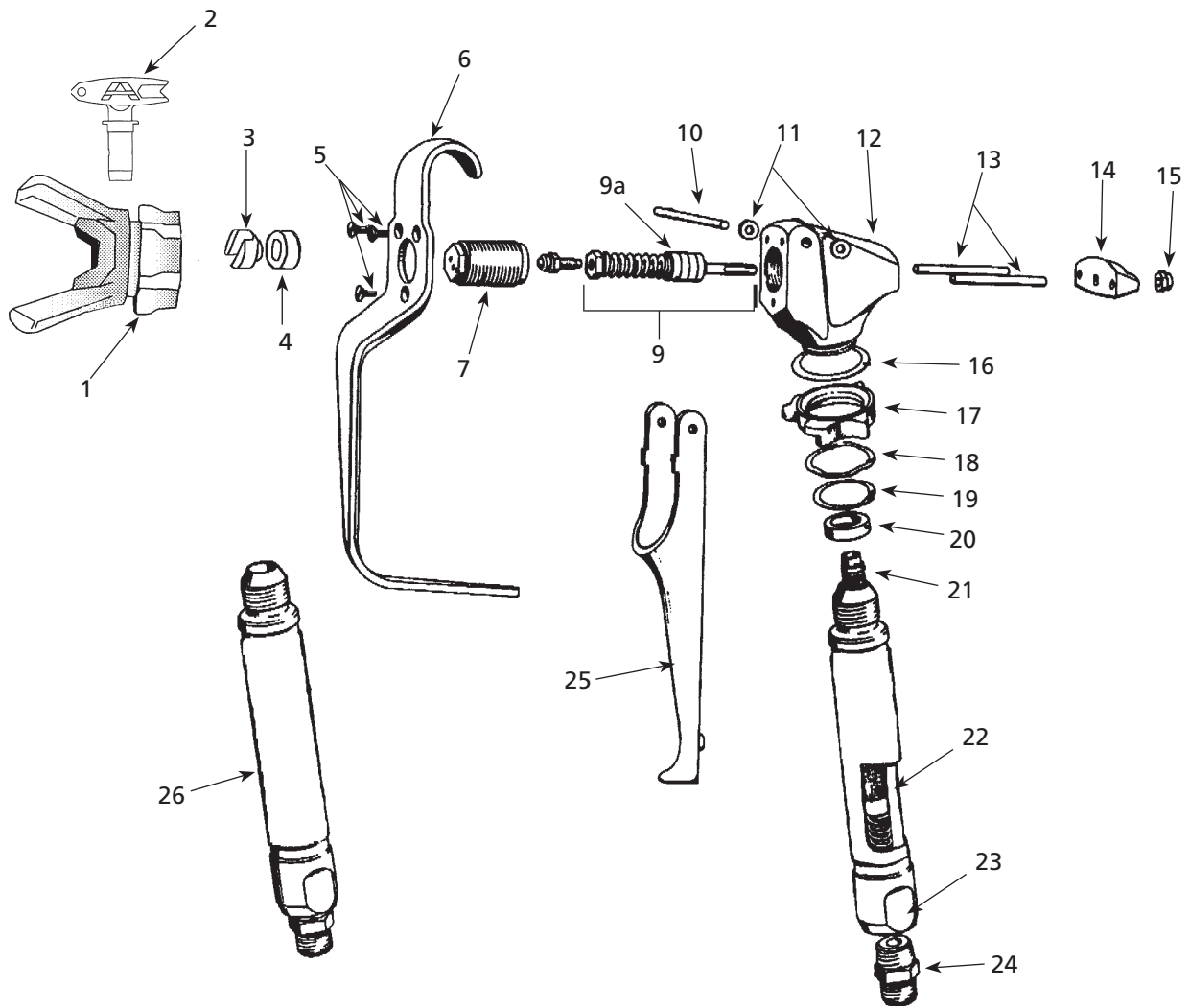
For Replacement Parts, Call 1-800-626-4401

Please provide following information:

- Model number
- Serial number (if any)
- Part descriptions and number as shown in parts list

Address parts correspondence to:
 Campbell Hausfeld
 100 Production Drive
 Harrison, OH 45030 U.S.A.

AL2710 Spray Gun

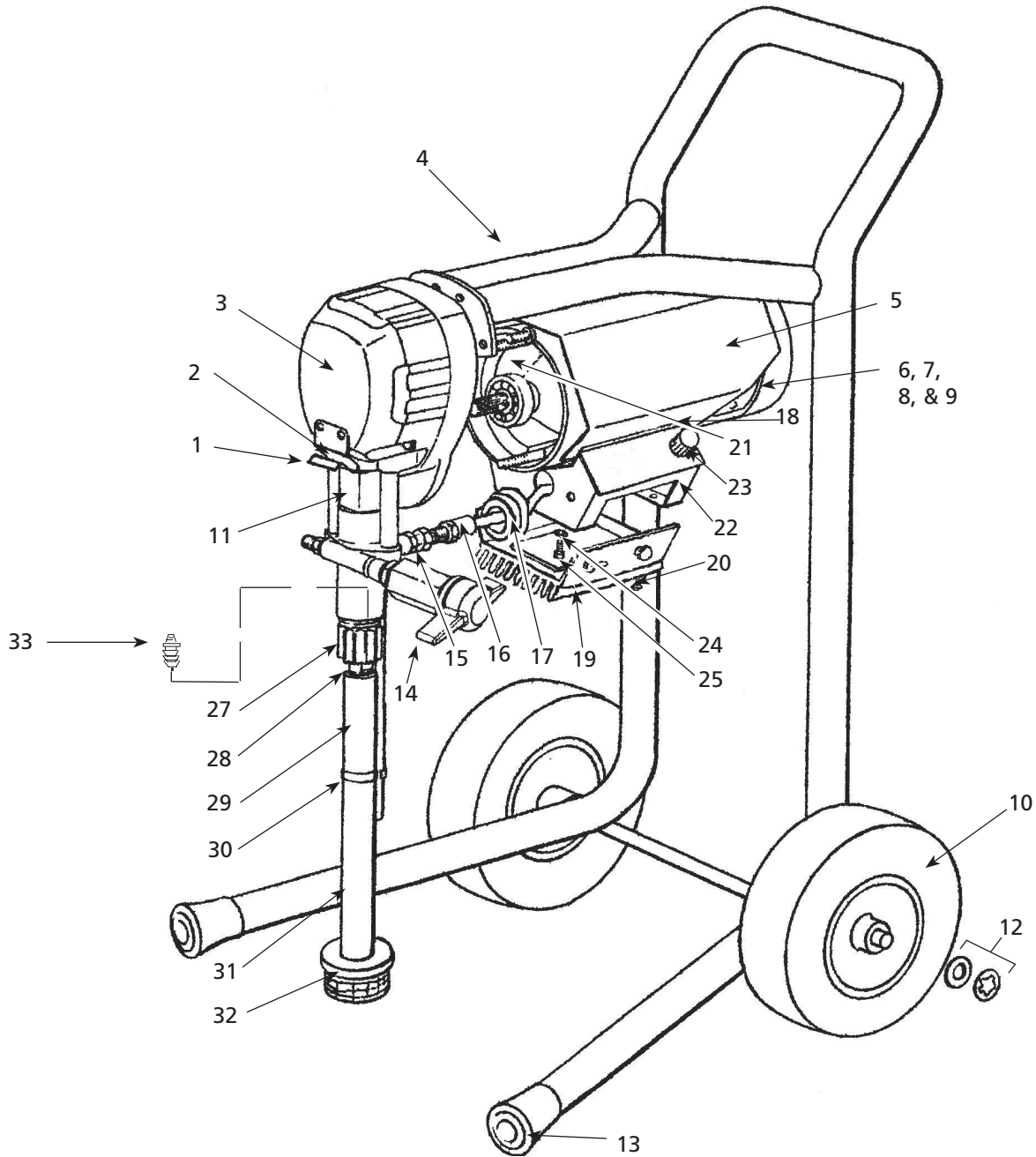


Parts List for Spray Gun for use with AL2710

Ref. No.	Description	AL2710 Spray Gun Part Number	Qty.
1	Rev-guard	AL2245	1
2*	Rev-tip	AL22xx	1
3	Rev-tip seal-metal	561-025	1
4	Rev-tip seal-o-ring	561-026	1
5	Screw	120-023	3
6	Guard	120-005	1
7	Valve seat complete	120-035	1
8	Valve ball with holder	120-037	1
9	Valve spring unit	120-011	1
9a	Seals-PTFE	120-033	2
10	Trigger pin	120-022	1
11	Washer	120-046	2
12	Gun head	120-002	1
13	Retainer pin	120-045	2
14	Retainer	120-020	1
15	Nut	120-021	1
16	Washer	120-056	1
17	Trigger lock	120-048	1
18	Wave washer	120-055	1
19	Retaining ring	120-049	1
20	Seal	120-082	1
21	Filter-Complete-Coarse (2 pk.)	AL086100AJ	1
	Filter-Complete-Fine (2 pk.)	AL086101AJ	1
22	Spring	120-088	1
23	Handle-Complete	120-087	1
24	Connector	115-019	1
25	Trigger	120-044	1
26	Handle with swivel	120-085	1

* See Tip Selection Chart on page 7 to determine which rev-tip will be needed for paint application.

**Airless Paint Sprayer
Model AL2710**

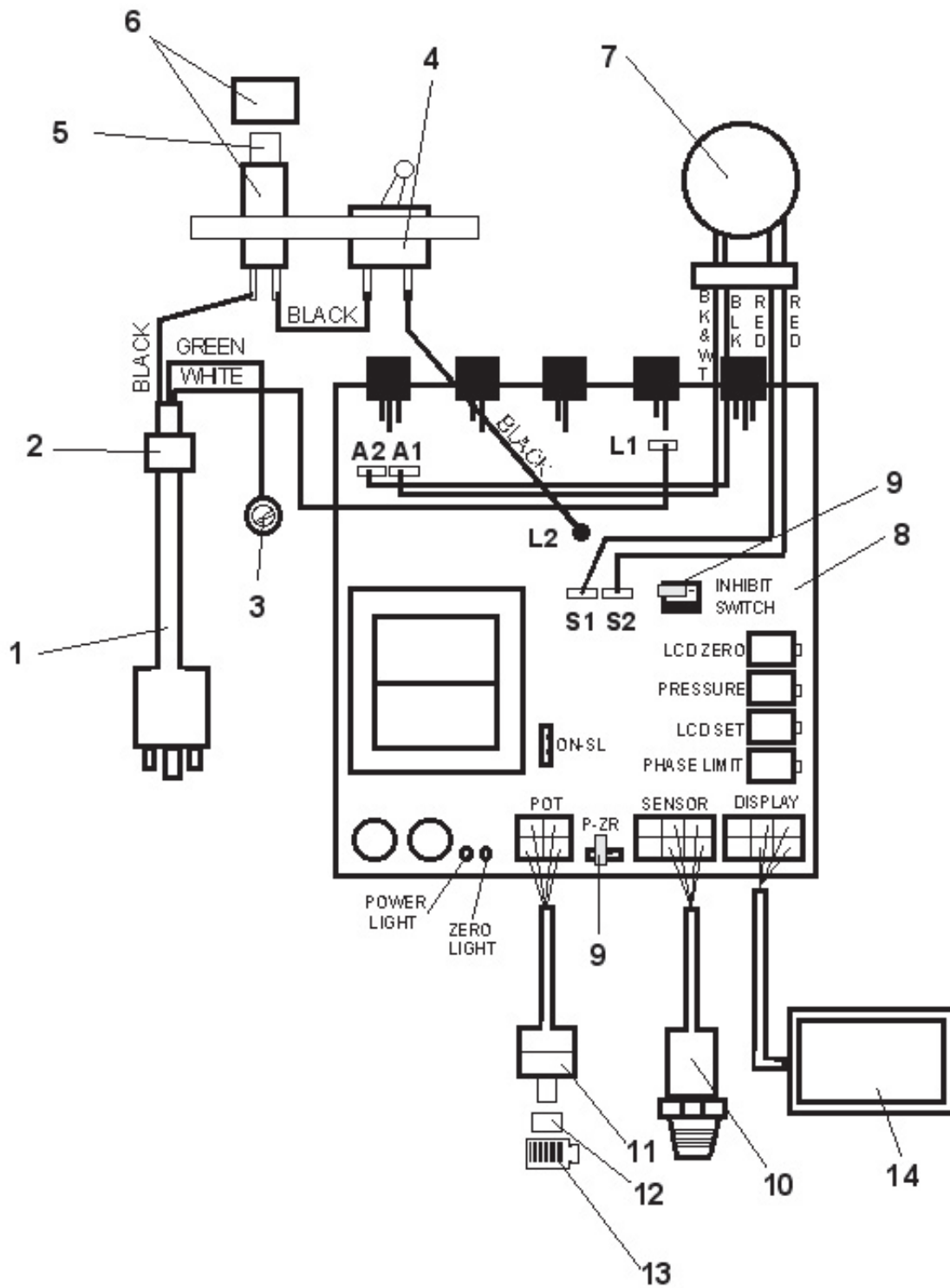


Parts List for Airless Paint Sprayer, Model AL2710

Ref. No.	Description	AL2710 Airless Paint Sprayer Part Number	Qty.
1	Pail hook	331-336	1
2	Screw	100-390	2
3	Cover	331-234	1
4	Frame	331-273	1
5	Motor cover	331-199	1
6	0.8 HPDC Motor	331-068	1
7	Motor fan	331-212	1
8	Fan cover	331-213	1
9	Fan cover screws	117-090	1
10	Tire	113-017	2
11	<i>Not applicable</i>		
12	Collar	143-029	2
13	Rubber boot	331-048	2
14	Prime/PR Valve	100-180	1
15	Swivel	100-003	1
16	Sensor	331-294-99	1
17	Sensor seal	106-500	1
18	Rubber edge	331-337	2
19	Pressure assembly	331-315-99	1
20	Screw	110-037	4
21	Screw	100-377	4
22	Terminal box	331-321	1
23	Knob	117-044	1
24	Washer	331-103	4
25	Screw	100-312	4
26	Motor brush	331-398	2
27	Suction nut	331-034	1
28	Suction seat assembly	331-292	1
29	Bypass hose	331-424	1
30	Spring clip	331-135	1
31	Inlet tube	331-400	1
32	Filter	141-008	1
33	Fitting	331-090R	1

NOTE: Specify quantity needed when ordering. Otherwise only one (1) quantity will be shipped.

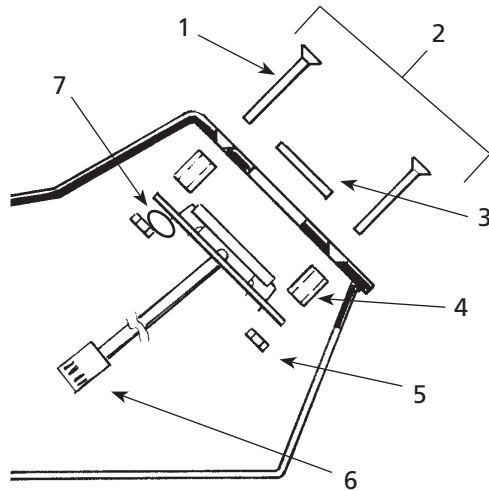
Electrical System



Parts List for Electrical System

Ref. No.	Description	Part Number	Qty.
1	Electrical power cord	331-168	1
2	Strain relief	331-185	1
3	Screw	331-138	1
4	Toggle switch	331-311	1
5	Fuse 20A Slow Blow	331-328	1
6	Fuse holder	331-312	1
7	0.8 HP DC motor	331-068	1
8	Pressure control assembly	331-315-99	1
9	Jumper	117-207	1
10	Sensor	331-294-99	1
11	Potentiometer	331-297	1
12	Spacer	331-184	1
13	Knob	117-044	1
14	LCD-Optional Display	331-377	1

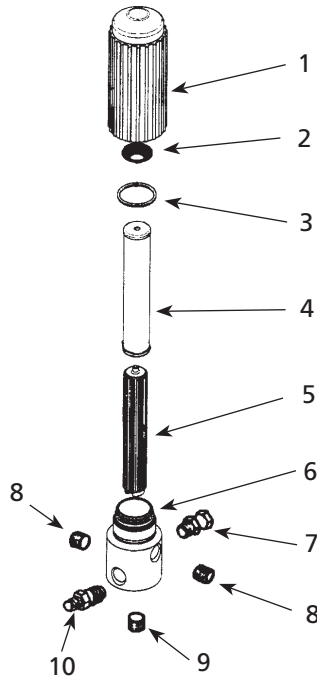
LCD Display



Parts List for Liquid Crystal Display (LCD)-Optional

Ref. No.	Description	Part Number	Qty.
1	Screw	100-362	4
2	Mylar Label-Clear	101-270	1
3	Window	331-360	1
4	Spacer	117-281	4
5	Nut	117-126	4
6	Display Assembly	331-377	1
7	Washer	120-046	4

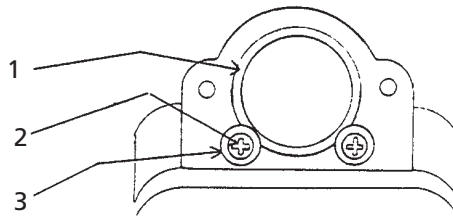
**Manifold Filter
Part No. 111-200-99**



Parts List for Manifold Filter

Ref. No.	Description	111-200-99 Part Number	Qty.
-	Filter assembly	111-200-99	1
1	Base	111-202	1
2	Spring	301-356	1
3	O-ring	106-007	1
4	Filter-60 Mesh	111-204	1
5	Support	111-203	1
6	Base	111-201	1
7	Swivel	100-101	1
8	Plug 3/8"	100-129	2
9	Plug 1/4"	100-028	1
10	Nipple 3/8 x 1/4	100-109	1

Gearbox Sleeve Bearing Replacement

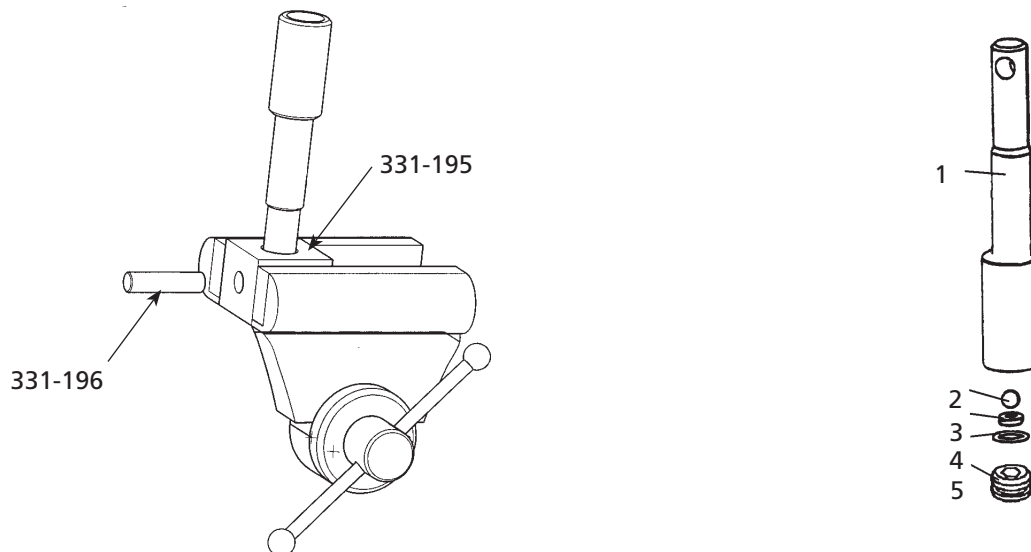


Parts List for Gearbox Sleeve Replacement

Ref. No.	Description	Part Number	Qty.
1	Sleeve bearing	331-061	1
2	Washers	331-103	2
3	Screws	331-197	2

NOTE: When replacing item 1, cover the outside of the sleeve with clear silicone prior to inserting into cover assembly.

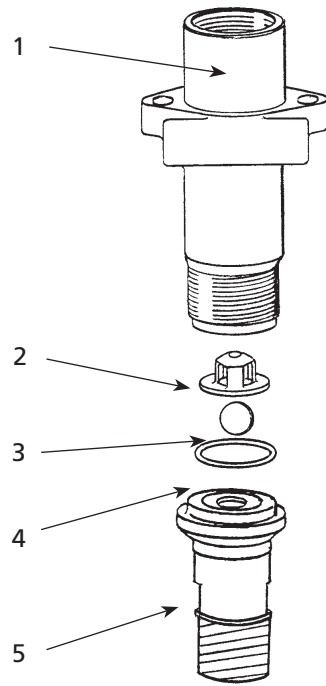
Piston Rod and Upper Check Valve



Parts List for Piston Rod, Upper Check Valve

Ref. No.	Description	Part Number	Qty.
1	Piston rod	331-708	1
2	Ball	331-027	1
3	Seat	331-026	1
4	O-ring PTFE	331-100	1
5	Seat retainer	331-314	1

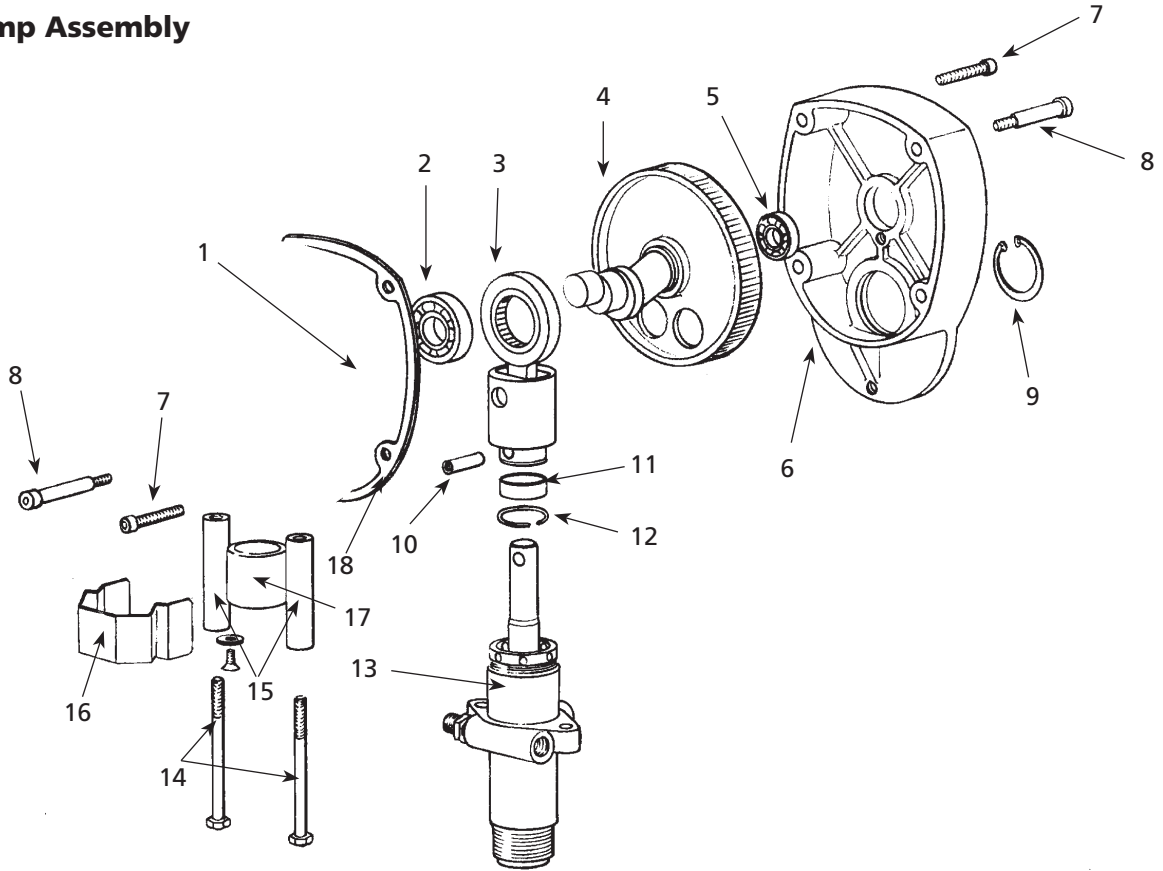
Lower Suction Valve



Parts List for Lower Suction Valve

Ref. No.	Description	Part Number	Qty.
1	Pump body	331-011	1
2	Retainer	331-029	1
3	Ball 1/2" Diameter	331-030	1
4	O-ring PTFE	106-011	1
5	Suction seat assembly	331-292	1

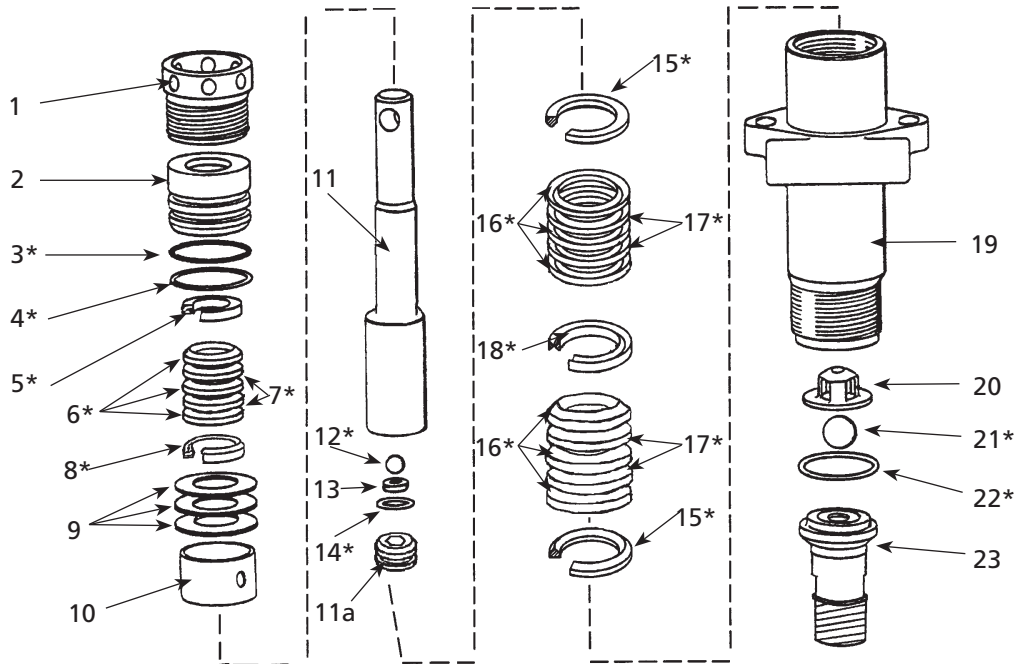
Gear and Pump Assembly



Parts List for Gear and Pump Assembly

Ref. No.	Description	Part Number	Qty.
1	Cover	331-234	1
2	Bearing	331-046	1
3	Crosshead assembly	331-038	1
4	Gear crank	331-407	1
5	Bearing	331-047	1
6	Gearbox casing*	331-040	1
7	Bolt Soc Hd	100-381	2
8	Shoulder bolt	100-380	2
9	Retaining ring	331-088	1
10	Pin	331-065	1
11	Sleeve	331-117	1
12	Retaining spring	331-062	1
13	Paint pump assembly	331-236	
14	Screw	100-318	2
15	Tube spacer	331-074	2
16	Cover-guard	331-111	1
17	Sleeve bearing	331-061	1
18	Gasket	331-219	1

*NOTE: Item 6 can be ordered separately, but it is included with Motor Assembly (Part No. 331-068)



**Fluid Pump
Part No. 331-236**

Parts List for Fluid Pump

Ref. No.	Description	331-236 Part Number	Qty.
-	Packing kit	331-210	1
1	Packing nut	331-037	1
2	Seal holder	331-019	1
3*	O-ring Viton-Black	106-010	1
4*	O-ring PTFE-White	106-009	1
5*	Adapter female	331-021	1
6*	V-Packing-Plastic	331-023	3
7*	V-Packing-Leather	331-307	2
8*	Adapter male	331-022	1
9	Belleville springs	331-025	3
10	Tube spacer	331-018	1
11	Piston assembly	331-708	1
11a	Seat retainer	331-314	1
12*	Ball	331-027	1
13	Seat	331-026	1
14*	O-ring PTFE	331-100	1
15*	Adapter male	331-014	1
16*	V-Packing-Plastic	331-016	6
17*	V-Packing-Leather	331-306	4
18*	Adapter female	331-308	1
19	Fluid body	331-011	1
20	Retainer	331-029	1
21*	Ball	331-030	1
22*	O-ring PTFE	106-011	1
23	Seat	331-409	1

NOTE: Specify quantity on purchase order. Otherwise only one (1) quantity will be shipped.

Limited Warranty

1. **DURATION:** From the date of purchase by the original purchaser as follows: Standard Duty Paint Application Systems and all Paint Application Accessories - 1 year, Serious Duty Paint Application Systems - 3 years, Extreme Duty Paint Application Systems - 5 years.
2. **WHO GIVES THIS WARRANTY (WARRANTOR):** Campbell Hausfeld/A Scott Fetzer Company, 100 Production Drive, Harrison, Ohio, 45030, Telephone: 1-800-626-4401.
3. **WHO RECEIVES THIS WARRANTY (PURCHASER):** The original purchaser (other than for purposes of resale or rental) of the Campbell Hausfeld Product.
4. **WHAT PRODUCTS ARE COVERED BY THIS WARRANTY:** All non-compressor driven paint application systems, HVLP spraying systems, and paint application accessories supplied or manufactured by the Warrantor.
5. **WHAT IS COVERED UNDER THIS WARRANTY:** Defects in material and workmanship which occur within the duration of the warranty period. Warrantor will also cover normal wear items for a period of thirty days from the date of original purchase against defects in material and workmanship. These wear items are: HVLP-filters, motor brushes, gun packing, gun canister seal, gun check valve and gun air flow ring; Airless-inlet valve, outlet valve, gun valve, filters, tips, all seals and o-rings.
6. **WHAT IS NOT COVERED UNDER THIS WARRANTY:**
 - A. Implied warranties, including those of merchantability and FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED FROM THE DATE OF ORIGINAL PURCHASE AS STATED IN THE DURATION. If product is used for rental purposes, the warranty will apply for ninety (90) days from the date of original purchase. Some states do not allow limitation on how long an implied warranty lasts, so the above limitations may not apply to you.
 - B. ANY INCIDENTAL, INDIRECT, OR CONSEQUENTIAL LOSS, DAMAGE, OR EXPENSE THAT MAY RESULT FROM ANY DEFECT, FAILURE, OR MALFUNCTION OF THE CAMPBELL HAUSFELD PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
 - C. Any failure that results from an accident, purchaser's abuse, neglect or failure to operate products in accordance with instructions provided in the owner's manual(s) supplied with product. Accident, purchaser's abuse, neglect or failure to operate products in accordance with instructions shall also include the removal or alteration of any safety devices. If such safety devices are removed or altered, this warranty is void.
 - D. Normal adjustments which are explained in the owner's manual(s) provided with the product.
 - E. Items or services that are normally required to maintain the product: HVLP-filters, motor brushes, gun packing, gun canister seal, gun check valve and gun air flow ring; Airless-inlet valve, outlet valve, gun valve, filters, tips, all seals and o-rings., or any other expendable part not specifically listed, will only be covered for thirty days from date of original purchase.
7. **RESPONSIBILITIES OF WARRANTOR UNDER THIS WARRANTY:** Repair or replace, at Warrantor's option, products or components which are defective, have malfunctioned and/or failed to conform within duration of the warranty period.
8. **RESPONSIBILITIES OF PURCHASER UNDER THIS WARRANTY:**
 - A. Provide dated proof of purchase and maintenance records.
 - B. Deliver or ship the Campbell Hausfeld product or component to the nearest Campbell Hausfeld Authorized Service Center. Freight costs, if any, must be borne by the purchaser.
 - C. Use reasonable care in the operation and maintenance of the products as described in the owner's manual(s).
9. **WHEN WARRANTOR WILL PERFORM REPAIR OR REPLACEMENT UNDER THIS WARRANTY:** Repair or replacement will be scheduled and serviced according to the normal work flow at the servicing location, and depending on the availability of replacement parts.

This Limited Warranty applies in the U.S., Canada and Mexico only and gives you specific legal rights. You may also have other rights which vary from state to state, or country to country.