

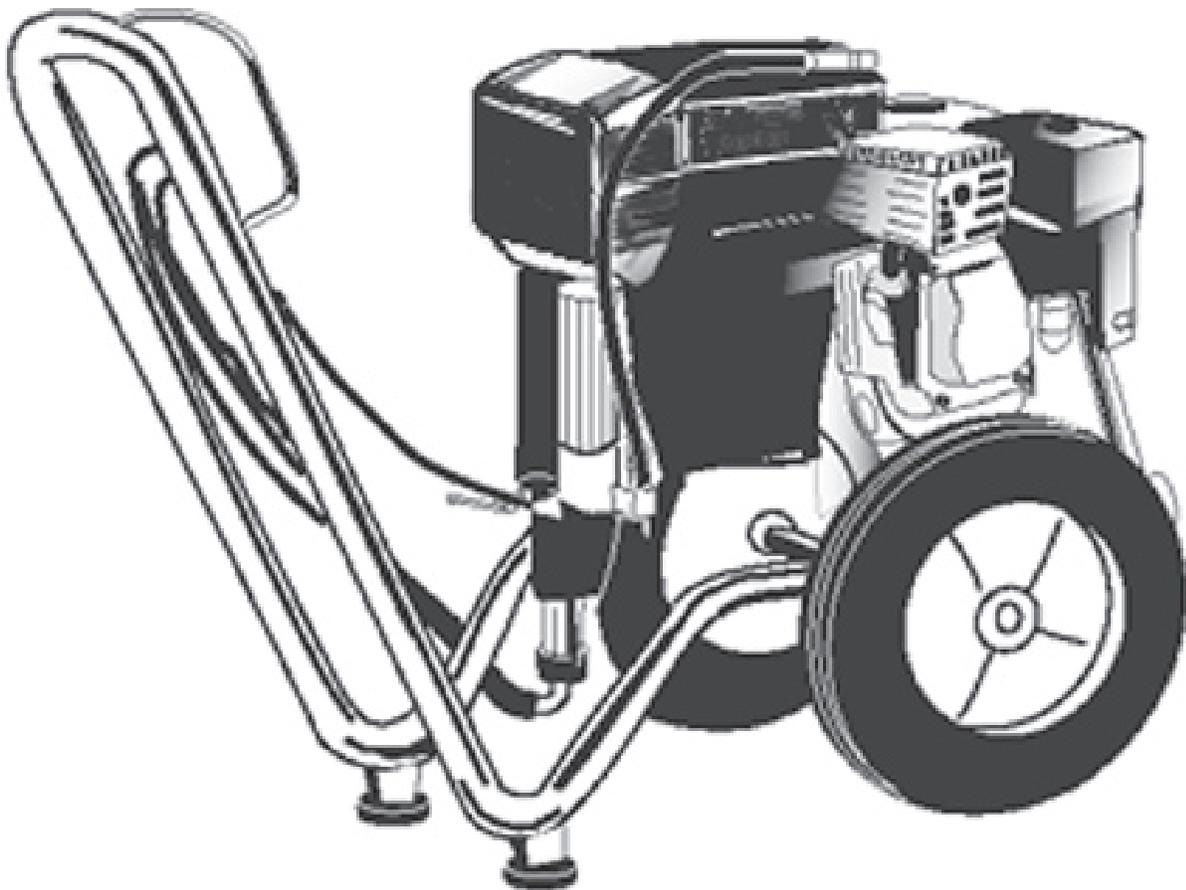
Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain 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. Pressure3000 psi
Output	1.5 GPM
Tip size	1 gun up to 0.041
	2 guns up to 0.028
Engine	5.5HP Honda
Weight	160 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.

Airless Paint Systems

General Safety Information (Cont.)

- Do not smoke or eat when spraying paint, insecticides, or other flammable substances.
- 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.
- When spraying and cleaning, always follow the instructions and safety precautions provided by the material manufacturer (Refer to MSDS).

⚠ WARNING

GASOLINE ENGINE PRECAUTIONS:

- Locate unit 25 feet away from spray area in well-ventilated area.
- NEVER operate in closed building unless exhaust is piped outside.
- NEVER allow hose to lay against engine mufflers or hot parts.
- NEVER refill fuel tank while engine is hot or running.

⚠ 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.
- 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.
- 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

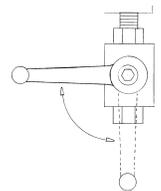
Do not spray flammable materials in vicinity of open flame or near ignition sources. Motors, electrical equipment and controls can cause



PRESSURE RELIEF PROCEDURE

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

- Engage gun trigger lock.
- Turn off engine.
- Disengage gun trigger lock and trigger gun to relieve residual fluid pressure. Hold metal part of gun in contact with grounded metal pail.
- Re-engage gun trigger lock.
- Turn Prime/Pressure Relief Valve to open (priming) position to relieve fluid pressure.
- Leave Prime/Pressure Relief Valve OPEN until you are ready to spray again.



OPEN POSITION

NOTE: If spray tip or hose is clogged, follow Step 1 to 5 above. Expect paint splashing into the pail while relieving pressure during Step 5. If you suspect that pressure has not been relieved after following the above procedure, engage gun trigger lock and take your unit to an authorized Campbell Hausfeld Service Center.

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.

Airless Paint Systems

General Safety Information (Cont.)

- 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.
- 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.
- Water-based paint: Flush with water, then mineral spirits. Leave the pump, hose and gun filled with mineral spirits.
- For longer term storage use a 50/50 mixture of mineral spirits and motor oil. Always ensure that there 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-based 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 1). Used to relieve pressure from gun, hose and tip and to prime the unit when in OPEN position.
- Pressure Control Knob (Figure 2). Used to adjust pressure. Turn clockwise to increase pressure and counterclockwise to decrease it.
- Choke Lever, Fuel Valve, and

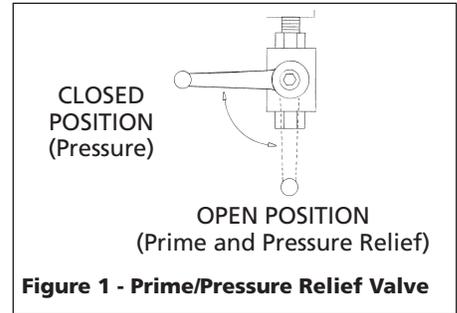


Figure 1 - Prime/Pressure Relief Valve

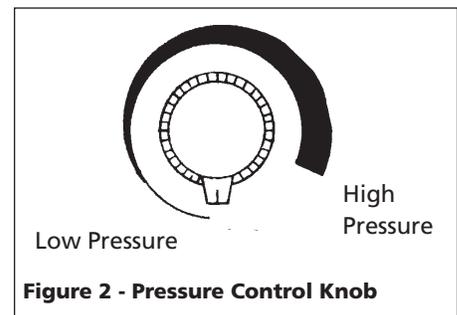


Figure 2 - Pressure Control Knob

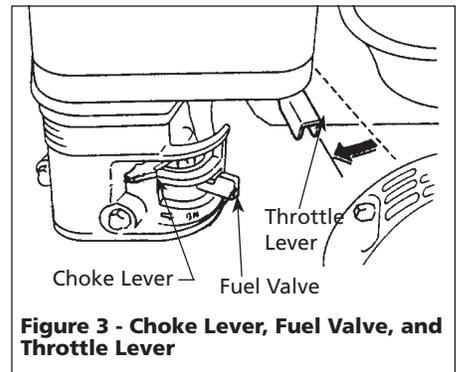


Figure 3 - Choke Lever, Fuel Valve, and Throttle Lever

Throttle Lever (Figure 3).

PROCEDURE

1. Be sure the gun safety lock is engaged and there is no spray tip in the gun.
2. Pour enough clean, compatible solvent into a large, empty metal pail to fill the pump and hoses.
3. Place the suction tube into the pail or place the pail under the pump.
4. Turn the pressure control knob to low pressure. Refer to Fig. 2.

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Pre-Operation (Cont.)

5. Open the prime valve to the open - "Priming Position". This will allow for an easy start. Refer to Figure 1 on page 4.
6. Turn the engine ON/OFF switch to ON.
7. Move the choke toward the closed position as per Figure 3.
8. Move the throttle lever slightly to the left as per Figure 3.
9. Turn the fuel valve ON as per Figure 3. Pull the start rope. Pull the engine over against compression stroke and then let the rope rewind slowly into the starter. Pull firmly and rapidly to start the engine. Do NOT drop the rope. Hold onto the handle while rewinding, or the rope may rewind improperly and jam the assembly. If the engine does not start, open the choke a little more. If the engine floods, open the choke all the way and continue cranking.
10. After the engine is warm, gradually close the choke lever, increase the RPM of engine slightly by moving throttle to the left. Close the prime valve. Refer to Figure 1.
11. Point the gun into the metal pail and hold a metal part of the gun firmly against the pail Refer to Figure 4.



Figure 4 - Spray Gun Against Metal Container

12. Disengage the gun trigger lock and squeeze the gun trigger. At the same time, slowly turn the pressure control knob clockwise just enough

to move liquid at low pressure.

13. Allow the pump to operate until clean solvent comes from the gun.
14. Release the trigger and engage the gun trigger lock.
15. If you are going to start spraying, place the pump or 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 metal pail (Figure 4) and force the solvent from the pump and hose. When paint starts coming from gun, turn pressure control knob to minimum pressure, place prime valve in prime (open) position and engage the gun trigger lock.
16. If you are going to store the sprayer, remove the suction tube or pump from the solvent pail force the solvent from the pump and hose. Engage the gun safety latch and refer to the "Storage" Procedure on page 4, Step 5.
17. Whenever you shut off the sprayer follow the Pressure Relief Procedure warning on page 3.

SETTING UP

1. Connect the hose and gun.
 - a. Remove the plastic cap plug from the outlet and screw a conductive or grounded 3000 psi spray hose onto fluid outlet.
 - b. Connect an airless spray gun to the other end of the hose, but do not install the spray tip yet!

NOTE: Do not use thread sealer on swivel unions as they are made to self seal.

NOTE: The first 50' of hose should always be 3/8".

2. Fill the Packing Nut/Wet Cup 1/3 full with Throat Seal Oil (TSO) supplied. See Figure 5.



Figure 5 - Applying throat seal oil

3. Check the engine oil level.
 - a. Unscrew the oil fill plug. The dipstick is attached to the plug.
 - b. Without threading the plug into place, check to be sure the oil is up to the top mark on the dipstick.
 - c. If oil is needed, refer to engine manual.
4. Fill the fuel tank.

▲ WARNING *Fuel spilled on a hot surface can cause a fire or explosion and cause serious bodily injury and property damage. Always shut off engine and let it cool before filling the tank, and carefully follow steps a to c below, making sure you do not spill any fuel.*

 - a. Close the fuel shutoff valve.
 - b. Use only clean, fresh, well-known brands of unleaded regular grade gasoline.
 - c. Remove the fuel cap and fill tank. Be sure the air vent in the fill cap is not plugged so fuel can flow to the carburetor, then replace the cap.

SPRAY TIP SELECTION

See Tip Selection Chart on Page 6.

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

Airless Paint Systems

Pre-Operation (Cont.)

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.

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	.035
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		•	•									
Wood Exterior	Enamel				•								
	Exterior Stain				•	•							
Masonry	Vinyl, Acrylic, Latex						•	•					
	Vinyl, Oil Base Alkyd				•	•							
Ceiling	Latex, Acrylic				•	•	•	•					
	Block Filler							•	•	•	•	•	•
	Elastomer							•	•	•	•	•	•
Structural Steel	Hi Build, Mil White							•	•				
	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 1 - Tip Selection Chart

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Operation

STARTING UP

1. Learn the functions of the controls (see "How to Spray / Important Components" for more information).
2. Prepare the Material
 - a. Prepare the material according to material manufacturer's recommendations.
 - b. Place the pump or suction tube into the material container.
3. Start the sprayer.
 - a. Prime/PR Valve must be open in the priming position.
 - b. Pressure Control Knob must be in low pressure position.
 - c. Follow procedure under "How to Flush," page 5, Steps 6 to 12.
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 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 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.

▲ WARNING *To stop the unit in an emergency or before performing any service or maintenance procedure follow the Pressure Relief Procedure on page 3 to relieve the fluid pressure.*

▲ WARNING *If you spray paint into the paint bucket, always use the lowest spray pressure and maintain firm metal-to-metal contact between gun and container.*

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

NOTICE *Operating the sprayer at higher pressure than needed wastes material, causes early tip wear and reduces the life of the spray equipment.*

- c. If more coverage is needed, use a larger tip rather than increasing the pressure.
 - d. Check the spray tip. The tip size and angle determine the pattern width and flow rate.
6. Reduce clutch wear.
 - a. The first 50 feet of airless spray hose should be 3/8", the larger diameter works as a pulsation damper and saves unnecessary cycling of the clutch. A minimum of 100 feet of hose should be used.
 - b. Adjust the Engine Speed and Pump Pressure. First set the throttle lever to the maximum RPM setting (fully left). Trigger the gun onto a test paper to check the spray pattern and atomization. Adjust the Pressure Control Knob until you get a good pattern. Reduce RPM of engine to support pressure without overworking engines.
7. Clean tip if clogged. If tip is becoming worn, replace it. Worn tips waste paint, cause overspray, make cutting-in difficult, and decrease sprayer performance.

IMPORTANT: Always follow the Pressure Relief Procedure on page 3

before servicing unit.

▲ WARNING *Never hold your hand, body, fingers, or hand in a rag in front of the spray tip when cleaning or checking it for a cleared tip. Always point the gun toward the front or into a waste container when checking to see if the tip is cleared or when using a self-cleaning tip.*

- a. Follow the Pressure Relief Procedure on page 3.
- b. Clean the front of the tip frequently (with toothbrush only) during the day to keep material from building up and clogging the tip.
- c. To clean and clear a tip if it clogs, refer to the separate instruction manual received with your gun and nozzle.

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.

NOTICE *Clean a clogged standard flat tip only after it has been removed from the gun. Follow the Pressure Relief Procedure on page 3.*

8. When shutting off the sprayer, follow this procedure.
 - a. Whenever you stop spraying, even for a short break, follow the Pressure Relief Procedure on page 3.
 - b. Clean the tip and gun as recommended by your separate gun instruction manual.
 - c. Flush the sprayer at the end of each work day if the material you are spraying is water-based, or if it could harden in the sprayer overnight. See "Flushing" on page 4. Use a compatible solvent to flush, then fill the pump and hoses with an oil based solvent such as mineral spirits.

Airless Paint Systems

Operation (Cont.)

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.*

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 6).

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 7.)

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 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,

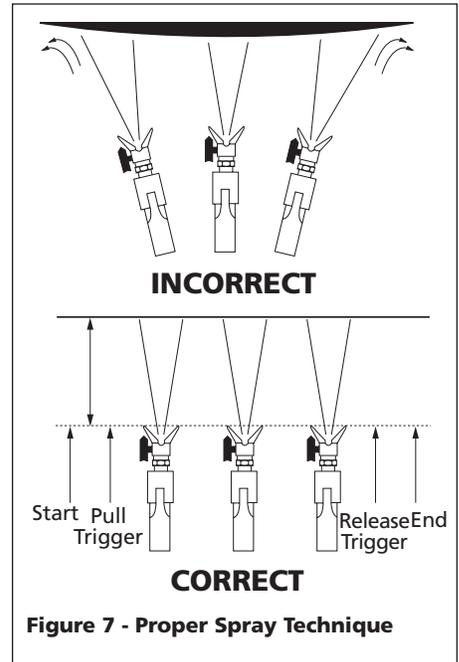


Figure 7 - Proper Spray Technique

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

REPLACEMENT OF ELECTRICAL CONTROL BOARD

1. Remove electrical cover.
2. Disconnect sensor lead from electrical board.
3. Disconnect two clutch leads on electrical board from leads on clutch.
4. Using a 1/16" allen wrench, loosen set screw in Pressure Control Knob

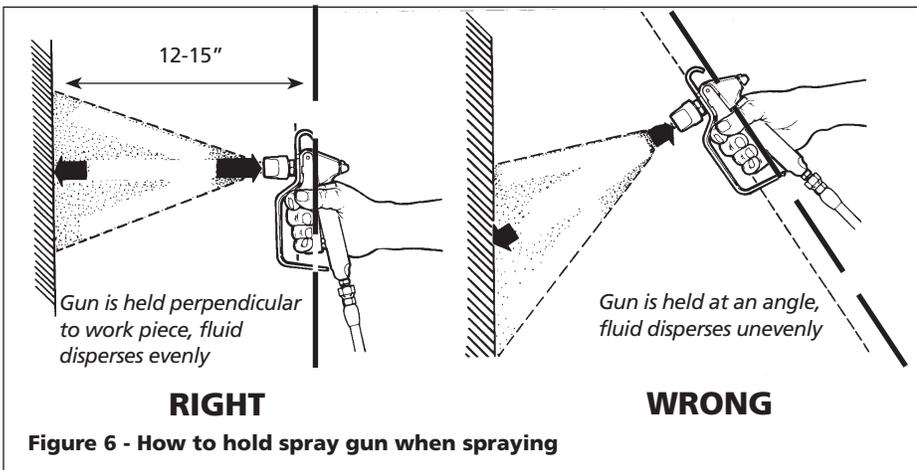


Figure 6 - How to hold spray gun when spraying

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Electrical System (Cont.)

and remove knob.

- Using a 1/2" nut driver or 1/2" deep socket, remove nut from pressure control shaft. This will allow removal of electrical control board from frame.
- Replace electrical board assembly in reverse order. Adjust pressure according to the procedure given in Pressure Calibration on Electrical Board section.

PRESSURE CALIBRATION ON ELECTRICAL BOARD

- Turn "Pressure Calibration" Trimpot adjustment on electrical control board in the counter clockwise direction at least 15 revolutions.
- Connect 5000 psi glycerine pressure

gauge on output of pump between fluid pump and airless hose to monitor Fluid Pump Pressure.

- Start engine and run at maximum RPM. Turn Prime/Pressure Relief Valve to the open (Prime) position. Turn Pressure Control Knob to maximum position (fully clockwise).
- Using an insulated screwdriver, adjust "Pressure Calibration" Trimpot by turning clockwise until the clutch engages. When the clutch engages the pump will commence Priming. When pump is primed, turn the Prime/Pressure Relief Valve to the Closed (Pressure) position. The pump will begin to pressurize and the clutch will disengage at a low pressure. Continue turning the Trimpot

clockwise to increase pressure to 3000 psi.

- Trigger gun. The pressure should drop approximately 350-400 psi (when using a 3/8" hose), the clutch will engage and build pressure to 3000 psi and disengage. Trigger gun several times to ensure proper pressure setting.
- Turn Pressure Control Knob to minimum position. The clutch should disengage and pump stop moving.
- Secure leads with tie strap.
- Replace cover on unit. Ensure the leads are not pinched or damaged in the process of replacing covers.

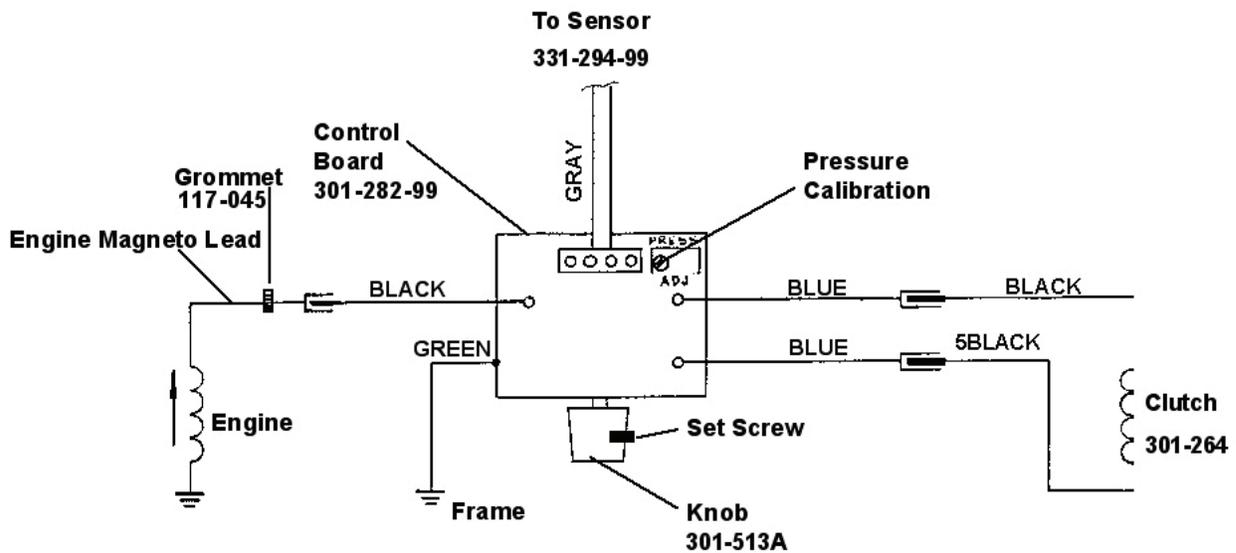


Figure 8 - Electrical Board/Pressure Calibration

Airless Paint Systems

Service

FLUID PUMP

FLUID PUMP DISCONNECT

1. Flush out the material you are spraying, if possible.
2. Follow the Pressure Relief Procedure on page 3. Stop the pump in the middle of down stroke.
3. Remove the suction tube and fluid hose (if so equipped) from the fluid pump. Detach the hose from the front of the fluid pump.
4. Remove 2 retaining rings and slip the sleeve of the coupling down and remove both coupling halves. This will disconnect fluid pump from the connecting rod.
5. Unscrew the two tie rod locknuts.
6. Pull the pump down off the tie rods.

FLUID PUMP REINSTALL

1. Loosen packing nut and extend piston rod so that it is in the "fully up" position.
2. Make sure that spacer tubes (301-048) are in place.
3. Connect connecting rod with fluid pump by installing coupling halves. Slide sleeve over coupling halves. Secure with retaining rings.
4. Secure the fluid pump housing to the tie rods and screw nuts with lock washers on loosely.
5. Tighten the tie rod nuts evenly to 30 ft. lb.
6. Reconnect fluid hoses and suction tube (if so equipped).

NOTE: After all the rod locknuts are tight, the alignment of both rods should allow easy assembly and disassembly of the coupling. If there is any binding, loosen and retighten all the rod locknuts to improve the alignment. Misalignment causes premature wear of seal and packings.

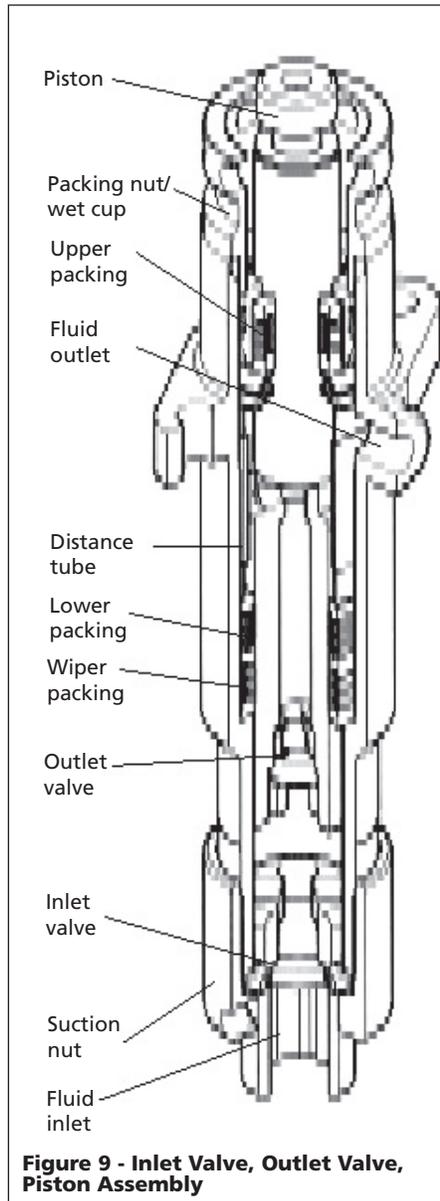


Figure 9 - Inlet Valve, Outlet Valve, Piston Assembly

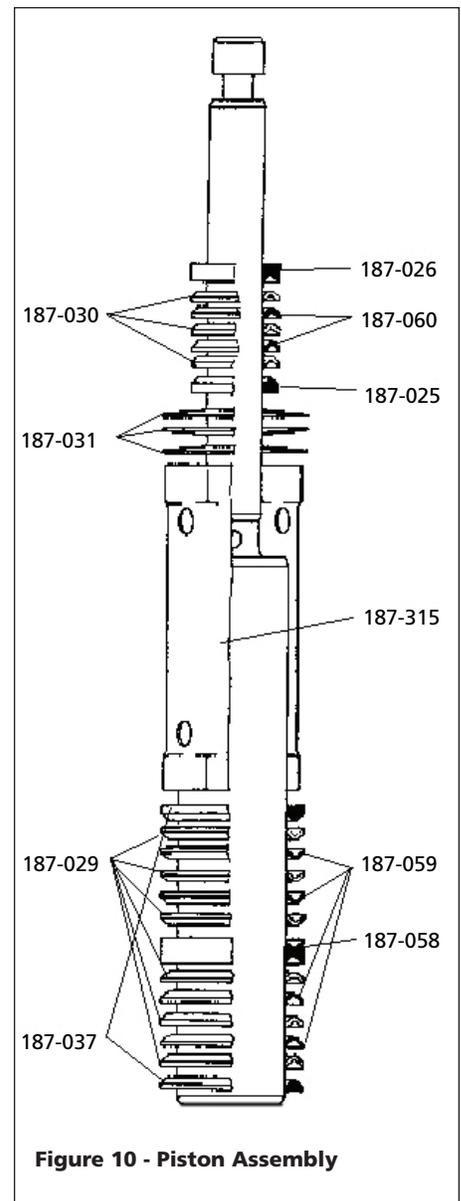


Figure 10 - Piston Assembly

7. Tighten the packing nut until there is resistance, then tighten it 1 full turn. Approximately 4 threads will show when new packings are installed. Fill the wet cup of the packing nut 1/3 full with Throat Seal Oil.
8. Start the pump and operate it slowly (at low engine speed and pressure setting) to check the

piston rod for binding. Adjust tie rod lock nuts if necessary to eliminate binding.

9. Run at maximum pressure for several minutes, relieve pressure and repeat step 7.

Airless Paint Systems

Service (Cont.)

INLET VALVE

1. Using the rod collar tool, screw suction nut off of fluid body. (Suction nut contains intake seat support.)
2. Remove inlet seat, O-ring, inlet ball and ball cage with O-ring.
3. Clean all parts and inspect them for wear or damage. Replace parts as needed. Old O-rings should be replaced with new ones.

NOTE: Inlet seat is reversible.

4. Clean inside of fluid body.
5. Reassemble the valve and screw it onto the fluid body if no further service is needed.

OUTLET VALVE

1. Stop piston rod in middle of its stroke. Remove retaining rings.
2. Slip the sleeve off the coupling halves and remove both coupling

halves. This will disconnect piston rod from connecting rod and gearbox assembly.

3. Screw the suction nut off the pump and remove inlet valve assembly.
4. Using the rod collar tool, loosen the packing nut (CCW) and push the piston down and out of the fluid body.
5. Place piston holder in a vise. Slide the piston into the holder and lock in place with a 1/4" pin.
6. Clean all parts and inspect them carefully for wear or damage. Inspect the outside of the piston rod for scoring or wear. Replace these parts if needed. A worn piston rod will cause premature wear of packings.
7. Using a 3/8" allen wrench to unscrew the outlet seat support from the piston.
8. Remove the outlet seat, O-ring,

outlet ball and ball cage.

9. Inspect the outlet ball and seat for wear. Replace as required.

NOTE: Inlet seat is reversible.

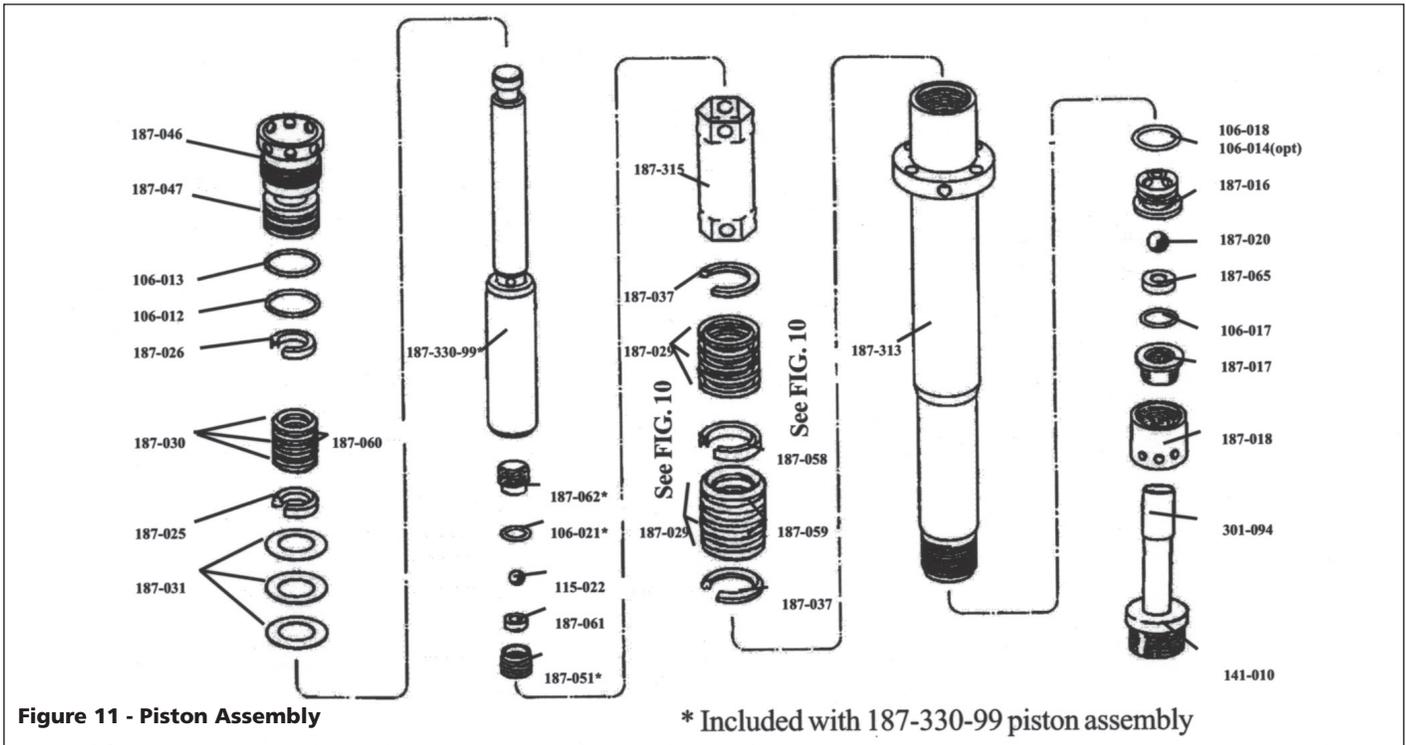
10. Install parts back into piston rod as shown in Figure 11. Place two drops of loctite No. 242 (blue) on threads of the outlet seat support before assembling and torque to 20 ft-lbs.

CLUTCH REPLACEMENT

NOTE: See clutch assembly parts list on page 26.

Remove clutch as follows:

1. Remove upper and lower clutch covers.
2. Remove splash cover from clutch brackets and spacer tubes.
3. Disconnect two clutch leads from electrical control board leads.
4. Remove gearbox cover with manifold filter from gearbox.



Airless Paint Systems

Service (Cont.)

Disconnect hose from fluid section.

5. Disconnect and remove fluid section from gearbox, including Connecting Rod Assy. (See "Fluid Pump Disconnect, page 10)
 6. Remove four nuts (page 20, Item 23) on the engine side of (Item 18) from screws (Item 24) which pass through spacer tubes (Item 15). This will allow removal of Gearbox & Clutch Assembly from "Holder-Manifold" (Item 18).
 7. Pull the cog belt loose from the engine shaft cog pulley and remove the gearbox/clutch assembly from the rest of the unit.
 8. Place gearbox in vice by gripping the flat part of the drive crank allowing the clutch assembly to face up. Use caution and not allow gearbox to swing and damage casting against vice.
 9. Hold coupling screw, with 13/16" wrench, then with 5/16" allen wrench, screw differential screw out of coupling screw and gearbox shaft.
 10. Screw large end of differential screw into coupling nut assembly and pull out of clutch assembly.
 11. The clutch can now be removed Spacers, removable spacer, replacement clutch, bearings, retaining rings should be inspected and replaced if needed. (Items 3 through 8 on Parts List).
- Install new clutch as follows:
1. With gearbox held as described in Step 8 above, place first spacer and bearing onto gearbox shaft.
 2. Insert snap rings (2 into recesses of cog pulley portion of clutch. Place cog pulley portion of clutch with cog belt attached onto shaft.
 3. Place second spacer into cog pulley portion of clutch. This spacer will rest on the first bearing installed.
 4. Insert second bearing on top of upper snap ring.
 5. Lay removable spacer on top of last bearing. If the clutch air gap is larger than .028", do not use removable spacer. Put spacer over removable spacer, if used, and top bearing.
 6. Place coil portion of clutch down onto cog pulley portion of clutch and center on gearbox shaft.
 7. Screw differential screw into coupling screw and nut until 1/16" is showing.
 8. Push coupling nut assembly into clutch assembly until it comes to a positive stop. (Differential screw comes into contact with the threaded gearbox shaft.)
 9. With 13/16" wrench on coupling screw and 5/16" allen wrench in differential screw, simultaneously with both wrenches screw coupling nut assembly into gearbox shaft by turning clockwise until a positive stop is reached.
 10. Hold coupling nut assembly and tighten differential screw to 30 ft.-lbs. This will expand the coupling assembly, thereby holding the clutch assembly to gearbox shaft. Turn clutch observing clutch gap. The pulley should turn freely with a gap of .012 to .024" between the two clutch faces. If the gap is greater than .028, remove the spacer. Reassemble and check gap for proper clearance.
 11. Place cog belt over cog pulley portion of clutch. Loosen set screws until set screws are approximately 1/4" above block tensioner.
 12. Reassemble the spacers onto screws. Simultaneously lift gearbox

assembly with clutch into position by placing cog belt over engine shaft log pulley and inserting the four screws into Holder-Manifold and replacing nuts (4). Tighten nuts to hold assembly in place.

13. Slightly loosen screws (4).
14. Evenly tighten Set Screws until flush with tip of block tensioner.. Check tension on cog belt by pressing hard with thumb. Proper tensioning should allow for approximately 1/8". If belt is too loose, tighten set screws further.
15. Replace connecting rod and fluid section. Preplace front cover on gearbox. Connect hose to fluid section.
16. Connect the clutch and board leads. Connect spring to spacer tube.
17. Replace the splash shield.
18. Test the clutch for proper operation
19. Replace clutch covers.

Maintenance

REGULAR MAINTENANCE

1. Always stop the pump at the bottom of its stroke when you take a break or at the end of the day. This helps keep material from drying on the rod and damaging the packings.
2. 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.
3. **Inspect the packing nut daily.** Your pump has a patented "Triple Life Packing System". **Packing life will be extended a minimum of 3 times if the following Packing Tightening Procedure is followed:**

Airless Paint Systems

Maintenance (Cont.)

Inspect the packing nut daily. If seepage of paint into the packing nut and/or movement of the piston upward is found (while not spraying), the packing nut should be tightened enough to stop leakage only, but not any tighter. **Overtightening will damage the packings** and reduce the packing life.

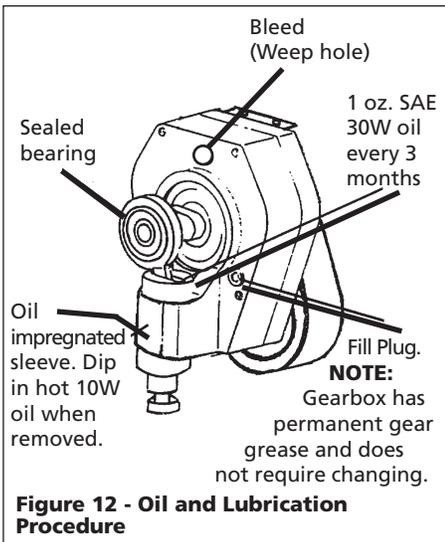
4. Lubricate connecting rod pin every 3 months.

OIL AND LUBRICATION PROCEDURE

Figure 12 shows the necessary steps involved in proper lubrication.

V-PACKING REPLACEMENT

Refer to Figure 9, 10 and 11 on pages



10 and 11 for corresponding part illustrations.

V-Packing Replacement Kit Severe Duty (PN 187-040) contains leather and plastic packing, PTFE and Viton® O-rings, balls and plastic dual-sided female adapter and larger male glands. Gland Kit: PN 187-064.

1. Remove fluid pump as described in "Fluid Pump

Disconnect" instructions on page 10.

2. Unscrew and remove the inlet valve per instructions on page 11.
3. Unscrew and remove the packing nut (187-046). Push the piston rod down through the packings and out of the pump. Utilizing packing removal tool (187-249) the complete packing set can be removed quickly and easily. Another method is to wrap some masking tape around the bottom of the piston. Now push the piston back through the pump and remove through the top. The packings and glands will be removed with the piston rod, leaving the fluid body empty.
4. Disassemble and clean all parts for reassembly. Discard old packings. **Save metal upper glands. Replace metal lower glands with new metal glands from Packing Kit. If the old packing had metal gland for 187-058 discard and replace with plastic 187-058.**
5. Remove the outlet seat support, outlet seat, outlet ball, O-ring and ball cage as previously described on page 11.

Airless Paint Systems

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Coarse spray	Low pressure	Increase the pressure
Excessive fogging (overspray)	1. High pressure 2. Material too thin	1. Reduce pressure to satisfactory pattern distribution. 2. Use less thinner.
Pattern too wide	Spray angle too large	Use smaller spray angle tip.
Pattern too narrow	Spray angle too small	Use larger spray angle tip (if coverage is OK, try tip in same nozzle group).
Too much material	1. Nozzle too small 2. Material too thin 3. Pressure too high	1. Use next smaller nozzle. 2. Thicken spray material. 3. Reduce pressure.
Too little material	1. Nozzle too small 2. Material too thick	1. Use next larger nozzle. 2. Thin spray material.
Thin distribution in center of pattern "horns"	1. Worn tip 1. Wrong tip	1. Change for new tip. 2. Use nozzle with narrow spray angle.
Thick skin on work	1. Material too viscous 2. Application too heavy	1. Thin cautiously. 2. Reduce pressure and/or use tip in next larger nozzle group.
Coating fails to close and smooth over	Material too viscous	Thin cautiously.
Spray pattern irregular, deflected	1. Orifice clogged. 2. Tip damaged.	1. Clean carefully. 2. Replace with new tip.
Craters or pock marks, bubbles on work	Solvent balance	Use 1 to 3% "short" solvents remainder "long" solvents. (This is most likely to happen with material of low viscosity, lacquers, etc.)
Clogged screens	1. Extraneous material in paint. 2. Coarse pigments. 3. Poorly milled pigments (paint pigments glocculate) cover screen. Incompatible paint mixture and thinners.	1. Clean screen 2. Use coarse screen if orifice size allows. 3. Use coarser screen, larger orifice tips. Obtain ball milled paint. If thinner has been added, test to see if a drop placed on top of paint mixes or flattens out on the surface. If not, try different thinner in fresh batch of paint.

Airless Paint Systems

Troubleshooting Chart Part II

Symptom	Possible Cause(s)	Corrective Action
There is splitting from the gun.	<ol style="list-style-type: none"> 1. Fluid supply low or empty 2. Air trapped in fluid pump or hose 	<ol style="list-style-type: none"> 1. Refill supply container. 2. Check for loose hose connections on the siphon assembly. Tighten if needed. Reprime pump.
Paint leaks into the wet cup.	<ol style="list-style-type: none"> 1. Packing nut/wet cup is loose 2. Upper packings worn or damaged 3. Piston rod worn 	<ol style="list-style-type: none"> 1. Tighten just enough to stop leakage. 2. Replace packings. 3. Replace piston rod.
Engine operates, but paint pump does not cycle	<ol style="list-style-type: none"> 1. Pressure setting is too low 2. Clutch not engaged 3. Displacement pump stopped 	<ol style="list-style-type: none"> 1. Increase pressure. 2. See Troubleshooting Part III - Clutch Does Not Engage 3. Service pump.
Engine and displacement pump operate, but paint pressure is too low or none	<ol style="list-style-type: none"> 1. Pressure setting too low. 2. Tip or gun filter clogged. 3. Tip worn. 4. Fluid displacement pump filter clogged. 5. Large pressure drop in fluid hose. 	<ol style="list-style-type: none"> 1. Increase pressure. 2. Remove tip and/or filter. Clean if necessary. 3. Replace tip. 4. Clean filter. 5. Use a larger diameter hose.
Displacement pump operates, but output is too low on downstroke on on both strokes	<ol style="list-style-type: none"> 1. Upper check valve ball not seating properl. 2. Lower packings are worn or damaged 	<ol style="list-style-type: none"> 1. Service upper check valve. 2. Replace packings.
Clutch does not engage.		See Troubleshooting Part III - Clutch Does Not Engage
Clutch slips.		Take unit to an authorized Campbell Hausfeld Service Center.
Engine stops.		Refer to engine manual.

Troubleshooting Chart Part III - Clutch Does Not Engage

Steps to Follow if Clutch Does Not Engage

STEP 1: Ensure that the pressure control knob is in the maximum (fully clockwise) position.

STEP 2: Remove the upper and lower clutch and electrical covers.

STEP 3: Check all electrical connections between the engine magneto, sensor, control board and clutch for loose connections or damaged leads. See Figure 8 on page 9.

STEP 4: Disconnect the two leads from the control board (blue) and the clutch assembly (black). Using a multimeter, with the engine at maximum RPM, pressure control knob in the maximum position and the prime valve open (priming) position, test the DC voltage across the boards leads (blue). This voltage must be 13-14 VDC. If the readings are correct, the board, sensor and magneto are okay and the problem is the clutch assembly. If this is the case, proceed to Step 5. If the voltage is outside this range go to Step 7.

STEP 5: Measure resistance between the clutch leads (black). This value must be 10-16 ohms. If this reading is out of specifications the clutch is defective and must be replaced, otherwise continue troubleshooting.

STEP 6: If the clutch resistance readings of Step 5 are correct, check the spacing between the clutch field and plate. The gap must be approximately .028". If this gap is too wide, remove the spacer from the clutch assembly. Should the clutch still not engage, replace the clutch assembly. See page 11.

STEP 7: When the DC voltage from the board is not 13-14 VDC, disconnect the control board lead (black) from the engine magneto lead (pink), located on the side of the engine. With the engine at maximum RPM, pressure control knob in maximum (fully clockwise) position and prime valve open (priming), read the AC voltage from the magneto lead to the sprayer frame. This reading should be 11-30 VAC. If outside this range, contact your local Honda repair facility for magneto replacement. If the magneto is producing the proper AC voltage, continue to Step 8.

STEP 8: Test the sensor by reading the resistance between the red and black wires. The resistance runs between 1.8-3.5 kohms. A defective sensor usually shows no resistance (open). If the reading is outside standards, replace the sensor. An alternative method to test the sensor, is to plug a new sensor into the board and see if the clutch will engage. Caution! When using this method, ensure prime/pressure valve is in the prime position. This is important because the sensor plugged into the board is not measuring pressure in the fluid section.

STEP 9: When Steps 7 and 8 have been completed and the magneto and sensor check good, the electrical control board is the only item left, replace the board. See page 8.

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

See Figures 10 & 11 on pages 10 & 11 for more Part Numbers in Diagrams

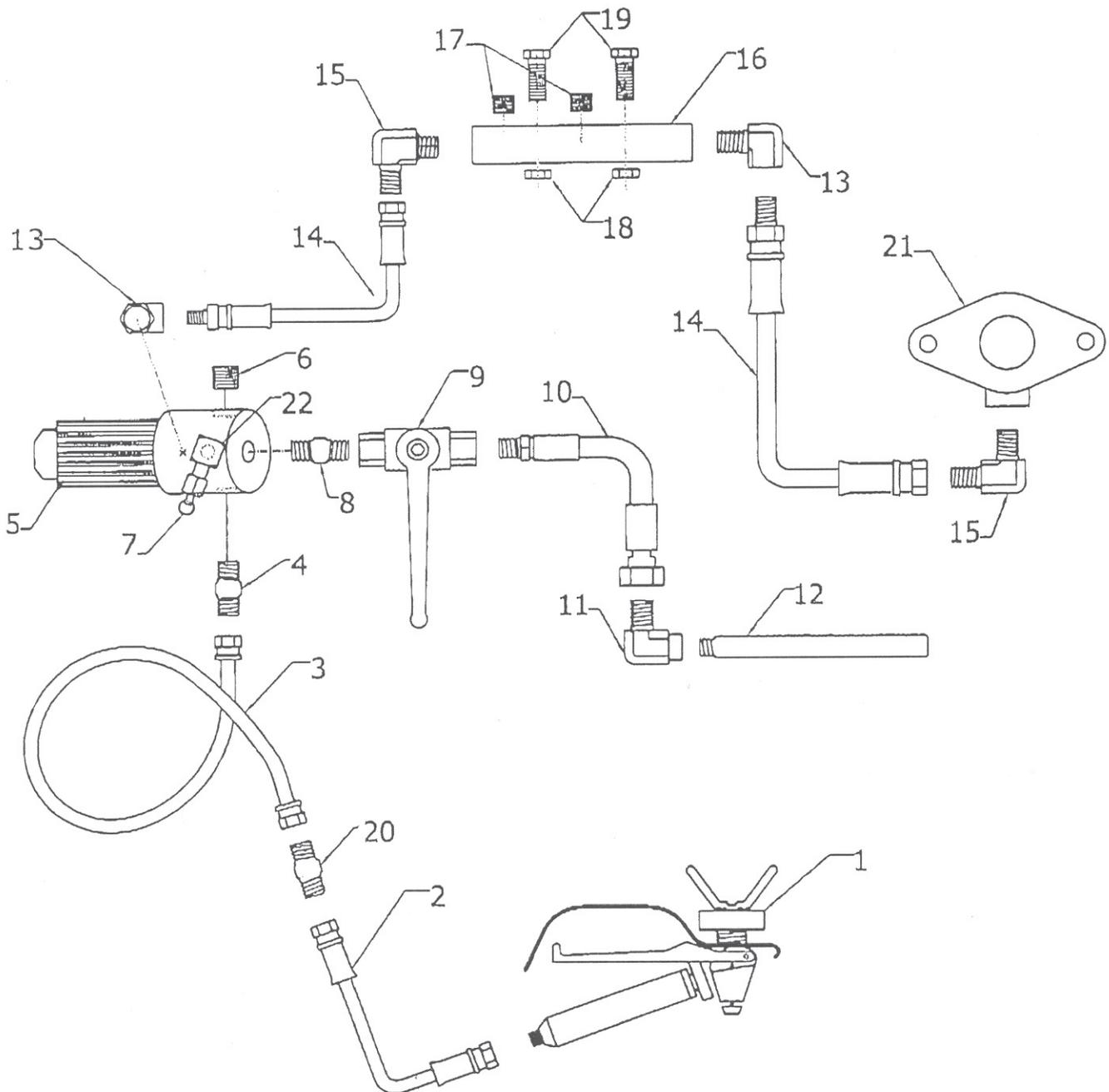
Please provide following information:

- 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.

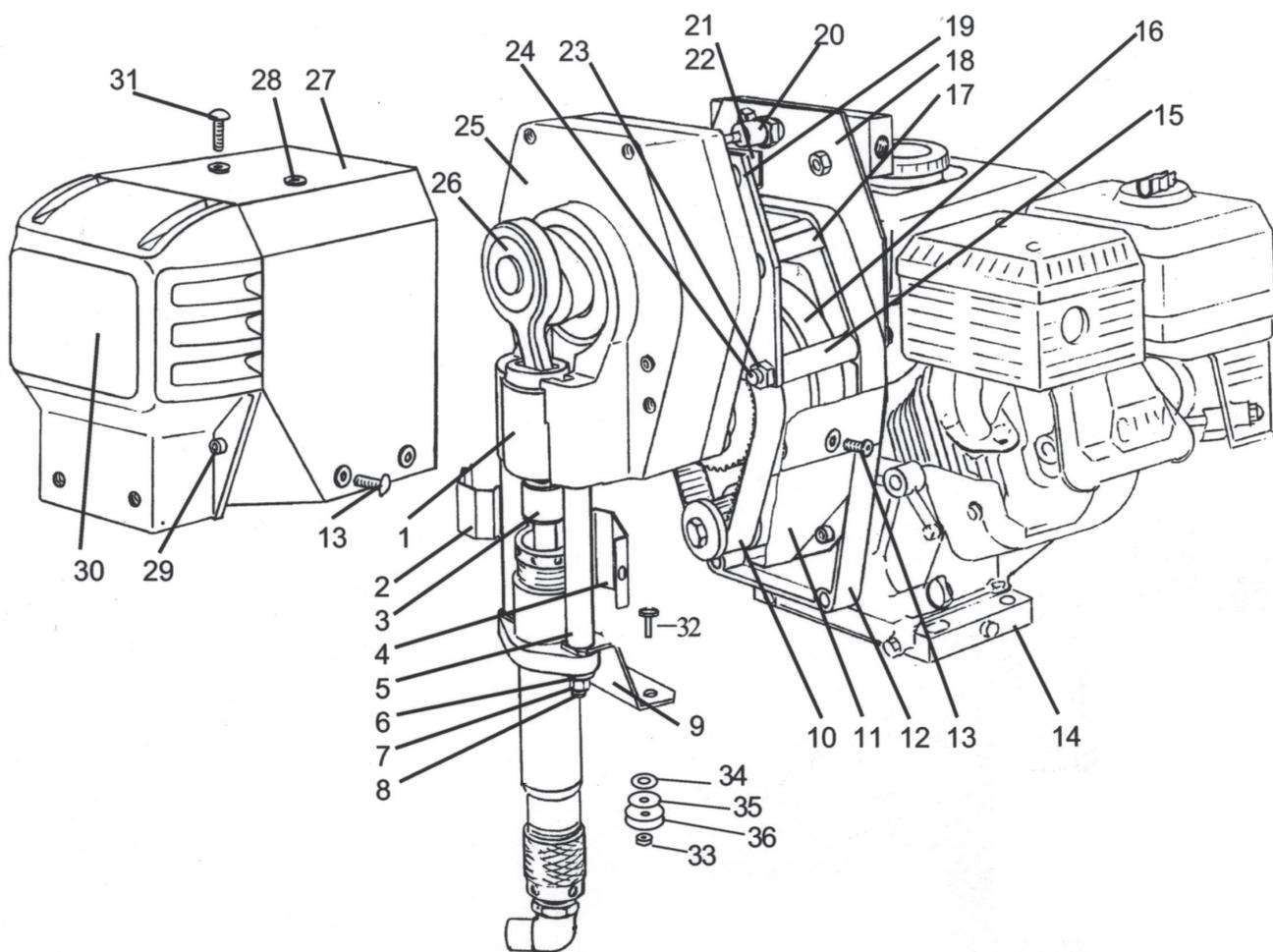
Paint System Assembly



Parts List for Paint System Assembly

Ref. No.	Description	Part Number	Qty.
1	007 Gun with swivel (Optional)	120-201XL	1
2	50' x 1/4" Hose (Optional)	100-011	1
3	50' x 3/8" Hose (Optional)	100-023	1
4	3/8" M x 3/8" M Nipple	169-010	1
5	Manifold filter assembly	111-200-99	1
6	3/8" plug	100-129	1
7	3/8" cap with ring	100-161	1
8	1/4" x 1/4" nipple	100-070	1
9	Ball valve	100-119	1
10	1/4" M x 1/4" F x 4' Swivel hose	100-012	1
11	1/4" M x 1/4" f Elbow	100-004	1
12	1/4" Return tube	188-177	1
13	3/8" M x 3/8" F Elbow	169-013	2
14	3/8" F x 3/8" M x 21" Hose	100-123	2
15	1/4" M x 3/8" M Elbow	100-141	1
16	Manifold	301-253	1
17	1/4" Plug	100-028	2
18	1/4" Nut	100-317	2
19	1/4" Bolt	100-345	2
20	3/8 M x 1/4 M NPS Nipple	100-109	1
21	SL Fluid Pump	187-410	1
22	3/8 M x 3/8 M Elbow	167-016	1

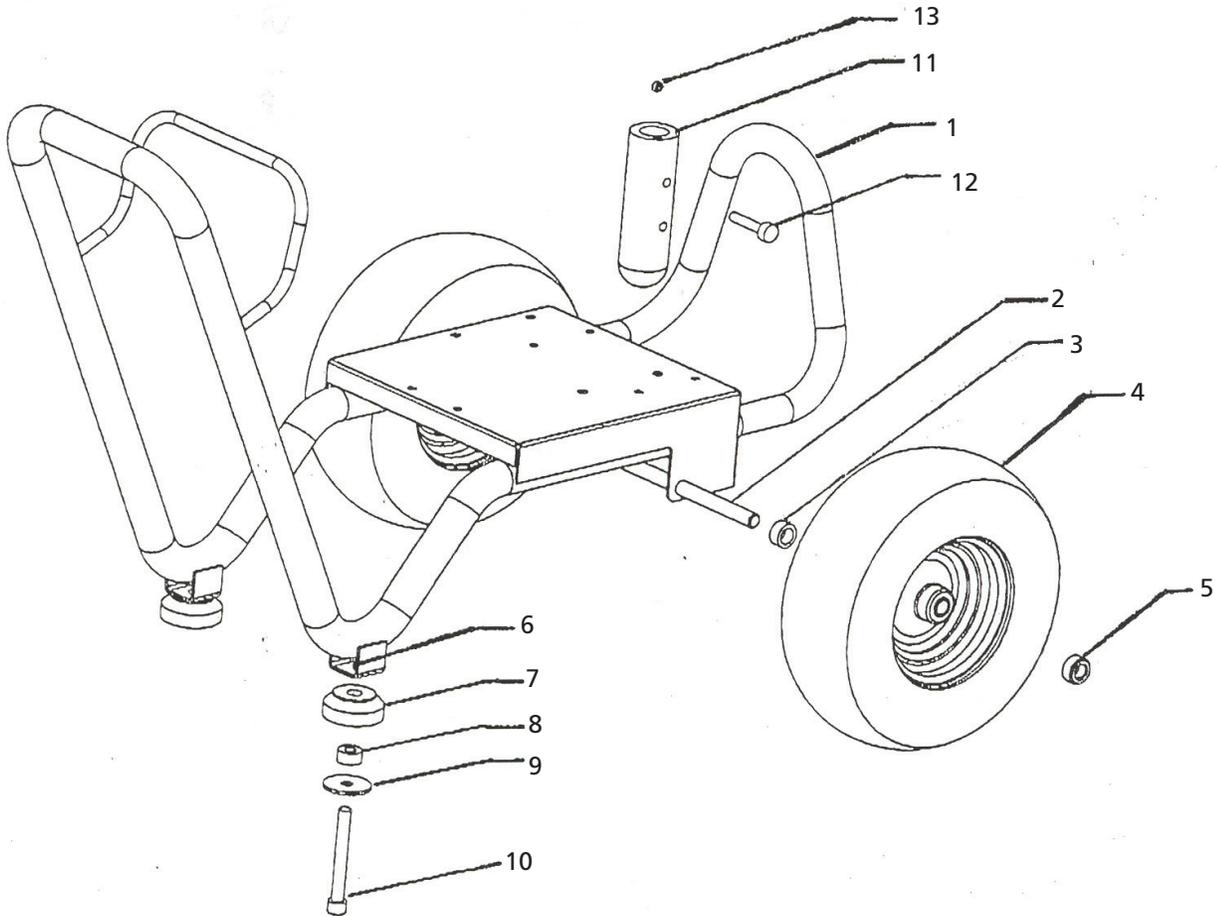
Power Unit Assembly
Part No. 301-530



Parts List for Power Unit Assembly

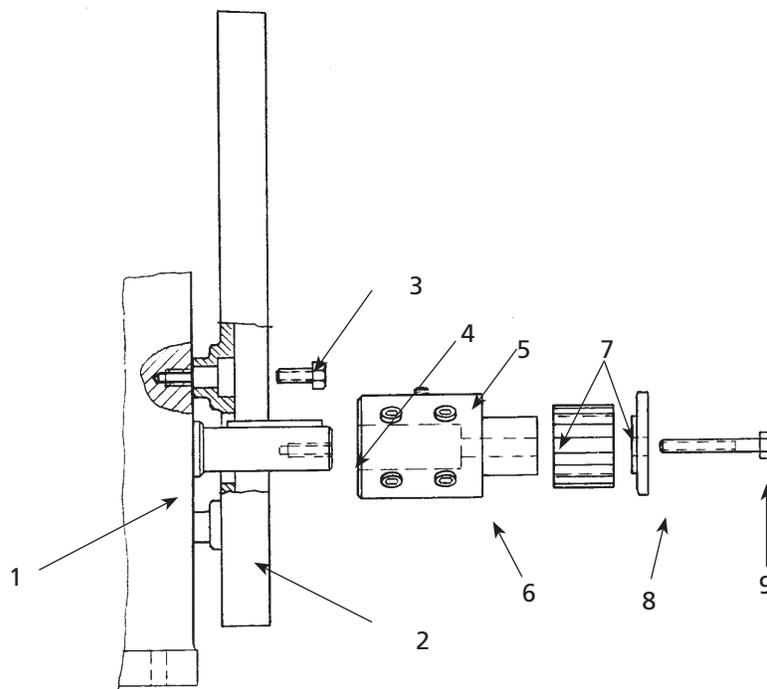
Ref. No.	Description	301-530	
		Part Number	Qty.
1	Sleeve bearing	301-047	1
2	Shield front	301-189	1
3	Coupling set assembly	189-046A	1
4	Shield-rear	301-092	1
5	Spacer-tube	301-048	2
6	Washer, lock	140-035	2
7	Nut	140-051	2
8	Stud	100-328	1
9	Holder	305-013	1
10	Cog Belt	301-231	1
11	Cover-bottom	305-067	1
12	Adapter	305-012	1
13	Screw	100-339	4
14	5.5 HP Engine Assembly	301-524	1
15	Spacer tube	305-046	4
16	Clutch assembly	301-264	1
17	Cover	301-529	1
18	Holder-manifold	305-064	1
19	Plate-Gearbox mount	305-045	1
20	Sensor assembly	331-294-99	1
21	Pressure control board	301-282-99	1
22	Knob assembly	301-523A	1
23	Nut	140-044	8
24	Screw	305-047	4
25	Gearbox	301-208	1
26	Connecting rod assembly	301-333	1
27	Cover top	301-531	1
28	Grommet	301-135	6
29	Screw	100-312	4
30	Cover-Gearbox	301-320	1
31	Screw	301-337	2
32	Bolt	301-547	2
33	Lock nut	100-317	2
34	Washer	140-029	4
35	Washer	100-344	4
36	Shock mount	301-536	4
	Ground assembly	188-160	1

Frame Assembly
Part No. 301-515



Parts List for Frame Assembly

Ref. No.	Description	301-515 Part Number	Qty.
1	Frame weldment	301-510	1
2	Axle 5/8 x 21.81	188-367	1
3	Spacer 5/8 ID	113-031	2
4	Wheel 13 x 500-6T	301-165	2
5	Set collar 5/8 ID	143-029	2
6	Centerlock nut 5/16-18	100-317	2
7	Rubber foot	163-008A	2
8	Spacer .25 x .08	188-185	2
9	Washer 1.25 x .31	163-011A	2
10	Screw 5/16-18	169-050	2
11	Cup	100-170	1
12	Screw 10-24	301-546	2
13	Nut 10-24	120-021	2

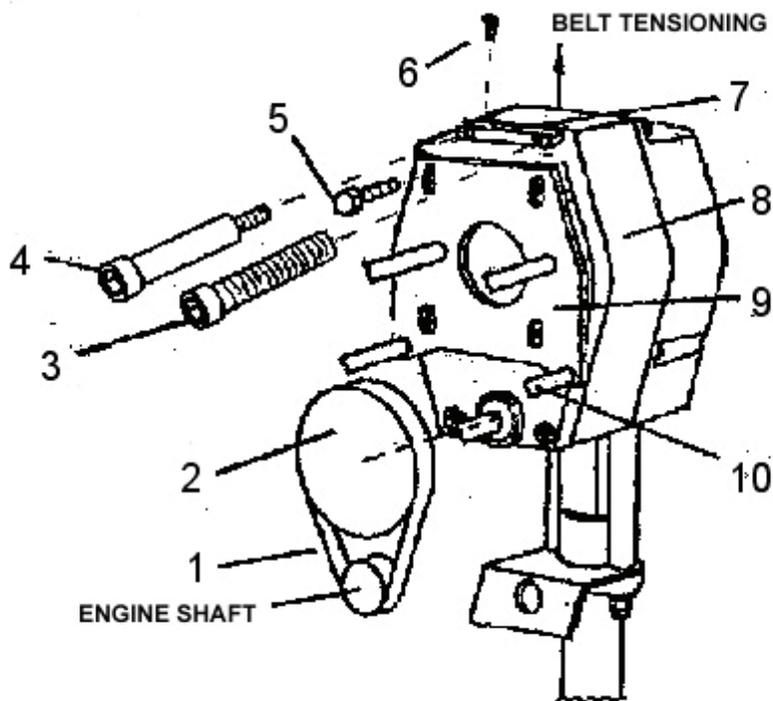


**Engine Assembly
Part No. 301-524**

Parts List for Engine Assembly

Ref. No.	Description	301-524 Part Number	Qty.
1	Honda 5.5 HP Engine	301-160	1
2	Adapter	305-012	1
3	Screw	136-091	4
4	Key	112-029	1
5	Screw	100-357	1
6	Screw	100-383	4
7	Sheave	301-222A	1
8	Thrust Plate	301-229	1
9	Screw	301-230	1

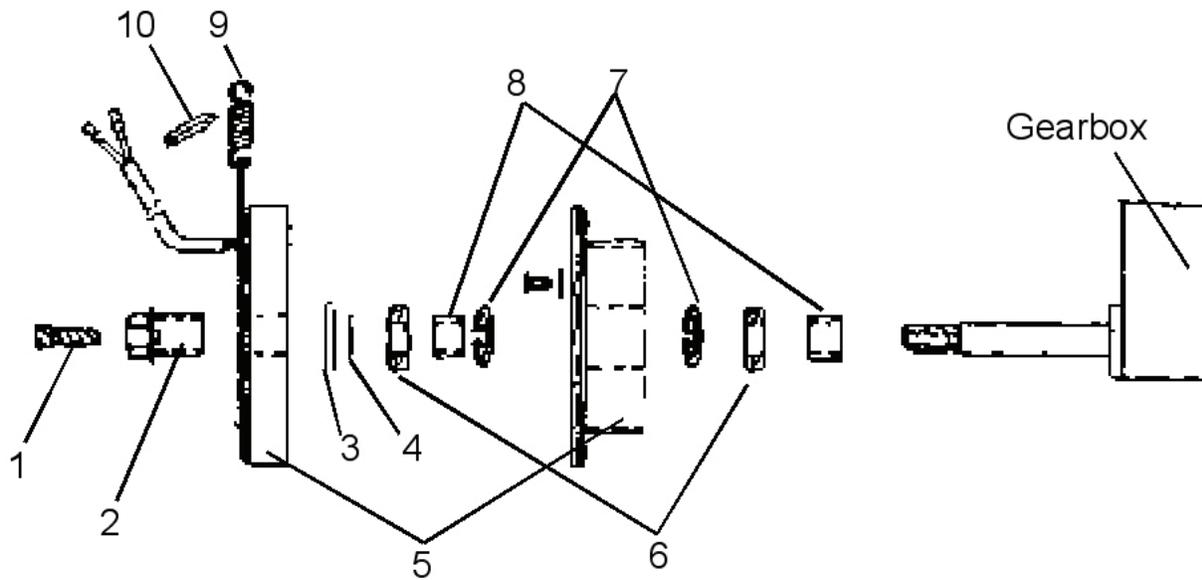
Clutch Replacement Parts



Parts List for Clutch Replacement

Ref. No.	Description	Part Number	Qty.
1	Cog belt	301-231	1
2	Clutch	301-264	1
3	Screw	305-088	1
4	Shoulder screw	100-175	1
5	Screw flanged	100-173	4
6	Set screw	100-174	2
7	Block tensioner	301-534	1
8	New gearbox	301-208	1
9	Plate	305-045	1
10	Spacer tube	305-046	4

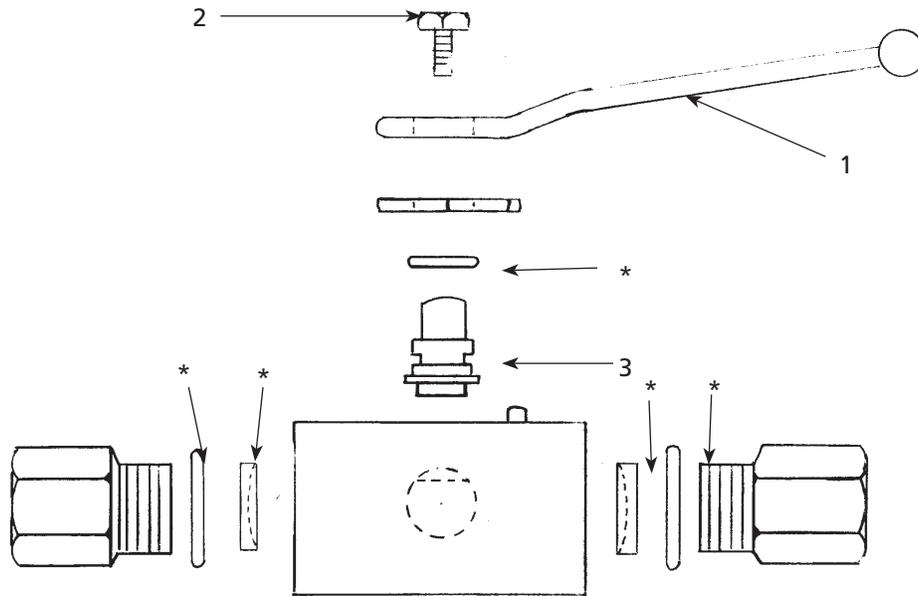
Clutch Assembly



Parts List for Clutch Assembly

Ref. No.	Description	Part Number	Qty.
1	Screw-Differential	112-041	1
2	Coupling nut assembly	112-054	1
3	Spacer	301-412	1
4	Spacer-Removable	301-413	1
5	Clutch-Replacement	301-264	1
6	Bearing	301-037	2
7	Retaining ring	100-333	2
8	Spacer	301-274	2
9	Spring	136-068	1
10	Rubber edge	301-316	1

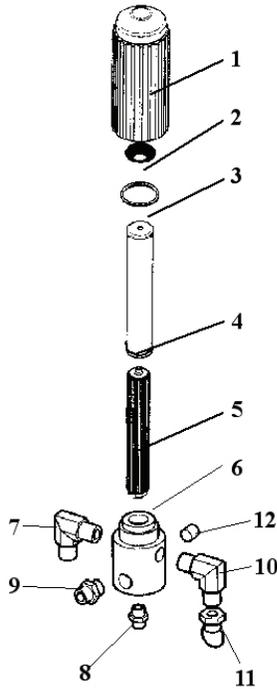
Ball Valve
Part No. 100-119



Parts List for Ball Valve

Ref. No.	Description	100-119 Part Number	Qty.
1	Handle	100-162	1
2	Screw	100-163	1
3	Ball	100-164	1
*	Repair Kit	KIT-119	1

Manifold Filter
Part No. 111-200-99



Parts List for Manifold Filter

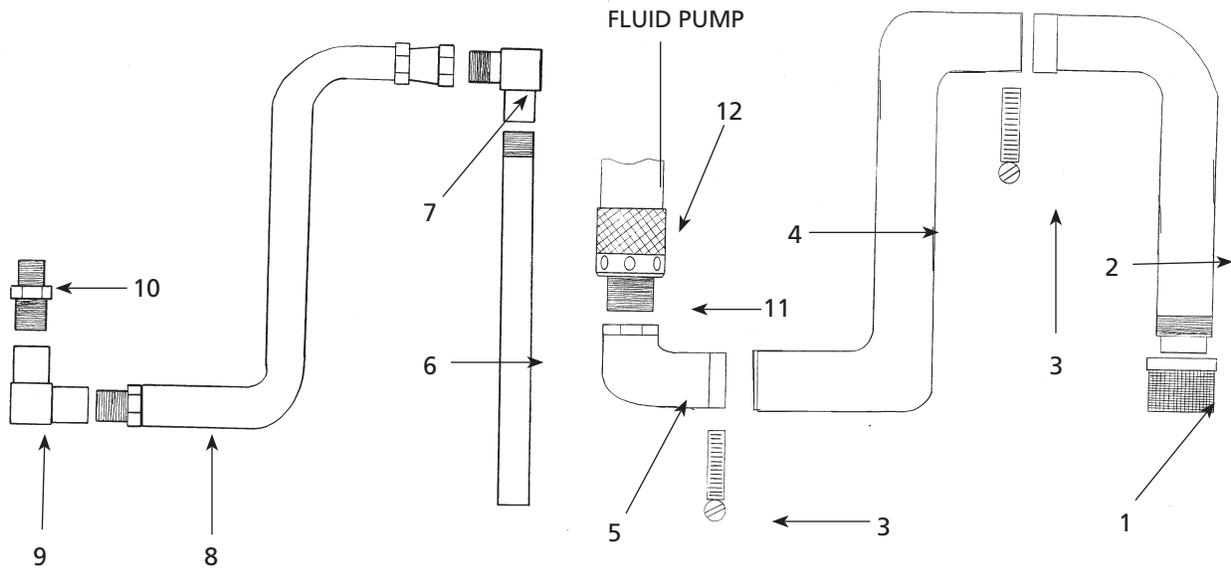
Ref. No.	Description	111-200-99 Part Number	Qty.
1	Base*	111-202	1
2	Spring*	301-356	1
3	O-ring*	106-007	1
4	Filter	111-204	1
5	Support*	111-203	1
6	Base*	111-201	1
7	3/8" M x 3/8" M Elbow	169-013	1
8	3/8" NPT (M) x 3/8" NPS (M) Hose connector	100-034	1
9	Plug 3/8"	100-129	1
10	3/8" NPT (M) x 3/8" NPS (M) Elbow	169-013	1
11	3/8" Cap with Ring	100-161	1
*	Filter assembly	111-200	1

Suction Assembly - 5 Gallon

Part No. 301-090-99

Suction Assembly - 55 Gallon

Part No. 301-543-99



Parts List for Suction Assembly (5 Gallon and 55 Gallon)

Ref. No.	Description	Part Number	Qty.
-	Suction Hose Assembly (Includes Items 1-5) for 5 Gallon	301-517	1
1	Inlet strainer	141-008	1
2	Suction tube for 5 Gallon	301-514	1
	Suction tube for 55 Gallon	301-545	1
3	Hose clamps	301-516	2
4	Hose for 5 Gallon	301-513A	1
	Hose for 55 Gallon	301-544	1
5	Elbow	100-165	1
6	Return pipe	188-377	1
7	Elbow	100-128	1
8	Whip	100-012	1
9	Elbow*	100-126	1
10	Reducer*	100-385	1
11	Fitting	187-017	1
12	Suction nut	187-018	1

* Used on units equipped with either the 100-180 or 331-050 prime valves. The 301-090 suction assembly also includes the 100-081A Elbow for units with the 138-001 marathon prime valve.

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.