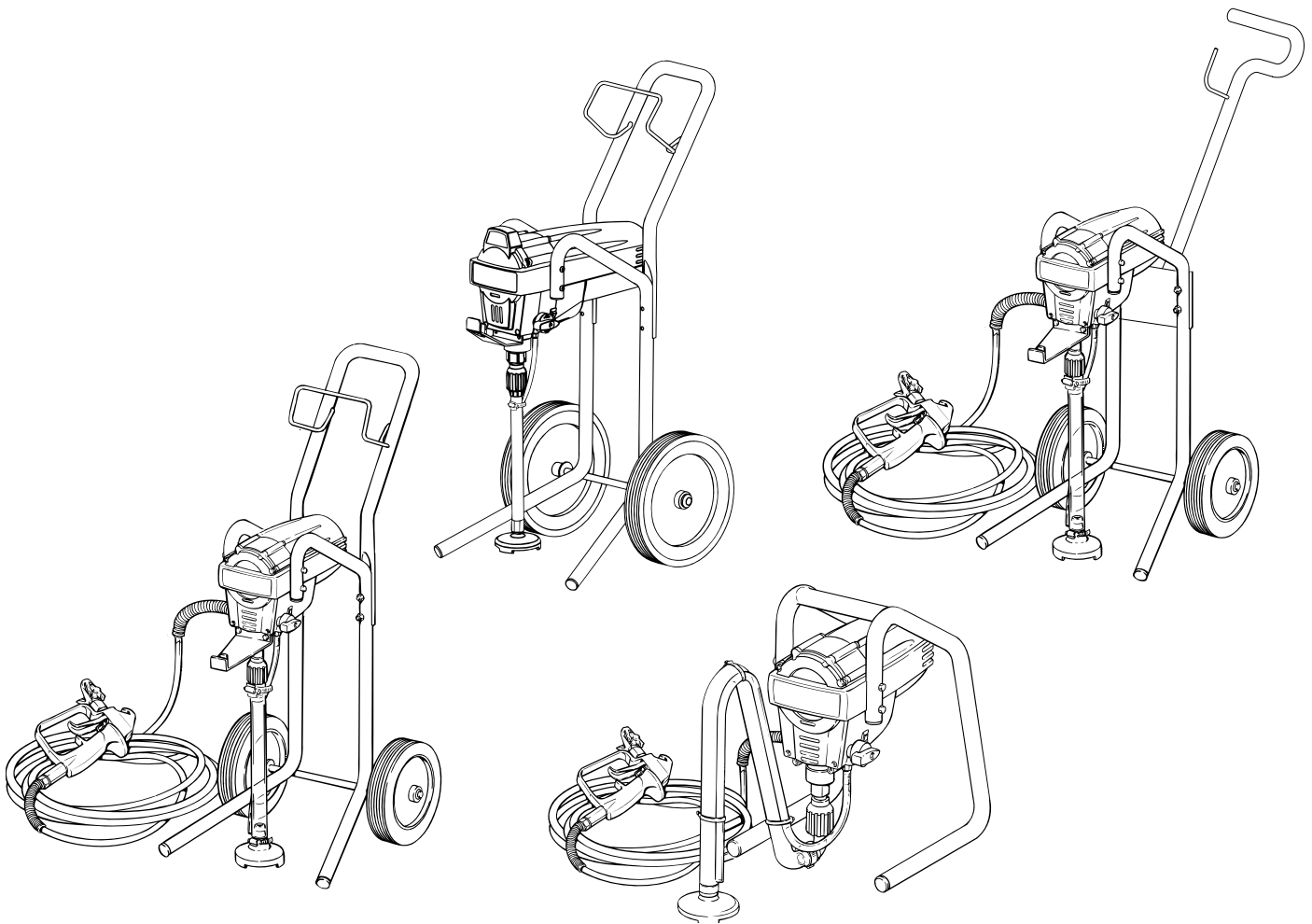


SERVICE CENTER MANUAL

PISTON PUMP AIRLESS SPRAYER

FOR MODELS:

<u>WAGNER</u>	<u>AMSPRAY</u>	<u>SPRAYTECH</u>	<u>KREBS</u>	<u>AMSPRAY BY</u>	<u>PRO FORCE</u>
9140	1400	<u>APEX SERIES</u>	K2015	<u>SPRAYTECH</u>	PF23
9140S	1550	1420	K2015S	1400	PF25
9150	1700	1620	K3017	1600	PF33
9170	1900	1720	K4019		
9190	2100	1920			
9210		2120			



IMPORTANT!

THIS MANUAL IS INTENDED FOR
AUTHORIZED SERVICE CENTERS ONLY
AND SHOULD NOT BE USED FOR
CONSUMER REFERENCE



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SAFETY PRECAUTIONS

This manual contains information which must be read and understood before using the equipment. When you come to an area which has one of the following symbols, pay particular attention and make certain to heed the safeguard.

WARNING

This symbol indicates a potential hazard which may cause serious injury or loss of life. Important safety information will follow.

CAUTION

This symbol indicates a potential hazard to you or to the equipment. Important information that tells how to prevent damage to the equipment or how to avoid causes of minor injuries will follow.

NOTE: Notes give important information which should be given special attention.

CAUTION

SPECIAL NOTE ON THE FOLLOWING MODELS:

AMSPRAY	1400 1550
AMSPRAY BY SPRAYTECH	1400 1600
WAGNER	9140 9140S 9150
SPRAYTECH APEX	1420 1620
PRO FORCE	PF23 PF25
KREBS	K2015 K2015S

THE ABOVE UNITS ARE PROVIDED WITH A NON-RESETABLE THERMAL OVERLOAD.

CAUTION

SPECIAL NOTE ON THE FOLLOWING MODELS:

AMSPRAY	1700 1900 2100
WAGNER	9170 9190 9210
SPRAYTECH APEX	1720 1920 2120
PRO FORCE	PF33
KREBS	K3019 K4019

THE ABOVE UNITS ARE PROVIDED WITH A REPLACEABLE FUSE.

- Always disconnect the motor from the power supply before working on the equipment.

NOTE: The cause of the overload should be corrected before restarting.

WARNING

HAZARD: Injection injury - A high pressure paint stream produced by this equipment can pierce the skin and underlying tissues, leading to serious injury and possible amputation. SEE A PHYSICIAN IMMEDIATELY.

DO NOT TREAT AN INJECTION INJURY AS A SIMPLE CUT! Injection can lead to amputation. See a physician immediately.

The maximum operating range of the gun is 2800 PSI/193BAR fluid pressure.

PREVENTION:

- NEVER aim the gun at any part of the body.
- NEVER allow any part of the body to touch the fluid stream. DO NOT allow body to touch a leak in the fluid hose.
- NEVER put your hand in front of the gun. Gloves will not provide protection against an injection injury.
- ALWAYS lock the gun trigger, shut the pump off, and release all pressure before servicing, cleaning the tip or guard, changing tip, or leaving unattended. Pressure will not be released by turning off the motor. The PRIME/SPRAY knob must be turned to PRIME to relieve the pressure. Refer to the PRESSURE RELIEF PROCEDURE described in the pump manual.
- ALWAYS keep the tip guard in place while spraying. The tip guard provides some protection but is mainly a warning device.
- ALWAYS remove the spray tip before flushing or cleaning the system.
- Paint hose can develop leaks from wear, kinking and abuse. A leak can inject material into the skin. Inspect the hose before each use.
- NEVER use a spray gun without a trigger lock and trigger guard in place.
- All accessories must be rated at or above 2800 PSI/193 BAR. This includes spray tips, guns, extensions, and hose.

NOTE TO PHYSICIAN:

Injection into the skin is a traumatic injury. It is important to treat the injury as soon as possible. DO NOT delay treatment to research toxicity. Toxicity is a concern with some coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.

HAZARD: EXPLOSION OR FIRE - Solvent and paint fumes can explode or ignite. Property damage and/or severe injury can occur.

PREVENTION:

- Provide extensive exhaust and fresh air introduction to keep the air within the spray area free from accumulation of flammable vapors.
- Avoid all ignition sources such as static electric sparks, open flames, pilot lights, and hot objects. Connecting or disconnecting power cords or working light switches can make sparks.
- Do not smoke in spray area.
- Fire extinguisher must be present and in good working order.
- Place paint pump at a minimum of 3 feet (preferably more) into a separate, well ventilated room from the spray object or at least 20 feet from the spray object in a well ventilated area (add more hose if necessary). Flammable vapors are often heavier than air. Floor area must be extremely well ventilated. The paint pump contains arcing parts that emit spark and can ignite vapors.
- The equipment and objects in and around the spray area must be properly grounded to prevent static sparks.
- Use only conductive or grounded high pressure fluid hose. Gun must be grounded through hose connections.

- Power cord must be connected to a grounded circuit.
- Always flush unit into a separate metal container, at low pump pressure, with spray tip removed. Hold gun firmly against side of container to ground container and prevent static sparks.
- Follow the material and solvent manufacturer's warnings and instructions.
- Use extreme caution when using materials with a flashpoint below 70° F (21° C). Flashpoint is the temperature that a fluid can produce enough vapors to ignite.
- Plastic can cause static sparks. Never hang plastic to enclose a spray area. Do not use plastic drop cloths when spraying flammable materials.
- Use lowest possible pressure to flush equipment.

GAS ENGINE (WHERE APPLICABLE)

Always place pump outside of structure in fresh air. Keep all solvents away from the engine exhaust. Never fill fuel tank with a running or hot engine. Hot surface can ignite spilled fuel. Always attach ground wire from pump unit to a grounded object, such as a metal water pipe. Refer to engine owner's manual for complete safety information.

HAZARD: EXPLOSION HAZARD DUE TO INCOMPATIBLE MATERIALS - Will cause property damage or severe injury.

PREVENTION:

- Do not use materials containing bleach or chlorine.
- Do not use halogenated hydrocarbon solvents such as bleach, mildewcide, methylene chloride and 1,1,1 - trichloroethane. They are not compatible with aluminum.
- Contact your coating supplier about the compatibility of material with aluminum.

⚠ WARNING

HAZARD: HAZARDOUS VAPORS - Paints, solvents, insecticides, and other materials can be harmful if inhaled or come in contact with the body. Vapors can cause severe nausea, fainting, or poisoning.

PREVENTION:

- Use a respirator or mask if vapors can be inhaled. Read all instructions supplied with the mask to be sure it will provide the necessary protection.
- Wear protective eyewear.
- Wear protective clothing as required by coating manufacturer.

HAZARD: GENERAL - can cause severe injury or property damage.

PREVENTION:

- Read all instructions and safety precautions before operating equipment.
- Follow all appropriate local, state, and national codes governing ventilation, fire prevention, and operation.
- The United States Government Safety Standards have been adopted under the Occupational Safety and Health Act (OSHA). These standards, particularly part 1910 of the General Standards and part 1926 of the Construction Standards should be consulted.
- Use only manufacturer authorized parts. User assumes all risks and liabilities when using parts that do not meet the minimum specifications and safety requirements of the pump manufacturer.
- Before each use, check all hoses for cuts, leaks, abrasion or bulging of cover. Check for damage or movement of couplings. Immediately replace the hose if any of these conditions exist. Never repair a paint hose. Replace it with another grounded high-pressure hose.
- All hoses, swivels, guns, and accessories must be pressure rated at or above 2800PSI/193 BAR.

- Do not spray outdoors on windy days.
- Wear clothing to keep paint off skin and hair.

⚠ CAUTION

Use only a 3-wire extension cord that has a 3-blade grounding plug and a 3-slot receptacle that will accept the plug on the product. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. A 14 or 12 gauge cord is recommended. If an extension cord is to be used outdoors, it must be marked with the suffix **W-A** after the cord type designation. For example, a designation of **SJTW-A** would indicate that the cord would be appropriate for outdoor use.

NOTE: Do not use more than 50 feet of hose. If you need to paint further than 100 feet from your power source, use more extension cord, not more paint hose.

GROUNDING INSTRUCTIONS

This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

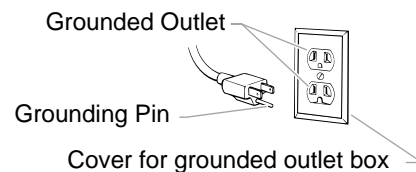
⚠ WARNING

Improper installation of the grounding plug can result in a risk of electric shock.

If repair or replacement of the cord or plug is necessary, do not connect the green grounding wire to either flat blade terminal. The wire with insulation having a green outer surface with or without yellow stripes is the grounding wire and must be connected to the grounding pin.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided. If the plug will not fit the outlet, have the proper outlet installed by a qualified electrician.

This product is for use on a nominal 120 volt circuit and has a grounding plug that looks like the plug illustrated below. Make sure that the product is connected to an outlet having the same configuration as the plug. No adapter should be used with this product.



INLET VALVE ASSEMBLY (all models)

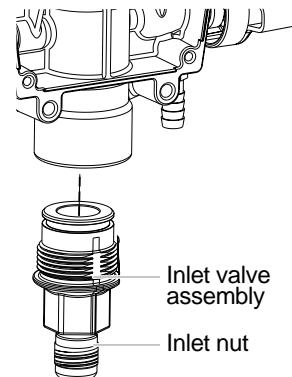
FAILURE:

Unit will not prime, unit loses pressure or unit won't maintain pressure

TOOLS REQUIRED:

Adjustable wrench or 1.5 inch (1 inch for certain models) open end wrench

1. If the unit will not prime, simply tap the outside of the inlet with a mallet or tap the ball itself by removing the suction set and inserting a small probe into the inlet of the pump. If the problem is the result of a stuck ball, this may solve the problem. If the problem continues, proceed with replacing the inlet assembly as described in the next step.
2. Lay unit on its side.
3. Unscrew inlet assembly and remove.
4. Inspect for dry paint or damaged ball.
 - Clean if paint is preventing inlet ball from moving freely (shake back and forth)
 - Clean with warm soapy water or mineral spirits
 - Replace inlet assembly if cleaning will not work or ball/seat is damaged
5. Add light oil or grease to the O-ring, and slip new o-ring on inlet assembly.
6. Screw new inlet valve with o-ring attached onto the pump housing.



REWORKING THE INLET VALVE

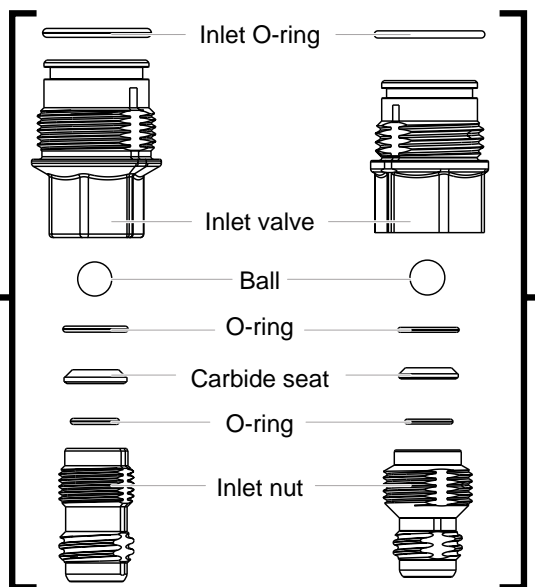
1. Unscrew the **inlet valve assembly** from the unit with an adjustable wrench.
2. Unscrew the **inlet nut** using a 3/8 inch allen wrench.
3. Remove excess paint or rust from the ball or seat or replace with new parts from kit (see part numbers). You may also have to clean excess paint inside the housing.
4. Inspect the **inlet O-ring** on the **inlet valve**. Clean or replace, and lubricate with a light household oil.
5. Reassemble ball, carbide seat, and O-rings in the order shown below into the **inlet valve**.
6. Install **inlet nut** back into the inlet valve. Torque to 12 ± 2 ft-lbs if you have a torque wrench.
7. Make sure the **inlet valve O-ring** is installed on the **inlet valve**, then install entire **inlet valve assembly** back into the housing. Tighten with an adjustable wrench.

Inlet valve assembly P/N 0512222
Models:

Wagner	Amspray	SprayTech
9140	1400	Apex
9140S	1500	1420
9150	9150	1620

Pro Force	Amspray by SprayTech
PF23	1400
PF25	1600

Krebs
K2015
K2015S



Inlet valve assembly P/N 0512224
Models:

Wagner	Amspray	SprayTech
9170	1700	Apex
9190	1900	1720
9210	2100	1920
		2120

Pro Force	Krebs
PF33	K3017
	K4019

The part numbers for these kits are located on the Parts Lists at the end of this manual.

YOKE ASSEMBLY (YOKE W/BEARING) (all models)

FAILURE:

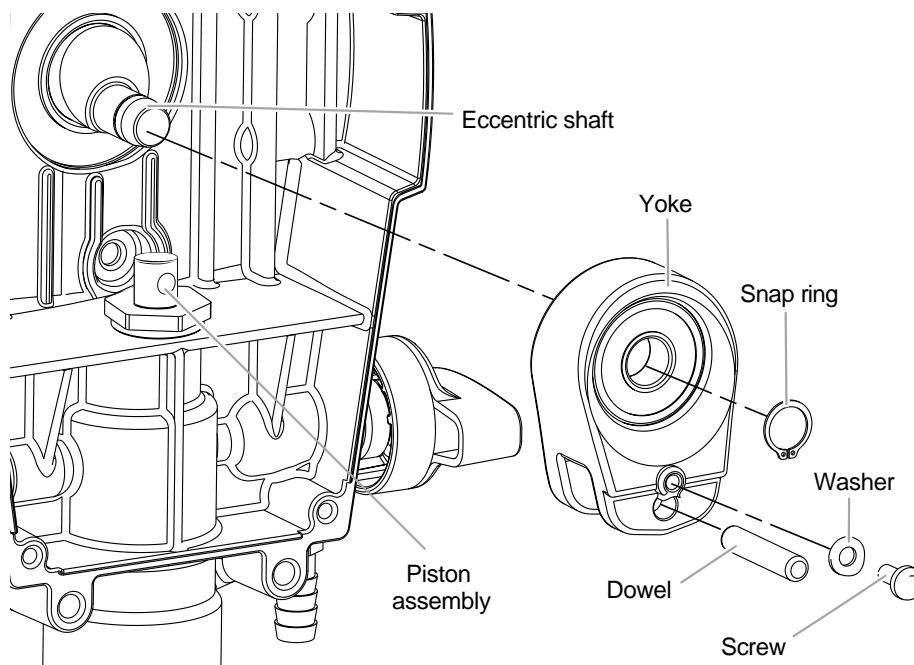
Noisy or broken bearing

TOOLS REQUIRED:

Torx T20 Driver, Snap Ring Pliers, Pliers, punch, flat head screwdriver.

TO REMOVE :

1. Remove four screws and faceplate.
2. Remove yoke screw and washer and set aside.
3. Pull dowel pin out with standard pliers.
4. Push yoke assembly to top dead center (you may have to toggle pump ON/OFF to do this).
5. Push piston to bottom dead center using a flat head screwdriver on the top of the piston.
6. Remove snap ring and set aside.
7. Slide yoke assembly off eccentric pump shaft by hand.



TO INSTALL:

1. Slide new yoke assembly over eccentric shaft making sure that the dowel pin hole and the threaded yoke screw hole are facing out.
2. Replace snap ring (included with kit) making sure that the snap ring is secure in the groove of the eccentric shaft.
3. There are two possible methods for aligning the dowel pin in the yoke with the hole in the piston:
 - A) Either push the yoke/eccentric assembly down by hand to meet the piston or,
 - B) Using a punch in the dowel hole, draw the piston up to meet the yoke.
4. Grease and replace the dowel pin (direction of pin is not important).
5. Install yoke screw and washer (45 – 50 in. lbs).
6. Replace front cover and four screws (15 – 20 in. lbs).

The part numbers for these kits are located on the Parts Lists at the end of this manual.

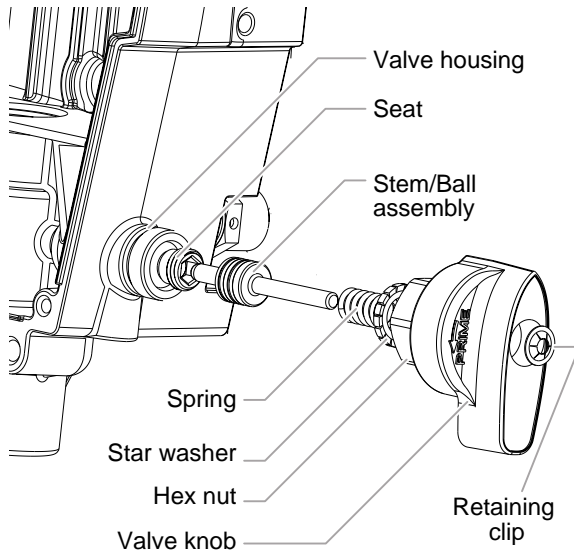
PRIME/SPRAY VALVE ASSEMBLY (all models)

FAILURE:

Leak from valve, or unit will prime but not spray

TOOLS REQUIRED:

Locking pliers or adjustable pliers, 7/32 hex wrench, shop grease or petroleum jelly



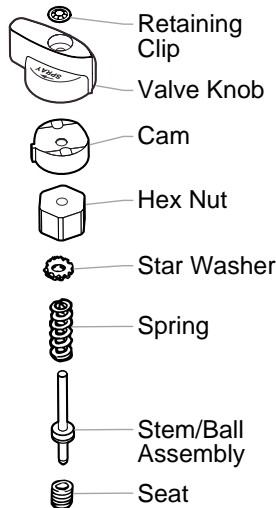
TO REMOVE :

1. Turn PRIME/SPRAY knob to **PRIME** to release any pressure in the system.
2. Place PRIME/SPRAY knob in **SPRAY** position (towards ON/OFF switch).
3. Using channel locks, grab PRIME/SPRAY knob on round portion of knob, turn counter-clockwise, and pull assembly out.
4. Use a hex wrench to remove the ball seat located in the housing by turning it counter-clockwise.

TO INSTALL :

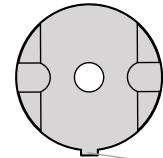
Use the following procedure to assemble the new 90° PRIME/SPRAY valve into your unit..

1. Tighten the new stem/ball assembly seat into the valve housing. Use a 7/32 inch hex wrench. Torque to 10-12 ft./lbs.
2. Apply a light coating of oil around the o-ring on the new stem/ball assembly.
3. Push the stem/ball assembly into the stem/ball assembly seat in the valve housing.
4. Place the new spring and star washer around the stem/ball assembly.
5. Slide the new hex nut onto the stem of the stem/ball assembly, thread it onto the valve housing, and tighten with a wrench. Torque the nut to 13-15 ft./lbs.
6. Apply a light coating of grease to the top of the cam.
7. Slide the new cam onto the stem of the stem/ball assembly and over the hex nut. The design of the cam will allow the hex nut to fit inside the cam, causing the cam to lock in position.

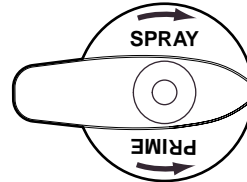


NOTE: Position the cam on the hex nut so that the tab on the side of the cam is as close to the 6:00 position as possible.

Tab on cam in 6:00 position



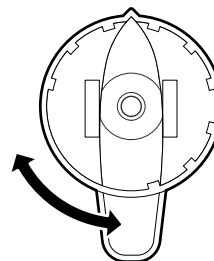
8. Place the new PRIME/SPRAY valve knob over the cam with the pointer on the knob as close to the 3:00 position as possible. Make sure the knob is pushed completely onto the cam (the knob should cover the cam completely).



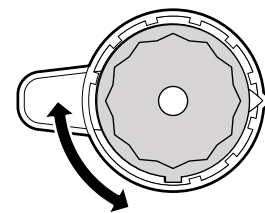
Pointer on valve knob in 3:00 position

NOTE: The knob is designed to allow 90° of movement between the SPRAY and PRIME positions. The inside of the knob has a 90° opening in its circumference where the tab of the cam should be positioned to allow this movement. When placing the knob with the arrow in the 9:00 position, make sure that the tab on the cam is within the 90° opening on the inside of the knob. Then, make sure the knob is at the end of its movement in the clockwise direction (this is the SPRAY position) before continuing with this procedure.

Back of PRIME/SPRAY valve knob



90° Opening



Cam positioned with tab in 90° Opening

9. Slowly turn the knob counterclockwise until the bottom of the knob moves out to where it is flush with the bottom of the cam (approximately 5-7°).
10. Using a 5/16" (8mm) nut driver, push the clip into the recessed portion of the knob with steady, even pressure until it stops.

CAUTION

Do not hammer or wiggle the clip into position. It will damage the clip.

11. Check that the pressure control knob is turned to the lowest pressure setting.
12. Turn the PRIME/SPRAY knob to the SPRAY position.
13. Run water through the system and check for leaks.
14. Slowly turn the pressure control knob to increase the pressure and continue to check for leaks. If there are no leaks, the unit is ready to use.

The part numbers for this kit are located on the Parts Lists at the end of this manual.

FLUID SECTION (all models)

FAILURE:

Unit will not prime or maintain pressure

TOOLS REQUIRED:

T20 Torx driver, adjustable wrench, flat head screwdriver, rubber mallet

Allow the pump to build pressure and shut off. Inspect the piston/yoke assembly by removing the four screws that hold the front cover.

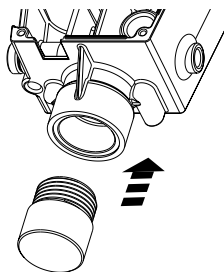
- If the piston/yoke moves to top dead center when pump shuts off, the lower seal/piston or outlet valve has failed.
- If the piston/yoke travels to bottom dead center, the valve ball/seat in the inlet valve and the inlet valve should be replaced.

TO REMOVE:

1. Remove the suction set.
2. Remove the front cover and the four screws that secure it using a T20 Torx head driver.
3. Remove the yoke screw and washer that secures the dowel pin. The dowel pin connects the yoke to the piston.
4. Using the pliers, pull the dowel pin out.
- 5a. **For Amspray models 1400, 1550:**
Amspray by SprayTech models 1400, 1600:
Wagner models 9140, 9140S, 9150:
SprayTech Apex models 1420, 1620:
ProForce models PF23 and PF25:
Krebs models K2015, K2015S:
Rotate the pump shaft so the piston is in the top dead center position. This can be done by pushing on the yoke. This is required to disassemble all the parts.
- 5b. **For all other models,** inspect the yoke assembly and piston. In order to remove all the necessary parts, the piston must not be in the bottom dead center position. If the piston is at the bottom of the stroke, install the front cover and screws, turn the pump on briefly to index the piston, unplug the unit, and repeat step 2.
6. Unscrew and remove the inlet valve assembly using an adjustable wrench.
7. Remove the piston assembly by pushing down on the piston near the yoke.
8. Unscrew and remove the top nut using an adjustable wrench.
9. Remove the worn seals using a flat head screwdriver or punch. Remove the bottom seal from the bottom by pressing against the side of the seal and popping it out. Remove the top seal from the bottom by pressing on the bottom of the seal and popping it out the top of the housing. Be sure not to scratch the housing where the seals are located.
10. Clean the area where the new seals are to be installed.

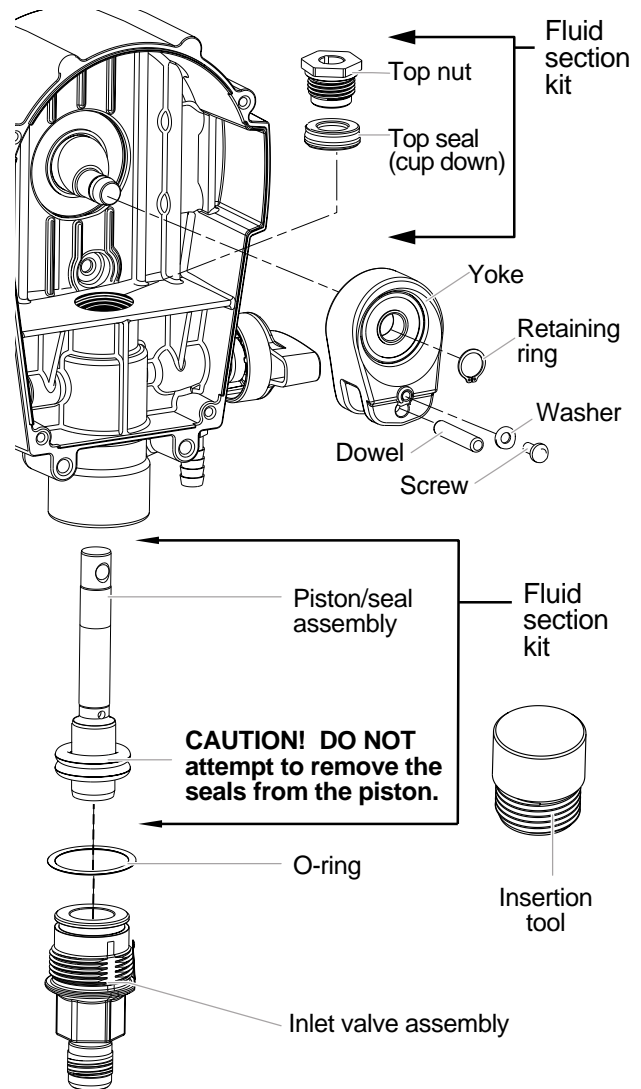
TO INSTALL:

1. Lubricate the new top seal with Wagner Separating Oil (P/N 0154908) or light household oil and by hand place the seal (cup side of seal down) into the top port of the housing.
2. Place a small amount of anti-seize on the threads of the nut. Place the top nut into the top of the housing and tighten with an adjustable wrench. This will drive the top seal into the correct position.
3. Turn the pump upside down. Lubricate the seal on the piston/seal assembly similar to the top seal. Place the piston/seal assembly into the bottom of the housing. Insert the plastic insertion tool and thread into position to properly seat the piston/seal. Thread fully until tight. Remove the



insertion tool.

4. Install the new O-ring on the inlet valve assembly, lubricate with Separating Oil (P/N 0154908), thread into the bottom (inlet) of the housing, and tighten with an adjustable wrench. This will drive the bottom seal into the correct position.
5. Align the piston with the yoke. A rubber mallet may be used. Be careful not to damage the piston.
6. Apply any type of household grease to the piston and yoke area to prolong life. Apply to the holes in the yoke where the dowel is inserted.
7. Install the dowel pin to connect the yoke to the piston. The piston may have to be moved up or down to do this.
8. Install the yoke screw and washer to secure the dowel pin.
9. Turn pump right side up and apply a few drops of Wagner Separating Oil or light household oil between the top nut and piston. This will prolong the seal life.
10. Install front cover and four (4) screws.
11. Install the suction set.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

SERVICE NOTE--MODELS 9210, 2100

The inlet check ball is a wear part. Erosion of the check ball can result in a loss of performance similar to a worn piston and seals. Inspect the inlet ball by removing the inlet valve assembly. If worn, replace the assembly with P/N 0512224.

MOTOR ASSEMBLY

Amspray 1400, 1550

Wagner 9140, 9140S, 9150

Amspray by SprayTech 1400, 1600

ProForce PF23, PF25

SprayTech Apex 1420, 1620

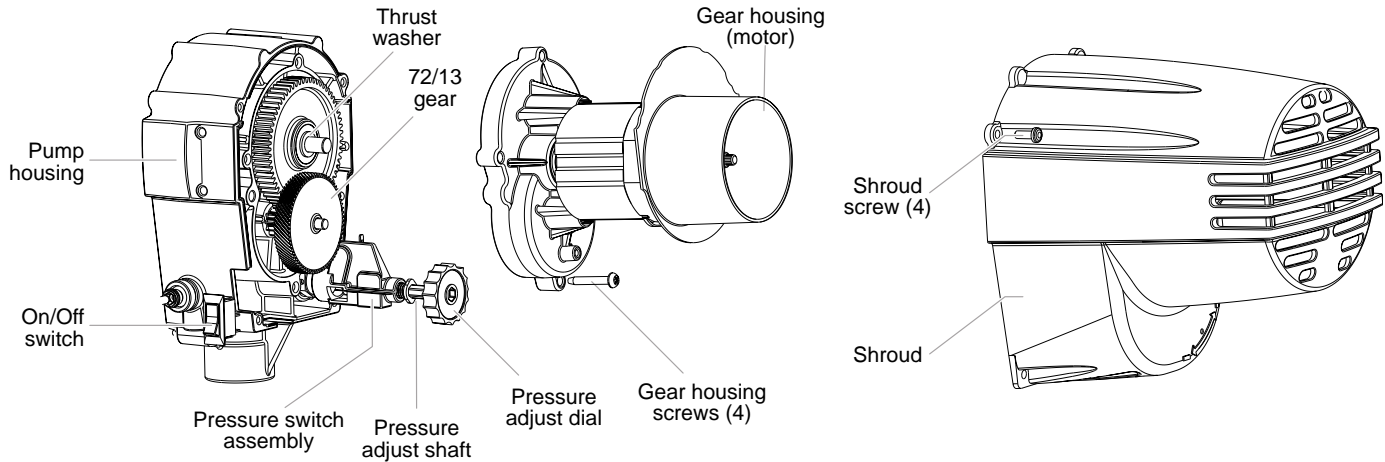
Krebs K2015, K2015S

FAILURE:

The unit does not run with the unit plugged in, ON/OFF switch in the ON position, pressure dial in the maximum position, and PRIME/SPRAY valve in the prime position.

TOOLS REQUIRED:

Torx T25 driver, Torx T20 driver, 1/4-inch wrench or socket, small flat head screwdriver.

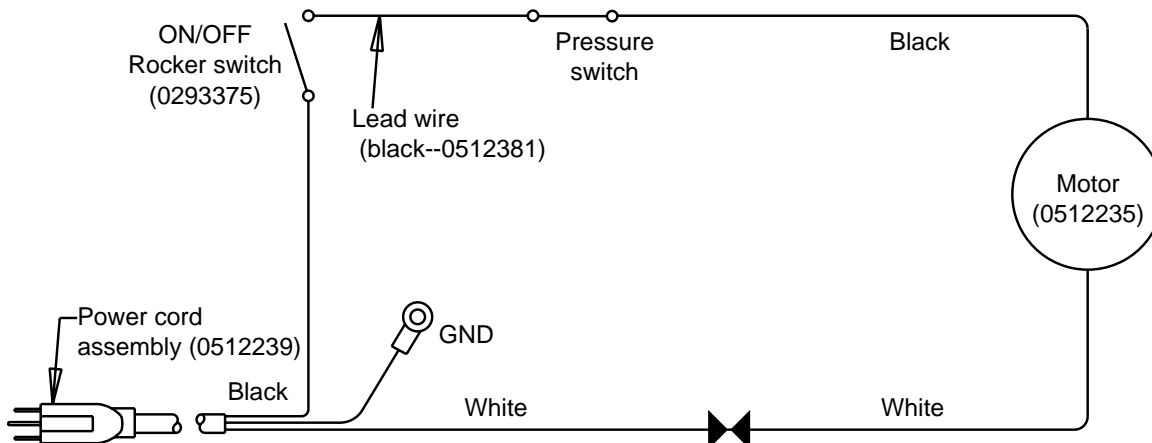


TO REMOVE :

1. Remove shroud by removing the 4 shroud screws using a Torx T20 driver. The pressure adjust dial will slide off the pressure adjust assembly when the shroud is being removed.
2. Disconnect all wire leads including the ground wire.
3. Check continuity of motor. Check resistance by attaching a probe to the white wire lead and one to the black wire lead from the motor.
 - A reading of zero ohms indicates an open circuit verifying that the motor is bad.
 - A reading other than zero indicates a good motor.
4. If bad, proceed with motor replacement. If good, check the on/off switch, pressure adjust pressure switch, and power cord for continuity. Replace if bad.
5. Remove the four screws holding the gear housing to the pump housing using the Torx T25 driver.
6. Pull the motor / gear assembly straight out.
7. Make sure the thrust washer stays on the plastic gear.

TO INSTALL :

1. Grease motor pinion, and place new motor / gear assembly back into position and secure with four screws (45 – 50 in lbs).
2. Connect electrical wires, white to white, green to ground, black to pressure switch (see schematic, below).
3. Insert the pressure dial with cup side to the front in the shroud and hold by hand. Install shroud so that the dial slides over the pressure switch shaft.
4. Install four screws to secure the shroud (15 – 20 in lbs).
5. Plug unit in, turn switch on, increase pressure to start pump and confirm proper operation.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

MOTOR ASSEMBLY

Amspray 1700, 1900

Wagner 9170, 9190

ProForce PF33

SprayTech Apex 1720, 1920

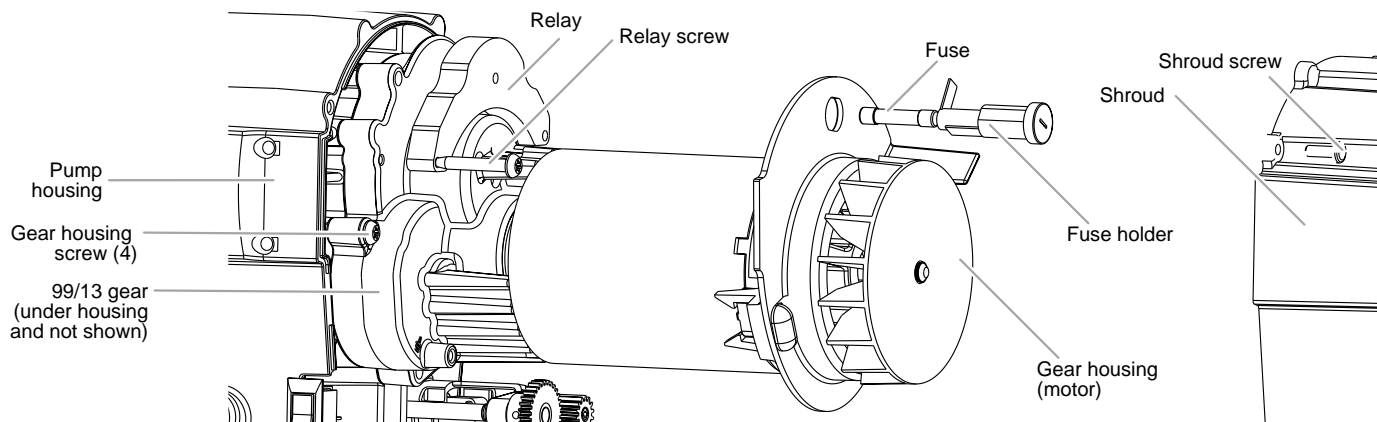
Krebs K3017, K4019

FAILURE:

The unit does not run with the unit plugged in, ON/OFF switch in the ON position, pressure dial in the maximum position, and PRIME/SPRAY valve in the prime position.

TOOLS REQUIRED:

Torx T25 driver, Torx T20 driver, 1/4-inch wrench or socket, small flat head screwdriver.

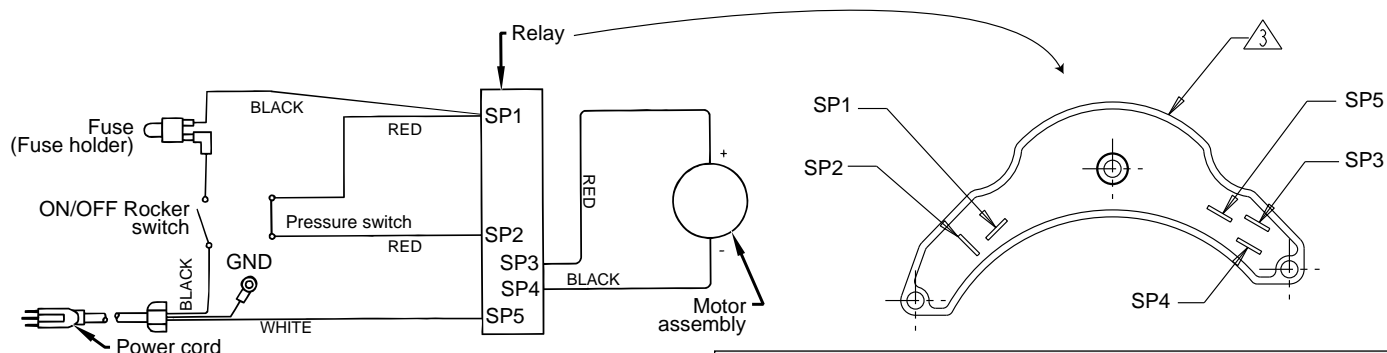


TO REMOVE :

1. Remove shroud by removing the 4 shroud screws.
2. Remove 8 Amp fuse by turning gray fuse holder cap 1/8 turn counter-clockwise and inspect. Replace if necessary.
3. Remove red and black motor leads from relay.
4. Check continuity of motor. Check resistance by attaching a probe to the red and black motor leads.
 - A reading of zero ohms indicates an open circuit verifying that the motor is bad.
 - A reading other than zero indicates a good motor.
5. If bad, proceed with motor replacement. If good, check the on/off switch, pressure adjust pressure switch, and power cord for continuity. Replace if bad.
6. Disconnect green ground wire, red pressure switch wires from relay, black power wire from the fuse holder, white power cord wire from relay and black wire from fuse holder to relay (see schematic below).
7. Remove fuse holder from motor baffle.
8. Remove the four screws holding the gear housing to the pump housing using a Torx T25.
9. Pull the motor / gear assembly straight out.

TO INSTALL :

1. Grease motor pinion and place new motor / gear assembly back into position and secure with four screws (45 – 50 in lbs).
2. Connect electrical wires (see schematic, below).
3. Insert the pressure dial with cup side to the front in the shroud and hold by hand. Install shroud so that the dial slides over the pressure switch shaft.
4. Install four screws to secure the shroud (15 – 20 in lbs).
5. Plug unit in, turn switch on, increase pressure to start pump and confirm proper operation.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

MOTOR ASSEMBLY

Amspray 2100

Wagner 9210

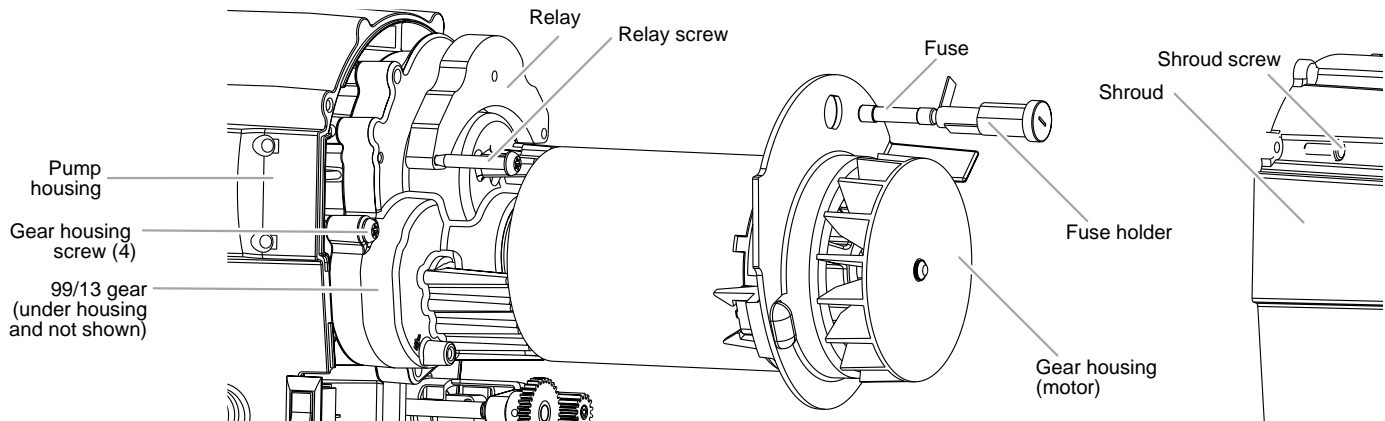
SprayTech Apex 2120

FAILURE:

The unit does not run with the unit plugged in, ON/OFF switch in the ON position, pressure dial in the maximum position, and PRIME/SPRAY valve in the prime position.

TOOLS REQUIRED:

Torx T25 driver, 1/4-inch wrench or socket.

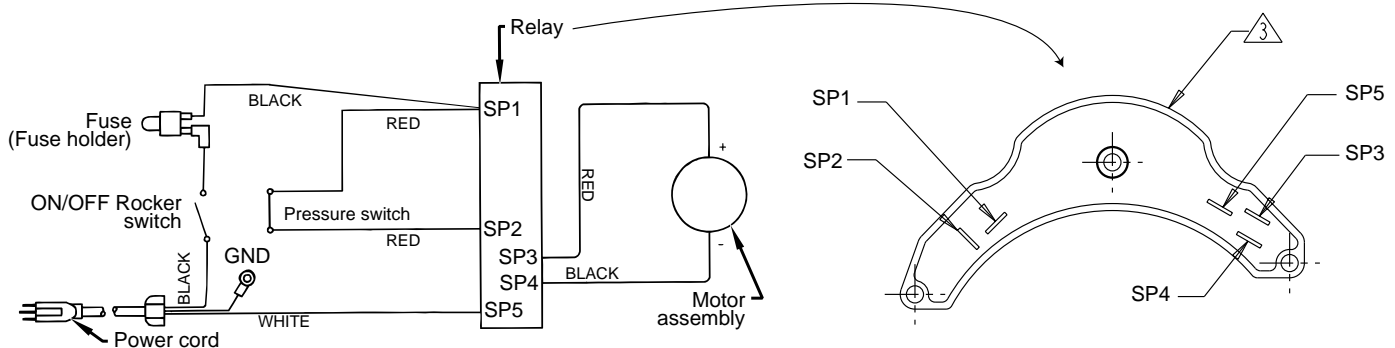


TO REMOVE :

1. Remove shroud by removing the 4 shroud screws.
2. Remove 10 Amp fuse by turning gray fuse holder cap 1/8 turn counter-clockwise and inspect. Replace if necessary.
3. Remove red and black motor leads from relay.
4. Check continuity of motor. Check resistance by attaching a probe to the red and black motor leads.
 - A reading of zero ohms indicates an open circuit verifying that the motor is bad.
 - A reading other than zero indicates a good motor.
5. If bad, proceed with motor replacement. If good, check the on/off switch, pressure adjust pressure switch, and power cord for continuity. Replace if bad.
6. Disconnect green ground wire, red pressure switch wires from relay, black power wire from the fuse holder, white power cord wire from relay and black wire from fuse holder to relay (see schematic below).
7. Remove fuse holder from motor baffle.
8. Remove the four screws holding the gear housing to the pump housing using a Torx T25.
9. Pull the motor / gear assembly straight out.

TO INSTALL :

1. Remove the metal 99/17 tooth gear and install in new motor assembly by pulling it straight out. Add gear lube grease, excess grease in pump housing can also be used.
2. Place new motor / gear assembly back into position and secure with four screws (45 – 50 in lbs).
3. Connect electrical wires (see schematic, below).
4. Install four screws to secure the shroud (15 – 20 in lbs).
5. Plug unit in, turn switch on, increase pressure to start pump and confirm proper operation.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

ECCENTRIC ASSEMBLY

Amspray 1400, 1550

Wagner 9140, 9140S, 9150

Amspray by SprayTech 1400, 1600

ProForce PF23, PF25

SprayTech Apex 1420, 1620

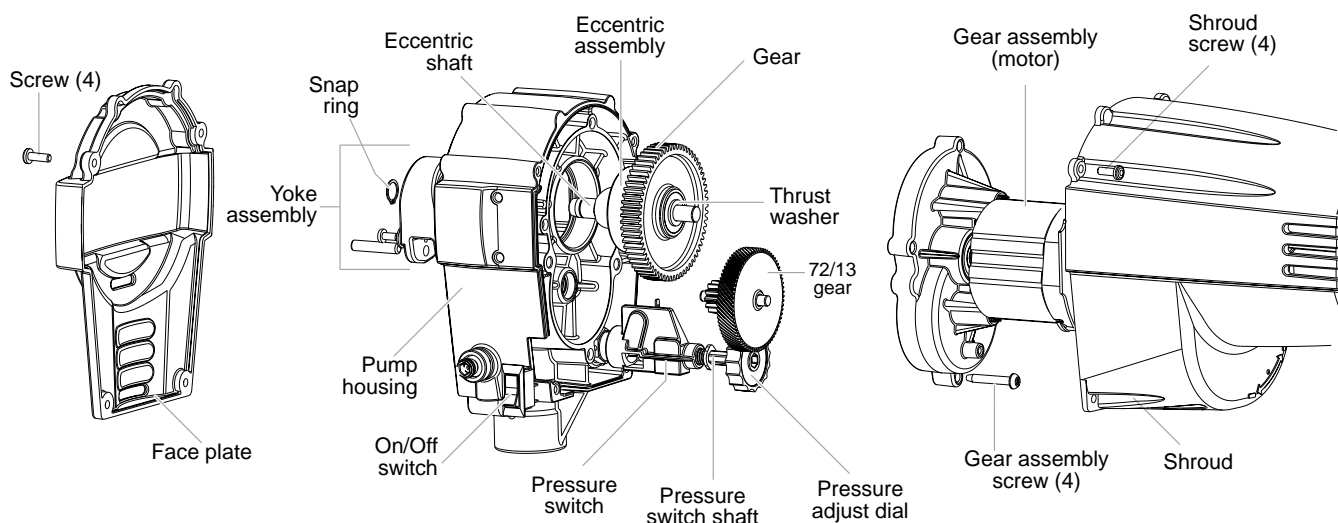
Krebs K2015, K2015S

FAILURE:

Motor appears to turn normally, but the eccentric assembly does not.

TOOLS REQUIRED:

T25 Torx wrench, T20 Torx wrench, 1/4 inch wrench

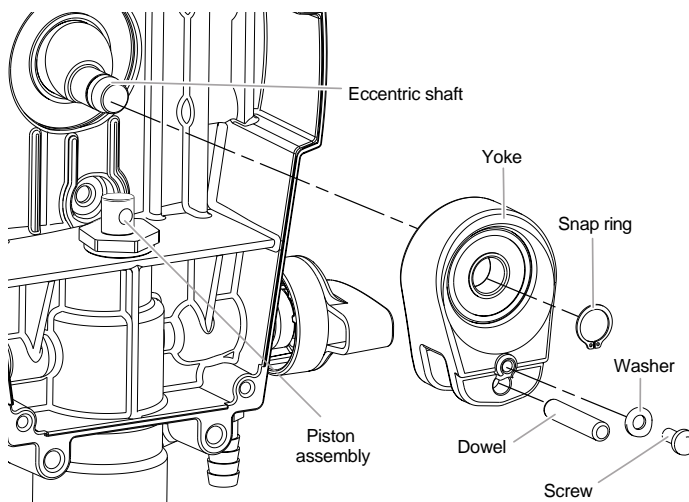


TO REMOVE :

1. Remove shroud by removing the 4 shroud screws. The pressure adjust dial will slide off the pressure adjust assembly when the shroud is being removed
2. Disconnect wire leads.
3. Disconnect green ground lead using the 1/4-inch socket.
4. Remove the four screws holding the gear housing to the pump housing using the Torx T25 driver.
5. Pull the motor / casting assembly straight out.
6. Inspect gears for failure:
 - **Motor pinion gear failed:** Replace motor assembly and 72/13 tooth gear by following the motor assembly instructions.
 - **13-tooth portion of the 72/13-tooth gear failed:** Replace gear by following the motor assembly instructions and the eccentric assembly by following the instruction below.
 - **Plastic gear failed:** Replace eccentric assembly by following the instructions below.
7. Remove the faceplate by removing the four screws with the Torx T20 driver.
8. Remove the snap ring with snap ring pliers.
9. Remove yoke assembly.
10. Slide gear and eccentric out by hand from motor side and discard.

TO INSTALL :

1. Install new eccentric assembly.
2. Slide yoke onto the eccentric shaft.
3. Add retaining ring, this will insure that the assembly is installed completely.
4. Verify that the thrust washer is installed on the back side of the gear (plastic gear only).
5. Add gear lube grease or similar to 72/13-tooth gear assembly and eccentric plastic gear. Excess grease in pump housing can also be used.
6. Place the motor / gear assembly back into position and secure with four screws (torque to 45-50 in lbs).
7. Connect electrical wires, green to ground, (see schematic on page 8).
8. Insert the pressure dial cup side to the front in the shroud and hold by hand. Install shroud so that the dial slides over the pressure switch shaft.
9. Install four screws to secure the shroud.
10. Plug unit in, turn switch on, pressure switch to maximum.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

ECCENTRIC ASSEMBLY

Amspray 1700, 1900, 2100 Wagner 9170, 9190, 9210

ProForce PF33

SprayTech Apex 1720, 1920, 2120

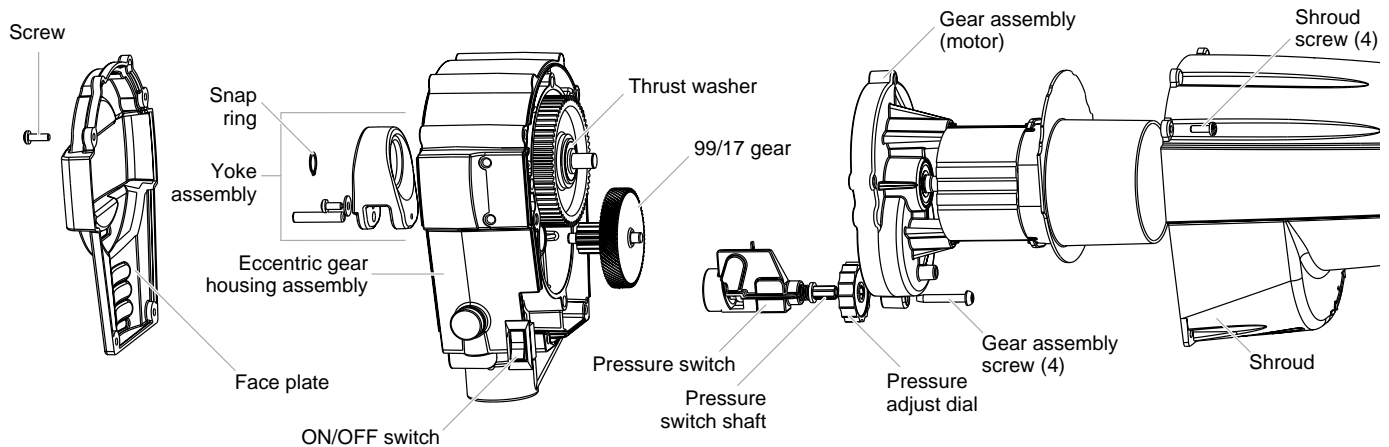
Krebs K3017, K4019

FAILURE:

Motor appears to turn normally, but the eccentric assembly does not.

TOOLS REQUIRED:

T25 Torx wrench, T20 Torx wrench, 1/4 inch wrench

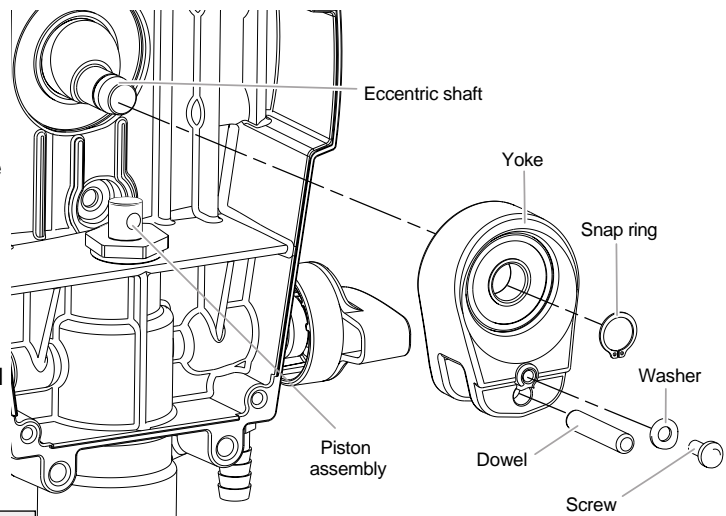


TO REMOVE :

1. Remove shroud by removing the 4 shroud screws. The pressure adjust dial will slide off the pressure adjust assembly when the shroud is being removed (**For Amspray model 2100, Wagner model 9210 and SprayTech Apex model 2120, the pressure adjust dial is located in the front of the face plate and will not be affected by the removal of the shroud**).
2. Disconnect wire leads.
3. Disconnect green ground lead using the 1/4-inch socket.
4. Remove the four screws holding the gear housing to the pump housing using the Torx T25 driver.
5. Pull the motor / casting assembly straight out.
6. Inspect gears for failure:
 - **Motor pinion gear failed: Replace motor assembly and 99/17 tooth gear by following the motor assembly instructions.**
 - **17 tooth portion of the 99/17 tooth gear failed: Replace gear by following the motor assembly instructions**
 - **Main housing gear (99/17) failed: Replace eccentric gear housing assembly by following the instructions below.**
7. Remove the faceplate by removing the four screws with the Torx T20 driver.
8. Remove the snap ring with snap ring pliers.
9. Remove yoke assembly.

TO INSTALL :

1. Slide yoke onto the eccentric shaft.
2. Add retaining ring, this will insure that the assembly is installed completely.
3. Add gear lube grease or similar to 99/17 tooth gear assembly. Excess grease in pump housing can also be used.
4. Place the motor / gear assembly back into position and secure with four screws (torque to 45-50 in lbs).
5. Connect electrical wires, green to ground, (see schematic on page 9 or 10, depending upon model number).
6. Insert the pressure dial cup side to the front in the shroud and hold by hand. Install shroud so that the dial slides over the pressure switch shaft.
7. Install four screws to secure the shroud.
8. Plug unit in, turn switch on, pressure switch to maximum.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

PRESSURE SWITCH ASSEMBLY

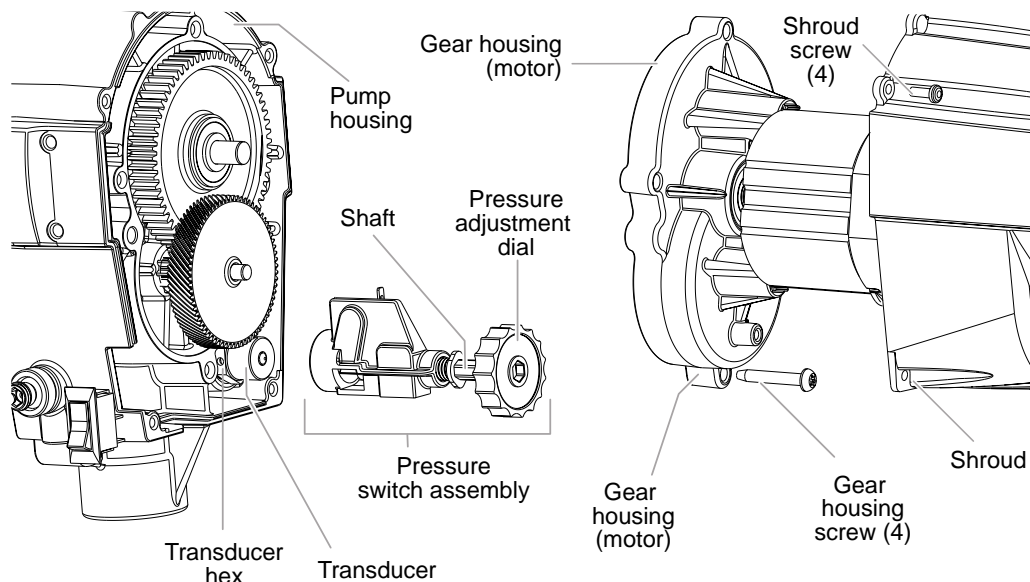
ALL UNITS EXCEPT AMSPRAY 2100, WAGNER 9210, AND SPRAYTECH APEX 2120

FAILURE:

No pressure adjustment, unit will not run, unit builds pressure, but will not shut off when gun trigger is closed and PRIME/SPRAY valve is in the spray position.

TOOLS REQUIRED:

T20 Torx wrench, T8 Torx wrench, Resistance multi-meter, 3/32 Allen Adjustment Screw

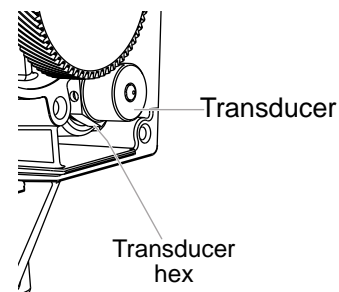


TO REMOVE :

1. Remove shroud by removing the 4 shroud screws. The pressure adjust dial will slide off the pressure adjust assembly when the shroud is being removed.
2. Remove wires from micro-switch.
3. Check pressure micro-switch continuity by actuating the switch by hand while measuring resistance across it:
 - If ohms reading is zero, proceed with replacing the switch.
 - If ohms reading fluctuates with the actuation of the switch, check continuity of the motor, on/off switch, cord, and wiring. Replace as necessary. If the motor is bad, follow the instructions for the motor assembly.
4. Loosen set screw.
5. Pull plastic pressure assembly out.
6. Inspect transducer for presence of paint.
 - If yes, follow transducer assembly instructions before replacing the pressure switch.
 - If no, continue with pressure switch assembly.

TO INSTALL :

1. Push assembly in until it bottoms out against the hex head of the transducer. Wire terminals should point up and plastic body should rest on gear housing.
2. Tighten set screw.
3. Attach wires.
4. Insert the pressure dial cup side to the front in the shroud and hold by hand. Install shroud so that the dial slides over the pressure switch shaft.
5. Install pressure gauge in the high-pressure line.
6. Turn pressure control dial to maximum.
7. Start the unit and allow it to cycle on/off.
 - **Note that the set screw located on the back side of the pressure dial may have to be turned out slightly before the unit will start. Access the pressure screw through the shroud.**
8. While cycling, adjust the pressure shut off to 2750psi with the pressure dial held tight at its maximum setting by adjusting the screw at the backside of the pressure control dial.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

PRESSURE SWITCH ASSEMBLY

Amspray 2100

Wagner 9210

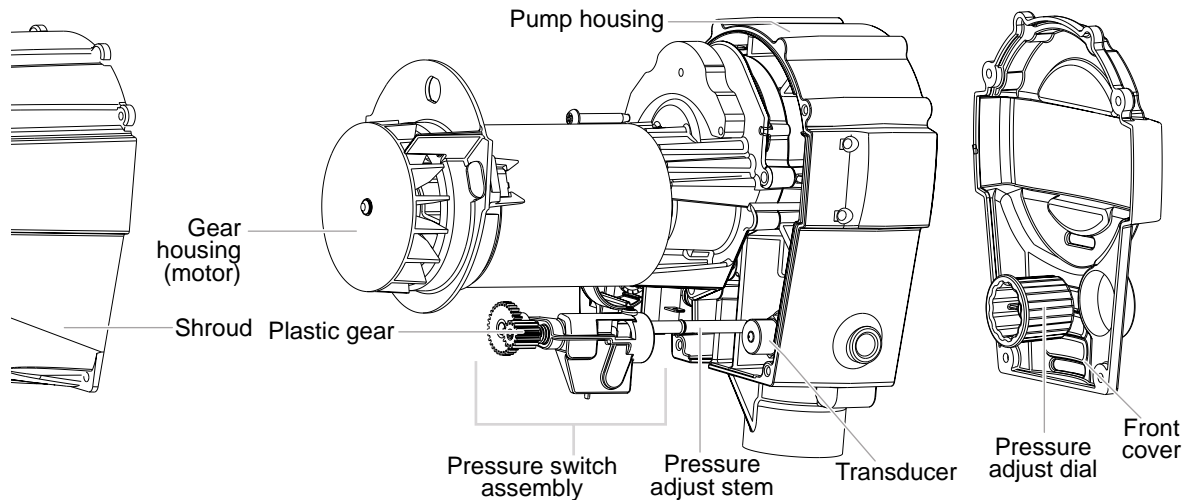
SprayTech Apex 2100

FAILURE:

No pressure adjustment, unit will not run, unit builds pressure, but will not shut off when gun trigger is closed and PRIME/SPRAY valve is in the spray position.

TOOLS REQUIRED:

T20 Torx wrench, 1/16 inch Allen wrench, T8 Torx wrench, Snap ring pliers, Resistance multi-meter, 3/32 Allen adjustment screw

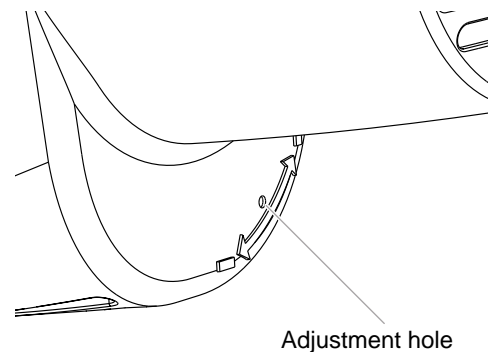


TO REMOVE :

1. Remove shroud by removing the 4 shroud screws.
2. Remove front cover by removing the 4 face plate screws.
3. Remove wires from micro-switch.
4. Check pressure switch continuity by actuating the switch by hand while measuring resistance across it:
 - If ohms reading is zero, proceed with replacing the switch.
 - If ohms reading fluctuates with the actuation of the switch, check continuity of the motor, on/off switch, cord, and wiring. Replace as necessary. If the motor is bad, follow the instructions for the motor assembly.
5. Remove 5/64" set screw and pull stem and pressure switch assembly out from the rear of the unit. Remove snap ring and O-ring and slide stem (with gear) out of the pressure switch assembly. Replace stem (with gear) into a new switch and return to pump.

TO INSTALL :

1. Using a 5/64 Allen wrench install the new pressure switch assembly to the transducer assembly.
2. Insert pressure stem assembly (Gear/Shaft) through port behind face plate.
3. Install plastic gear using a 1/16 Allen wrench (pressure control stem should be flush with back of plastic gear).
4. Attach wires.
5. Install pressure control knob.
6. Install front cover by installing the 4 face plate screws.
7. Install motor shroud by installing the 4 motor shroud screws.
8. Install pressure gauge in the high-pressure line.
9. Turn pressure control dial to maximum.
10. Start the unit and allow it to cycle ON/OFF.
 - Note that the set screw located on the back side of the pressure dial may have to be turned out slightly before the unit will start. Access the pressure screw through the shroud.
11. While cycling, adjust the pressure shut off to 2750psi with the pressure dial held tight at its maximum setting by adjusting the screw at the backside of the pressure control dial.



The part numbers for these kits are located on the Parts Lists at the end of this manual.

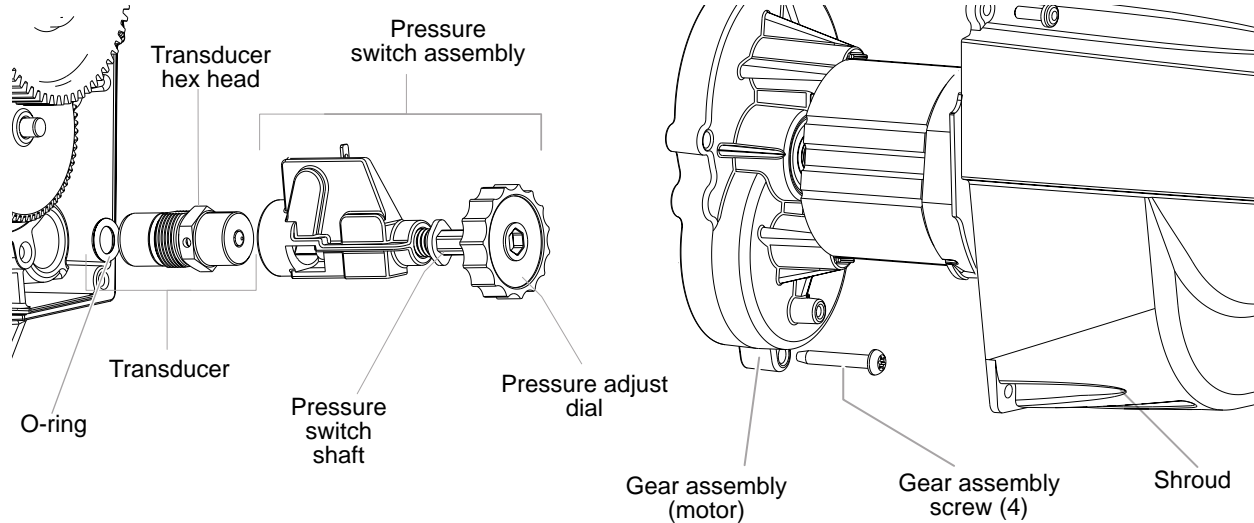
TRANSDUCER ASSEMBLY (all models)

FAILURE:

Paint leaks out the weep hole and bottom of shroud.

TOOLS REQUIRED:

3/4-inch (19mm) socket



TO REMOVE :

1. Remove shroud by removing the 4 shroud screws.
2. Loosen set screw on the pressure switch (**the pressure switch for Amspray model 2100 and Wagner model 9210 will look slightly different than the picture above**).
3. Pull plastic pressure assembly out.
4. Inspect transducer to verify the presence of paint.
 - **If yes, follow transducer assembly instructions before replacing the pressure switch.**
 - **If no paint is visible, the leak must be from the piston seals or spill.**
5. Unscrew the transducer hex head.
6. Pull transducer assembly out.

TO INSTALL :

1. Install new assembly. Make sure spring is well greased. Grease O-ring to aid in keeping transducer in place.
2. Torque to 7.0 – 7.5 ft lbs.
3. Push pressure switch assembly in until it bottoms out against the hex head of the transducer. Wire terminals should point up and plastic body should rest on gear housing.
4. Tighten set screw.
5. Attach wires.
6. Install shroud so that the dial slides over the pressure switch shaft (**for Amspray model 2100 and Wagner model 9210, the pressure adjust dial is located in the front cover of the unit**).
7. Install pressure gauge in the discharge high-pressure line.
8. Turn pressure control dial to maximum.
9. Start the unit and allow it to cycle on/off.
 - **Note that the set screw located on the back side of the pressure dial may have to be turned out slightly before the unit will start. Access the pressure screw through the shroud.**
10. While cycling, adjust the pressure shut off to 2750psi with the pressure dial held tight at its maximum setting by adjusting the screw at the backside of the pressure control dial.

The part numbers for these kits are located on the Parts Lists at the end of this manual.

RELAY KIT

AMSPRAY 2100

WAGNER 9210

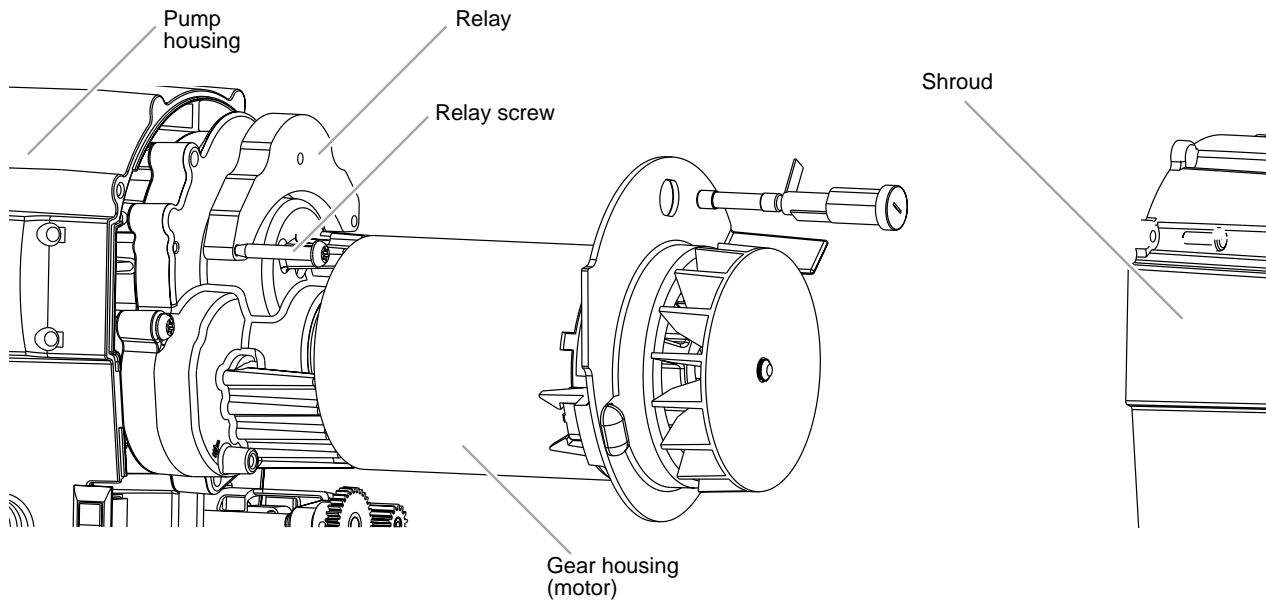
SPRAYTECH APEX 2120

FAILURE:

The unit does not run with the unit plugged in, ON/OFF switch in the ON position, pressure dial in the maximum position, and PRIME/SPRAY valve in the prime position.

TOOLS REQUIRED:

Volt meter.



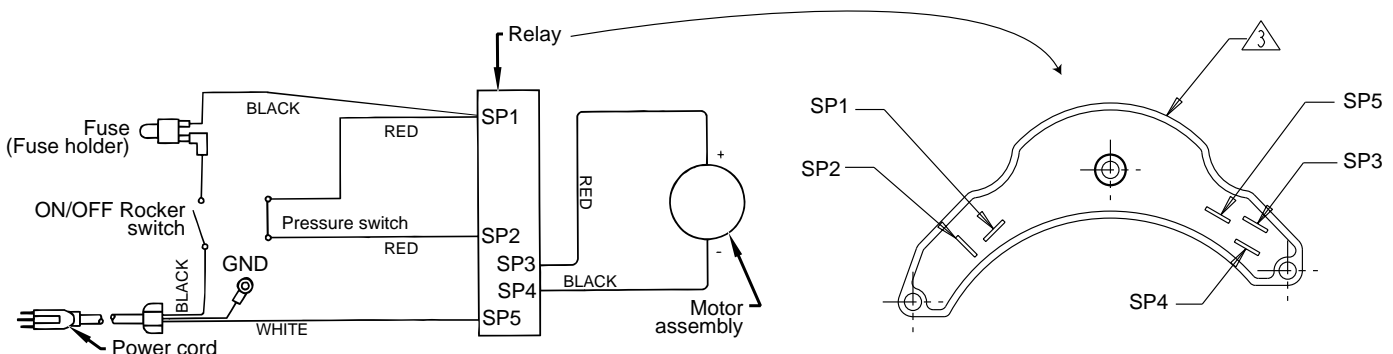
1. Remove shroud by removing the 4 shroud screws.
2. Verify 120 VAC power supply to relay terminals at SP1 and SP5 (the pressure switch should be set to maximum and power switch should be ON).
 - If good, test DC voltage at SP3 and SP4 (should be nominal at 120 VDC). If SP3 and SP4 are good, the relay is fine, pursue other possible failures. If SP3 and SP4 are bad, replace the relay using the instructions below.
 - If SP1 and SP5 are bad, back track AC power at fuse/switch.

!WARNING

Use caution when testing the 120 VAC power supply. Electric shock hazard.

TO REPLACE RELAY:

1. Disconnect power.
2. Remove all wires from relay.
3. Remove two screws and replace with new relay.
4. Use thermal grease on back of relay and motor casting.
5. Replace wires, refer to schematic below.
6. Replace shroud.



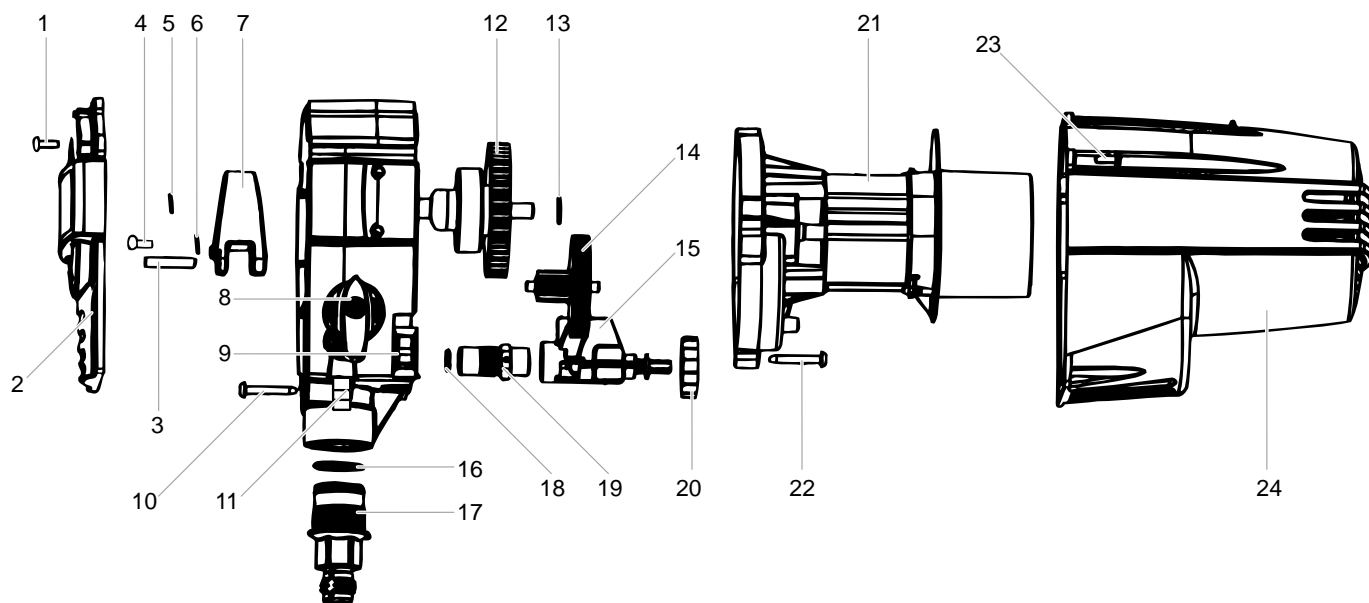
The part numbers for these kits are located on the Parts Lists at the end of this manual.

PARTS LIST

Amspray 1400, 1550
ProForce PF23, PF25

Wagner 9140, 9140S, 9150
SprayTech Apex 1420, 1620

Amspray by SprayTech 1400, 1600
Krebs K2015, K2015S



Item	Part Number	Description	Qty
1	9805220	Shroud screw	4
2	0512317	Face cover (Amspray units)	1
	0512405	Face cover (Wagner and Pro Force units)	1
	0512427	Face cover (Krebs units)	1
	0512455	Face cover (Amspray by Spraytech units, SprayTech Apex unit 1420) . .	1
	0512273	Face cover (SprayTech Apex, 1620) .	1
3	9832103	Dowel pin	1
4	0293395	Screw	1
5	9822529	Retaining ring	1
6	9822608	Washer	1
7	0512248	Yoke assembly	1
8	0512250	PRIME/SPRAY valve assembly . . .	1
	0278277	PRIME/SPRAY valve assembly (after date code SO24)	1
9	0293375	ON/OFF rocker switch	1
10	9805224	Pail bracket screw	2
11	9885553	Return tube fitting	1
12	0512236	Eccentric gear assembly	1
13	9822608	Thrust washer	1
14	0512249	72+/13+ tooth gear	1
15	0512245	Pressure switch assembly	1
16	9871106	Inlet valve O-ring	1
17	0512222	Inlet valve	1
18	9871045	Transducer O-ring	1
19	0512246	Transducer	1
20	0512334	Pressure adjustment dial	1
21	0512235	Motor assembly	1
22	0293357	Motor screw	4
23	9805220	Shroud screw	4
24	0512240	Motor shroud assembly	1

NOT PICTURED

0512239	Power cord assembly	1
0512381	Wire lead (black).	1

PARTS LIST

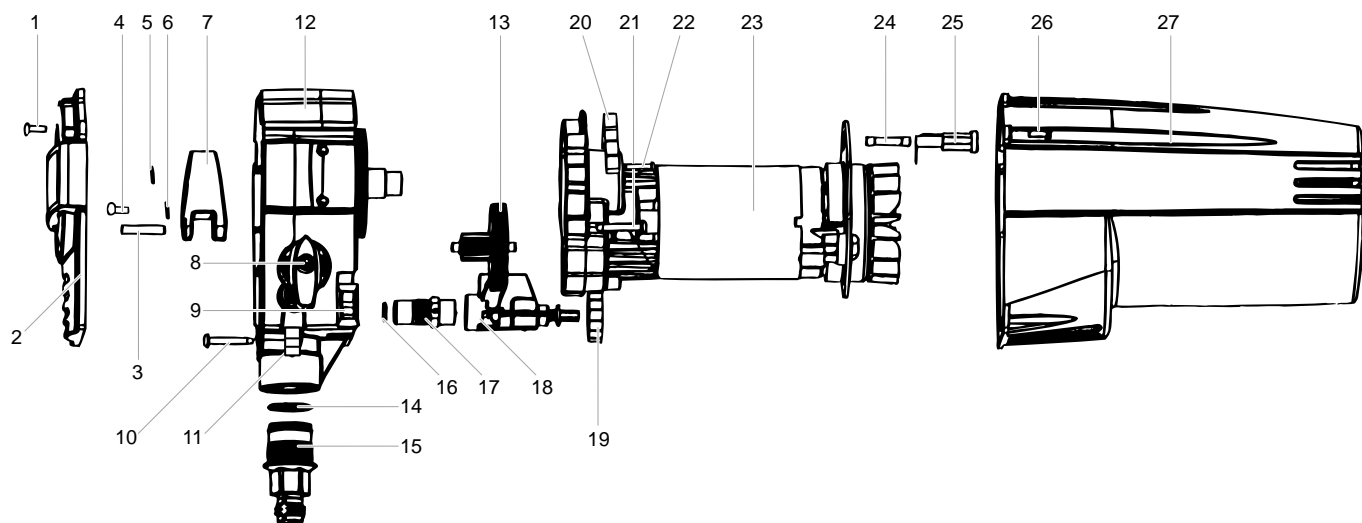
Amspray 1700, 1900

Wagner 9170, 9190

ProForce PF33

SprayTech Apex 1720, 1920

Krebs K3017, K4019



Item	Part Number	Description	Qty
1	9805220	Shroud screw	4
2	0512317	Face cover (Amspray units)	1
	0512405	Face cover (Wagner and Pro Force units)	1
	0512427	Face cover (Krebs units)	1
	0512273	Face cover (SprayTech Apex units)	1
3	9832105	Dowel pin	1
4	0293395	Screw	1
5	9822529	Retaining ring	1
6	9822608	Washer	1
7	0512242	Yoke assembly	1
8	0512250	PRIME/SPRAY valve assembly	1
	0278277	PRIME/SPRAY valve assembly (after date code SO24-SO24)	1
9	0293375	ON/OFF rocker switch	1
10	9805224	Pail bracket screw	2
11	9885553	Return tube fitting	1
12	0512296	Eccentric gear housing assembly	1
13	0512244	99/17 tooth gear	1
14	9871107	Inlet valve O-ring	1
15	0512224	Inlet valve	1
16	9871045	Transducer O-ring	1
17	0512246	Transducer	1
18	0512245	Pressure switch assembly	1
19	0512334	Pressure adjustment dial	1
20	0295451	Relay	1
21	9803108	Relay screw	2
22	0293357	Motor screw	4
23	0512231	Motor assembly	1
24	51411	8 Amp fuse	1
25	9851622	Fuse holder	1
26	9805220	Shroud screw	4
27	0512233	Motor shroud assembly	1

NOT PICTURED

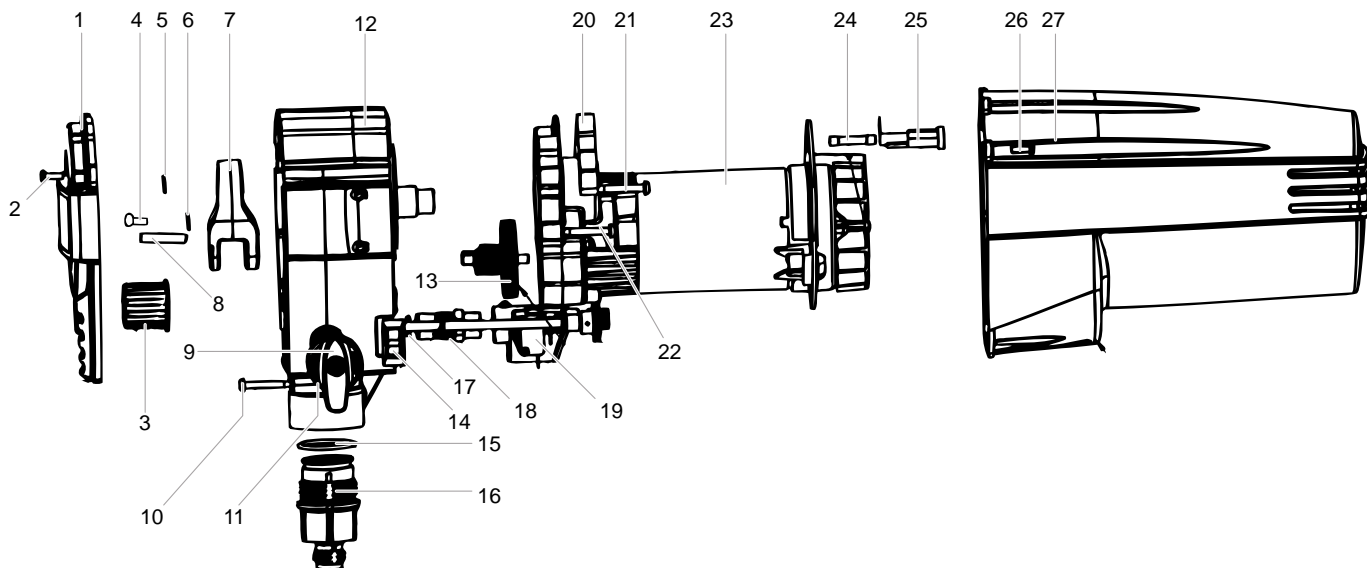
0512232	Power cord assembly	1
0512230	Wire assembly	1

PARTS LIST

Amspray 2100

Wagner 9210

SprayTech Apex 2120



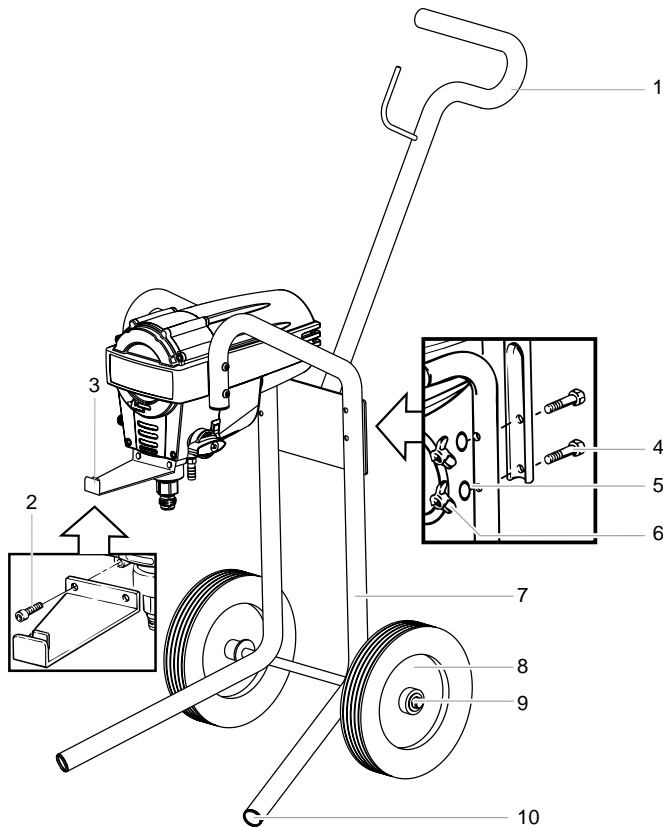
Item	Part Number	Description	Qty
1	0512408	Face cover (Amspray unit)	1
	0512424	Face cover (Wagner unit)	1
	0512274	Face cover (SprayTech Apex unit) . .	1
2	9805220	Face cover screw	4
3	0512407	Pressure adjustment dial.	1
4	0293395	Screw	1
5	9822529	Retaining ring	1
6	9822535	Washer	1
7	0512242	Yoke assembly	1
8	9832105	Dowel pin	1
9	0512250	PRIME/SPRAY valve assembly.	1
	0278277	PRIME/SPRAY valve assembly (after date code SO24-SO24)	1
10	9805224	Pail bracket screw	2
11	9885553	Return tube fitting	1
12	0512296	Eccentric gear housing assembly . .	1
13	0512244	99/17 tooth gear	1
14	0293375	ON/OFF rocker switch	1
15	9871107	Inlet valve O-ring	1
16	0512224	Inlet valve	1
17	9871045	Transducer O-ring	1
18	0512246	Transducer	1
19	0512262	Pressure switch assembly.	1
20	0295451	Relay	1
21	9803108	Relay screw	2
22	0293357	Motor screw	4
23	0512264	Motor assembly	1
24	53732	10 Amp fuse	1
25	9851622	Fuse holder	1
26	9805220	Shroud screw	4
27	0512233	Motor shroud assembly.	1

NOT PICTURED

0512232	Power cord assembly	1
0512230	Wire assembly	1

CART PARTS LIST

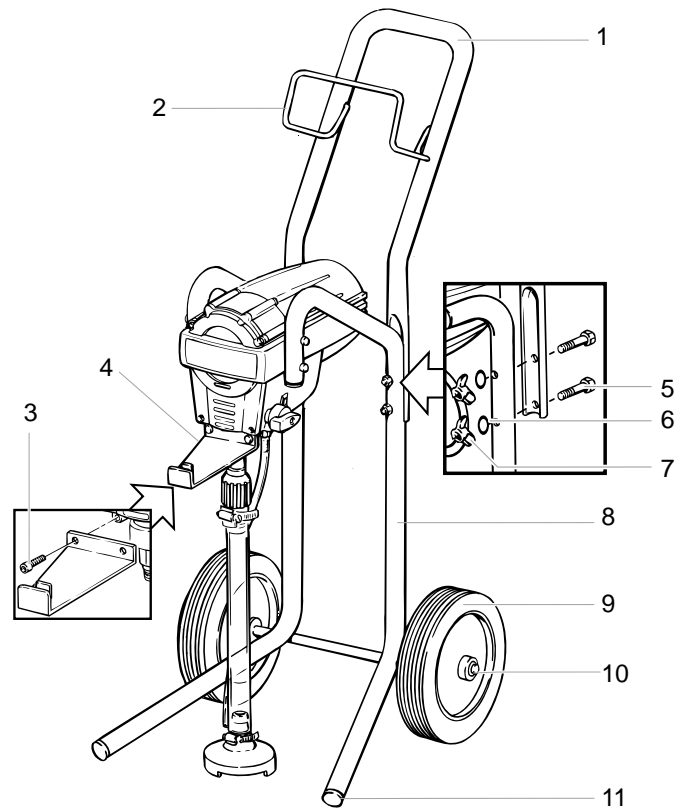
ALL WAGNER AND KREBS UNITS EXCEPT
9140S AND K2015S



Item	Part #	Description	Quantity
1	0512406	Handle	1
2		Pail Bracket Bolt	2
3	0512355	Pail Bracket	1
4	9800108	Bolt (all models except 9210)	4
	9802518	Bolt (9210)	4
5	9821503	Washer	4
6	9810111	Nut (all models except 9210)	4
	0288661	Knob Handle (9210)	4
7	0512383	Cart (9140, 9150, K2015)	1
	0512368	Cart (9170, K3017)	1
	0512385	Cart (9190, 9210, K4019)	1
8	0512396	Wheel (9140, 9150, K2015)	2
	0512397	Wheel (9170, K3017)	2
	0278373	Wheel (9190, 9210, K4019)	2
9	0275728	Cap (9140, 9150, 9170, K2015)	2
	9890104	Cap (9190, 9210, K4019)	2
10	9885546	Plug (all models except 9210)	2
	0294635	Plug (9210)	2

CART PARTS LIST

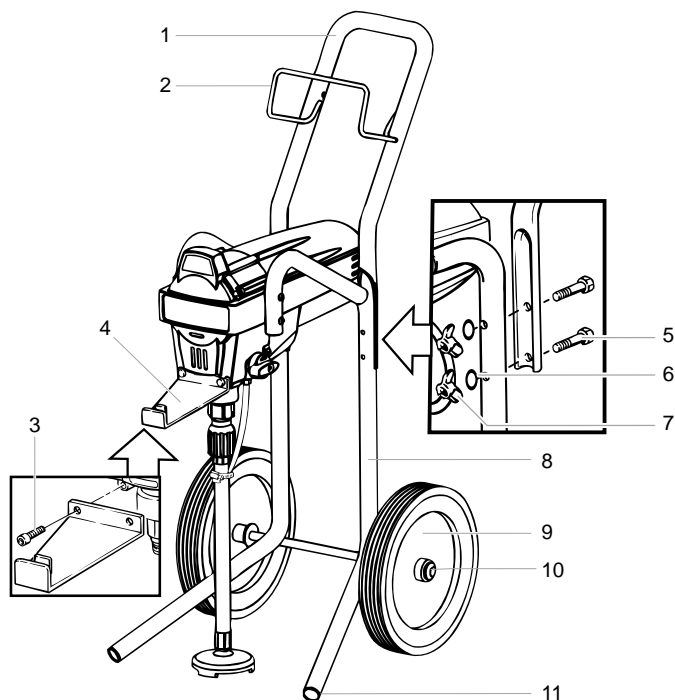
ALL AMSPRAY AND AMSPRAY BY SPRAYTECH
UNITS EXCEPT MODELS 1400



Item	Part #	Description	Quantity
1	0512369	Handle (1550, 1600, 1700, 1900)	1
	0512426	Handle (2100)	1
2	0512384	Hose bracket	1
3		Pail Bracket Bolt	2
4	0512355	Pail Bracket	1
5	9800108	Bolt (1550, 1600, 1700, 1900)	4
	9802518	Bolt (2100)	4
6	9821503	Washer	4
7	9810111	Nut (1550, 1600, 1700, 1900)	4
	0288661	Knob Handle (2100)	4
8	0512383	Cart (1550, 1600)	1
	0512368	Cart (1700)	1
	0512385	Cart (1900)	1
	0512425	Cart (2100)	1
9	0512396	Wheel (1550, 1600)	2
	0512397	Wheel (1700)	2
	0278373	Wheel (1900, 2100)	2
10	0275728	Cap (1550, 1600, 1700)	2
	9890104	Cap (1900, 2100)	2
11	9885546	Plug (1550, 1600, 1700, 1900)	2
	0294635	Plug (2100)	2

CART PARTS LIST

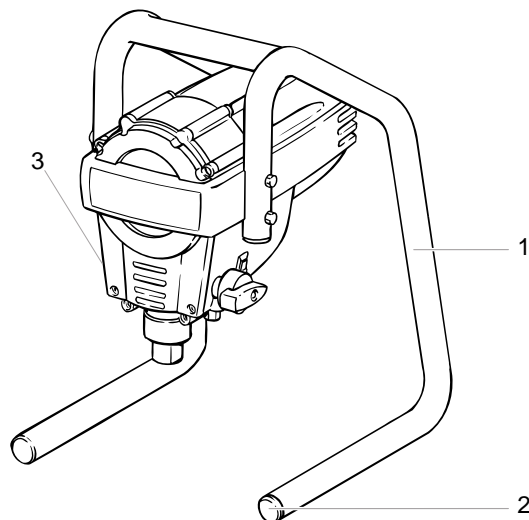
ALL SPRAYTECH APEX AND PRO FORCE
UNITS EXCEPT 1420 AND PF23



Item	Part #	Description	Quantity
1	0512369	Handle (1620, 1720, PF25, PF33) . . .	1
	0512452	Handle (1920)	1
	0512426	Handle (2120)	1
2	0512384	Hose Bracket (1620, 1720, PF25, PF33)	1
	0512464	Hose Bracket (1920)	1
3		Pail Bracket Bolt	2
4	0512355	Pail Bracket	1
5	9800108	Bolt (1620, 1720, 1920, PF25, PF33) . .	4
	9802518	Bolt (2120)	4
6	9821503	Washer (1620, 1720, 1920, PF25, PF33) .	4
7	9810111	Nut (1620, 1720, 1920, PF25, PF33) . .	4
	0288661	Knob Handle (2120)	4
8	0512383	Cart (1620, PF25)	1
	0512368	Cart (1720, PF33)	1
	0512385	Cart (1920)	1
	0512425	Cart (2120)	1
9	0512396	Wheel (1620, PF25)	2
	0512397	Wheel (1720, PF33)	2
	0278373	Wheel (1920, 2120)	2
10	0275728	Cap (1620, 1720, PF25, PF33)	2
	9890104	Cap (1920, 2120)	2
11	9885546	Plug (1620, 1720, 1920, PF25, PF33) .	2
	0294635	Plug (2120)	2

STAND PARTS LIST

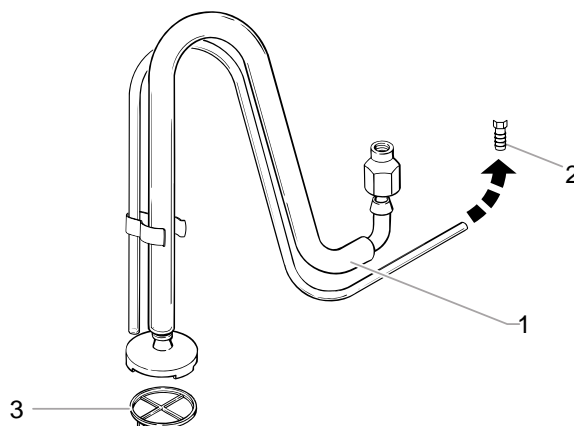
AMSPRAY 1400 WAGNER 9140S
KREBS K2015S PRO FORCE PF23
SPRAYTECH APEX 1420
AMSPRAY BY SPRAYTECH 1400



Item	Part Number	Description	Qty
1	0512336	Stand	1
2	9885546	Plug	2
3	05045	Outlet hose fitting	1

SUCTION SET

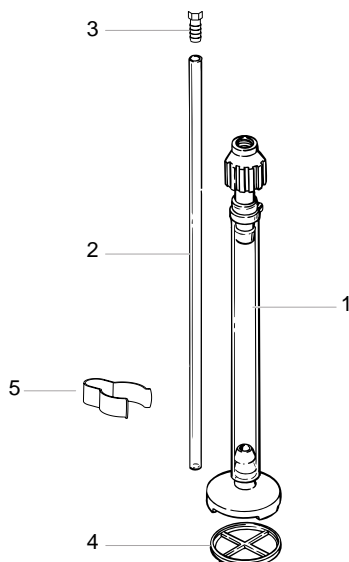
AMSPRAY 1400 WAGNER 9140S
KREBS K2015S PRO FORCE PF23
SPRAYTECH APEX 1420
AMSPRAY BY SPRAYTECH 1400



Item	Part Number	Description	Qty
1	0512215	Suction set assembly	1
2	9885553	Return tube fitting	1
3	0154832	Filter.	1

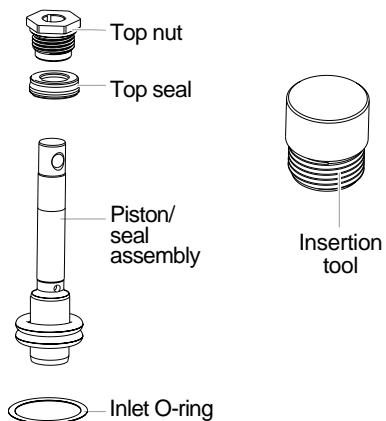
SUCTION SET PARTS LIST

ALL MODELS EXCEPT WAGNER 9140S,
AMSPRAY 1400, PRO FORCE PF23, AND
KREBS K2015S



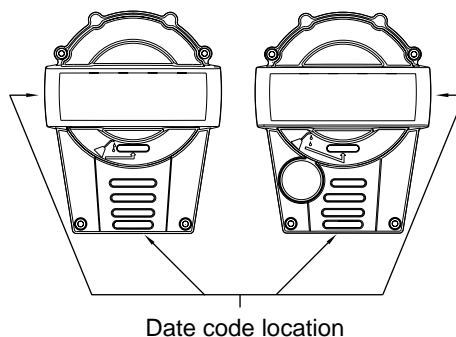
Item	Part Number	Description	Qty
1	0512220	Suction set assembly	1
2	0512389	Return tube	1
3	9885553	Return tube fitting	1
4	0154832	Filter.	1
5	0512390	Clip.	1

FLUID SECTION REPLACEMENT KIT



Part Number	Models
0512228	Amspray 1400, 1550, 1600 Wagner 9140, 9150, 9140S Pro Force PF23, PF25 Krebs K2015S, K2015
0512229	Amspray 1700, 1900, 2100 Wagner 9170, 9190, 9210 ProForce PF33 Krebs K3017, K4019
0512221	SprayTech Apex 1420, 1620 Amspray by SprayTech 1400, 1620
0512178	SprayTech Apex 1720, 1920, 2120

DATE CODE LOCATION



The unit's date code is located on the bottom lip or the side lip of the front face cover in all models.

NOTES:

TROUBLESHOOTING

PROBLEM

CAUSE

SOLUTION

The unit will not run

1. The unit is not plugged in
2. The pressure control knob is set too low
3. Faulty or loose wiring
4. Worn motor brushes
5. Faulty ON/OFF switch

1. Plug the unit in.
2. Turn the pressure control knob **clockwise** to increase pressure.
3. Inspect and correct wiring.
4. Replace motor.
5. Replace switch.

The unit will not prime

1. The piston packings are dried out
2. The pump inset screen is plugged
3. There is air in the pump or hose
4. The packings are worn
5. The suction tube is clogged
6. The suction tube has an air leak
7. PRIME/SPRAY valve open
8. Return tube pinched/clogged

1. Remove the suction tube and feel the lower ball. Check to be sure it is free to move off its seat. Place a full cup of lubricating household oil over the end of the fluid section and turn the pump on.
2. Remove the screen and clean.
3. Trigger the gun and run the unit for about 10 seconds until air is purged.
4. Replace the seals.
5. Remove the suction tube and clean.
6. Check the connection and seal.
7. Close the valve
8. Unpinch or unclog the return tube

The unit will not build or maintain pressure

1. The pressure control knob is not properly set
2. The pump intake screen is dirty
3. The PRIME/SPRAY valve balls or seals are worn or dirty
4. There is air in the pump or hose
5. The seals are worn
6. The spray tip is worn
7. There is internal leakage
8. There is a fluid leak
9. The fluid is too viscous
10. The spray tip is too large

1. Turn the pressure control knob **clockwise** to increase the pressure.
2. Remove and clean the intake screen.
3. Replace or clean.
4. Trigger the gun and run the unit for about 10 seconds until the air is purged.
5. Replace the seals.
6. Replace the spray tip.
7. With the gun trigger closed, allow the unit to pump up to pressure and shut off. If the pump momentarily starts, internal leakage is indicated and fluid section repacking or valve replacement is necessary.
8. Check for external leaks including hydraulic fittings attached to the pressure control housing.
9. Consult the manufacturer's recommendations on the fluid container.
10. Replace the spray tip.

Fluid leakage at the upper end of the fluid section

1. The upper packings are worn
2. The piston rod is worn

1. Relieve the pressure or replace the seals.
2. Replace the piston rod.

Poor spray pattern

1. The spray tip is too large for the material being used
2. The pressure adjustment is wrong
3. Insufficient fluid delivery
4. The fluid is too viscous

1. Change to a smaller tip.
2. Adjust the pressure control knob.
3. Clean all screens and filters.
4. Add solvent according to the manufacturer's recommendations.

The unit lacks power

1. The pressure adjustment is too low
2. Improper voltage supply

1. Increase the pressure.
2. Reconnect the input voltage for 120V AC.

Blown fuses at the pump

1. There is excessive pressure
2. The gear box, linkage, or motor has failed

1. Replace fuses (models 1700, 1900, 2100, 9170, 9190, 9210, K3017, and K4019) and check system at maximum pressure.