SERVICE CENTER MANUAL

PISTON PUMP AIRLESS SPRAYER

Models covered in this manual:

WAGNER®

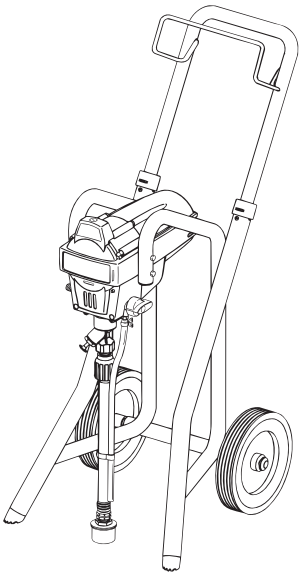
9140S
9146
9150
9170
9190

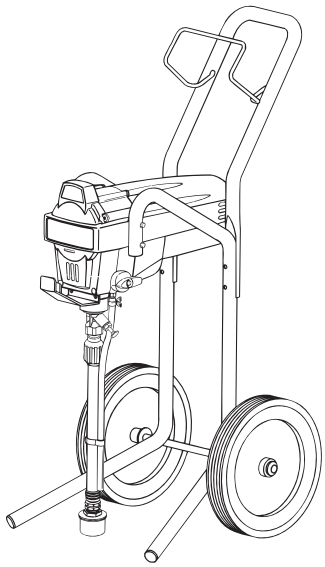
SprayTECH® Apex series™

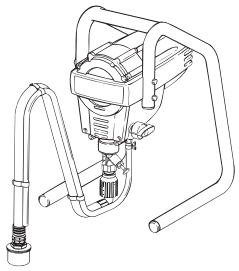
1420
1620
1720
1920

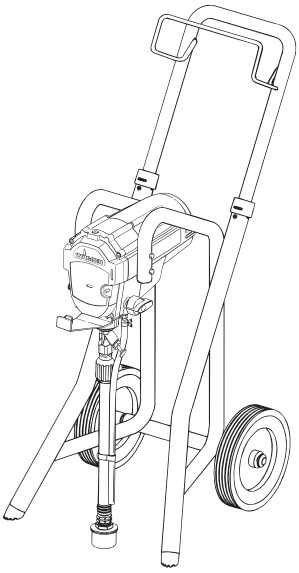
PROFORCE

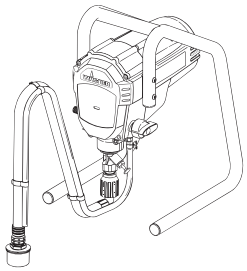
PF23
PF30





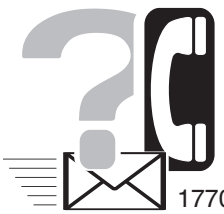






IMPORTANT - THIS MANUAL IS INTENDED FOR AUTHORIZED SERVICE CENTERS ONLY AND SHOULD NOT BE USED FOR CONSUMER REFERENCE.

SEE PAGE 4 FOR TABLE OF CONTENTS AND NEW FEATURES.



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1770 Fernbrook Lane, Minneapolis, MN 55447

0406 • Form No. 0515834A

Important Safety Information • Read all safety information before operating the equipment. Save these instructions

To reduce the risks of fire or explosion, electrical shock and the injury to persons, read and understand all instructions included in this manual. Be familiar with the controls and proper usage of the equipment.

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 3000 PSI/207 BAR or 3600 PSI/248 BAR fluid pressure depending upon gun model.

PREVENTION:

- NEVER aim the gun at any part of the body.
- Do not aim the gun at, or spray any person or animal.
- 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. Do not use hose to lift or pull equipment.
- NEVER use a spray gun without a working trigger lock and trigger guard in place.
- All accessories must be rated at or above 3000 PSI/207 BAR. This includes spray tips, guns, extensions, and hose.

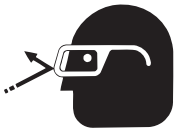
NOTE TO PHYSICIAN:

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: 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: 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. Solvent and paint fumes can explode or ignite.
- Do not spray in a confined area.
- Avoid all ignition sources such as static electric sparks, open flames, pilot lights, electrical appliances, and hot objects. Connecting or disconnecting power cords or working light switches can make sparks. Paint or solvent flowing through the equipment is able to result in static electricity.

- Do not smoke in spray area.
- Fire extinguisher must be present and in good working order.
- Place paint pump 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 equipment and objects in and around the spray area must be properly grounded to prevent static sparks.
- Keep area clean and free of paint or solvent containers, rags and other flammable materials.
- 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. Know the contents of the paints and solvents being sprayed. Read all Material Safety Data Sheets (MSDS) and container labels provided with the paints and solvents. Follow the paint and solvent manufacturer's safety instructions.
- Use extreme caution when using materials with a flashpoint below 70ºF (21ºC). 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.
- Do not spray onto pump assembly.

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.

Important Safety Information • Read all safety information before operating the equipment. Save these instructions

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 3000 PSI/207 BAR.
- Do not spray outdoors on windy days.
- Wear clothing to keep paint off skin and hair.
- Do not operate or spray near children. Keep children away from the equipment at all times.
- Do not overreach or stand on an unstable support. Keep effective footing and balance at all times.
- Stay alert and watch what you are doing.
- Do not operate the unit when fatigued or under the influence of drugs or alcohol.

Important Electrical Information

NOTE - 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 (see chart below). 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.

Cord gauge	Maximum cord length
12	150 feet
14	100 feet

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

IMPORTANT - THE FOLLOWING UNITS ARE PROVIDED WITH A NON-RESETABLE THERMAL OVERLOAD:

WAGNER	**9140S 9146 9150**
SPRAYTECH APEX	**1420 1620**
PRO FORCE	**PF23**

IMPORTANT - THE FOLLOWING UNITS ARE PROVIDED WITH A REPLACEABLE FUSE:

WAGNER	**9170 9190**
SPRAYTECH APEX	**1720 1920**
PRO FORCE	**PF30**

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

The cause of the overload should be corrected before restarting.

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.**

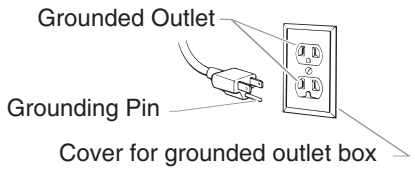
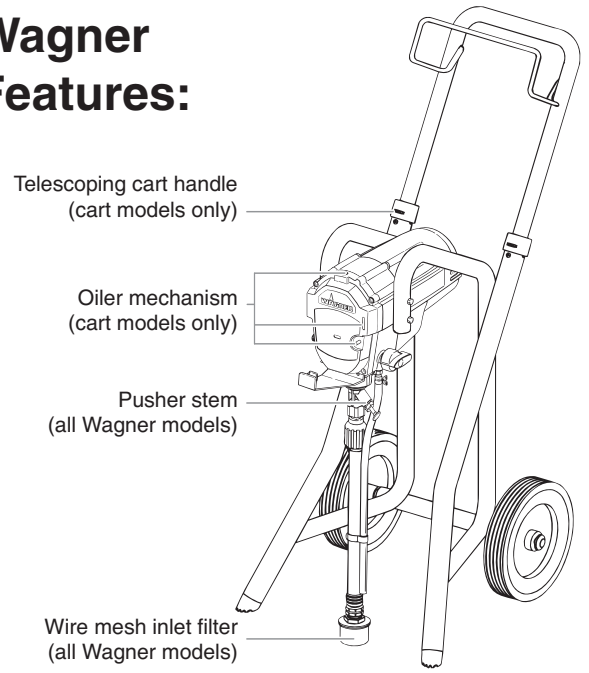


Table of Contents / New Features

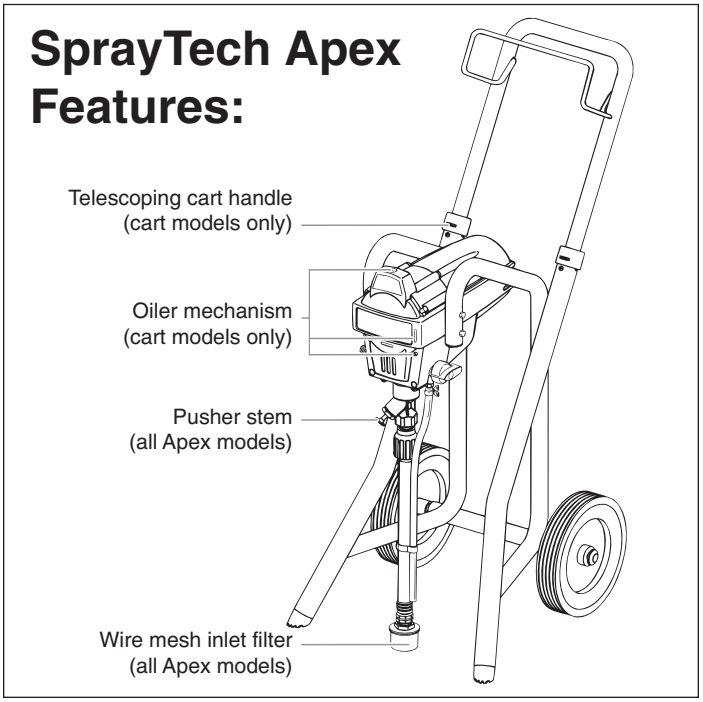
Table of Contents

The latest models of piston pump airless sprayers have been designed with new features that make them different from the same models in previous years. This service manual is intended for reference only for the models containing the new features highlighted below. Form No. 0512768 should be used when servicing older models.

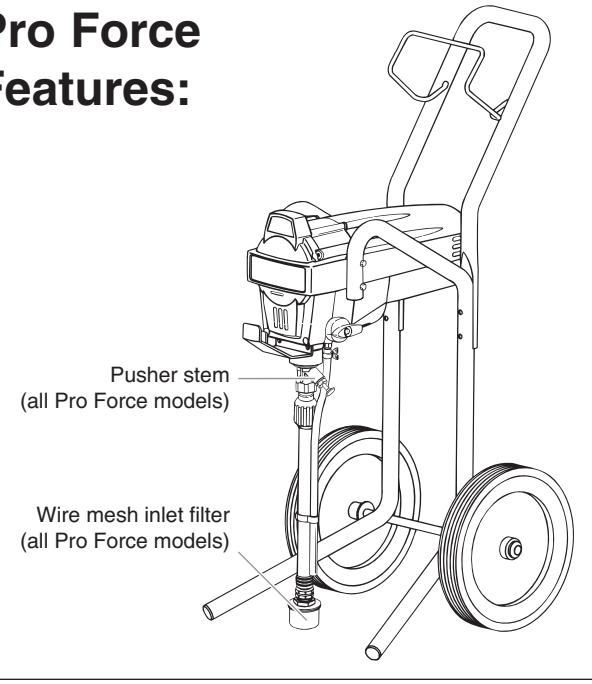
Wagner Features:



SprayTech Apex Features:



Pro Force Features:



Inlet Valve Assembly (all models)

Failure:

Unit will not prime, unit loses pressure or unit will not maintain pressure.

Tools Required:

Torque wrench

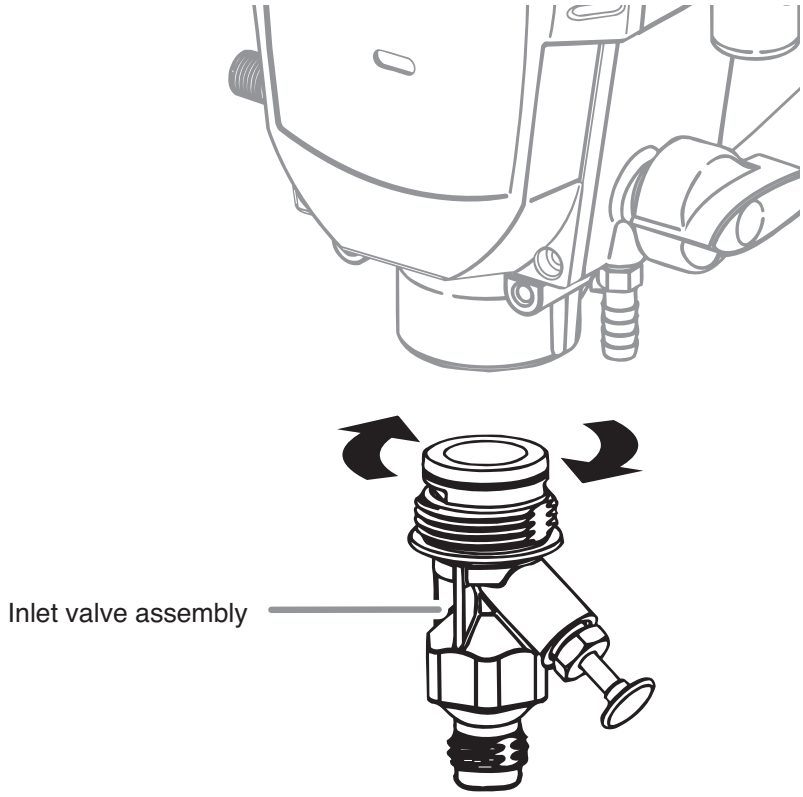
Inlet Valve Replacement Torque				
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Torque to:**	**Inlet valve part number**
9140S 9146 9150	1420 1620	PF23	**23 - 27 ft lbs**	**0516292**
9170 9190	1720 1920	PF30	**32 - 38 ft lbs**	**0516296**

Cleaning the Inlet Valve

1. Unscrew the **inlet valve assembly** from the sprayer. Visually inspect the inside and outside of the inlet valve assembly. Failure to prime may be due to poor cleaning and maintenance. Clean any paint residue with the appropriate cleaning solution.

2. Lubricate the O-ring on the inlet valve. Replace inlet valve assembly by screwing it into the sprayer. Torque per **Inlet Valve Replacement Torque** chart, above.

3. If priming problems persist, replace the entire inlet valve assembly with a new one (see chart, above).



Yoke Assembly (all models)

Failure:

Noisy or broken bearing.

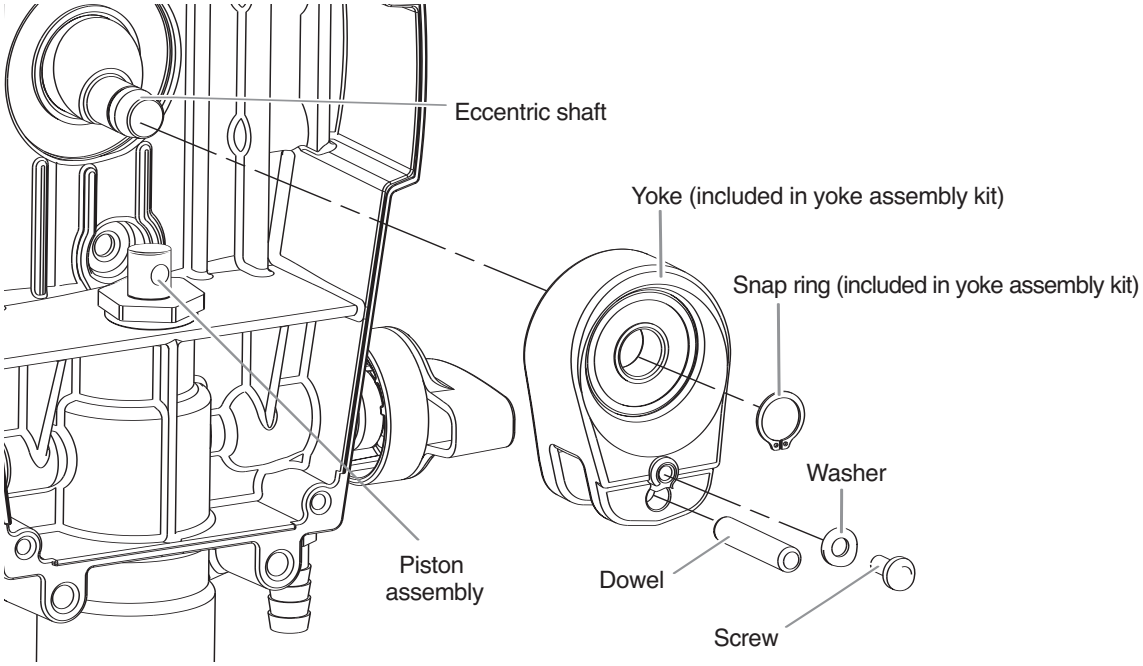
Tools Required:

Torx T20 driver, snap ring pliers, punch, flat head screwdriver.

Yoke Assembly			
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Yoke assembly part number**
9140S 9146 9150	1420 1620	PF23	**0512248**
9170 9190	1720 1920	PF30	**0512242**

Removing the Yoke:

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.



Installing the Yoke:

1. Slide new yoke assembly over eccentric shaft making sure that the dowel pin hole and the threaded yoke screw hole are facing out **(see above for yoke assembly part numbers).**
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/eccenctric 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 (35 - 40 in. lbs).
6. Replace front cover and four screws (11 – 15 in. lbs).

PRIME/SPRAY Valve Assembly (all models)

Failure:

Leak from valve or unit will prime but not spray.

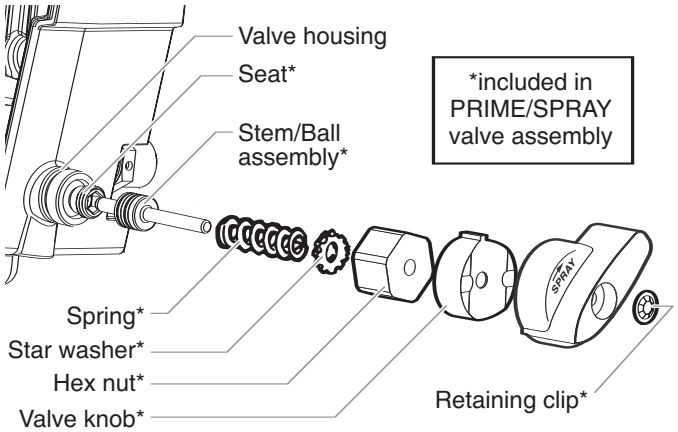
Tools Required:

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

PRIME/SPRAY Valve Assembly			
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**PRIME/SPRAY assembly part number**
9140S 9146 9150 9170 9190	1420 1620 1720 1920	PF23 PF30	**0278277**

To Remove:

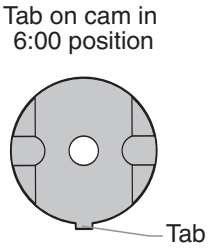
1. Turn PRIME/SPRAY knob to **PRIME** to release any pressure in the system.
2. Place PRIME/SPRAY knob in **SPRAY** position (towards ON/OFF switch).
3. Using channel locks, grab PRIME/SPRAY knob on round portion of knob, turn counter-clockwise, and pull assembly out.
4. Use a hex wrench to remove the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



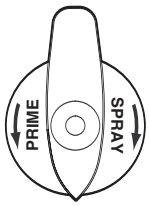
To Install:

1. Tighten the new seat into the valve housing. Use a 7/32 inch hex wrench. Torque to 6-8 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 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 12-14 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.

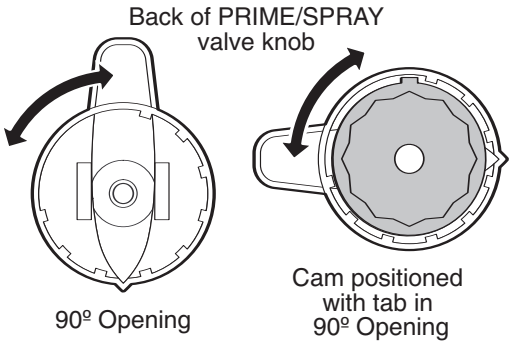
NOTE: Position the cam on the hex nut so that the tab on the side of the cam is as close to the 6:00 position as possible.



8. Place the new PRIME/SPRAY valve knob over the cam with the pointer on the knob as close to the 6:00 position as possible. Make sure the knob is pushed completely onto the cam (the knob should cover the cam completely).



NOTE: The knob is designed to allow 90º of movement between the SPRAY and PRIME positions. The inside of the knob has a 90º 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 6:00 position, make sure that the tab on the cam is within the 90º 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.



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 5–7º).
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.

NOTE - 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.

Piston Repair Kit (all models)

Failure:

Unit will not prime or maintain pressure.

Tools Required:

T20 Torx driver, torque wrench, flat head screwdriver, rubber mallet.

Piston Repair Kit			
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Piston repair kit part number**
9140S 9146 9150	1420 1620	PF23	**0512228A**
9170 9190	1720 1920	PF30	**0516724**

Disassembly of the Fluid Section

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 a pliers, pull the dowel pin out.

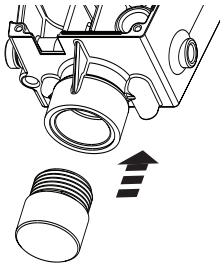
5a. For Wagner models 9140S, 9146, and 9150:
For Spray Tech Apex models 1420 and 1620:
Pro Force model PF23:
Rotate the pump shaft so the piston is in the top dead center position. This can be done by pushing on the yoke. This is required to disassemble all the parts.

5b. For Wagner models 9170 and 9190:
For SprayTech Apex models 1720 and 1920:
For Pro Force model PF30:
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.

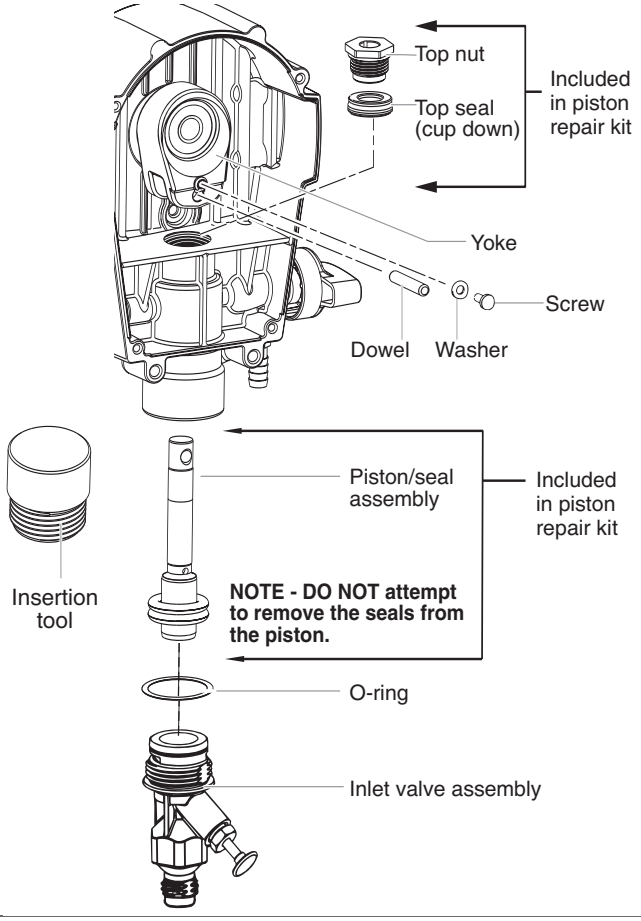
6. Unscrew and remove the inlet valve assembly.
7. Remove the piston assembly by pushing down on the piston near the yoke.
8. Unscrew and remove the top nut using and adjustable wrench.
9. Remove the worn seals using a flat head screwdriver or punch. Remove the top seal from the top and the bottom seal from the bottom by pressing against the side of the seal and popping it out. Be sure not to scratch the housing where the seals are located.
10. Clean the area where the new seals are to be installed.

Assembly of the Fluid Section

1. Lubricate the new top seal with Separating Oil (P/N 0516913) 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 anit-seize on the threads of the top 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 0516913), 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. Be careful not to damage the piston.
6. Apply a lithum grease 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. The inlet valve may need to be removed again to move the piston.
8. Install the yoke screw and washer to secure the dowel pin.
9. Turn pump right side up and apply a few drops of 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. Replace inlet valve. Install the suction set.



Pressure Switch Assembly (all models)

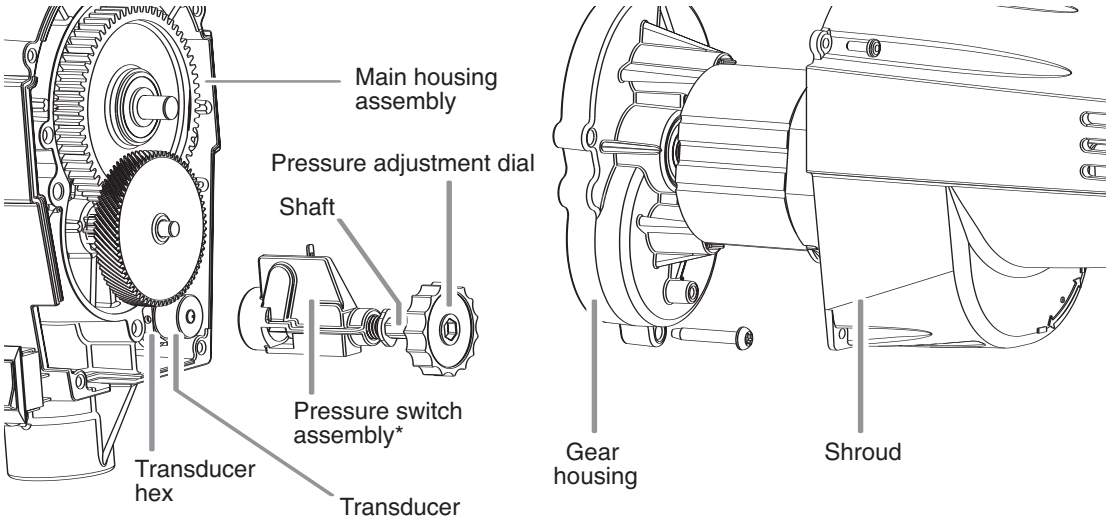
Failure:

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 SPRAY position.

Tools Required:

T20 Torx driver, T8 Torx wrench, resistance multi-meter, 3/32 allen adjustment screw.

Pressure Switch Kit			
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Pressure switch kit part number**
9140S 9146 9150 9170 9190	1420 1620 1720 1920	PF23 PF30	**0516669**

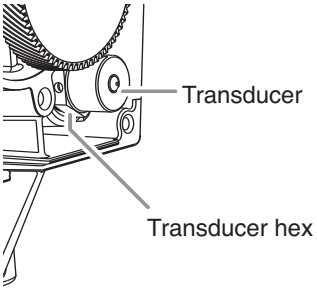


To Remove:

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 microswitch.
3. Check pressure microswitch 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 (page 11-12).**
4. Loosen set screw.
5. Pull plastic pressure switch 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 (6 - 8 in lbs).
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.



Transducer Assembly (all models)

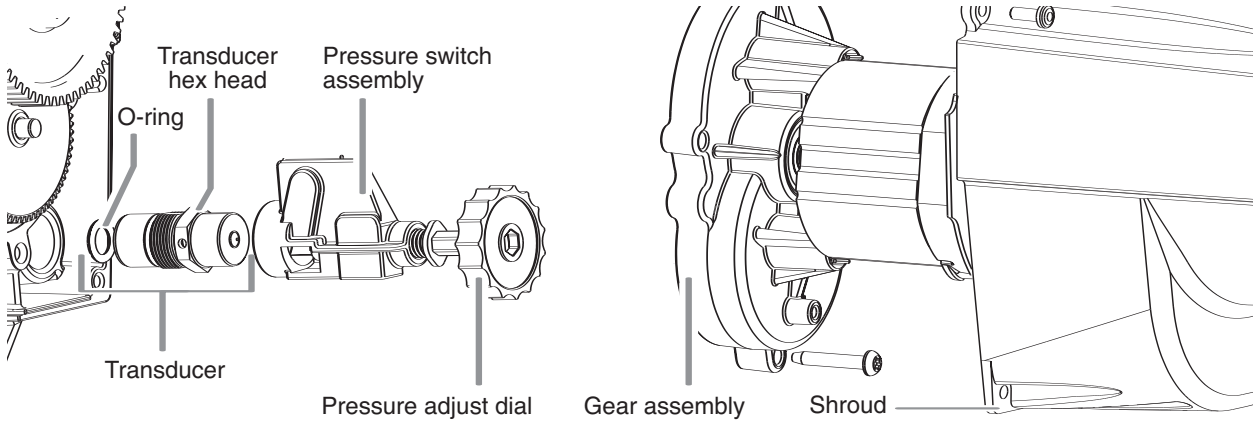
Failure:

Paint leaks out of weep hole and bottom of shroud.

Tools Required:

3/4” (19mm) socket.

Transducer Kit			
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Transducer kit part number**
9140S 9146 9150 9170 9190	1420 1620 1720 1920	PF23 PF30	**0516267**



To Remove:

1. Remove shroud by removing the 4 shroud screws.
2. Loosen set screw on the pressure switch.
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 70 -75 in 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.
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.

Motor Assembly

Wagner 9140S 9146 9150 | **SprayTech Apex 1420 1620** | **Pro Force PF23**

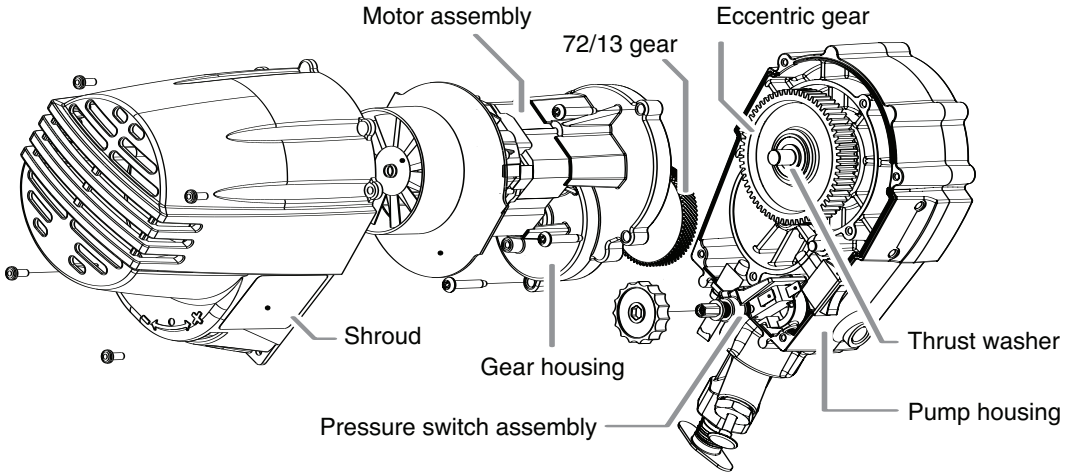
Failure:

The unit does not run with 1) power cord plugged in; 2) ON/ OFF switch is in ON position; 3) Pressure control dial in maximum setting and 4) PRIME/SPRAY knob in the PRIME position.

Tools Required:

Torx 25 driver, Torx T20 driver, 1/4 inch wrench or socket, small flat head screwdriver.

Motor Assembly			
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Motor kit part number**
9140S 9146 9150	1420 1620	PF23	**0516293**

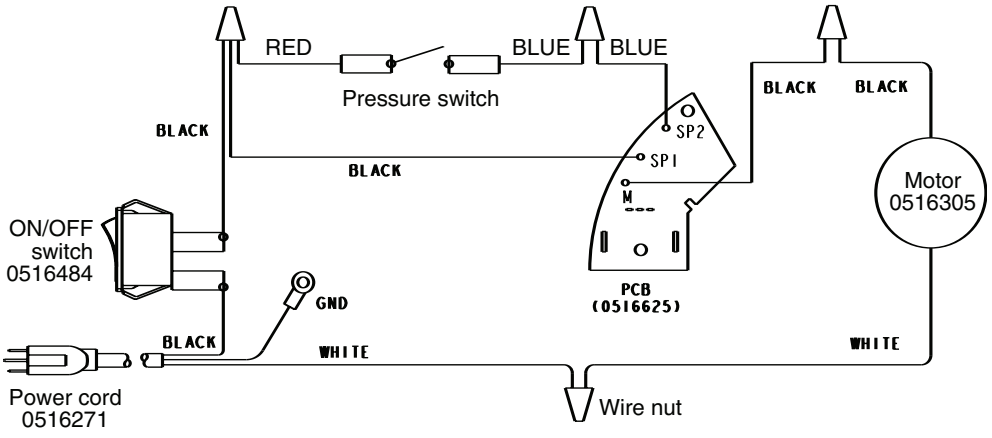


To Remove:

1. Remove shroud by removing the 4 shroud screws using a Torx T20 driver. The pressure control dial will slide off the pressure switch 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 switch assembly, 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 eccentric gear.

To Replace:

1. Grease motor pinion, and place new motor / gear housing 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 (11 – 15 in lbs).
5. Plug unit in, turn switch on, increase pressure to start pump and confirm proper operation.



Motor Assembly

Wagner 9170 9190	SprayTech Apex 1720 1920	Pro Force PF30

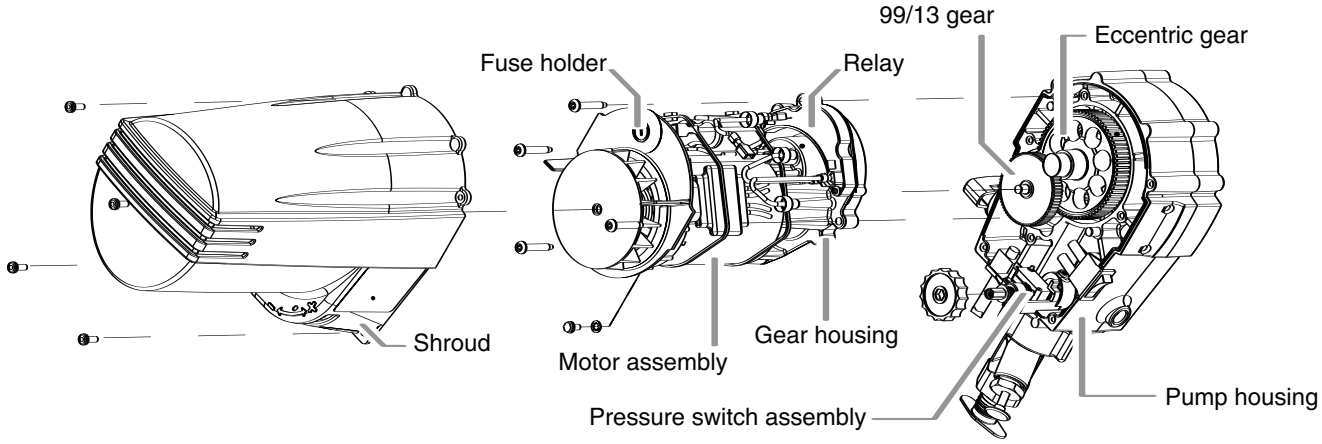
Failure:

The unit does not run with 1) power cord plugged in; 2) ON/ OFF switch is in ON position; 3) Pressure control dial in maximum setting and 4) PRIME/SPRAY knob in the PRIME position.

Tools Required:

Torx 25 driver, Torx T20 driver, 1/4 inch wrench or socket, small flat head screwdriver.

Motor Assembly				
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Motor kit part number**	**Fuse part number**
9170	1720	PF30	**0516128**	**53732**
9190	1920		**0516129**	**9852309**

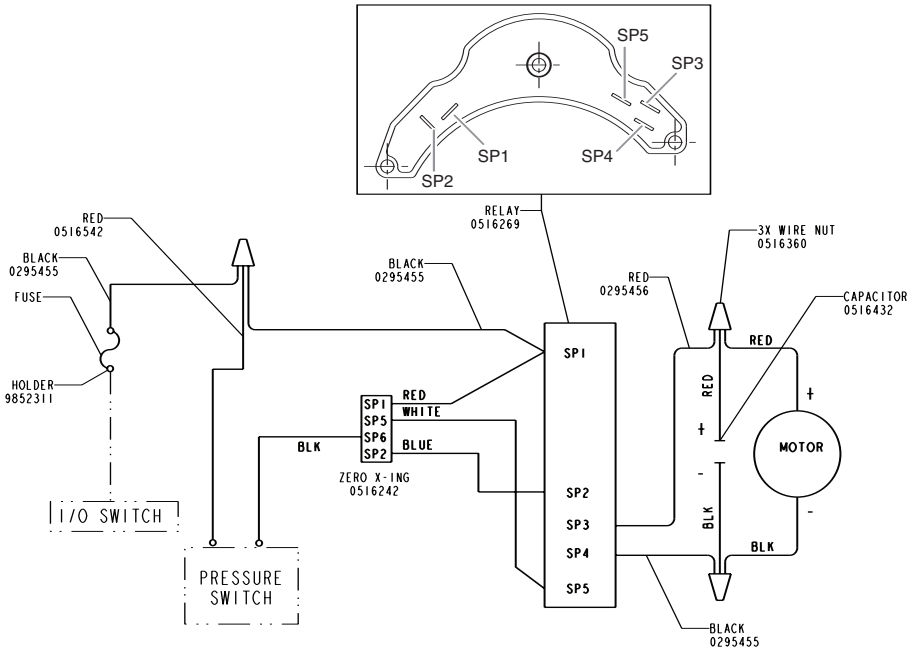


To Remove:

1. Remove shroud by removing the 4 shroud screws.
2. Remove 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 Replace:

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, right).
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 (11 – 15 in lbs).
5. Plug unit in, turn switch on, increase pressure to start pump and confirm proper operation.



Eccentric Assembly

Wagner 9140S 9146 9150 | **SprayTech Apex 1420 1620** | **Pro Force PF23**

Failure:

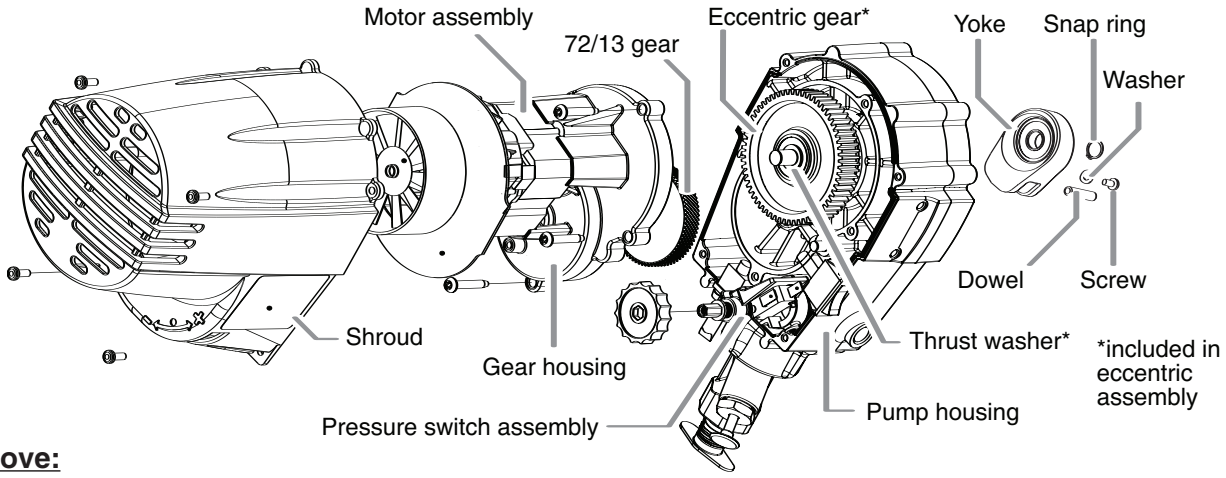
Motor appears to turn normally, but he eccentric assembly does not.

Tools Required:

Torx 25 driver, Torx T20 driver, 1/4 inch wrench

***These units do not have a replaceable individual eccentric assembly. If an eccentric gear assembly fails on a unit listed above, call Wagner Technical Service.**

Eccentric Assembly			
Wagner Models	**SprayTech Apex Models**	**Pro Force Models**	**Eccentric kit part number**
9140S 9146 9150 9170* 9190*	1420 1620 1720* 1920*	PF23 PF30*	**0512236**

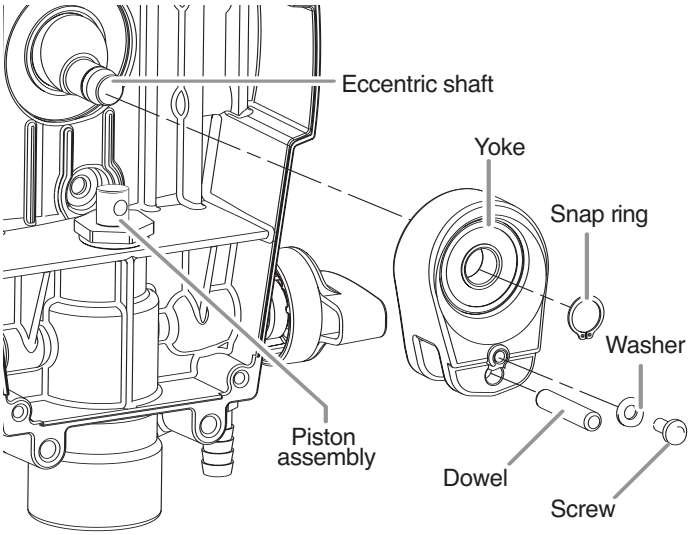


To Remove:

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 (page 9).**
   - **13-tooth portion of the 72/13-tooth gear failed: Replace gear by following the motor assembly instructions (page 9) and the eccentric assembly by following the instructions below.**
   - **Eccentric 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 (yoke, dowel, washer and screw).
10. Slide gear and eccentric out by hand from motor side and discard.

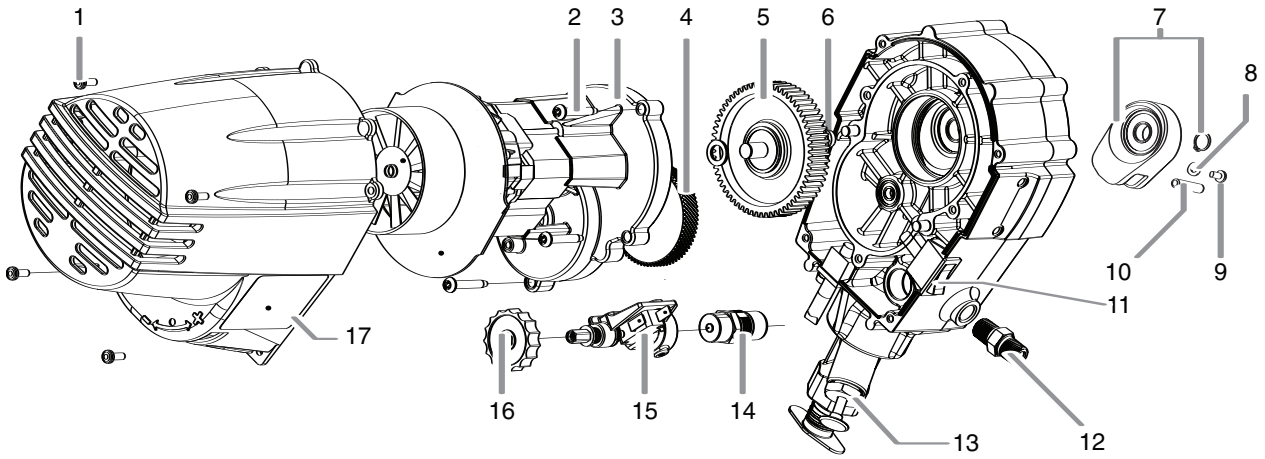
To Install:

1. Install new eccentric assembly.
2. Slide yoke onto the eccentric shaft.
3. Add snap ring, this will ensure that the assembly is installed completely.
4. Verify that the thrust washer is installed on the back side of the gear (eccentric 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 11).
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.



Parts List

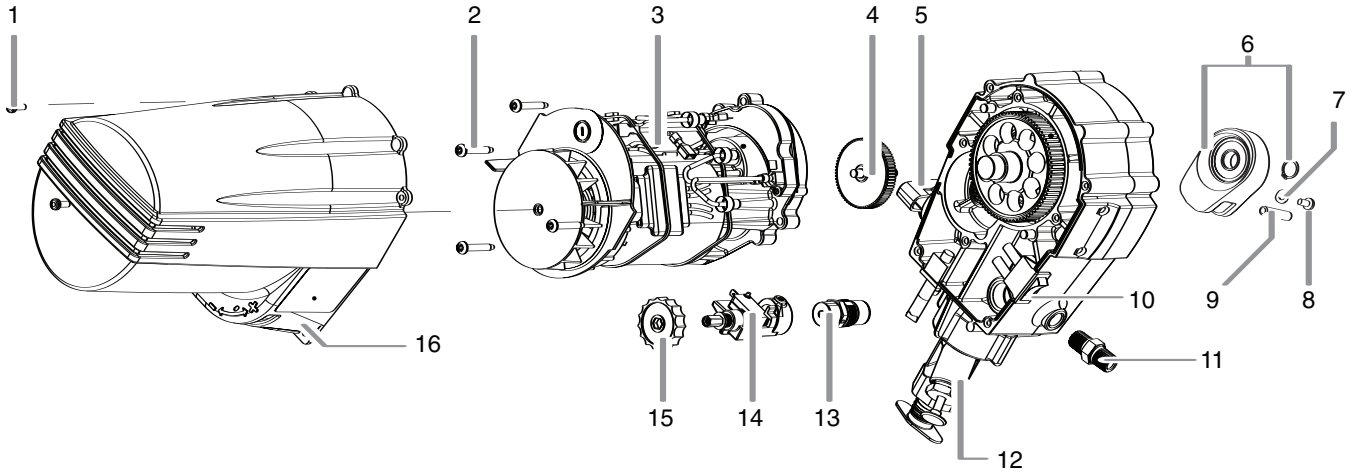
Wagner	SprayTech Apex	Pro Force
9140S 9146 9150	1420 1620	PF23



Item	Part #	Description	Quantity
1	9805251	Shroud screw (8 - 32 X 1/2)	4
2	9805252	Gear housing screw (10 - 24 X 1 1/4)	4
3	0516293	Motor assembly	1
4	0516216	72 - 13 Gear assembly	1
5	0516236	Eccentric gear assembly	1
6	0278277	PRIME/SPRAY valve assembly (other side of main housing assembly)	1
7	0512242	Yoke / snap ring assembly	1
8	9822608	Washer, flat	1
9	0293395	Yoke screw (8 - 32 X 3/8 TAP)	1
10	9832105	Dowel pin	1
11	0516272	ON/OFF switch, no power cord (9140, 1420)	1
	0521903	ON/OFF switch and power cord (9150, 1620)	1
12	05045	Hose fitting	1
13	0516292	Inlet valve assembly	1
14	0516267	Transducer kit	1
15	0516669	Pressure switch assembly	1
16	0512334	Pressure control dial	1
17	0516456	Shroud	1

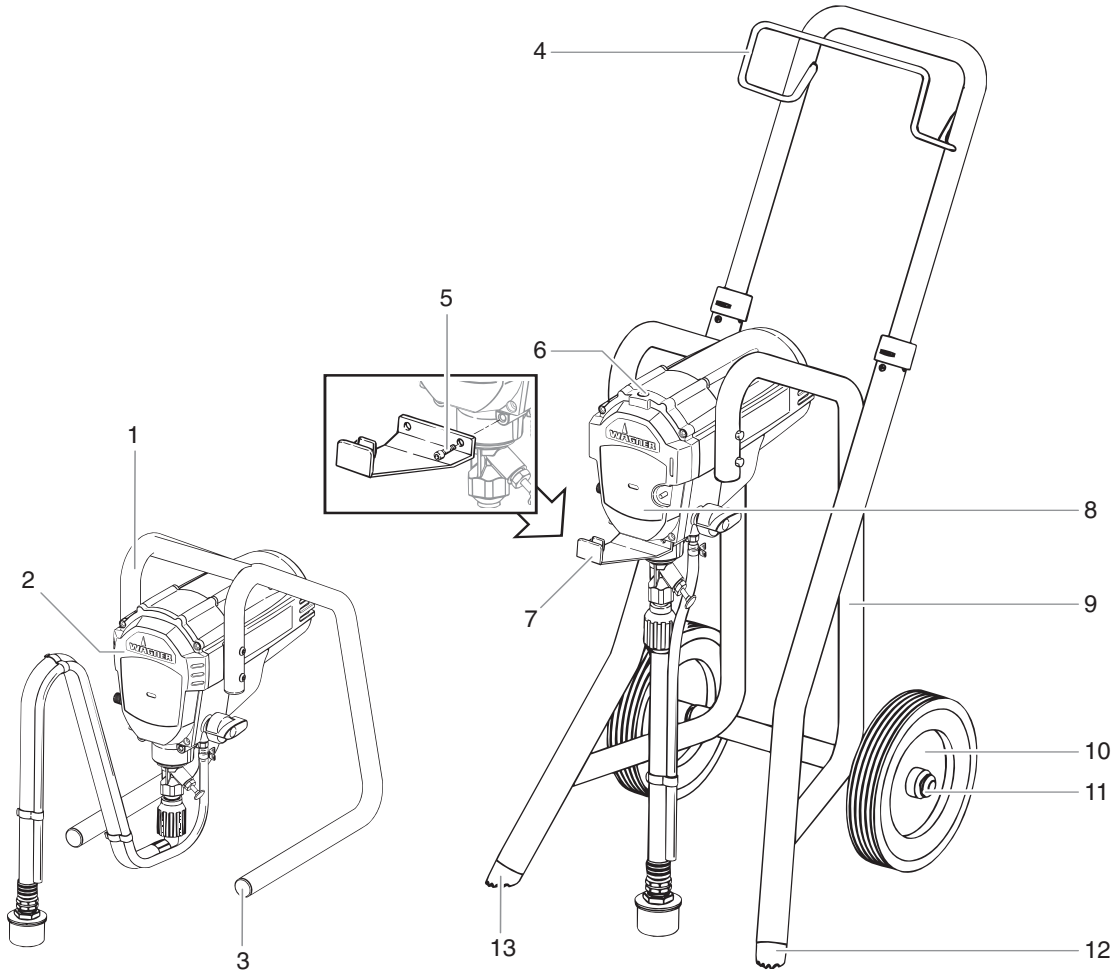
Parts List

Wagner 9170 9190 | **SprayTech Apex 1720 1920** | **Pro Force PF30**



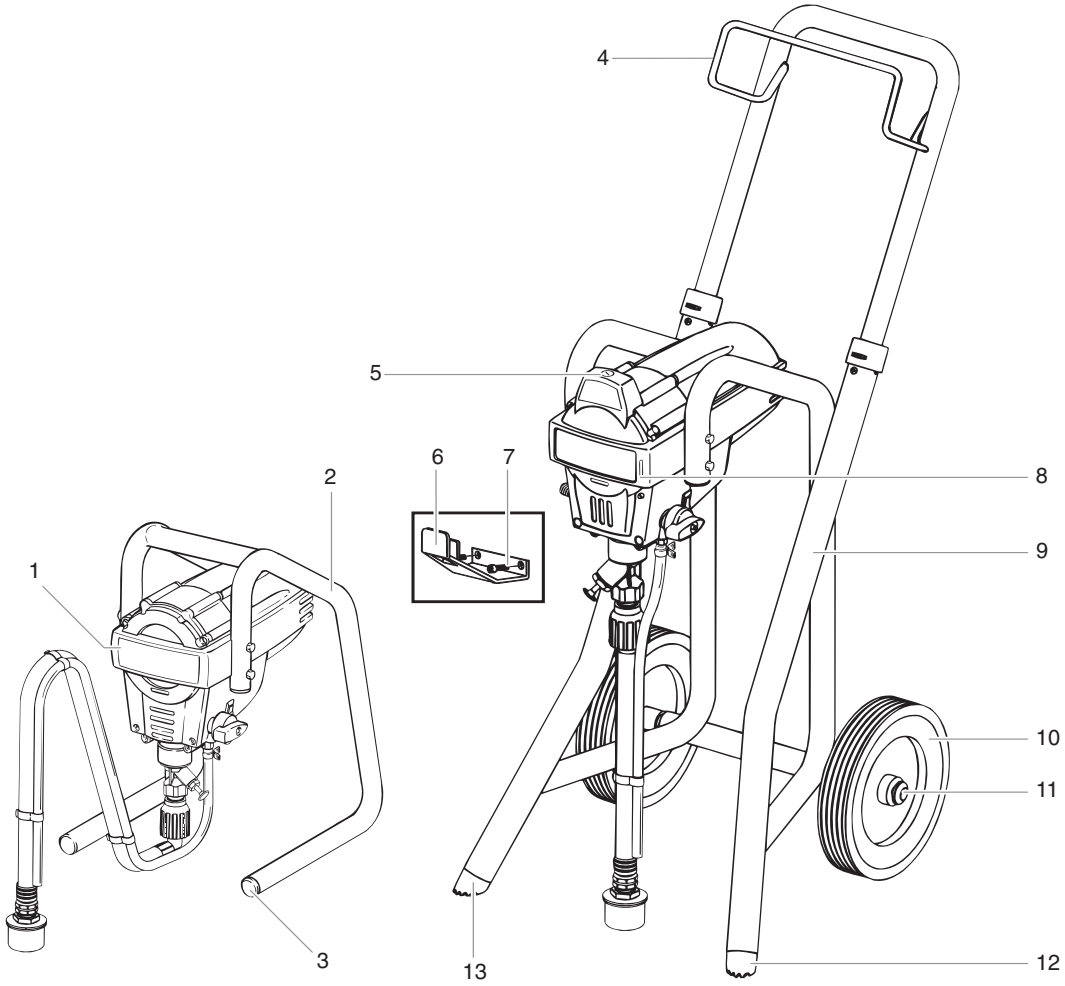
Item	Part #	Description	Quantity
1	9805251	Shroud screw (8 - 32 X 1/2)	4
2	9805252	Gear housing screw (10 - 24 X 1 1/4)	4
3	0516128	Motor assembly (9170, 1720, PF30)	1
	0516129	Motor assembly (9190, 1920)	1
4	0512213	99 - 17 Gear assembly	1
5	0278277	PRIME/SPRAY valve assembly	1
6	0512242	Yoke / snap ring assembly	1
7	9822608	Washer, flat	1
8	0293395	Yoke screw (8 - 32 X 3/8 TAP)	1
9	9830103	Dowel pin	1
10	0521904	ON/OFF switch and power cord (9170)	1
	0521905	ON/OFF switch and power cord (1720, PF30)	1
	0521906	ON/OFF switch and power cord (9190, 1920)	1
11	05045	Hose fitting	1
12	0516296	Inlet valve assembly	1
13	0516267	Transducer kit	1
14	0516669	Pressure switch assembly (9170, 1720, PF30)	1
	0512245	Pressure switch assembly (9190, 1920)	1
15	0512334	Pressure control dial	1
16	0512352	Shroud	1

Parts List (all Wagner models)



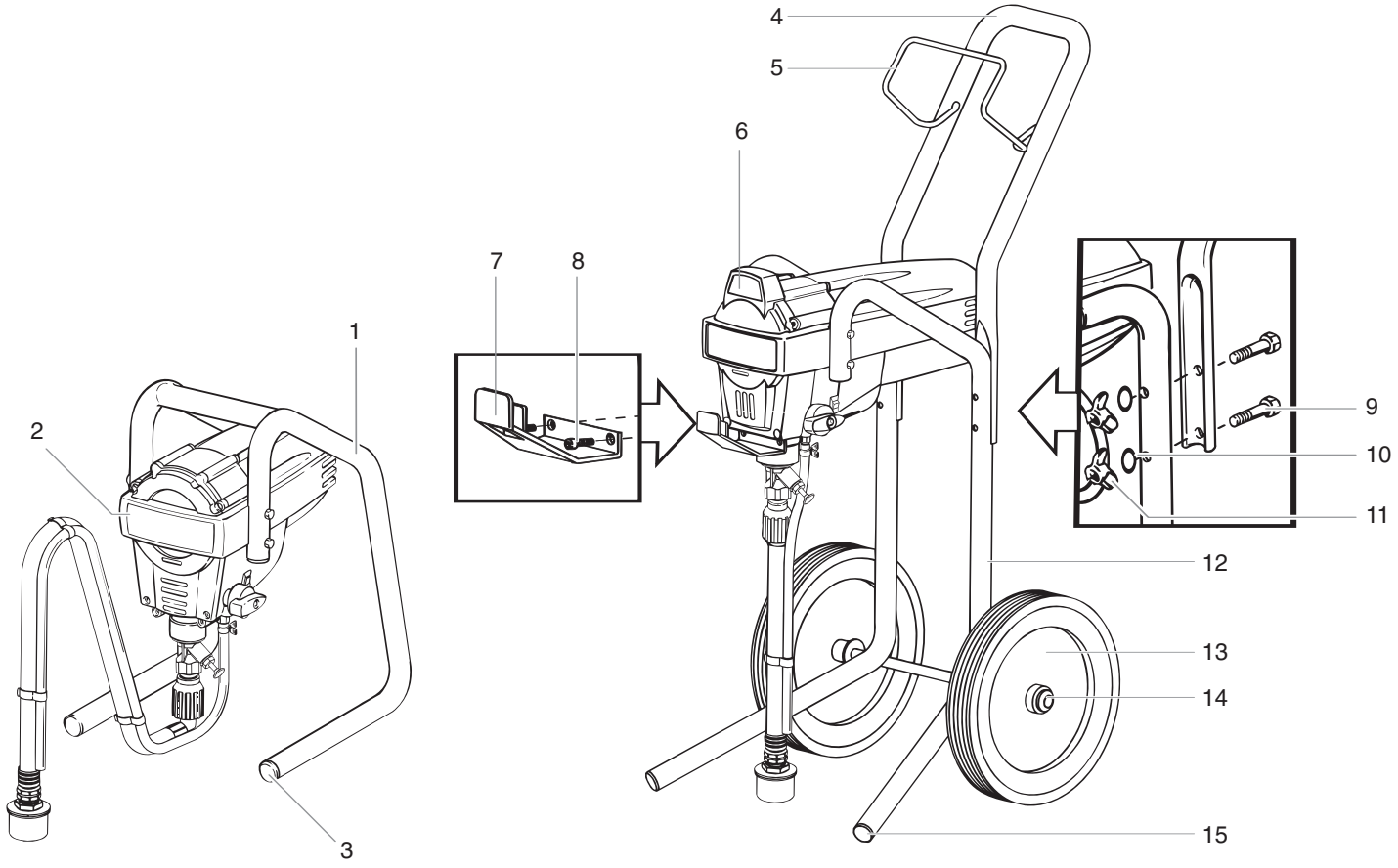
Item	Part #	Description	Quantity
1	0512336	Stand assembly (9140S)	1
2	0512405	Face plate (9140S)	1
3	9885546	Plug	4
4	0516516	Hose bracket (9146, 9150, 9170)	1
	0516517	Hose bracket (9190)	1
5	9805228	Pail bracket bolt	2
6	0516581	Oiler cap (all cart units)	1
7	0516650	Pail bracket	1
8	0519200	Face plate (all cart units)	1
9	0516287	Cart assembly (9146, 9150)	1
	0516288	Cart assembly (9170)	1
	0516289	Cart assembly (9190)	1
10	0278369	Wheel (9146, 9150)	2
	0278370	Wheel (9170)	2
	0278373	Wheel (9190)	2
11	9890113	Wheel cap (9146, 9150, 9170)	2
	9890104	Wheel cap (9190)	2
12	0516498	Cap	1
13	0516505	Cap	1

Parts List (all SprayTech Apex models)



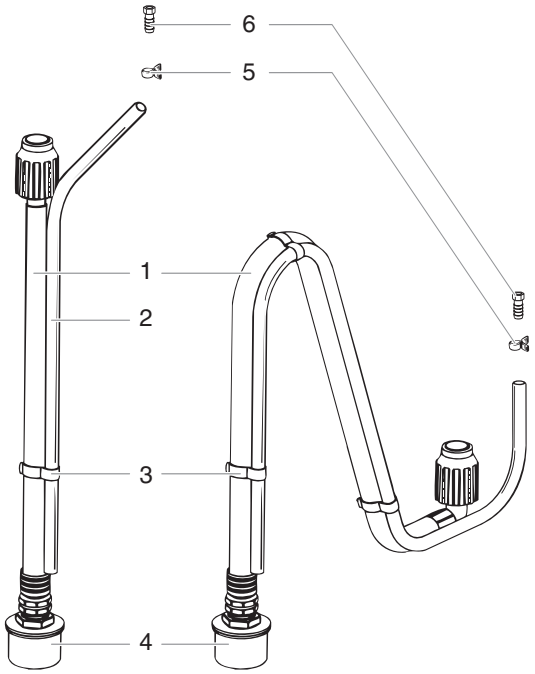
Item	Part #	Description	Quantity
1	0512336	Stand assembly (1420)	1
2	0512455	Face plate (1420)	1
3	9885546	Plug	4
4	0516516	Hose bracket (1620, 1720)	1
	0516517	Hose bracket (1920)	1
5	0516581	Oiler cap	1
6	0516650	Pail bracket	1
7	9805228	Pail bracket bolt	2
8	0516722	Face plate with oiler (1620)	1
	0516723	Face plate with oiler (1720, 1920)	1
9	0516287	Cart assembly (1620)	1
	0516288	Cart assembly (1720)	1
	0516289	Cart assembly (1920)	1
10	0278369	Wheel (1620)	2
	0278370	Wheel (1720)	2
	0278373	Wheel (1920)	2
11	9890113	Wheel cap (1620, 1720)	2
	9890104	Wheel cap (1920)	2
12	0516498	Cap	1
13	0516505	Cap	1

Parts List (all ProForce models)



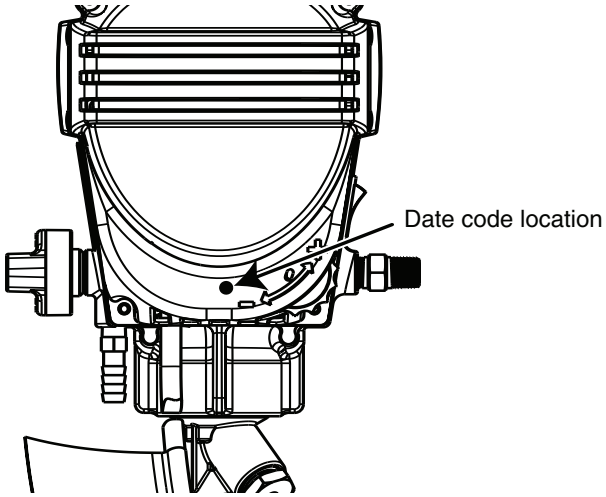
Item	Part #	Description	Quantity
1	0512336	Stand assembly (PF23)	1
2	0512455	Face plate (PF23)	1
3	9885546	Plug (PF23)	4
4	0512369	Handle	1
5	0512384	Hose bracket	1
6	0512273	Face plate	1
7	0516650	Pail bracket	1
8	9805228	Pail bracket bolt	2
9	9800108	Handle bolt	4
10	9821503	Handle washer	4
11	9810111	Handle nut	4
12	0512369	Cart	1
13	0512397	Wheel	2
14	0275728	Wheel cap	2
15	9885546	Plug (PF30)	4

Parts List (suction set)



Item	Part #	Description	Quantity
1	0516219	Suction set (all stand models)	1
	0516278	Suction set (all cart models)	1
2	0512389	Return tube (all cart models)	1
3	0512390	Clip	1
4	0516284	Inlet filter	1
5	0327226	Squeeze clip	1
6	9885553	Return tube fitting	1

Date Code Location (all models)



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