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Operating manual

Betriebsanleitung p. 24

Mode d'emploi p. 48

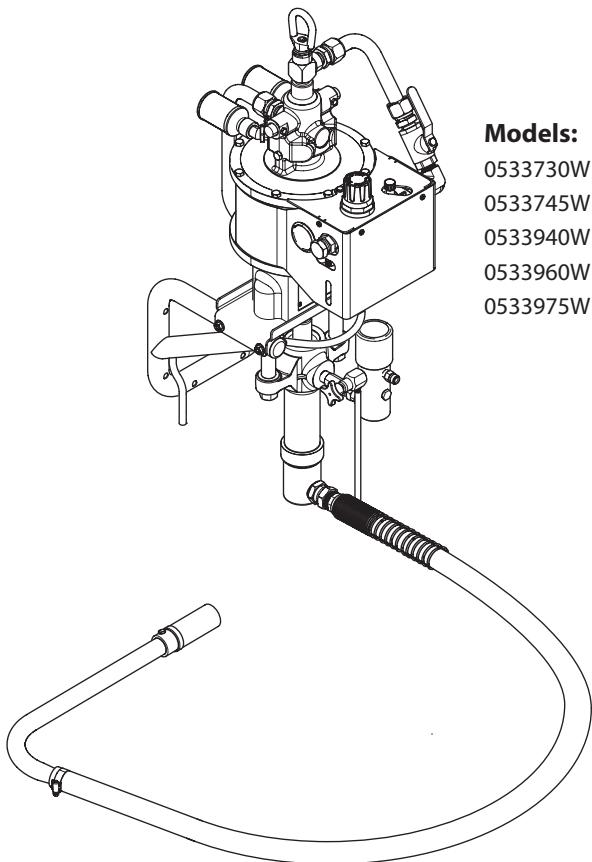


PowrCoat Series

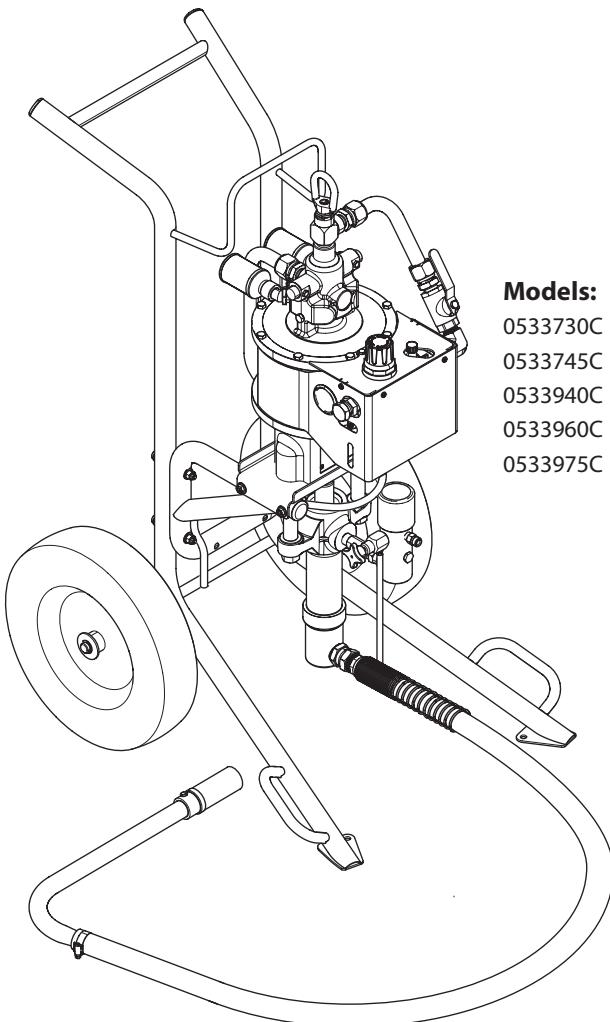
Air Powered Airless Sprayer

Mit Druckluft betriebenes Airless-Spritzgerät

Pulvérisateur sans air pneumatique



Models:
0533730W
0533745W
0533940W
0533960W
0533975W



Models:
0533730C
0533745C
0533940C
0533960C
0533975C

Warning!

**Attention: Danger of injury by injection!
Airless units develop extremely high spraying pressures.**

**1**

Never put your fingers, hands or any other parts of the body into the spray jet!

Never point the spray gun at yourself, other persons or animals.

Never use the spray gun without safety guard.

Do not treat a spraying injury as a harmless cut. In case of injury to the skin through coating materials or solvents, consult a doctor immediately for quick and expert treatment. Inform the doctor about the coating material or solvent used.

2

The operating instructions state that the following points must always be observed before starting up:

1. Faulty units must not be used.
2. Secure Titan spray gun using the safety catch on the trigger.
3. Ensure that the unit is properly earthed.
4. Check allowable operating pressure of high-pressure hose and spray gun.
5. Check all connections for leaks.

3

The instructions regarding regular cleaning and maintenance of the unit must be strictly observed.

Before any work is done on the unit or for every break in work the following rules must be observed:

1. Release the pressure from spray gun and hose.
2. Secure the Titan spray gun using the safety catch on the trigger.
3. Switch off unit.

Be safety conscious!

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Safety precautions

1. Safety regulations for Airless spraying**1.1 Explanation of symbols used**

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

	This symbol indicates a potential hazard that may cause serious injury or loss of life. Important safety information will follow.
	Attention 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.
	Danger of skin injection
	Danger of fire from solvent and paint fumes
	Danger of explosion from solvent, paint fumes and incompatible materials
	Danger of injury from inhalation of harmful vapors
	Notes give important information which should be given special attention.

**HAZARD: INJECTION INJURY**

A high pressure stream produced by this equipment can pierce the skin and underlying tissues, leading to serious injury and possible amputation.

Do not treat a spraying injury as a harmless cut. In case of injury to the skin through coating materials or solvents, consult a doctor immediately for quick and expert treatment. Inform the doctor about the coating material or solvent used.

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 fluid pump off and release all pressure before servicing, cleaning the tip guard, changing tips, or leaving unattended. Pressure will not be released by turning off the compressor. The PRIME/SPRAY valve or pressure bleed valve must be turned to their appropriate positions to relieve system pressure.
- ALWAYS keep 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.
- NEVER use a spray gun without a working trigger lock and trigger guard in place.

- All accessories must be rated at or above the maximum operating pressure range of the sprayer. This includes spray tips, guns, extensions, and hose.

**HAZARD: HIGH PRESSURE HOSE**

The paint hose can develop leaks from wear, kinking and abuse. A leak can inject material into the skin. Inspect the hose before each use.

PREVENTION:

- Avoid sharp bending or kinking of the high-pressure hose. The smallest bending radius amounts to about 20 cm.
- Do not drive over the high-pressure hose. Protect against sharp objects and edges.
- Replace any damaged high-pressure hose immediately.
- Never repair defective high-pressure hoses yourself!
- Electrostatic charging of spray guns and the high-pressure hose is discharged through the high-pressure hose. For this reason the electric resistance between the connections of the high-pressure hose must be equal to or lower than $1\text{M}\Omega$.
- For reasons of function, safety and durability use only original Titan high-pressure hoses.
- 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 earthed high-pressure hose.
- Make sure power cord, air hose and spray hoses are routed in such a manner to minimize slip, trip and fall hazard.

**HAZARD: EXPLOSION OR FIRE**

Solvent and paint fumes can explode or ignite. Severe injury and/or property damage can occur.

PREVENTION:

- Do not use materials with a flashpoint below 21°C (70°F). Flashpoint is the temperature at which a fluid can produce enough vapors to ignite.
- Do not use the unit in work places which are covered by the explosion protection regulations.
- 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 electricity sparks, electrical appliances, flames, pilot lights, hot objects, and sparks from connecting and disconnecting power cords or working light switches.
- Do not smoke in spray area.
- Place sprayer sufficient distance 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 pump contains arcing parts that emit sparks and can ignite vapors.
- The equipment and objects in and around the spray area must be properly earthed (grounded) to prevent static sparks.
- Use only conductive or earthed high pressure fluid hose. Gun must be earthed (grounded) through hose connections.
- Always flush unit into 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 material and solvent manufacturer's warnings and instructions. Be familiar with the coating material's MSDS sheet and technical information to ensure safe use.
- Use lowest possible pressure to flush equipment.
- When cleaning the unit with solvents, the solvent should never be sprayed or pumped back into a container with a small opening (bunghole). An explosive gas/air mixture can arise. The container must be earthed.



HAZARD: HAZARDOUS VAPORS

Paints, solvents, and other materials can be harmful if inhaled or come in contact with body. Vapors can cause severe nausea, fainting, or poisoning.

PREVENTION:

- Wear respiratory protection when spraying. Read all instructions supplied with the mask to be sure it will provide the necessary protection.
- All local regulations regarding protection against hazardous vapors must be observed.
- Wear protective eyewear.
- Protective clothing, gloves and possibly skin protection cream are necessary for the protection of the skin. Observe the regulations of the manufacturer concerning coating materials, solvents and cleaning agents in preparation, processing and cleaning units.



HAZARD: GENERAL

This product can cause severe injury or property damage.

PREVENTION:

- Follow all appropriate local, state, and national codes governing ventilation, fire prevention, and operation.
- Pulling the trigger causes a recoil force to the hand that is holding the spray gun. The recoil force of the spray gun is particularly powerful when the tip has been removed and a high pressure has been set on the airless pump. When cleaning without a spray tip, set the pressure control knob to the lowest pressure.
- Use only manufacturer authorized parts. User assumes all risks and liabilities when using parts that do not meet the minimum specifications and safety devices of the pump manufacturer.
- ALWAYS follow the material manufacturer's instructions for safe handling of paint and solvents.
- Clean up all material and solvent spills immediately to prevent slip hazard.
- Wear ear protection. This unit can produce noise levels above 85 dB(A).
- Never leave this equipment unattended. Keep away from children or anyone not familiar with the operation of airless equipment.
- Device weighs in excess of 36 kg. Three-person lift is required.
- Do not spray on windy days.
- The device and all related liquids (i.e. hydraulic oil) must be disposed of in an environmentally friendly way.

1.2 Compressor Safety

PowrCoat units are Air-Powered (powered by an air compressor). Follow all safety precautions given by the compressor manufacturer regarding electrical and general safety.

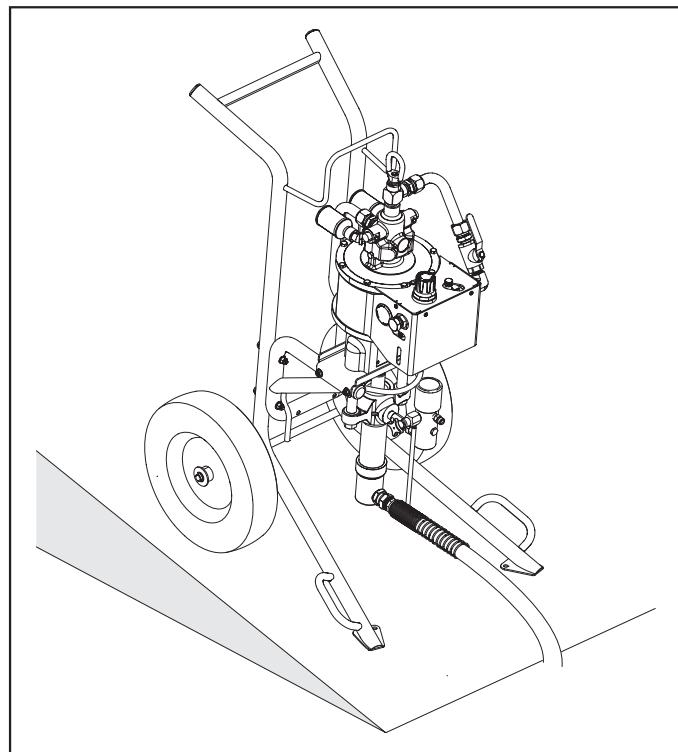
Locate the compressor outside the immediate spraying area to avoid clogged air intake of the compressor with overspray.



If lacquer or other flammable materials are to be sprayed, ALWAYS locate the compressor outside the immediate spraying area. Failure to do so may cause an explosion.

1.3 Setting up on uneven surfaces

The front side of the unit must point downwards to prevent sliding away.



Operating Temperature

This equipment will operate correctly in its intended ambient, at a minimum between +10°C and +40°C.

Relative Humidity

The equipment will operate correctly within an environment at 50% RH, +40°C. Higher RH may be allowed at lower temperatures.

Measures shall be taken by the Purchaser to avoid the harmful effects of occasional condensation.

Altitude

This equipment will operate correctly up to 2100 m above mean sea level.

Transportation and Storage

This equipment will withstand, or has been protected against, transportation and storage temperatures of -25°C to +55°C and for short periods up to +70°C.

It has been packaged to prevent damage from the effects of normal humidity, vibration and shock.

2. General view of application

2.1 Application

Priming and final coating of large areas, sealing, impregnation, construction sanitation, façade protection and renovation, rust protection and building protection, roof coating, roof sealing, concrete sanitation, as well as heavy corrosion protection.

Examples of objects to be sprayed

Large-scale construction sites, underground construction, cooling towers, bridges, sewage treatment plants and terraces.

2.2 Coating materials

Processible coating materials



Pay attention to the Airless quality of the coating materials to be processed.

Latex paint, dispersion paints, fire protection and thick film materials, zinc dust and micaceous iron ore paints, airless spray primer, sprayable glue, anti-corrosive agents, thick coating materials and bitumen-like coating materials.

No other materials should be used for spraying without Titan's approval.

Filtering

In spite of the high-pressure filter, filtering of the coating material is to be recommended in general (except when processing airless joint filler).

Stir coating material before commencement of work.



Make sure when stirring with motor-driven agitators that no air bubbles are stirred in. Air bubbles disturb when spraying and can, in fact, lead to interruption of operation.

Viscosity

It is possible to work with high-viscosity coating materials with these devices.

If highly viscous coating materials cannot be sucked up, they must be diluted in accordance with the manufacturer's instruction.

Two-component coating material

The appropriate processing time must be adhered to exactly. Within this time rinse through and clean the unit meticulously with the appropriate cleaning agents.

Coating materials with sharp-edged additional materials

These have a strong wear and tear effect on valves, high-pressure hose, spray gun and tip. The durability of these parts can be reduced appreciably through this.

3. Description of unit

3.1 Airless process

The main area of application are thick layers of highly viscous coating material for large areas and a high consumption of material.

A piston pump takes in the coating material by suction and conveys it to the tip. Pressed through the tip at very high pressures, the coating material is atomized. This high pressure has the effect of micro fine atomization of the coating material.

As no air is used in this process other than to power the pump (Air-Powered), it is described as an AIRLESS process. Air is not used to force material from the spray gun (Air-Assisted).

This method of spraying has the advantages of finest atomization, cloudless operation and a smooth, bubble-free surface. As well as these, the advantages of the speed of work and convenience must be mentioned.

3.2 Functioning of the unit

The following section contains a brief description of the technical construction for better understanding of the function.

TITAN PowrCoat are high-pressure spraying units driven by air power provided by an air compressor.

An air compressor connected by an air hose drives the air motor (1) which then moves the piston up and down in the material feed pump (2), drawing up spray material via the siphon hose (3).

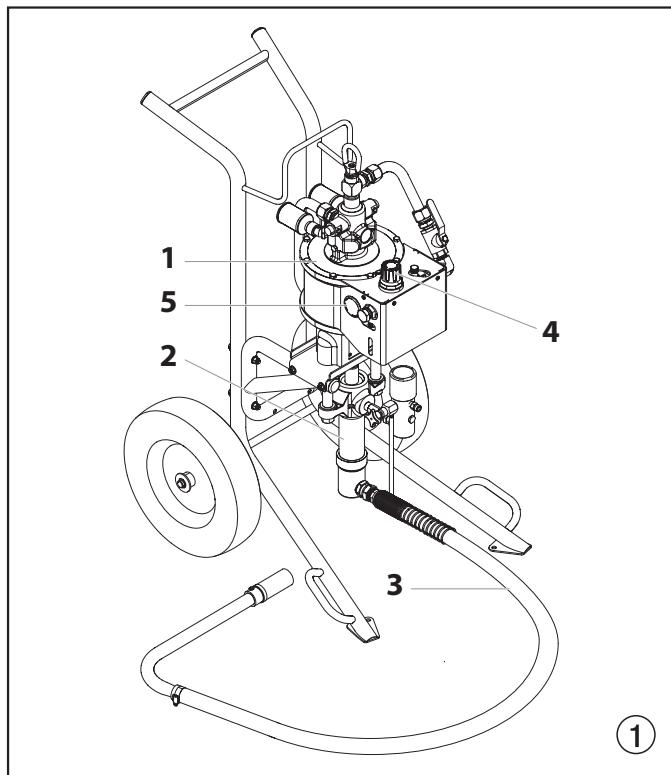
The air regulator (4) controls the air pressure being allowed into the system, and is directly proportionate to the fluid pressure being produced.

Example: PowrCoat 30:1

100 PSI reading at air gauge (5) = 3000 PSI at pump outlet

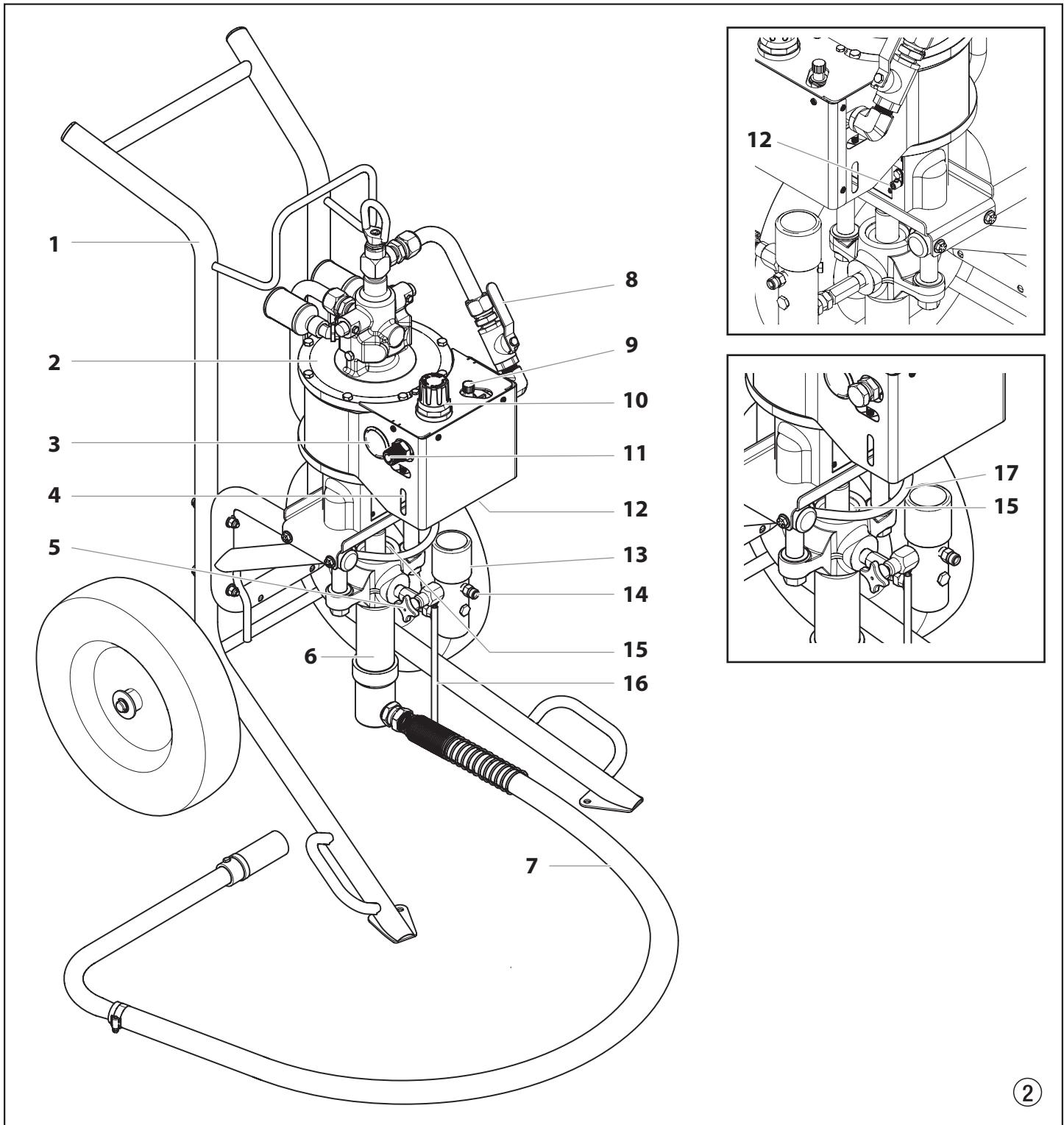
The inlet valve is opened automatically by the upwards movement of the piston. The outlet valve is opened when the piston moves downward.

The coating material flows under high pressure through the high-pressure hose to the spray gun. When the coating material exits from the tip it atomises.



3.3 System diagram

- | | |
|------------------------------------|-----------------------------------|
| 1 Cart assembly (cart models only) | 9 Automatic lubricator adjustment |
| 2 Air motor | 10 Air regulator |
| 3 Air pressure gauge | 11 Air hose connection |
| 4 Air filter / moisture separator | 12 Grounding lug |
| 5 Pressure bleed valve | 13 Filter assembly |
| 6 Fluid pump | 14 Gun hose connection |
| 7 Siphon hose | 15 Oil cup for Piston Lube™ |
| 8 Vented shutoff valve | 16 Bleed hose |
| | 17 Lubricator drip tube |



Description of unit

3.4 Technical data for PowrCoat units

	PowrCoat 730	PowrCoat 745	PowrCoat 940	PowrCoat 960	PowrCoat 975
Model Number					
Cart	0533730C	0533745C	0533940C	0533960C	0533975C
Wall	0533730W	0533745W	0533940W	0533960W	0533975W
Max. operating pressure					
	3000 PSI (20.7 MPa, 207 bar)	4500 PSI (31 MPa, 310 bar)	4000 PSI (27.6 MPa, 276 bar)	6000 PSI (41.4 MPa, 414 bar)	7500 PSI (51.7 MPa, 517 bar)
Max. air inlet pressure					
	100 PSI	100 PSI	100 PSI	100 PSI	100 PSI
Pressure Ratio					
	30:1	45:1	40:1	60:1	75:1
Cycle rate per gallon / liter					
	20 / 5.3	30 / 7.9	13 / 3.4	20 / 5.3	30 / 7.9
Max. volume flow @ Cycles per minute (CPM)					
60 CPM	2.8 gal (10.6 l)/min	1.93 gal (7.3 l)/min	2.8 gal (10.6 l)/min	1.90 gal (7.2 l)/min	1.5 gal (5.7 l)/min
90 CPM	4.24 gal (16 l)/min	2.9 gal (11 l)/min	4.24 gal (16 l)/min	2.9 gal (11 l)/min	2.7 gal (10.2 l)/min
Volume per double stroke					
	181.8 cm ³	127.8 cm ³	181.8 cm ³	127.8 cm ³	274.6 cm ³
Fluid inlet					
	1" NPT (F)	1" NPT (F)	1" NPT (F)	1" NPT (F)	3/4" NPT (F)
Fluid outlet					
	1/2" NPT (F)	1/2" NPT (F)	1/2" NPT (F)	1/2" NPT (F)	1/2" NPT (F)
Hose connection					
	3/8" NPSM (M)	3/8" NPSM (M)	3/8" NPSM (M)	3/8" NPSM (M)	3/8" NPSM (M)
Approximate air requirement (SCFM) per gallon of output @ 100 PSI air pressure					
	28 SCFM (0.79m ³ /min)	40 SCFM (1.13m ³ /min)	36.4 SCFM (1.03m ³ /min)	53 SCFM (1.50m ³ /min)	67.9 SCFM (1.92m ³ /min)
Air inlet					
	3/4" NPT (F)	3/4" NPT (F)	3/4" NPT (F)	3/4" NPT (F)	3/4" NPT (F)
Max. sound pressure level					
	106 dB*	106 dB*	106 dB*	102 dB*	104 dB*
Weight					
Cart	132 lbs (59.9 kg)	133 lbs (60.3 kg)	140 lbs (63.5 kg)	139 lbs (63 kg)	135 lbs (61.2 kg)
Wall	92 lbs (41.7 kg)	93 lbs (42.8 kg)	100 lbs (45.3 kg)	98 lbs (44.4 kg)	95 lbs (43.1 kg)
Max. viscosity					
	50.000 mPa·s	50.000 mPa·s	50.000 mPa·s	50.000 mPa·s	50.000 mPa·s
Dimensions L x W x H					
Cart	34.75" x 26.25" x 49" (88.3 cm x 66.7 cm x 124.5 cm)				
Wall	19.25" x 13.5" x 41.5" (48.9 cm x 34.3 cm x 105.4 cm)				
Max. temperature of pre-heated coating material					
	140° F (60° C)				
Filter insert (standard equipment)					
	50 mesh, 18 in ²				
Max. tire pressure					
Cart	0.2 MPa (2 bar, 30 PSI)				

* Place of measurement: 1 m distance from unit and 1.60 m above reverberant floor, 120 bar (12 MPa) operating pressure.

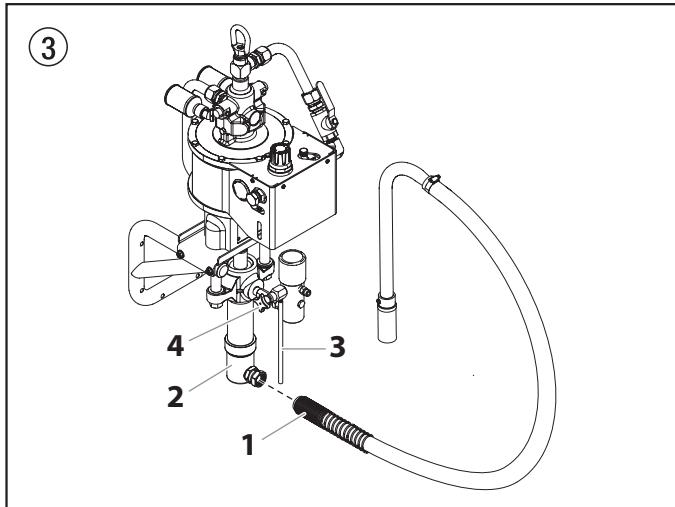
4. Operation



This equipment produces a fluid stream at extremely high pressure. Read and understand the warnings in the Safety Precautions section at the front of this manual before operating this equipment.

4.1 Setup

1. Make sure the siphon hose (fig. 4, 1) is connected to the fluid section (2) and the bleed hose (3) is connected to the bleed valve (4). They each have factory installed Teflon tape on the male end of the hoses and should be wrench tight.

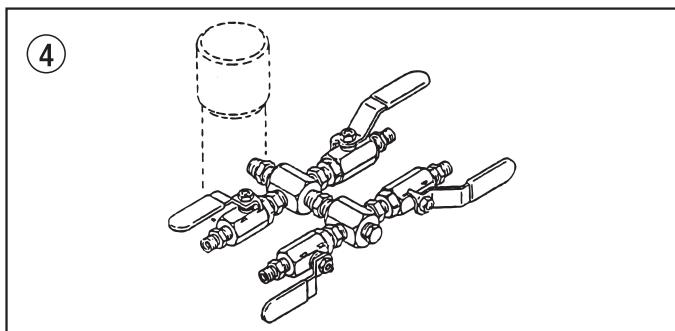


2. Attach a minimum of 50' (15m) of nylon airless spray hose to the sprayer. Do not use Teflon tape or thread sealant on the spray hose connection.
3. Attach an airless spray gun to the spray hose. Do not attach the tip to the spray gun yet. Remove the tip if it is already attached.

- a. To use two guns, remove the plug from the second gun outlet on the filter assembly. Connect a hose and gun to the outlet.



For multiple gun operation, connect a multiple gun manifold to the single gun outlet. Connect a hose and gun to each outlet. All connections that are not used must be plugged.



4. Fill the oil cup 1/2 full with Piston Lube (P/N 314-480). This extends packing life.



Piston Lube prevents increased wear and tear to the packings.

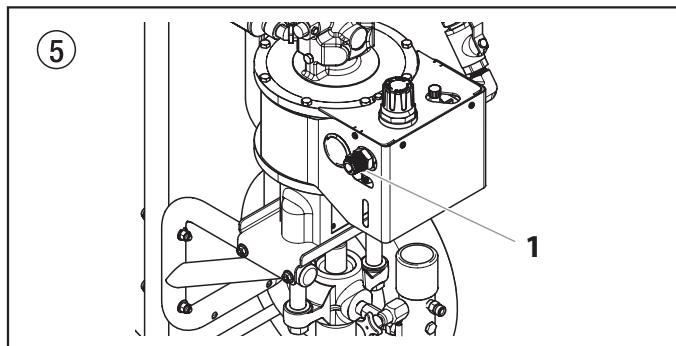
Attention

5. Verify that the air compressor meets the power requirements necessary to effectively power the sprayer. See "Technical Data", section 3.4 to determine air requirements.



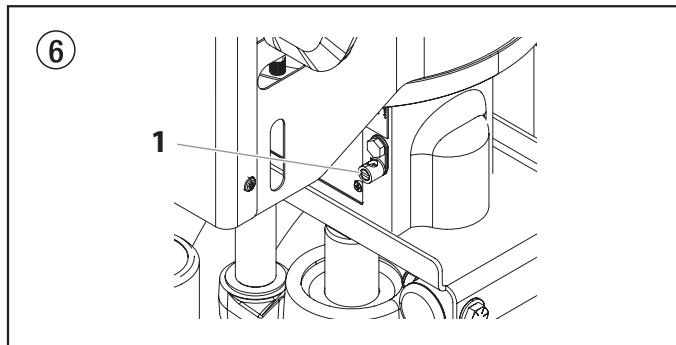
The requirements will vary on each model.

6. Using a wrench, remove the red plug from the air hose fitting (Fig. 5, item 1). Attach the air hose and tighten wrench tight. All units are equipped with a 3/4" NPT (F) air hose fitting.



Proper earthing (grounding) is important. The passage of some materials through the nylon fluid hose will build up a static electric charge, which if discharged, could ignite solvent vapors present and create an explosion.

7. Make sure the sprayer is earthed (grounded). All sprayers are equipped with a earthing (grounding) lug. An earthing cable (not supplied) should be used to connect the sprayer to a true earth ground.
 - a. Loosen the Grounding Screw (Fig. 6, item 1).
 - b. Insert one end of the Grounding Wire into the slot in the Grounding Lug. Tighten the screw.
 - c. Connect the other end of the Grounding Wire to a true earth ground.



8. Strain all paints with a nylon strainer to ensure trouble free operation and freedom from frequent cleaning of the inlet screen and gun filter.
9. Make sure the spray area is well ventilated to prevent hazardous operation with volatile solvents or exhaust fumes.



If lacquer or other flammable materials are to be sprayed, ALWAYS locate the compressor outside the immediate spraying area. Failure to do so may cause an explosion.

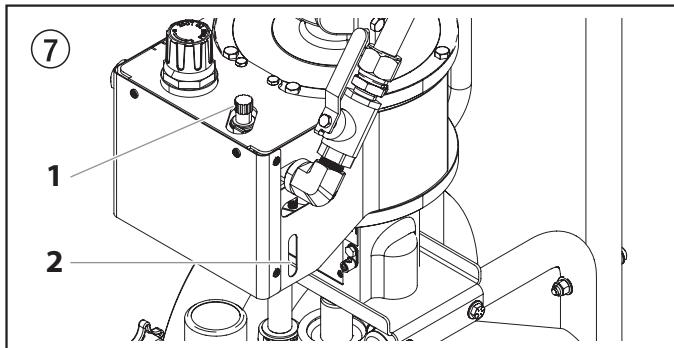
10. Locate the compressor outside the immediate spraying area to avoid clogged air intake of the compressor with overspray.

Operation

4.2 Automatic Lubricator

The automatic lubricator (Fig. 7, item 1) provides lubrication to the air that is being delivered to the system. It is set at the factory for the correct injection rate and should not be adjusted until the reservoir needs to be refilled with AirCare™ lubricant. Check the level through the openings (2) in the side of the air motor shroud.

After refilling the reservoir, the automatic lubricator will need adjusting. Turn the adjusting screw (1) clockwise to increase the AirCare™ injection rate and counterclockwise to decrease it.



Check the injection rate by observing the flow through the openings in the side of the air motor shroud.

- The proper flow rate is 1 drop of AirCare™ per minute.
- In cold weather when icing may occur, increase the injection rate.

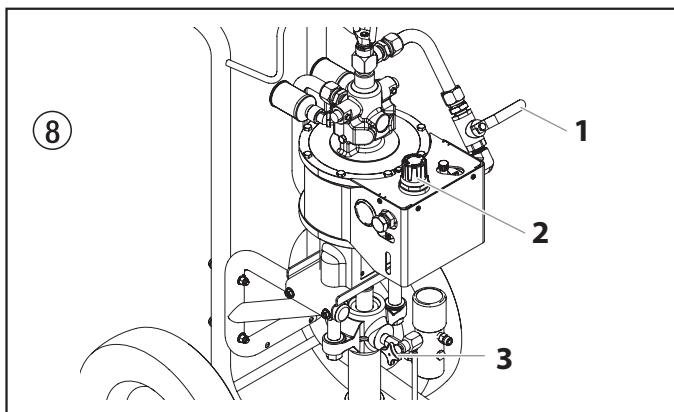
4.3 Preparing a New Sprayer

If this unit is new, it is shipped with test fluid in the fluid section to prevent corrosion during shipment and storage. This fluid must be thoroughly cleaned out of the system with cleaning agent before you begin spraying.



Always keep the trigger lock on the spray gun in the locked position while preparing the system.

1. Place the siphon tube into a container of mineral spirits.
2. Place the bleed hose into a metal waste container.
3. Close the shutoff valve (fig 8, item 1). The figure shows the handle in the closed position.
4. Turn on the air compressor.
5. Turn the air regulator (2) fully counterclockwise to its lowest pressure setting.
6. Open the bleed valve (3) by turning it fully counterclockwise.



7. Open the shutoff valve (1). The handle should now be in line with the valve.

8. Turn the air regulator (2) clockwise to increase pressure until the sprayer cycles evenly and solvent flows freely from the bleed hose.
9. Allow the sprayer to run for 15–30 seconds to flush the test fluid out through the bleed hose and into the waste container.
10. Turn off the sprayer.
 - a. Turn the air regulator fully counterclockwise to its lowest pressure setting.
 - b. Close the shutoff valve.

4.4 Preparing to Spray

Before spraying, it is important to make sure that the fluid in the system is compatible with the paint that is going to be used.



Incompatible fluids and paint may cause the valves to become stuck closed, which would require disassembly and cleaning of the sprayer's fluid section.



Always keep the trigger lock on the spray gun in the locked position while preparing the system.

Attention

1. Place the siphon tube into a container of the appropriate solvent for the material being sprayed.



If you are spraying a water-based latex, flush with warm, clean water. If you are using any other material, check with the material manufacturer for a compatible solvent.

2. Place the bleed hose into a metal waste container.
3. Close the shutoff valve (fig 8, item 1). The figure shows the handle in the closed position.
4. Turn on the air compressor.
5. Turn the air regulator (2) fully counterclockwise to its lowest pressure setting.
6. Open the bleed valve (3) by turning it fully counterclockwise.
7. Open the shutoff valve (1). The handle should now be in line with the valve.
8. Turn the air regulator (2) clockwise to increase pressure until the sprayer cycles evenly and solvent flows freely from the bleed hose.
9. Allow the sprayer to run for 15–30 seconds to flush the test fluid out through the bleed hose and into the waste container.
10. Turn off the sprayer.
 - a. Turn the air regulator fully counterclockwise to its lowest pressure setting.
 - b. Close the shutoff valve.



Make sure that the spray gun does not have a tip or tip guard installed.

11. Close the bleed valve by turning it fully clockwise.
12. Open the shutoff valve (1). The handle should now be in line with the valve. The system is now under pressure.
13. Turn the air regulator clockwise to increase pressure until the sprayer cycles evenly. The air regulator gauge should read between 60-80 PSI.



The air regulator can be locked into place by pushing down on the knob. Unlock the regulator by pulling the knob out.

14. Unlock the gun by turning the gun trigger lock to the unlocked position.



Earth the gun by holding it against the edge of the metal container while flushing. Failure to do so may lead to a static electric discharge, which may cause a fire.



9

15. Trigger the gun into the metal waste container until the old solvent is gone and fresh solvent is coming out of the gun.
16. Lock the gun by turning the gun trigger lock to the locked position.



POSSIBLE INJECTION HAZARD

Refer to your spray gun manual for information regarding the locking mechanism and how to properly lock the spray gun.

17. Set down the gun and increase the pressure by turning the air regulator slowly clockwise to a maximum of 100 PSI.



DO NOT exceed an air regulator gauge reading of 100 PSI.

18. Check the entire system for leaks. If leaks occur, turn the sprayer off and follow the "Pressure Relief Procedure" in this manual before tightening any fittings or hoses.
19. Follow the "Pressure Relief Procedure" (section 4.6) in this manual before changing from solvent to paint.



Be sure to follow the Pressure Relief Procedure when shutting the unit down for any purpose, including servicing or adjusting any part of the spray system, changing or cleaning spray tips, or preparing for cleanup.

4.5 Spraying

1. Place the siphon hose into a container of paint.
2. Place the bleed hose into a metal waste container.
3. Close the shutoff valve (fig 8, item 1). The figure shows the handle in the closed position.
4. Turn on the air compressor.
5. Turn the air regulator (2) fully counterclockwise to its lowest pressure setting.
6. Open the bleed valve (3) by turning it fully counterclockwise.
7. Open the shutoff valve (fig. 8, 1). The handle should now be in line with the valve.
8. Turn the air regulator (2) clockwise to increase pressure until the sprayer cycles evenly and material flows freely from the bleed hose.
9. Turn off the sprayer.
 - a. Turn the air regulator fully counterclockwise to its lowest pressure setting.
 - b. Close the shutoff valve.
10. Remove the bleed hose from the waste container and place it into the container of material.
11. Close the bleed valve by turning it fully clockwise.

12. Open the shutoff valve. The handle should now be in line with the valve.
13. Turn the air regulator clockwise to increase pressure until the sprayer cycles evenly. The air regulator gauge should read between 60-80 PSI.
14. Unlock the gun by turning the gun trigger lock to the unlocked position.



Earth the gun by holding it against the edge of the metal container while flushing. Failure to do so may lead to a static electric discharge, which may cause a fire.

15. Trigger the gun into the metal waste container until all air and solvent is flushed from the spray hose and paint is flowing freely from the gun.
16. Lock the gun by turning the gun trigger lock to the locked position.
17. Close the shutoff valve (fig 8, item 1). The figure shows the handle in the closed position.
18. Attach tip guard and tip to the gun as instructed by the tip guard or tip manuals.



POSSIBLE INJECTION HAZARD. Do not spray without the tip guard in place. Never trigger the gun unless the tip is in either the spray or the unclog position. Always engage the gun trigger lock before removing, replacing or cleaning tip.

19. Open the shutoff valve. The handle should now be in line with the valve.
20. Increase the pressure by turning the air regulator slowly clockwise and test the spray pattern on a piece of cardboard. Adjust the regulator until the spray from the gun is completely atomized. Verify pressure reading at the air gauge.
 - Paint pressure is directly proportional to the amount of air pressure.
 - Example: PowrCoat 30:1
100 PSI reading at air gauge = 3000 PSI at pump outlet



DO NOT exceed an air regulator gauge reading of 100 PSI.

21. Once the correct air pressure has been established, lock the air regulator by pushing down on the knob.



Using a higher pressure than required will only wear out tips. Use the guidelines in establishing the lowest pressures for proper atomization. Consult the materials manufacturer for guidelines in establishing the correct fluid pressure.

4.6 Pressure Relief Procedure

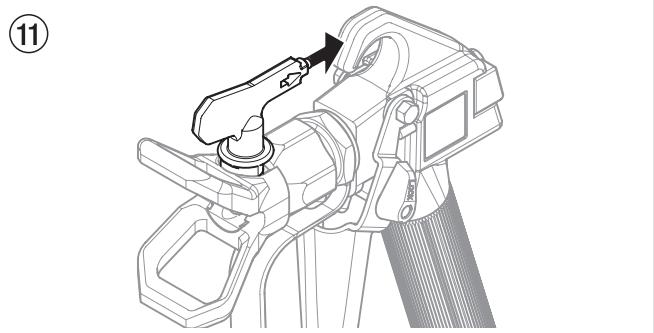


Be sure to follow the Pressure Relief Procedure when shutting the unit down for any purpose, including servicing or adjusting any part of the spray system, changing or cleaning spray nozzles, or preparing for cleanup.

1. Lock the spray gun by turning the gun trigger lock to the locked position.
2. Close the shutoff valve.
3. Open the bleed valve by turning it fully counterclockwise.
4. Unlock the gun by turning the gun trigger lock to the unlocked position.
5. Hold the metal part of the gun firmly to the side of a metal waste container to earth the gun and avoid a build up of static electricity.
6. Trigger the gun to remove any pressure that may still be in the hose.
7. Lock the gun by turning the gun trigger lock to the locked position.

4.7 Cleaning a Clogged Tip

1. Follow the "Pressure Relief Procedure" found in the Operation section of this manual, section 4.6.
2. If the tip clogs, rotate the tip handle 180° until the arrow on the handle is facing the opposite of the spray direction and the handle clicks in the reverse position.



3. Trigger the gun once so that the pressure can blow the clog out. NEVER use the tip in the reverse position for more than ONE trigger pull at a time. This procedure can be repeated until the tip is free of clogging.



The flow from the spray tip is at very high pressure. Contact with any body part may be dangerous. Do not place finger on gun outlet. Do not point the gun at any person. Never operate the spray gun without the proper tip guard.

5. Cleanup



The sprayer, hose, and gun should be cleaned thoroughly after daily use. Failure to do so permits material to build up, seriously affecting the performance of the unit.



Always spray at minimum pressure with the gun nozzle tip removed when using mineral spirits or any other solvent to clean the sprayer, hose, or gun. Static electricity buildup may result in a fire or explosion in the presence of flammable vapors.

5.1 Special cleanup instructions for use with flammable solvents

- Always flush spray gun preferably outside and at least one hose length from spray pump.
- If collecting flushed solvents in a one gallon metal container, place it into an empty five gallon container, then flush solvents.
- Area must be free of flammable vapors.
- Follow all cleanup instructions.

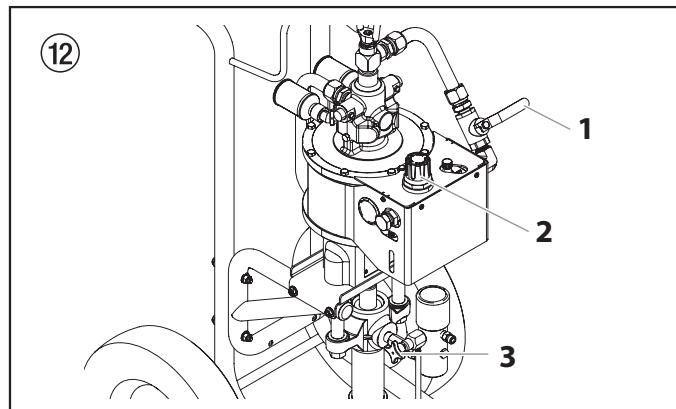
5.2 Cleaning the sprayer

1. Follow the "Pressure Relief Procedure" found in the Operation section of this manual, section 4.5.
2. Remove the gun tip and tip guard and clean with a brush using the appropriate solvent.
3. Place the siphon tube into a container of the appropriate solvent.



Use only compatible solvents when cleaning out oil based enamels, lacquers, coal tar, and epoxies. Check with the fluid manufacturer for the recommended solvent.

4. Place the bleed hose into a metal waste container.
5. Close the shutoff valve (fig 12, item 1). The figure shows the handle in the closed position.
6. Start the compressor.
7. Turn the air regulator (2) fully counterclockwise to its lowest pressure setting.
8. Open the bleed valve (3) by turning it fully counterclockwise.



9. Open the shutoff valve (fig. 12, 1). The handle should now be in line with the valve.
10. Allow the solvent to circulate through the sprayer and flush the material out of the bleed hose into the metal waste container.

11. Close the shutoff valve (fig 12, 1). The figure shows the handle in the closed position.
12. Close the bleed valve by turning it fully clockwise.
13. Open the shutoff valve (fig. 12, 1). The handle should now be in line with the valve.



Earth the gun by holding it against the edge of the metal container while flushing. Failure to do so may lead to a static electric discharge, which may cause a fire.

14. Trigger the gun into the metal waste container until the paint is flushed out of the hose and solvent is coming out of the gun.
15. Continue to trigger the spray gun into the waste container until the solvent coming out of the gun is clean.



For long-term or cold weather storage, pump mineral spirits through the entire system.

16. Follow the "Pressure Relief Procedure" found in the Operation section of this manual.
17. Store the sprayer in a clean, dry area.



Do not store the sprayer under pressure.

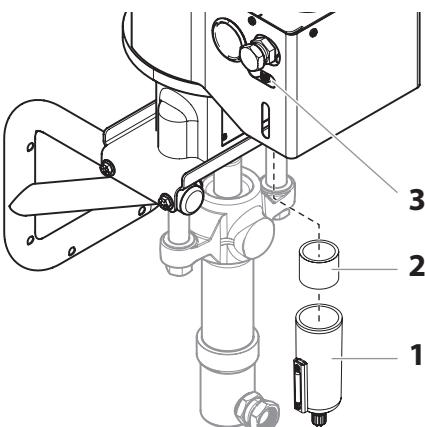
5.3 Cleaning the Air Filter

The air filter blocks any debris or particles that might be present in the supplied air from the air compressor. It is important that this filter be checked after every use.

1. Follow the "Pressure Relief Procedure" found in the Operation section of this manual.
2. Unthread the filter housing (1) that is located underneath the air motor shroud.
3. Remove and inspect the filter (2) inside the reservoir. If dirty, clean with warm, soapy water.
4. Replace the filter in the housing. Thread the housing into position underneath the motor shroud.



When the filter housing is replaced properly, the "up" arrow (▲) should be visible inside the viewing window (3).



6. Maintenance



Before proceeding, follow the Pressure Relief Procedure outlined previously in this manual. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock. Always unplug the sprayer before servicing!

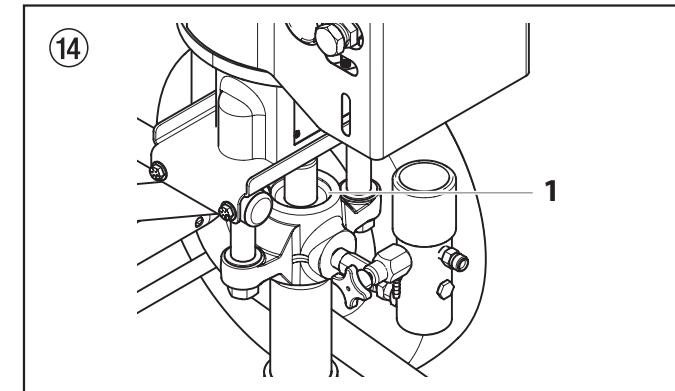
6.1 Daily Maintenance

Two daily procedures are required for routine operator maintenance on this sprayer:

- A. Lubricating the upper packings.
- B. Cleaning the filter screen

A) Lubricating the Upper Packings

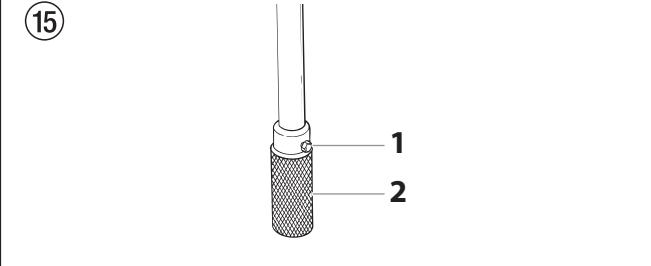
1. Clean out the paint that has seeped past the upper packings into the packing oil reservoir (fig. 14, item 1) above the fluid section.
2. Fill the packing oil reservoir 1/2 full with Piston Lube (P/N 314-480) supplied by the factory. This will extend packing life.



Do not over-fill the reservoir so that it overflows and drips into the paint.

B) Cleaning the Filter Screen

1. The filter screen will clog and must be cleaned at least once a day.
2. Loosen the hex nut (fig. 15, item 1) that secures the filter screen to the siphon tube.
3. Remove the filter screen (2) from the bottom of the siphon tube.
4. Clean thoroughly with the appropriate solvent.



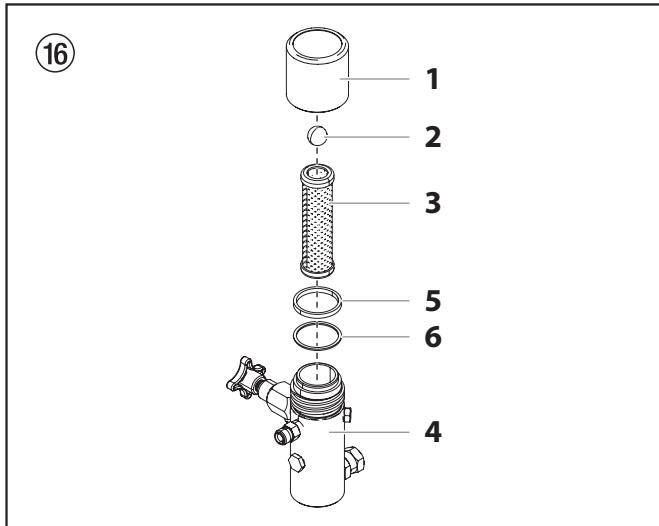
Maintenance**6.2 Maintaining the Filter Assembly**

Clean the filter regularly. Dirty or clogged filters can greatly reduce filtering ability and cause a number of system problems including poor spray patterns, clogged spray tips, etc.

Cleaning (Fig. 16)

1. Follow the "Pressure Relief Procedure" found in the Operation section of this manual.
2. Remove filter cap assembly (1).
3. Pull the filter element (3) with ball straight (2) out of the filter body (4).
4. Clean inside the filter body, filter element with ball, and filter cap assembly using the appropriate solvent.

i **Use care in handling parts as dirt, debris, scratches, or nicks may prevent o-rings or gaskets from sealing.**
This filter element filters from the inside out. Be sure to clean the filter element thoroughly on the inside. Soak in solvent to loosen hardened paint or replace.

**Inspection (Fig. 16)**

Inspect all parts of the filter assembly before reassembly.

1. Inspect the ball inside the filter element. If the ball has pressure cuts or scratches, replace the filter element.
2. Inspect the two Teflon gaskets (5, 6) for deformity, nicks, or cuts. Replace, if needed.

Reassembly (Fig. 16)

After cleaning and inspecting all parts, reassemble the filter.

1. Place the filter element (3) with ball (2) into the filter body (4).
2. Place the thin Teflon gasket (6) onto the step at the top of the filter body (4).
3. Place the thick Teflon gasket (5) onto the top of the thin gasket (6).
4. Tighten the filter cap assembly (1) onto the filter body (4).



The top and bottom of the filter element with ball are identical.

6.3 Air Motor Maintenance

Air motors require a normal maintenance and service inspection at 1500 hours service. Service procedure includes replacement of motor service kit, minor. It is suggested that one motor service kit, major (which includes the minor kit) be kept on hand for normal maintenance and emergency repairs. Check the individual model's specifications for correct part numbers.

6.4 Maintaining the Fluid Pump

If the sprayer is going to be out of service for an extended period of time, it is recommended that following cleanup, Liquid Shield™ be introduced as a preservative. Packings may tend to dry out from lack of use. This is particularly true of the upper packing set for which upper packing lubricant Piston Lube (P/N 314-480) is recommended in normal usage.

If the sprayer has been out of service for an extended period of time, it may be necessary to prime the pump with solvent. It is extremely important that the threads on the siphon hose coupling are properly sealed. Any air leakage will produce erratic operation of the sprayer and may damage the system. The up and the down strokes should be approximately equal in time (one should not be faster than the other). A fast up or down stroke may indicate air in the system or malfunctioning valve or seats (see the Troubleshooting section).

7. Troubleshooting

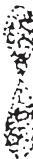
7.1 Airless Gun

Problem	Cause	Solution
A. Spitting gun	1. Air in system 2. Dirty gun 3. Needle assembly out of adjustment 4. Broken or chipped seat	1. Inspect connections for air leaks. 2. Disassemble and clean. 3. Inspect and adjust. 4. Inspect and replace.
B. Gun will not shut off	1. Worn or broken needle & seat 2. Needle assembly out of adjustment 3. Dirty gun	1. Replace. 2. Adjust. 3. Clean.
C. Gun does not spray	1. No paint 2. Plugged filter or tip 3. Broken needle in gun	1. Check fluid supply. 2. Clean. 3. Replace.

7.2 Air Motor

Problem	Cause	Solution
A. Motor stops at top or bottom of stroke - air does not exhaust when gun is open.	1. Piston rod is loose where it connects to the fluid section. 2. Trip springs or valve spring broken. 3. Motor is frozen due to icing or lack of lubrication.	1. Tighten connection. 2. Inspect and replace where necessary. 3. Check the Air-Care™ fluid level in the Automatic Lubricator. If low, add Air-Care™ to reservoir. If condition persists, check air supply for contamination.
B. Motor stops, blows air from exhaust when gun is open.	1. See above. 2. Air valve is in dead stall position. 3. O-rings were worn or damaged.	1. See above. 2. Remove one trip spring retainer, trip spring and ball. Push spool valve up or down, lubricate, reassemble and restart. 3. Install minor service kit and follow instructions in Servicing section of manual. If dust or dirt is found inside motor, check air supply for contamination.

7.3 Spray Patterns

Problem	Cause	Solution
A. Tails 	1. Inadequate fluid delivery	1. Fluid not atomizing correctly: Increase fluid pressure. Change to smaller tip orifice size. Reduce fluid viscosity. Reduce hose length. Clean gun and filter(s). Reduce number of guns using pump.
B. Hour glass 	1. Inadequate fluid delivery	1. Same as above.
C. Distorted 	1. Plugged or worn nozzle tip	1. Clean or replace nozzle tip.
D. Pattern expanding and contracting (surge) 	1. Suction leak 2. Pulsating fluid delivery	1. Inspect for suction hose leak. 2. Change to a smaller tip orifice size. Install pulsation dampener in system or drain existing one. Reduce number of guns using pump. Remove restrictions in system; clean tip screen if filter is used.
E. Round pattern. 	1. Worn tip 2. Fluid too heavy for tip	1. Replace tip. 2. Increase pressure. Thin material. Change nozzle tip.

7.4 Fluid Pump

Problem	Cause	Solution
A. Pump delivers on upstroke only or goes up slowly and down fast (commonly called downstroke dive).	<ol style="list-style-type: none"> Lower foot valve ball is not seating due to trash or wear. Material too viscous to siphon. Air leaking in on siphon side or damaged siphon hose. Siphon may be too small for heavy material. Upper packing nut (if applicable) is loose or upper packings are worn. 	<ol style="list-style-type: none"> Remove foot valve assembly. Clean and inspect. Test foot valve by filling with water. If ball fails to seal the seat, replace ball. Thin material - contact manufacturer for proper thinning procedures. Tighten all connections between pump and paint container. If damaged, replace. Switch to bigger siphon set. If tightening upper packing nut does not correct, change upper packings.
B. Pump delivers on down stroke only or goes up fast and down slowly.	<ol style="list-style-type: none"> Upper ball is not seating due to trash or wear. Lower packing set is worn. 	<ol style="list-style-type: none"> Check upper seat and ball with water. If ball fails to seal seat, replace. Replace packing set is worn.
C. Pump moves up and down fast, not delivering material.	<ol style="list-style-type: none"> Material container is empty or material is too thick to flow through the siphon hose. Bottom ball stuck to foot valve seat. Siphon hose is kinked or loose. 	<ol style="list-style-type: none"> Refill with new material. If too thick, remove siphon hose, immerse fluid section in material, and start pump to prime. Add thinner to material. Change to bigger siphon set. Open bleed valve to remove air and restart pump. Remove foot valve. Clean ball and seat. Straighten.
D. Pump moves up and down slowly when spray gun is shut off.	<ol style="list-style-type: none"> Loose connections. Bleed valve is open partially or bleed valve is worn. Lower packing set is worn. Upper and/or lower ball not seating. 	<ol style="list-style-type: none"> Check all connections between pump and gun. Tighten as necessary. If material is flowing from bleed hose, close bleed valve or replace if necessary. Should none of above be evident, replace lower packing. Reset balls by cleaning.
E. Not enough fluid pressure at gun.	<ol style="list-style-type: none"> Spray tip is worn. Compressor (air operated units only) too small. Outlet filter or gun filter is clogged. Low voltage and/or inadequate amperage. Hose size or length is too small or too long. 	<ol style="list-style-type: none"> Replace. Clean or replace filter. Recommend proper hose size and/or air compressor size. Check electrical service. Correct as required. Increase hose size to minimize pressure drop through hose and/or reduce hose lengths.
F. Pump chatters on up or down stroke	<ol style="list-style-type: none"> Solvent has caused upper packing to swell, or packing is too tight. 	<ol style="list-style-type: none"> Back off upper packing nut 1/4 turn (if applicable) and restart pump. Repeat if necessary.

8. Servicing

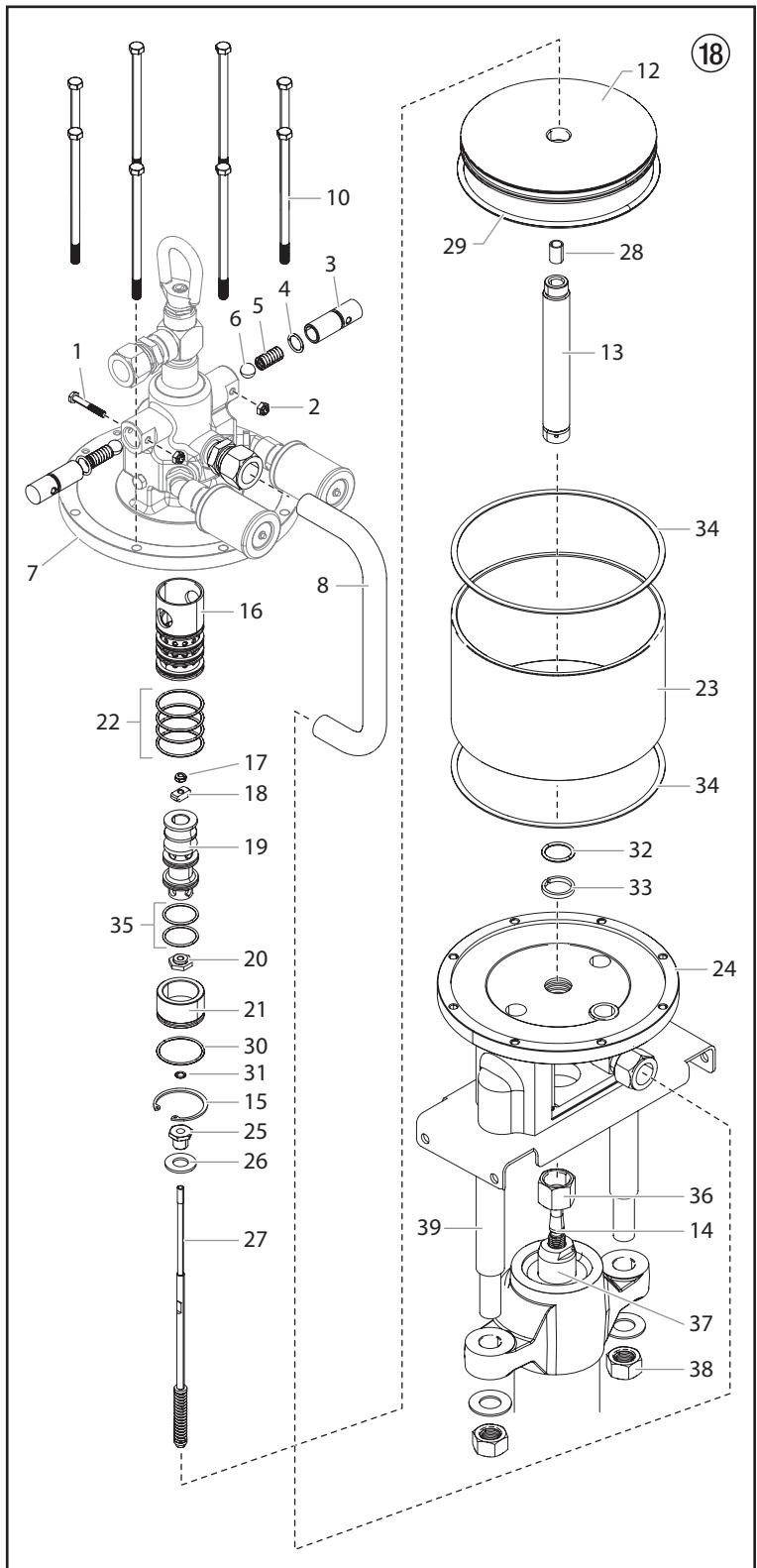
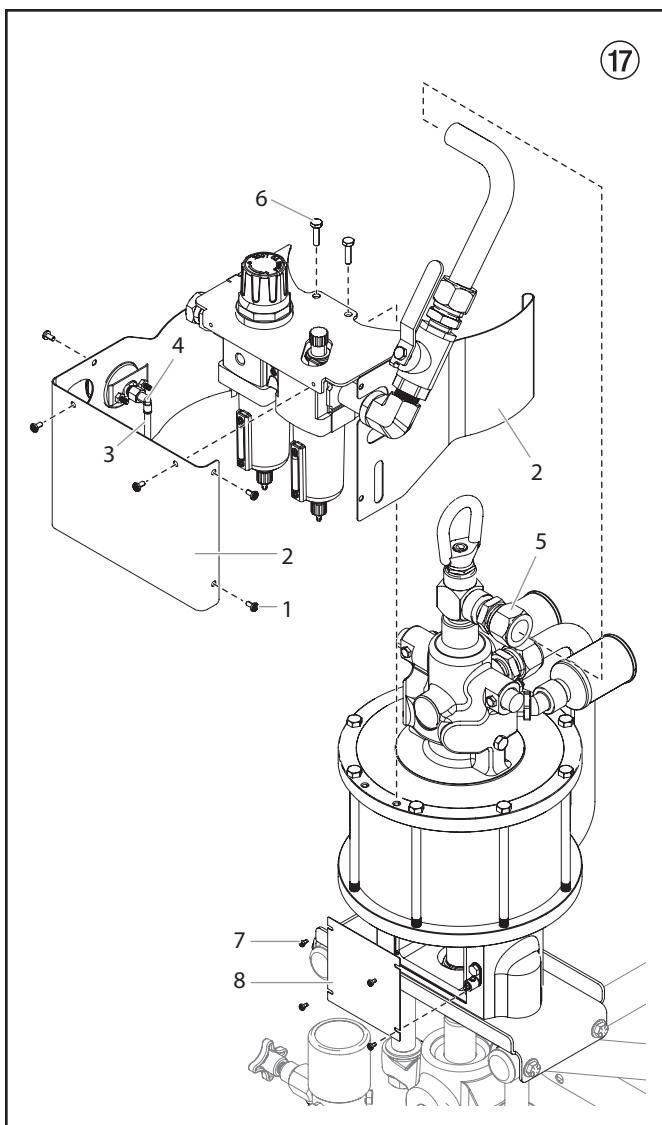
8.1 Servicing the Air Motor

The Air Motors require a normal maintenance inspection at 1500 hours of service on the non-circulating models.

Service procedure includes replacement of the Minor Motor Service Kit (see next page for part numbers). It is suggested that one Major Motor Service Kit (which includes the minor kit) be kept on hand for normal maintenance and emergency repairs. See next page for part numbers of the Major Motor Kit

Maintenance

The 700/900 Series Air Motor should be serviced with moisture-free air.



Accessing the Air Motor (Fig. 17)

In order to be able to access the air motor, certain components must be removed.

1. Remove air hose connection.
2. Loosen the five screws (Fig. 17, item 1) that secure the motor shrouds (2) to the sprayer. Remove the shrouds. Unhook the tube (3) coming from the rear of the pressure gauge (4).
3. Loosen the top fitting (5) that secures the top of the air hose. DO NOT loosen the bottom fitting.
4. Remove the two screws (6) that secure the Automatic Lubricator and Air Gauge assemblies to the air motor. Remove the entire assembly from the air motor.
5. Loosen the four cover screws (7) and remove the cover (8).

Disassembling the Air Motor (Fig. 18)

1. Remove locking bolts and nuts (1, 2), trip spring retainers (3), O-rings (4), trip springs (5), and balls (6) from both sides of the cylinder head (7).
2. Disconnect air line (8) from adaptors top and bottom.
3. Remove the bolts (10).
4. With piston (12) in down position, place wrench on flats of piston rod (13) and disconnect piston rod from pump connecting rod (14) by unthreading the coupling nut (36). The connecting rod (14) can remain secured to the fluid section displacement rod (37).
5. Remove the lower stanchion nuts (38) and carefully separate the fluid pump from the air motor assembly.
6. With piston (12) at top of stroke, raise cylinder head (7) and remove retainer (15). Lift off cylinder head (7).
7. Remove stop nut (17) and then unthread upper valve keeper (18).
8. Remove air valve (19) followed by lower valve keeper (20) and bushing (21).
9. If valve sleeve (16) is still in cylinder head, leave it there unless it is necessary to change O-rings (22). Use a slide hammer or bent extraction tool to carefully remove the sleeve (16).
10. Remove cylinder (23).
11. Secure piston rod (13) in vise and remove piston nut (25) and piston washer (26).
12. Remove piston rod (13) and piston (12) from motor base (24). Be careful not to damage the piston O-ring (29).



Do not clamp on O.D. of the piston rod.

Attention

13. Remove valve rod assembly (27) and valve trip collar (28).
14. Unscrew piston rod (13) from piston (12).
15. Remove O-ring (29) from piston (12).
16. Remove O-rings (30, 31) from bushing (21), O-ring (32) and wear ring (33) from motor base (24).

Reassembly Procedure (Fig. 18)

Wash all replaceable parts thoroughly with kerosene and lubricate with Lubri-Plate or similar non-water soluble grease. For routine servicing, use new parts from the Air Motor Service Major (see next column for part numbers). Inspect all other parts for abnormal wear or damage and replace if necessary.

1. Install new O-ring (32) and new wear ring (33) into motor base (24) and new O-rings (30, 31) into bushing (21). Use care to avoid damaging O-rings and make sure they are properly seated in the O-ring grooves.
2. Place valve trip collar (28) into piston rod (13) followed by valve rod assembly (27).
3. Screw piston rod (13) into piston (12). Replace piston nut and washer (25, 26).
4. Install new piston O-ring (29) into piston (12).

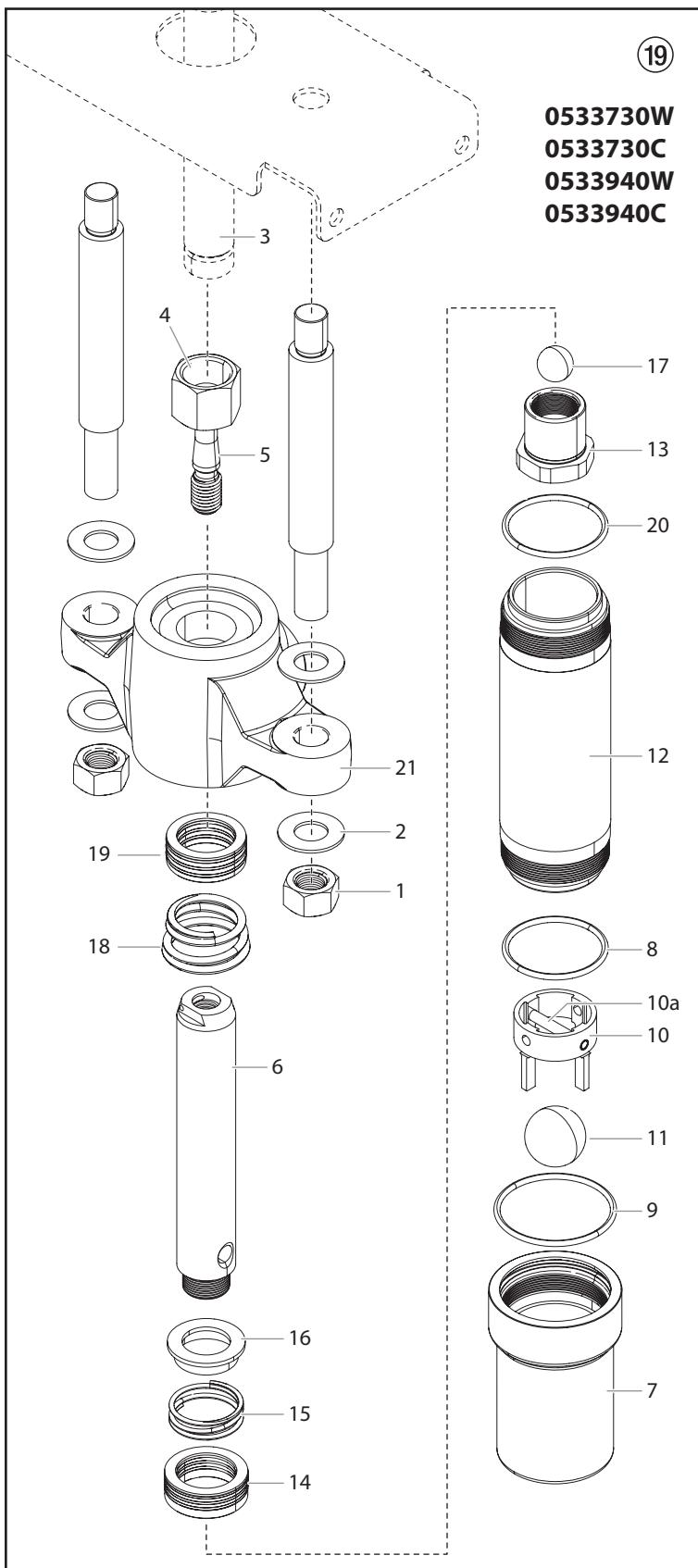
5. Place new gasket (34) into position in motor base (24).
6. Place piston assembly (12, 13) into motor base (24). Do not damage O-ring.
7. Place new O-rings (35) on air valve (19).
8. Mount air valve assembly (19, 35) onto valve rod (27) by placing bushing (21) over valve rod (27), followed by keeper (20), air valve (19) and upper valve keeper (18). Thread upper valve keeper (18) down on air valve hand tight. Then loosen approximately 1/4 turn. Place wrench on flats of valve rod (27) and hold to prevent valve rod (27) from turning. Thread stop nut (17) down on valve rod (27) to lock upper valve keeper (18) in position. Be sure upper valve keeper (18) does not change position.
9. Grease inside of cylinder (23) and work cylinder down over piston gently in order to avoid damage to piston O-ring (29).
10. Install new O-rings (22) on valve sleeve (16). Grease valve sleeve and install into cylinder head (7) so large holes in sleeve line up with trip retainer holes in cylinder head (7). Put one trip retainer (3) with new O-ring (4) into cylinder head without ball (6) or spring (5) and hold in position temporarily with locking bolt (1) and nut (2).
11. Place new gasket (34) into position in cylinder head (7) and hold with gasket cement or grease.
12. Carefully position air valve assembly (19) up into cylinder head (7).
13. Push bushing (21) up into bottom of cylinder head (7) to sufficiently permit installation of retainer (15).
14. To install trip spring retainer be sure one of the detents of valve (19) is properly lined up with hole in the cylinder head (7). Place new trip spring retainer O-ring (4) onto remaining trip spring retainer (3). Install new ball (6) followed by trip spring (5) and trip spring retainer (3) into hole of cylinder head (7). Lock into position with bolt (1) and nut (2).
15. For opposite trip spring retainer (3) replacement, repeat step #14.
16. Connect air line (8) to adapters top and bottom.
17. Replace bolts (10). Always tighten bolts 180 degrees apart in order to obtain proper and even compression.
18. Place wrench on the flats of piston rod (13) and connect pump connecting rod (14) by tightening the coupling nut (36).
19. Slide the fluid pump assembly back onto the stanchions (39) and secure with the stanchion nuts (38).

Final Reassembly (Fig. 17)

1. Line up the holes in the Automatic Lubricator / Air Gauge assembly with the holes in the air motor housing. Secure to the housing with the two screws (6).
2. Insert the air hose back into the top fitting (5). Tighten the fitting with a wrench.
3. Position the shrouds over the air motor. Begin with the shroud on the air hose side of the air motor. Place the shroud with the 90° bend into position over the first shroud. Reconnect the tube (3) to the fitting on the rear of the pressure gauge (4). Secure into place by tightening the shroud screws (1).
4. Replace the cover (8) and secure with the four screws (7).

Service Kits		
700 Series	900 Series	Description
743-012	743-012	Valve rod and spring assembly (includes items 17, and 27-28)
742-051	850-050	Motor service kit, minor (includes items 4-6, 17, 22, and 29-35)
742-501	850-500	Motor service kit, major (includes minor service kit and items 16, 18-20 and 27-28)

8.2 Servicing the Fluid Pump Assembly P/N 185-551



Technical Data

Displacement Rod Area	1.38 in ² (8.90 cm ²)
Stroke Length	4 in. (10.2 cm)
Displacement Volume / Stroke	5.55 in ³ (90.9 cm ³); 0.091 liter
Displacement Volume / 40 Cycles / 80 Strokes	444 in ³ (7272 cm ³); 1.92 gal (7.27 liter)
Motor Selection	700/900 Series
Motor Pump Ratio	30:1 (730) / 40:1 (940)



Use of non-Titan manufactured service parts may void warranty.

Attention

The 185 Series Pump should receive a routine servicing after approximately 1000 hours of use or earlier if there is excessive leakage from the top packing, or if pump strokes become faster on one stroke or another. The use of Titan **Piston Lube Part # 314-480** is recommended as an upper packing lubricant. DO NOT SUBSTITUTE oil, water or solvent for an upper packing lubricant.

Disassembly Procedure

1. Test pump before disassembly. Follow test procedure in Troubleshooting Guide - Fluid Section.
2. Remove siphon hose assembly.
3. Remove stanchion nuts (1) and washers (2).
4. Hold the air motor piston rod (3) at the wrench flats and unthread coupling nut (4) to separate pump from motor.



Never use a pipe wrench, pliers, etc. on the chrome part of hydraulic, air or fluid section rod.

Attention

5. Remove coupling nut (4) on connecting rod (5). Remove connecting rod (5) from displacement rod (6).
6. For easier disassembly, unthread and remove foot valve (7).
7. Remove Teflon O-ring (8), Buna O-ring (9), ball cage assembly (10) and ball (11).
8. Remove cylinder (12).
9. Remove displacement rod (6).
10. Place piston seat (13) in a vise and use a wrench on the flats to remove the displacement rod (6) from the piston seat (13).
11. Remove lower packing set (14), spring (15), spring retainer (16) and ball (17).
12. Remove upper packing spring (18), packing set (19) and O-ring (20).
13. Clean and inspect all parts. Inspect displacement rod's (6) and cylinder's (12) chrome for grooves, dents or worn areas. Replace if hard chrome is damaged. Inspect valve seats and replace if cracked or worn.

Reassembly Procedure

- Insert upper packing set (19) into pump block (21).



Peak of "V" packings must point upwards on reassembly.

Attention

- Insert upper spring (18); small end of spring must go toward the packing set.
- Insert spring retainer (16).
- Place new lower packing set (14) over piston seat (13).



Peak of "V" packings must point downward on reassembly.

Attention

- Replace spring (15), spring retainer (16) and ball (17) on piston seat (13).
- Thread piston seat (13) back onto displacement rod (6).



Use Loctite on clean threads.

- Insert displacement rod (6) assembly through upper packing set (19) in pump block (21).
- Place O-ring (20) on end of cylinder (12) and thread back into pump block (21).



Lubricate all O-rings before assembly.

- Insert new ball (11), ball cage (10), and new Buna O-ring (9) into foot valve (7).



Ball cage pin (10a) to be in lower position unless pump is to be used for heavy block filler, roofing materials or inorganic solvent-borne zinc coatings.

- Place new Teflon O-ring (8) on cylinder (12) and then install foot valve assembly (7).



It is not necessary to overtighten foot valve and cylinder into pump block. O-ring seals perform sealing function without excessive tightening. Full thread engagement is sufficient. The foot valve (7) may be rotated back up to 3/4 turn from full engagement for convenient hose position.

- Insert connecting rod (5) through coupling nut (4) and thread connecting rod (5) into displacement rod (6).
- Hold the air motor piston rod (3) at the wrench flats and thread coupling nut (4) to secure the pump to the motor.
- Using the stanchions, the stanchion nuts (1) and washers (2), secure the pump assembly to the bottom of the unit.
- For siphon hose attachment, it is critically important that the thread of the siphon hose fit snugly into the foot valve with the hose assembly couplings Teflon-taped and sealed to prevent air inlet leakage.

Service Kits

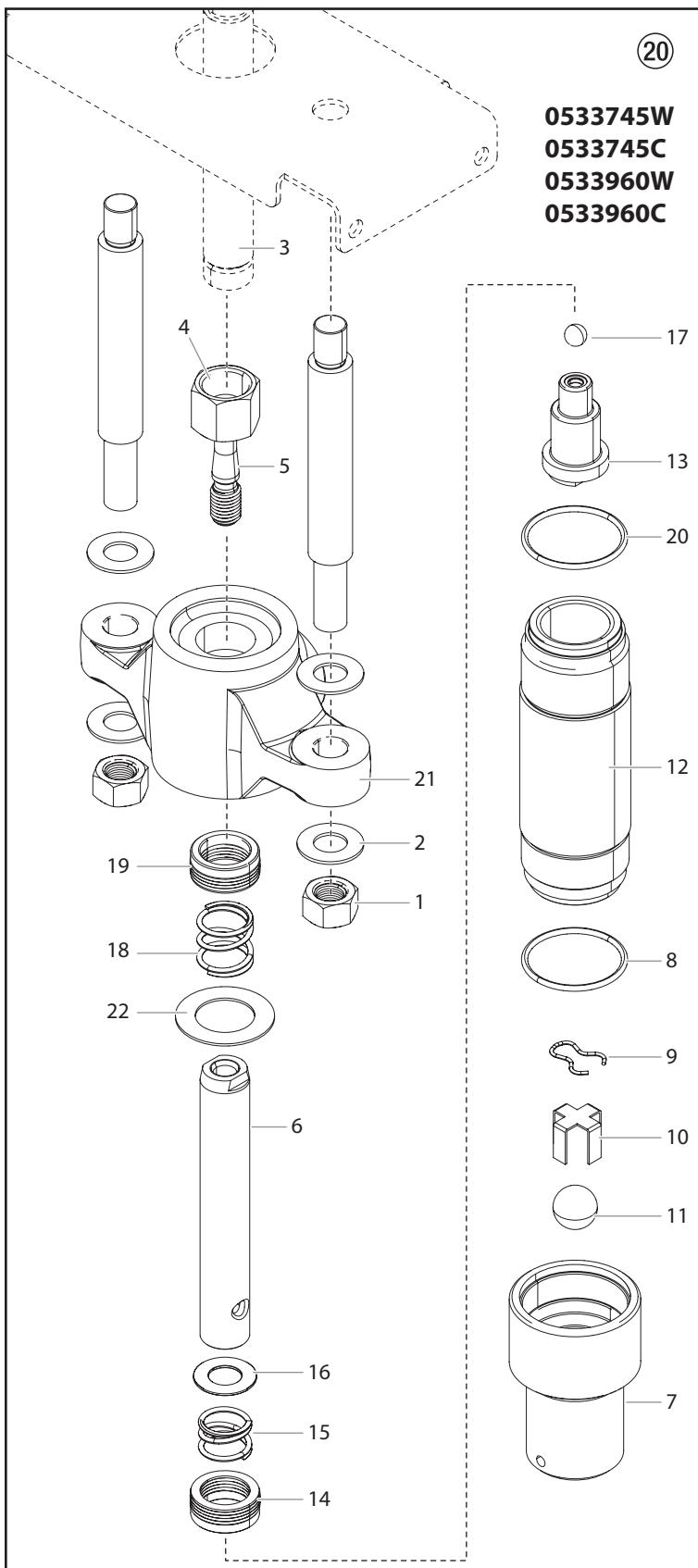


The minor service kits for pump assembly 185-551 come in three versions. They include kits with 1) Polyethylene/Leather packings, 2) Leather packings and 3) Teflon packings

Service Kits		
185-551 pump service kit, minor		
Kit Part No.	Packings*	Description
185-050	Polyethylene/leather	Includes items 9, 11, 14, 17, 19, 20 (2), and Loctite sealant 426-051
180-051	Leather	Includes items 9, 11, 14, 17, 19, 20 (2), and Loctite sealant 426-051
185-052	Teflon	Includes items 9, 11, 14, 17, 19, 20 (2), and Loctite sealant 426-051
185-551 pump service kit, major		
185-500	Polyethylene/leather	Includes minor service kit 185-050 and items 6, 12 and 18
185-501	Leather	Includes minor service kit 185-051 and items 6, 12 and 18
185-502	Teflon	Includes minor service kit 185-053 and items 6, 12 and 18

* Refer to the Spare Parts List for pump assembly 185-551 for the part numbers of each type of upper and lower packings.

8.3 Servicing the Fluid Pump Assembly P/N 155-559



Technical Data

Displacement Rod Area	.976 in ² (6.3 cm ²)
Stroke Length	4 in. (10.2 cm)
Displacement Volume / Stroke	3.9 in ³ (63.9 cm ³); 0.064 liter
Displacement Volume / 40 Cycles / 80 Strokes	312 in ³ (5113 cm ³); 1.35 gal (5.113 liter)
Motor Selection	700/900 Series
Motor Pump Ratio	45:1 (745) / 60:1 (960)



Use of non-Titan manufactured service parts may void warranty.

Attention

The 155 Series Pump should receive a routine servicing after approximately 1000 hours of use or earlier if there is excessive leakage from the top packing, or if pump strokes become faster on one stroke or another. The use of Titan **Piston Lube Part # 314-480** is recommended as an upper packing lubricant. DO NOT SUBSTITUTE oil, water or solvent for an upper packing lubricant.

Disassembly Procedure

1. Test pump before disassembly. Follow test procedure in Troubleshooting Guide - Fluid Section.
2. Remove siphon hose assembly.
3. Remove stanchion nuts (1) and washers (2).
4. Hold the air motor piston rod (3) at the wrench flats and unthread coupling nut (4) to separate pump from motor



Never use a pipe wrench, pliers, etc. on the chrome part of hydraulic, air or fluid section rod.

Attention

5. Remove coupling nut (4) on connecting rod (5). Remove connecting rod (5) from displacement rod (6).
6. For easier disassembly, unthread and remove foot valve (7).
7. Remove O-ring (8), ball stop (9), ball cage (10) and ball (11).
8. Remove cylinder (12).
9. Remove displacement rod (6).
10. Place piston seat (13) in a vise and use a wrench on the flats to remove the displacement rod (6) from the piston seat (13).
11. Remove lower packing set (14), spring (15), washer (16), and ball (17).
12. Remove upper packing spring (18), packing set (19) and O-ring (20).
13. Clean and inspect all parts. Inspect displacement rod's (6) and cylinder's (12) chrome for grooves, dents or worn areas. Replace if hard chrome is damaged. Inspect valve seats and replace if cracked or worn.

Reassembly Procedure



If cylinder (12) and displacement rod (6) are reusable, then only a minor kit part # 155-051 or 155-055 may be required for reassembly.

1. Insert upper packing set (19) into pump block (21).



Peak of "V" packings must point upwards on reassembly.

Attention

2. Insert upper spring (18).
3. Place new lower packing set (14) over piston seat (13).



Peak of "V" packings must point downward on reassembly.

Attention

5. Replace spring (15), washer (16) and ball (17) on piston seat (13).
6. Thread piston seat (13) back onto displacement rod (6).



Use Loctite on clean threads.

7. Insert displacement rod (6) assembly through upper packing set (19) in pump block (21).
8. Place O-ring (20) on end of cylinder (12) and thread back into pump block (21).



Lubricate all O-rings before assembly.

9. Insert new ball (11), ball cage (10) and ball stop (9) into foot valve (7).
10. Place new Teflon O-ring (8) on cylinder (12) and then install foot valve assembly (7).



It is not necessary to overtighten foot valve and cylinder into pump block. O-ring seals perform sealing function without excessive tightening. Full thread engagement is sufficient. The foot valve (7) may be rotated back up to 1/2 turn from full engagement for convenient hose position.

11. Insert connecting rod (5) through coupling nut (4) and thread connecting rod (5) into displacement rod (6).
12. Hold the air motor piston rod (3) at the wrench flats and thread coupling nut (4) to secure the pump to the motor.
13. Using the stanchions, the stanchion nuts (1) and washers (2), secure the pump assembly to the bottom of the unit.
14. For siphon hose attachment, it is critically important that the thread of the siphon hose fit snugly into the foot valve with the hose assembly couplings Teflon-taped and sealed to prevent air inlet leakage.

Service Kits

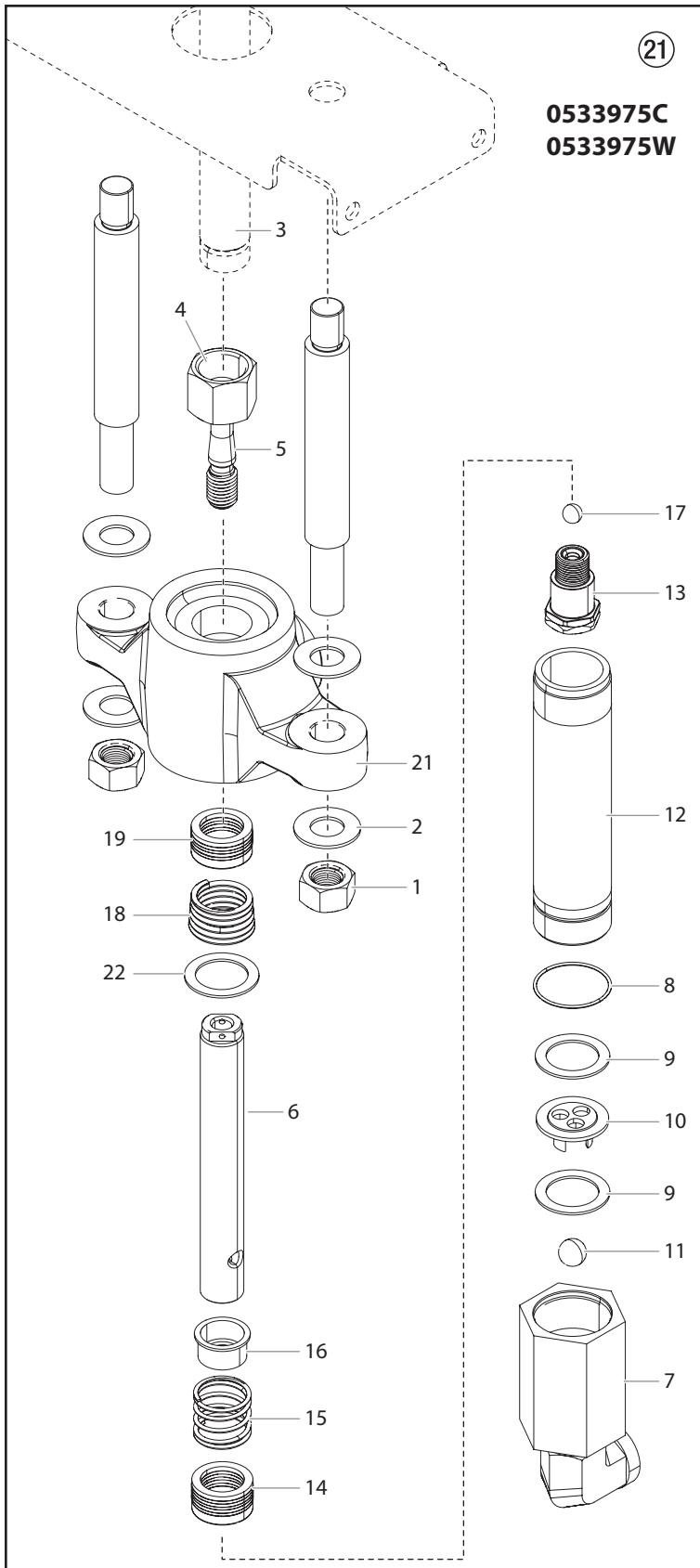


The minor service kits for pump assembly 155-559 come in two versions. They include kits with 1) Polyethylene/Leather packing and 2) Leather packings.

Service Kits		
155-559 pump service kit, minor		
Kit Part No.	Packings*	Description
155-055	Polyethylene/leather	Includes items 9, 11, 14, 17, 19, 20 (2), and Loctite sealant 426-051
155-051	Leather	Includes items 9, 11, 14, 17, 19, 20 (2), and Loctite sealant 426-051
155-559 pump service kit, major		
155-505	Polyethylene/leather	Includes minor service kit 185-050 and items 6, 12 and 18
155-500	Leather	Includes minor service kit 185-051 and items 6, 12 and 18

* Refer to the Spare Parts List for pump assembly 155-559 for the part numbers of each type of upper and lower packings.

8.4 Servicing the Fluid Pump Assembly P/N 0533908



Technical Data

Displacement Rod Area	2.08 in ² (13.42 cm ²)
Stroke Length	4 in. (10.2 cm)
Displacement Volume / Stroke	8.38 in ³ (137.32 cm ³); 0.137 liter
Displacement Volume / 40 Cycles / 80 Strokes	670 in ³ ; (10979 cm ³) 2.9 gal (11 liter)
Motor Selection	900 Series
Motor Pump Ratio	75:1 (975)



Use of non-Titan manufactured service parts may void warranty.

Attention

The fluid pump assembly should receive a routine servicing after approximately 1000 hours of use or earlier if there is excessive leakage from the top packing, or if pump strokes become faster on one stroke or another. The use of Titan **Piston Lube Part # 314-480** is recommended as an upper packing lubricant. DO NOT SUBSTITUTE oil, water or solvent for an upper packing lubricant.

Disassembly Procedure

1. Test pump before disassembly. Follow test procedure in Troubleshooting Guide - Fluid Section.
2. Remove siphon hose assembly.
3. Remove stanchion nuts (1) and washers (2).
4. Hold the air motor piston rod (3) at the wrench flats and unthread coupling nut (4) to separate pump from motor.



Never use a pipe wrench, pliers, etc. on the chrome part of hydraulic, air or fluid section rod.

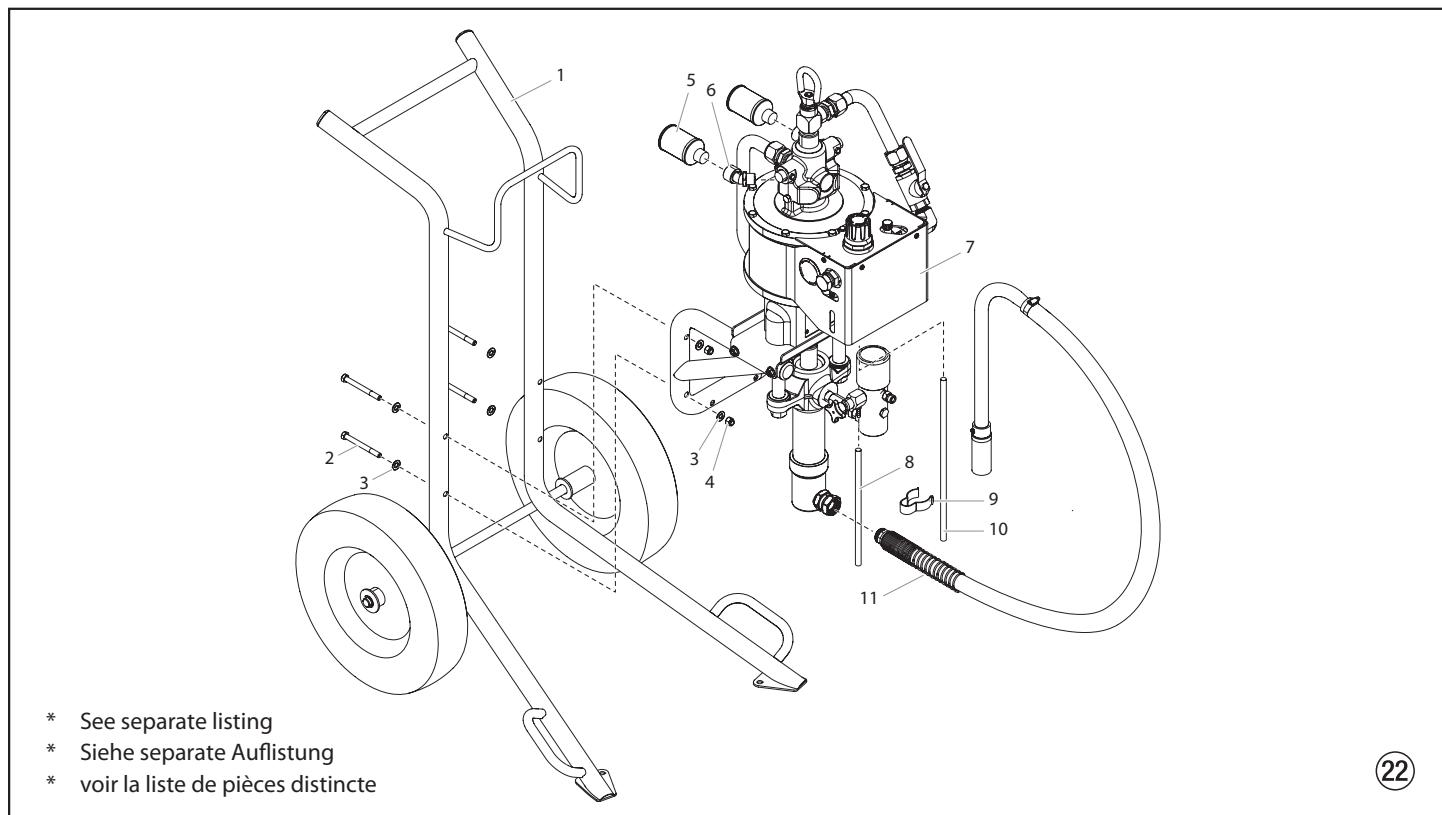
Attention

5. Secure pump block (21) in vise and remove cylinder (12) with foot valve (7) intact.
6. Remove cylinder gasket (22), packing spring (18) and packing set (19).
7. Place piston seat (13) in a vise and use a wrench on the flats to remove the displacement rod (6) from the piston seat (13) (from #10, 155-559).
8. Remove lower packing set (14), spring (15), spring retainer (16) and ball (17) (from #11, 185-551).
9. Remove ball stop (10), both cylinder gaskets (9) and foot valve ball (11). Remove cylinder O-ring (8) from cylinder (12).

(GB) Main Assembly

(F) Ensemble principal

(D) Hauptbaugruppe



Pos.	730	745	940	960	975	(GB) Description	(D) Benennung	(F) Description
1*	0533203A	0533203A	0533203A	0533203A	0533203A	Cart assembly (cart model)	Wagenbaugruppe (Wagenmodell)	Ensemble de chariot (modèles à chariot)
2	9805429	9805429	9805429	9805429	9805429	Screw (4)	Schraube (4)	Vis (4)
3	0509285	0509285	0509285	0509285	0509285	Washer (8)	Scheibe (8)	Rondelle (8)
4	862-410	862-410	862-410	862-410	862-410	Nut (4)	Mutter (4)	Écrou (4)
5	830-340	830-340	830-340	830-340	830-340	Muffler (2)	Schalldämpfer (2)	Silencieux (2)
6	830-345	830-345	830-345	830-345	830-345	Elbow, 45° (2)	Winkel, 45° (2)	Coude, 45° (2)
7*	-----	-----	-----	-----	-----	Wall mount assembly	Baugruppe Wandhalterung	Ensemble de montant mural
8	0533325	0533325	0533325	0533325	0533325	Bleed tube	Ablassrohr	Tube de décharge
9	730-334	730-334	730-334	730-334	730-334	Hose clamp (2)	Schlauchklemme (2)	Bride de serrage (2)
10	0533346	0533346	0533346	0533346	0533346	Lubricator drain hose	Rücklaufschlauch der Druckluftöler	Tuyau de vidange du lubrificateur
11*	0533219A	0533219A	0533219A	0533219A	0533221A	Siphon tube assembly (cart model)	Syphonschlauch-baugruppe (Wagenmodell)	Tuyau du siphon (modèles à chariot)
	0533220A	0533220A	0533220A	0533220A	0533222A	Siphon tube assembly (wall mount model)	Syphonschlauch-baugruppe (Baugruppe Wandhalterung)	Tuyau du siphon (modèles à montant mural)

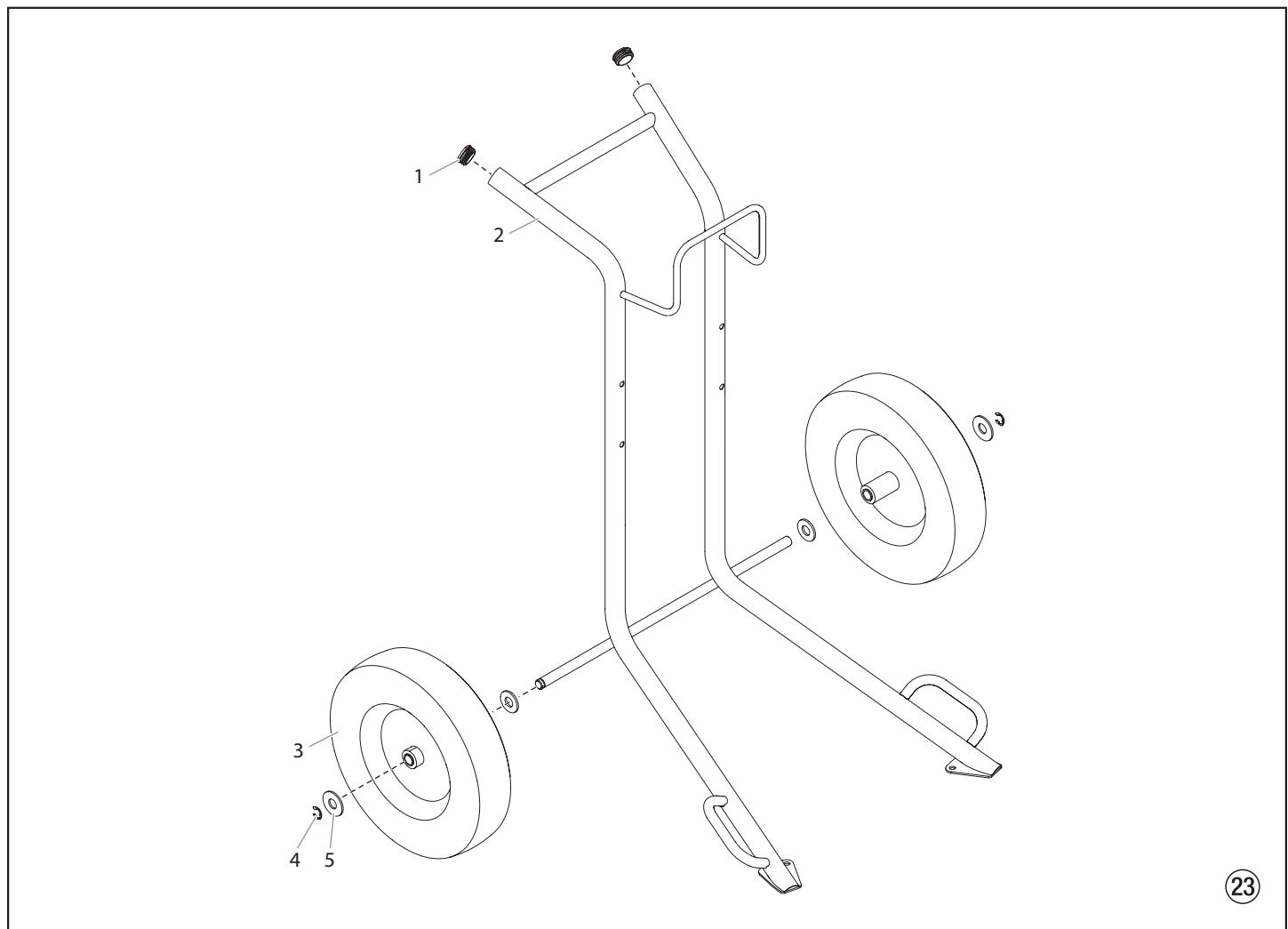
Optional / Optional / Facultatif

	0533919	0533919	0533919	0533919	0533919	Siphon tube assembly (cart model), acetone/ketone compatible	Syphonschlauch-baugruppe (Wagenmodell), Kompatibel mit Aceton/Ketone	Tuyau du siphon (modèles à chariot), compatible avec l'acétone/la cétone
	0533920	0533920	0533920	0533920	0533920	Siphon tube assembly (wall mount model), acetone/ketone compatible	Syphonschlauch-baugruppe (Baugruppe Wandhalterung), Kompatibel mit Aceton/Ketone	Tuyau du siphon (modèles à montant mural), compatible avec l'acétone/la cétone

(GB) Cart Assembly

(F) Ensemble de chariot

(D) Wagenbaugruppe



(23)

Pos.	730	745	940	960	975	(GB) Description	(D) Benennung	(F) Description
1	9885571	9885571	9885571	9885571	9885571	Plug (2)	Stössel (2)	Fiche (2)
2	0533201A	0533201A	0533201A	0533201A	0533201A	Cart weldment	Rahmen	Châssis
3	670-105	670-105	670-105	670-105	670-105	Wheel (2)	Rad (2)	Roue (2)
4	590-100	590-100	590-100	590-100	590-100	Retainer ring (2)	Haltering (2)	Bague de retenue (2)
5	870-003	870-003	870-003	870-003	870-003	Washer (4)	Scheibe (4)	Rondelle (4)

Spare parts diagram

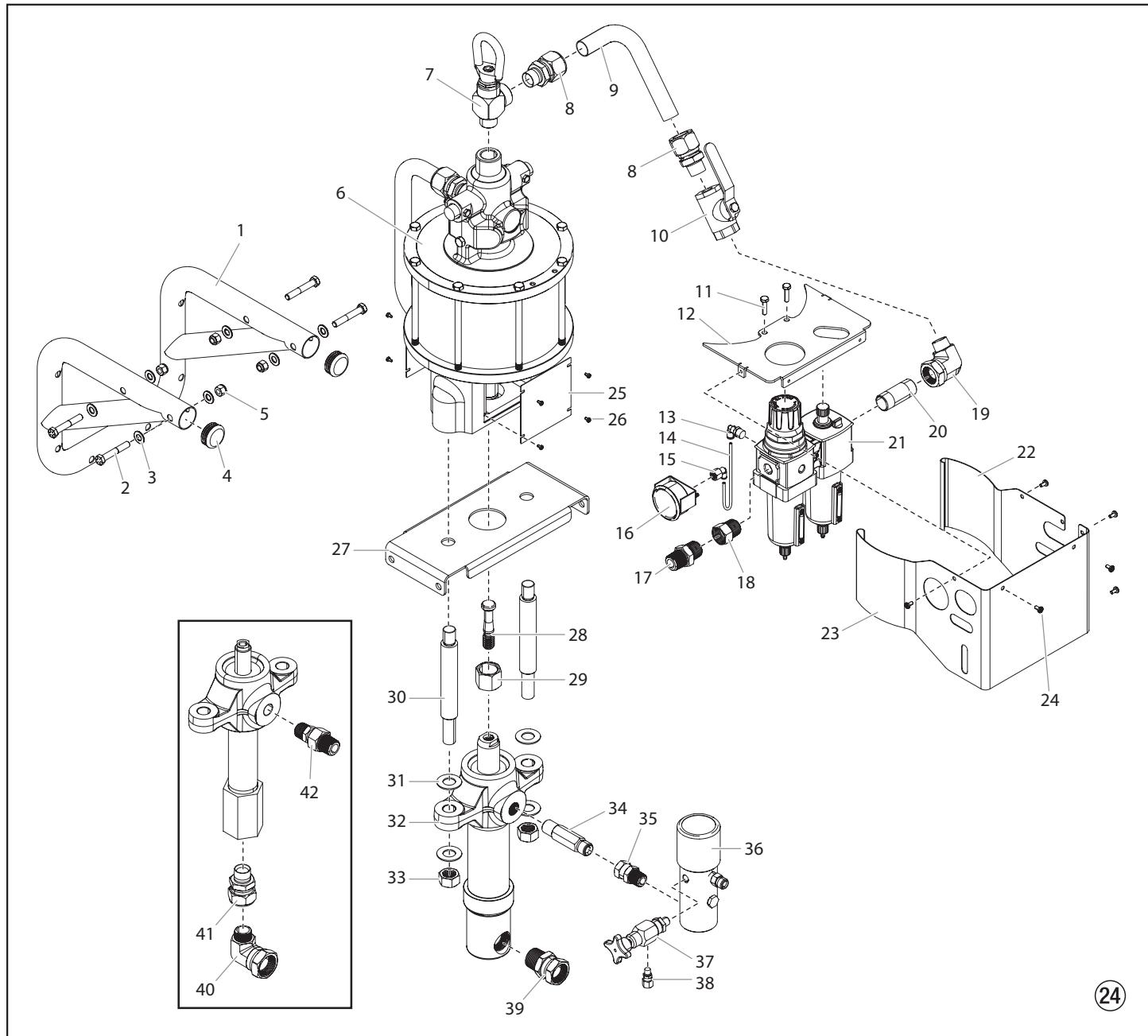
Ersatzteilbild

Illustration des pièces de rechange

(GB) Wall Mount Assembly

(F) Ensemble de montant mural

(D) Baugruppe Wandhalterung



Pos.	730	745	940	960	975	(GB) Description	(D) Benennung	(F) Description
1	0533200A	0533200A	0533200A	0533200A	0533200A	Wall mount weldment	Rahmen zur Montage an die Wand	Ensemble soudé du montant mural
2	862-472	862-472	862-472	862-472	862-472	Screw (4)	Schraube (4)	Vis (4)
3	0509285	0509285	0509285	0509285	0509285	Washer (8)	Scheibe (8)	Rondelle (8)
4	9885571	9885571	9885571	9885571	9885571	Plug (2)	Stössel (2)	Fiche (2)
5	862-410	862-410	862-410	862-410	862-410	Nut (4)	Mutter (4)	Écrou (4)
6*	0533211A	0533211A	0533212A	0533212A	0533212A	Air motor assembly	Luftmotor	Moteur pneumatique

Pos.	730	745	940	960	975	(GB) Description	(D) Benennung	(F) Description
7	0533224A	0533224A	0533224A	0533224A	0533224A	Eye hook assembly	Ösenhaken	Ensemble de crochet fermé
8	9885633	9885633	9885631	9885631	9885631	Adapter	Anschlussstück	Adaptateur
9	0533333	0533333	0533327	0533327	0533327	Air tube, 90°	Luftschlauch, 90°	Tube d'air, 90°
10	0533319	0533319	0533319	0533319	0533319	Ball valve	Ballventil	Soupape à bille
11	9805431	9805431	9805431	9805431	9805431	Screw (2)	Schraube (2)	Vis (2)
12	0533324A	0533324A	0533311A	0533311A	0533311A	Bracket	Halterung	Support
13	9885630	9885630	9885630	9885630	9885630	Fitting, press to lock	Beschlag, durch Drücken verriegeln	Raccord, appuyer pour verrouiller
14	0533330	0533330	0533330	0533330	0533330	Tubing	Rohr	Tube
15	9885629	9885629	9885629	9885629	9885629	Fitting, press to lock	Beschlag, durch Drücken verriegeln	Raccord, appuyer pour verrouiller
16	600-086	600-086	600-086	600-086	600-086	Pressure gauge	Manometer	Manomètre
17	814-007	814-007	814-007	814-007	814-007	Nipple, 3/4 NPT x 3/4 NPT	Nippel, 3/4 NPT x 3/4 NPT	Raccord, 3/4 PTN x 3/4 PTN
18	9885627	9885627	9885627	9885627	9885627	Adapter, 3/4 NPT x 3/4 NPSM	Anschlussstück, 3/4 NPT x 3/4 NPSM	Adaptateur, 3/4 PTN x 3/4 NPSM
19	191-664	191-664	191-664	191-664	191-664	Elbow, 90°	Winkel, 90°	Coude, 90°
20	9885628	9885628	9885628	9885628	9885628	Nipple, 3/4 NPT	Nippel, 3/4 NPT	Raccord, 3/4 PTN
21*	0533210A	0533210A	0533210A	0533210A	0533210A	Lubricator assembly	Schmierzvorrichtung	Ensemble du lubrificateur
22	0533321A	0533321A	0533312A	0533312A	0533312A	Shroud, right	Abdeckung, rechts	Capot, droit
23	0533320A	0533320A	0533313A	0533313A	0533313A	Shroud, left	Abdeckung, links	Capot, gauche
24	9805329	9805329	9805329	9805329	9805329	Screw (6)	Schraube (6)	Scheibe (6)
25	313-836	313-836	313-836	313-836	313-836	Plate (2)	Platte (2)	Plaque (2)
26	225-002	225-002	225-002	225-002	225-002	Screw (8)	Schraube (8)	Vis (8)
27	0533318A	0533318A	0533318A	0533318A	0533318A	Bracket	Halterung	Support
28	442-956	441-956	442-956	441-956	441-955	Connecting rod	Verbindungskolben	Bielle
29	138-007	138-007	138-007	138-007	138-007	Nut	Mutter	Écrou
30	0533345	0533345	0533345	0533345	0533345	Stanchion (2)	Stütze (2)	Colonne (2)
31	0295687	0295687	0295687	0295687	0295687	Washer (4)	Scheibe (4)	Rondelle (4)
32*	185-551A	155-559A	185-551A	155-559A	0533908A	Pump assembly	Flüssigkeitspumpe	Pompe de fluides
33	870-401	870-401	870-401	870-401	870-401	Nut (2)	Mutter (2)	Écrou (2)
34	191-444	191-444	191-444	191-444	-----	Nipple, 1/2 NPTM x 1/2 NPSM	Nippel, 1/2 NPTM x 1/2 NPSM	Raccord, 1/2 NPTM x 1/2 NPSM
35	200-555	200-555	200-555	200-555	-----	Adapter, 1/2 NPTM x 1/2 NPSM	Anschlussstück, 1/2 NPTM x 1/2 NPSM	Adaptateur, 1/2 NPTM x 1/2 NPSM
36*	0533218A	0533218A	0533218A	0533223A	0533223A	Filter assembly	Filterbaugruppe	Ensemble de filtre
37*	944-028A	944-028A	944-028A	944-028A	944-028A	Bleed valve assembly	Ablassschlauch-baugruppe	Assemblage de la soupape de décharge
38	9885639	9885639	9885639	9885639	9885639	Return tube fitting	Rücklaufschlauch-stützen	Raccord du tube de décharge
39	200-556	-----	200-556	-----	-----	Adapter, 1 NPTF x 1 NPTM	Anschlussstück, 1 NPTF x 1 NPTM	Adaptateur, 1 NPTF x 1 NPTM
40	-----	0509727	-----	0509727	191-664	Elbow, 90°	Winkel, 90°	Coude, 90°
41	-----	200-566	-----	200-566	9885626	Swivel fitting	Drehgelenk	Émerillon
42	-----	-----	-----	-----	703-137	Swivel fitting	Drehgelenk	Émerillon
<hr/>								
	0533921	0533921	0533921	0533921	0533921	Wall mount kit (includes items 1-5)	Wandmontage-Kit (beinhaltet Posten 1-5)	Trousse de fixation au mur (comprend les articles 1 à 5)

* See separate listing

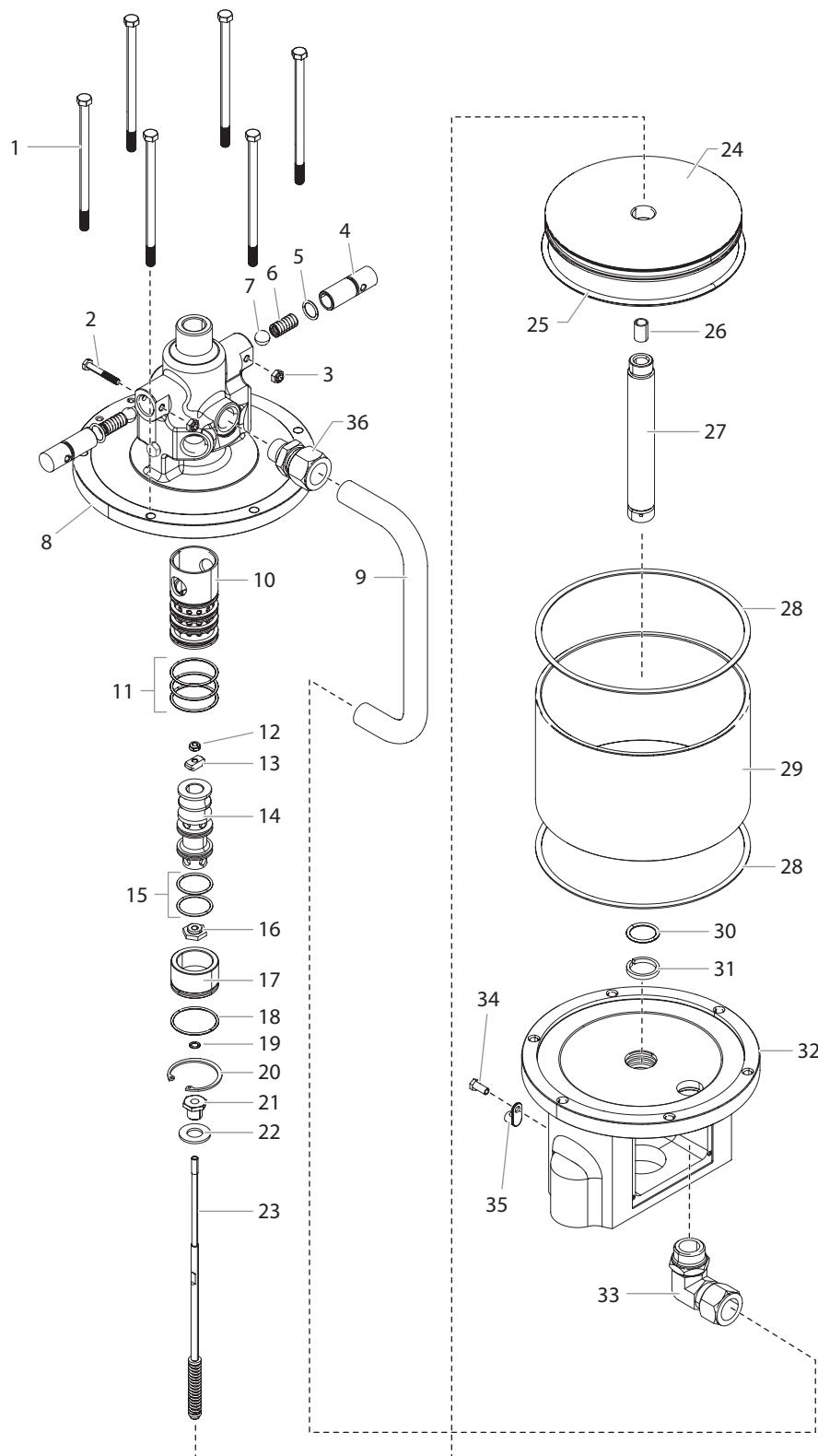
* Siehe separate Auflistung

* voir la liste de pièces distincte

(GB) Air Motor Assembly
 (F) Moteur pneumatique

(D) Luftmotor

0533730W
0533730C
0533745W
0533745C



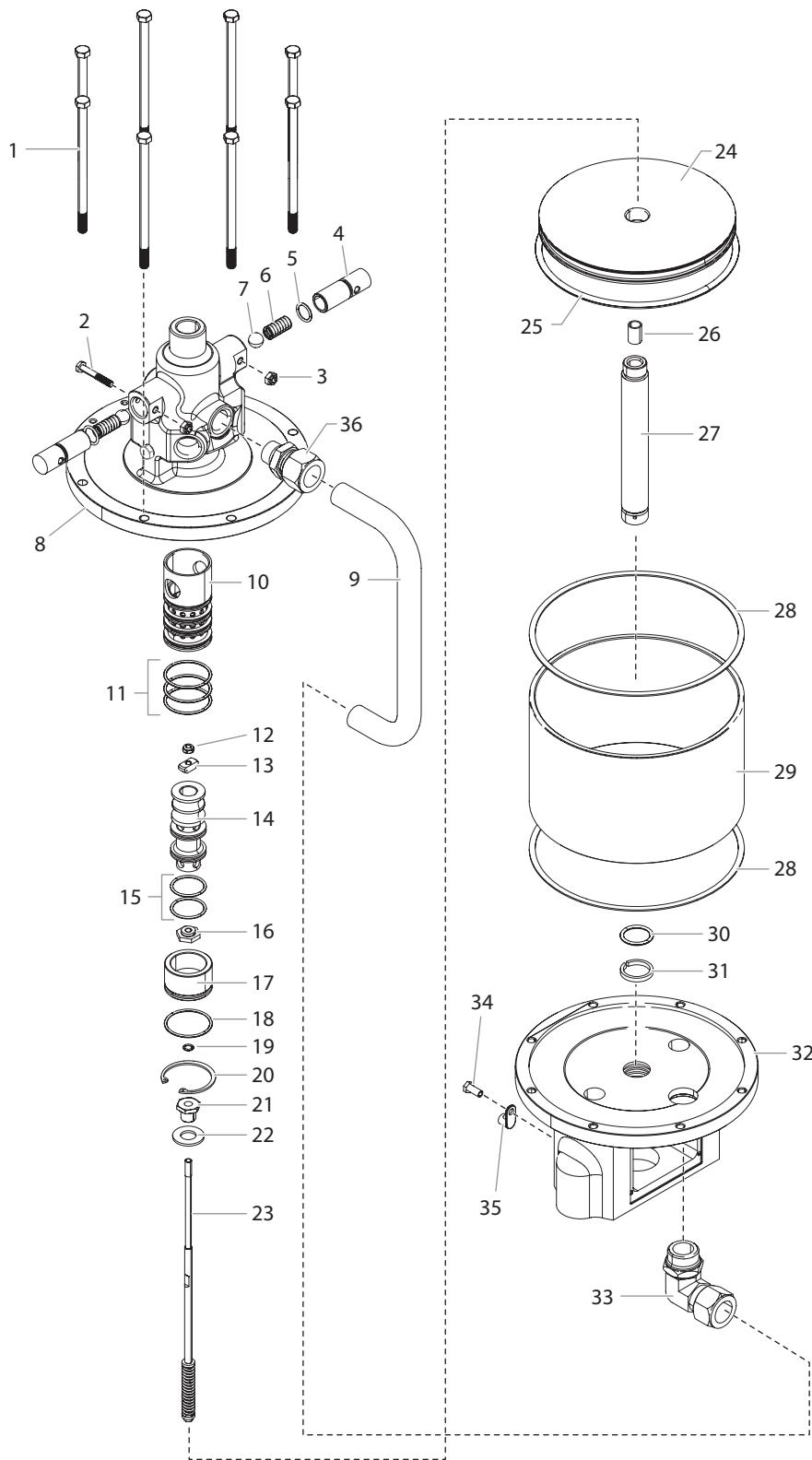
Pos.	730	745	(GB) Description	(D) Benennung	(F) Description
1	9805428	9805428	Screw (6)	Schraube (6)	Vis (6)
2	858-660	858-660	Locking bolt (2)	Arretierbolzen (2)	Boulon d'arrêt (2)
3	858-611	858-611	Stop nut (2)	Stellmutter (2)	Écrou d'arrêt (2)
4	742-905	742-905	Trip retainer (2)	Bedienungsarretierung (2)	Dispositif de retenue du déclenchement (2)
5	742-001	742-001	O-ring (2)	O-Ring (2)	Joint torique (2)
6	738-213	738-213	Trip spring (2)	Bedienungsfeder (2)	Ressort de déclenchement (2)
7	138-340	138-340	Ball (2)	Kugel (2)	Bille (2)
8	0533323A	0533323A	Cylinder head	Zylinderkopf	Tête de cylindre
9	0533334	0533334	Air tube	Luftschlauch	Tube d'air
10	742-913	742-913	Valve sleeve	Ventilbuchse	Manchon de soupape
11	742-223	742-223	Valve sleeve O-rings (3)	O-Ringe Ventilbuchse (3)	Joint toriques du manchon de soupape (3)
12	858-812	858-812	Stop nut	Stellmutter	Écrou d'arrêt
13	738-218	738-218	Upper valve keeper	Oberer Ventilhalter	Loquet de soupape supérieur
14	740-925	740-925	Air valve	Luftventil	Soupape d'air
15	738-224	738-224	Air valve O-ring (2)	O-Ring Luftventil (2)	Joint torique de la soupape d'air (2)
16	740-985	740-985	Lower valve keeper	Unterer Ventilhalter	Loquet de soupape inférieur
17	742-011	742-011	Bushing	Buchse	Douille
18	742-223	742-223	O-ring	O-Ring	Joint torique
19	890-114	890-114	O-ring	O-Ring	Joint torique
20	742-016	742-016	Retaining ring	Spiralring	Bague spiralee
21	738-985	738-985	Piston nut	Kolbenstangenmutter	Écrou de piston
22	742-005	742-005	Piston washer	Kolbenscheibe	Rondelle de piston
23	743-011	743-011	Valve rod assembly	Ventilstangenbaugruppe	Ensemble de tige de manœuvre
24	738-997	738-997	Piston	Kolben	Piston
25	426-016	426-016	Piston O-ring	O-Ring Kolben	Joint torique du piston
26	743-227	743-227	Valve trip collar	Ventilschnellschlussring	Bague de déclenchement de la soupape
27	738-937	738-937	Piston rod	Kolbenstange	Tige de piston
28	738-004	738-004	Gasket (2)	Dichtring (2)	Joint d'étanchéité (2)
29	738-952	738-952	Cylinder	Zylinder	Cylindre
30	738-021	738-021	O-ring	O-Ring	Joint torique
31	742-224	742-224	Wear ring	Schleißring	Bague d'usure
32	0533322A	0533322A	Motor base	Motorenfuß	Base du moteur
33	9885634	9885634	Elbow, 90°	Winkel, 90°	Coude, 90°
34	858-624	858-624	Screw	Schraube	Vis
35	101-205	101-205	Grounding lug	Erdungsklemme	Patte de mise à la terre
36	9885635	9885635	Adapter	Anschlussstück	Adaptateur

	743-012	743-012	Valve rod and spring assembly (includes items 12, 23 and 27)	Ventilstange und Feder (beinhaltet Posten 12, 23 sowie 27)	Ensemble de tige de manœuvre et de ressort (comprend les articles 12, 23 et 27)
	742-051	742-051	Motor service kit, minor (includes items 5-7, 11-12, 15, 18-19, 25, 28 and 30-31)	Motor-Service-Kit, klein (beinhaltet Posten 5-7, 11-12, 15, 18-19, 25, 28 sowie 30-31)	Trousse d'entretien du moteur, secondaire (comprend les articles 5-7, 11-12, 15, 18-19, 25, 28 et 30-31)
	742-501	742-501	Motor service kit, major (includes minor service kit 742-051 and items 10, 13-14, 16, 23 and 26)	Motor-Service-Kit, groß (beinhaltet kleinen Service-Kit 742-051 sowie Posten 10, 13-14, 16, 23 und 26)	Trousse d'entretien du moteur, principale (comprend la troussse d'entretien du moteur secondaire 742-051 et les articles 10, 13-14, 16, 23 et 26)

(GB) Air Motor Assembly
 (F) Moteur pneumatique

(D) Luftmotor

**0533940W
 0533940C
 0533960W
 0533960C
 0533975W
 0533975C**



Pos.	940	960	975	(GB) Description	(D) Benennung	(F) Description
1	9805428	9805428	9805428	Screw (8)	Schraube (8)	Vis (8)
2	858-660	858-660	858-660	Locking bolt (2)	Arretierbolzen (2)	Boulon d'arrêt (2)
3	858-611	858-611	858-611	Stop nut (2)	Stellmutter (2)	Écrou d'arrêt (2)
4	742-905	742-905	742-905	Trip retainer (2)	Bedienungsarretierung (2)	Dispositif de retenue du déclenchement (2)
5	742-001	742-001	742-001	O-ring (2)	O-Ring (2)	Joint torique (2)
6	738-213	738-213	738-213	Trip spring (2)	Bedienungsfeder (2)	Ressort de déclenchement (2)
7	138-340	138-340	138-340	Ball	Kugel	Bille
8	0533317A	0533317A	0533317A	Cylinder head	Zylinderkopf	Tête de cylindre
9	0533332	0533332	0533332	Air tube	Luftschlauch	Tube d'air
10	742-913	742-913	742-913	Valve sleeve	Ventilbuchse	Manchon de soupape
11	742-223	742-223	742-223	Valve sleeve O-rings (3)	O-Ringe Ventilbuchse (3)	Joints toriques du manchon de soupape (3)
12	858-812	858-812	858-812	Stop nut	Stellmutter	Écrou d'arrêt
13	738-218	738-218	738-218	Upper valve keeper	Oberer Ventilhalter	Loquet de soupape supérieur
14	740-925	740-925	740-925	Air valve	Luftventil	Soupape d'air
15	738-224	738-224	738-224	Air valve O-ring (2)	O-Ring Luftventil (2)	Joint torique de la soupape d'air (2)
16	740-985	740-985	740-985	Lower valve keeper	Unterer Ventilhalter	Loquet de soupape inférieur
17	742-011	742-011	742-011	Bushing	Buchse	Douille
18	742-223	742-223	742-223	O-ring	O-Ring	Joint torique
19	890-114	890-114	890-114	O-ring	O-Ring	Joint torique
20	742-016	742-016	742-016	Retaining ring	Spiralring	Bague spiralee
21	738-985	738-985	738-985	Piston nut	Kolbenstangenmutter	Écrou de piston
22	742-005	742-005	742-005	Piston washer	Kolbenscheibe	Rondelle de piston
23	743-011	743-011	743-011	Valve rod assembly	Ventilstangenbaugruppe	Ensemble de tige de manœuvre
24	850-917	850-917	850-917	Piston	Kolben	Piston
25	850-016	850-016	850-016	Piston O-ring	O-Ring Kolben	Joint torique du piston
26	743-227	743-227	743-227	Valve trip collar	Ventilschnellschlussring	Bague de déclenchement de la soupape
27	738-937	738-937	738-937	Piston rod	Kolbenstange	Tige de piston
28	850-004	850-004	850-004	Gasket (2)	Dichtring (2)	Joint d'étanchéité (2)
29	850-952	850-952	850-952	Cylinder	Zylinder	Cylindre
30	738-021	738-021	738-021	O-ring	O-Ring	Joint torique
31	742-224	742-224	742-224	Wear ring	Schleißring	Bague d'usure
32	0533316	0533316	0533316	Motor base	Motorenfuß	Base du moteur
33	9885632	9885632	9885632	Elbow, 90°	Winkel, 90°	Coude, 90°
34	858-624	858-624	858-624	Screw	Schraube	Vis
35	101-205	101-205	101-205	Grounding lug	Erdungsklemme	Patte de mise à la terre
36	9885631	9885631	9885631	Adapter	Anschlussstück	Adaptateur

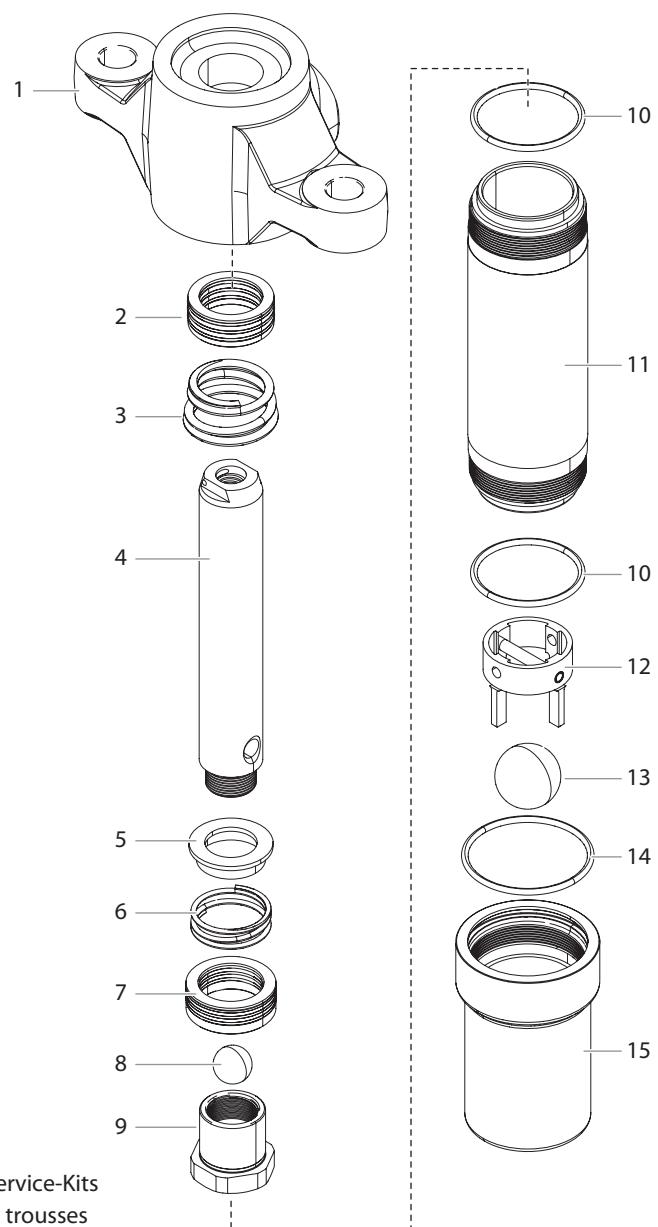
	743-012	743-012	743-012	Valve rod and spring assembly (includes items 12, 23 and 27)	Ventilstange und Feder (beinhaltet Posten 12, 23 sowie 27)	Ensemble de tige de manœuvre et de ressort (comprend les articles 12, 23 et 27)
	850-050	850-050	850-050	Motor service kit, minor (includes items 5-7, 11-12, 15, 18-19, 25, 28 and 30-31)	Motor-Service-Kit, klein (beinhaltet Posten 5-7, 11-12, 15, 18-19, 25, 28 sowie 30-31)	Trousse d'entretien du moteur, secondaire (comprend les articles 5-7, 11-12, 15, 18-19, 25, 28 et 30-31)
	850-500	850-500	850-500	Motor service kit, major (includes minor service kit 850-050 and items 10, 13-14, 16, 23 and 26)	Motor-Service-Kit, groß (beinhaltet kleinen Service-Kit 850-050 sowie Posten 10, 13-14, 16, 23 und 26)	Trousse d'entretien du moteur, principale (comprend la trousse d'entretien du moteur secondaire 850-050 et les articles 10, 13-14, 16, 23 et 26)

(GB) Fluid Pump Assembly 185-551*

(F) Pompe de fluides 185-551*

(D) Flüssigkeitspumpe 185-551*

0533730W
0533730C
0533940W
0533940C



* See Section 8.2 for service kits

* Siehe Abschnitt 8.2 bezüglich Service-Kits

* Consulter la section 8.2 pour les trousse d'entretien

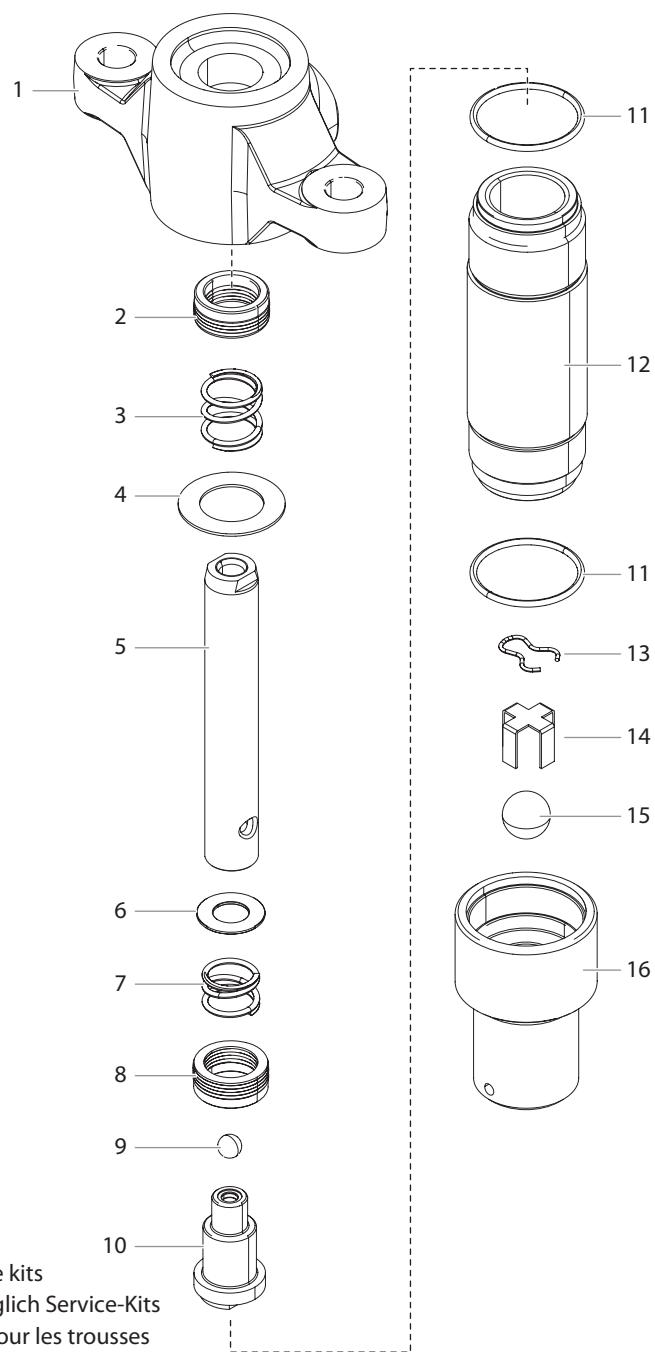
Pos.	730	940	(GB) Description	(D) Benennung	(F) Description
1	181-906	181-906	Lower pump block	Unterer Pumpenblock	Bloc inférieur de la pompe
2	175-001A	175-001A	Upper packing assembly, leather	Obere Packung, Leder	Garniture supérieure, cuir
	178-001A	178-001A	Upper packing assembly, leather/ polyethylene	Obere Packung, Polyethylen/Leder	Garniture supérieure, Polyéthylène/ cuir
	178-320A	178-320A	Upper packing assembly, Teflon	Obere Packung, Teflon	Garniture supérieure, Téflon
3	155-906	155-906	Upper packing spring	Konusfeder	Ressort de garniture supérieure
4	185-984	185-984	Displacement rod	Kolbenstange	Tige de piston
5	185-011	185-011	Spring retainer	Federhalter	Ressort conique
6	185-010	185-010	Lower packing spring	Druckfeder	Ressort de garniture inférieure
7	180-002A	180-002A	Lower packing assembly, leather	Untere Packung, Leder	Garniture inférieure, cuir
	183-001A	183-001A	Lower packing assembly, leather/ polyethylene	Untere Packung, Polyethylen/Leder	Garniture inférieure, Polyéthylène/cuir
	180-322A	180-322A	Lower packing assembly, Teflon	Untere Packung, Teflon	Garniture inférieure, Téflon
8	920-103	920-103	Ball	Kugel	Bille
9	182-921A	182-921A	Piston seat assembly	Kolbensitzbaugruppe	Ensemble du siège de piston
10	182-007	182-007	O-ring (2)	O-Ring (2)	Joint torique (2)
11	183-930	183-930	Cylinder	Zylinder	Cylindre
12	240-022A	240-022A	Ball cage assembly	Kugelführung	Guide de bille
13	314-180	314-180	Ball	Kugel	Bille
14	183-230	183-230	O-ring	O-Ring	Joint torique
15	183-992	183-992	Foot valve assembly	Einlassventilgehäuse	Logement du clapet de pied

(GB) Fluid Pump Assembly 155-559*

(D) Flüssigkeitspumpe 155-559*

(F) Pompe de fluides 155-559*

0533745W
0533745C
0533960W
0533960C



- * See Section 8.3 for service kits
- * Siehe Abschnitt 8.3 bezüglich Service-Kits
- * Consulter la section 8.3 pour les trousse d'entretien

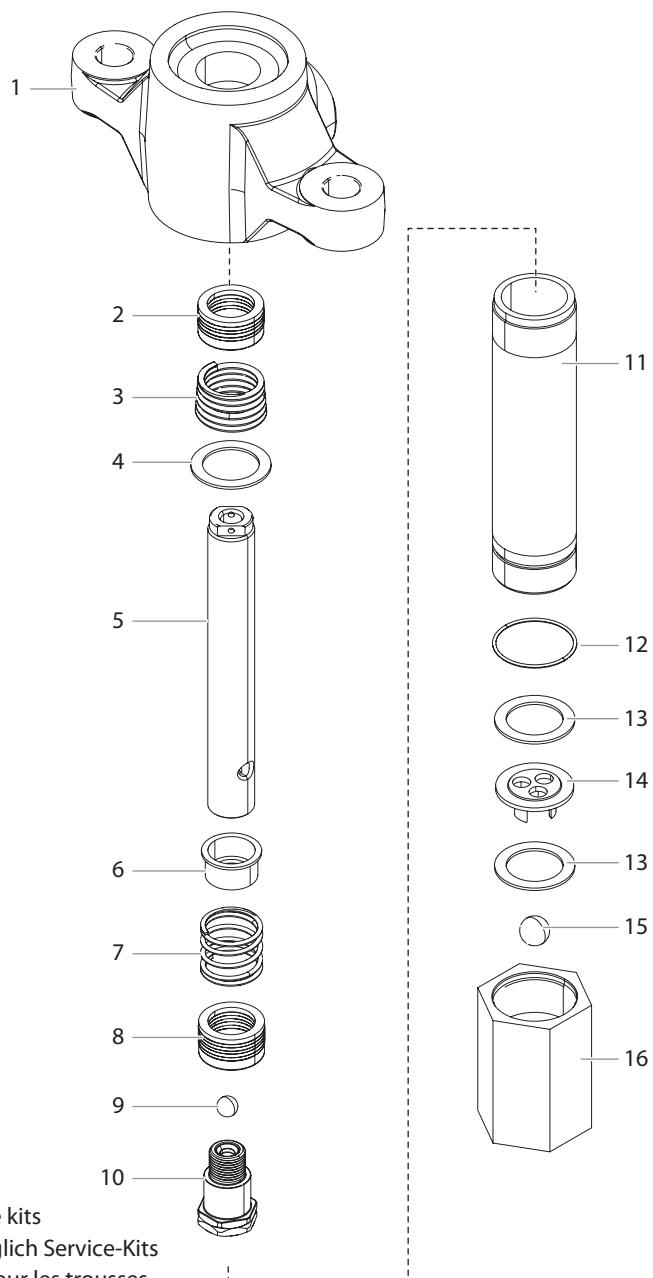
28

Pos.	745	960	(GB) Description	(D) Benennung	(F) Description
1	155-907	155-907	Lower pump block	Unterer Pumpenblock	Bloc inférieur de la pompe
2	155-052A	155-052A	Upper packing assembly, leather	Obere Packung, Leder	Garniture supérieure, cuir
	155-053A	155-053A	Upper packing assembly, leather/ polyethylene	Obere Packung, Polyethylen/Leder	Garniture supérieure, Polyéthylène/ cuir
3	182-906	182-906	Upper packing spring	Konusfeder	Ressort de garniture supérieure
4	155-010	155-010	Washer	Scheibe	Rondelle
5	155-982	155-982	Displacement rod	Kolbenstange	Tige de piston
6	155-009	155-009	Washer	Scheibe	Rondelle
7	155-001	155-001	Lower packing spring	Druckfeder	Ressort de garniture inférieure
8	155-052A	155-052A	Lower packing assembly, leather	Untere Packung, Leder	Garniture inférieure, cuir
	155-053A	155-053A	Lower packing assembly, leather/ polyethylene	Untere Packung, Polyethylen/Leder	Garniture inférieure, Polyéthylène/cuir
9	155-225	155-225	Ball	Kugel	Bille
10	155-921	155-921	Piston seat assembly	Kolbensitzbaugruppe	Ensemble du siège de piston
11	891-373	891-373	O-ring (2)	O-Ring (2)	Joint torique (2)
12	155-932	155-932	Cylinder	Zylinder	Cylindre
13	174-112	174-112	Ball stop	Kugelarretierung	Butée à billes
14	174-102	174-102	Ball cage assembly	Kugelführung	Guide de bille
15	0509707	0509707	Ball	Kugel	Bille
16	155-991	155-991	Foot valve assembly	Einlassventilgehäuse	Logement du clapet de pied

(GB) Fluid Pump Assembly 0533908*

(F) Pompe de fluides 0533908*

(D) Flüssigkeitspumpe 0533908*

**0533975W
0533975C**

- * See Section 8.4 for service kits
- * Siehe Abschnitt 8.4 bezüglich Service-Kits
- * Consulter la section 8.4 pour les trousse d'entretien

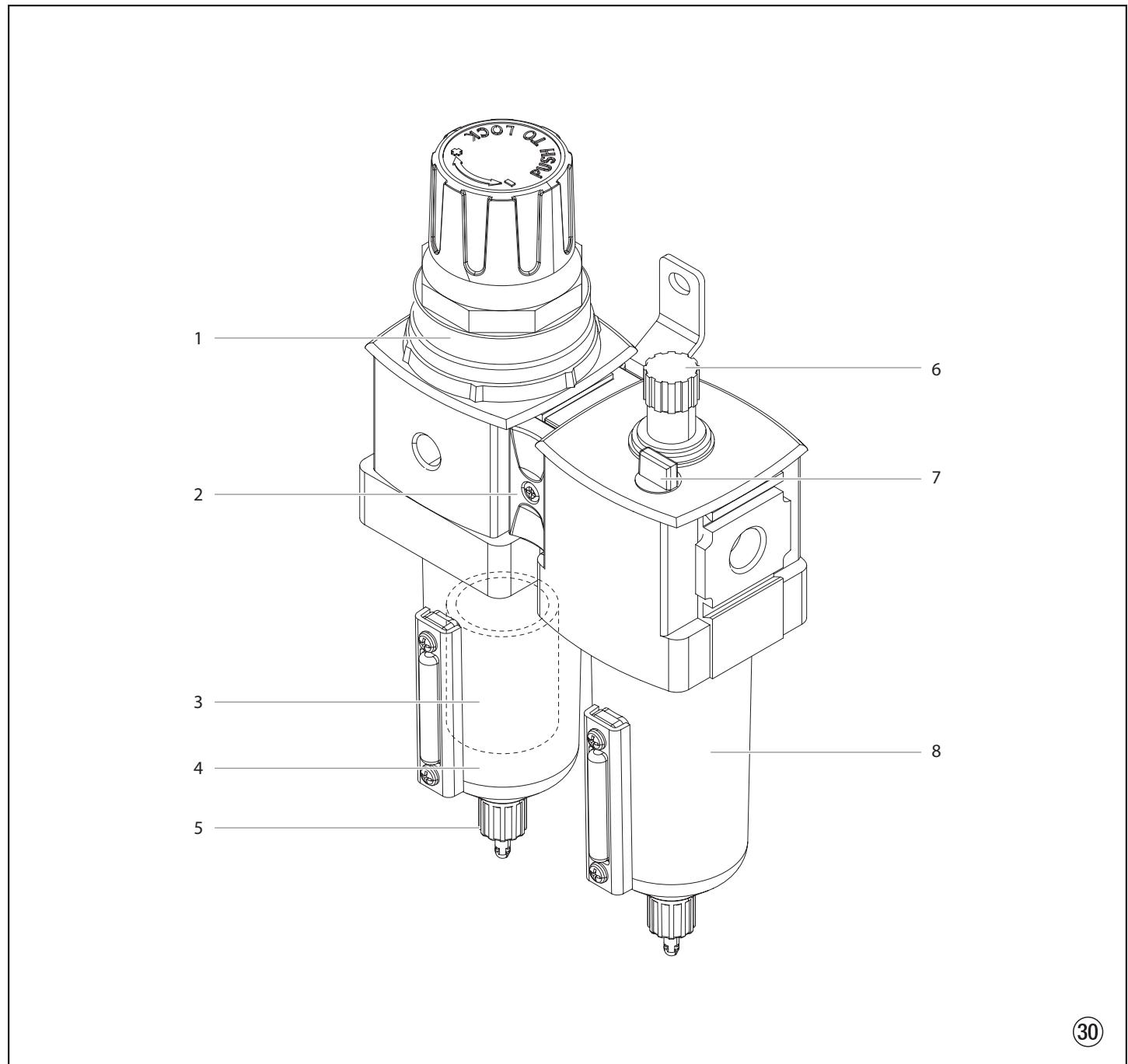
(29)

Pos.	975	(GB) Description	(D) Benennung	(F) Description
1	142-917	Lower pump block	Unterer Pumpenblock	Bloc inférieur de la pompe
2	138-052A	Upper packing assembly, leather/ polyethylene	Obere Packung, Polyethylen/Leder	Garniture supérieure, Polyéthylène/cuir
3	142-004	Upper packing spring	Konusfeder	Ressort de garniture supérieure
4	138-029	Gasket	Scheibe	Joint d'étanchéité
5	138-917	Displacement rod	Kolbenstange	Tige de piston
6	138-001	Spring retainer	Federhalter	Ressort conique
7	142-003	Lower packing spring	Druckfeder	Ressort de garniture inférieure
8	138-153A	Lower packing assembly, leather/ polyethylene	Untere Packung, Polyethylen/Leder	Garniture inférieure, Polyéthylène/cuir
9	0509710	Ball	Kugel	Bille
10	143-945A	Piston seat assembly	Kolbensitzbaugruppe	Ensemble du siège de piston
11	140-922	Cylinder	Zylinder	Cylindre
12	140-009	O-ring	O-Ring	Joint torique
13	138-031	Gasket	Scheibe	Joint d'étanchéité
14	138-032	Ball cage assembly	Kugelführung	Guide de bille
15	138-340	Ball	Kugel	Bille
16	140-991	Foot valve assembly	Einlassventilgehäuse	Logement du clapet de pied

(GB) **Automatic lubricator assembly**

(F) **Lubrificateur automatique**

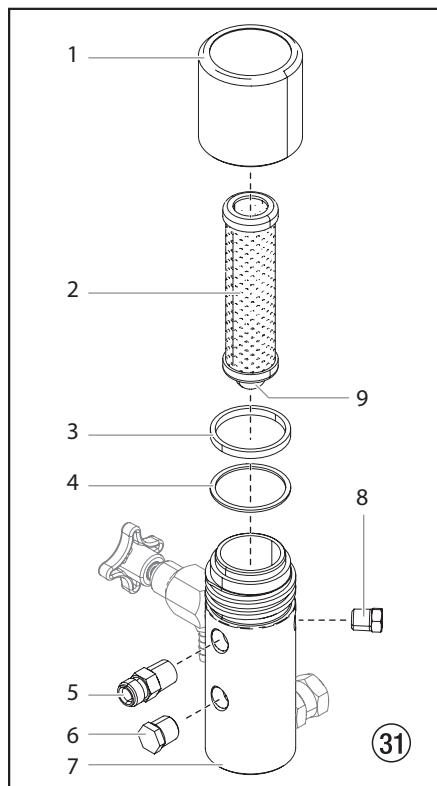
(D) **Automatischer Druckluftöler**



Pos.	730	745	940	960	975	(GB) Description	(D) Benennung	(F) Description
1	0533910	0533910	0533910	0533910	0533910	Panel mount nut	Mutter für Tafelmontage	Écrou de fixation au panneau
2	0533909	0533909	0533909	0533909	0533909	Body connector	Gehäusestecker	Connecteur du corps
3	0533911	0533911	0533911	0533911	0533911	Filter element	Filterelement	Élément filtrant
4	0533915	0533915	0533915	0533915	0533915	Filter bowl	Filterbecher	Cuve de filtre
5	0533912	0533912	0533912	0533912	0533912	Auto drain kit	Kit für automatischen Ablass	Trousse de vidange automatique
6	0533914	0533914	0533914	0533914	0533914	Drip control assembly	Baugruppe Drip-Control	Ensemble de contrôle du goutte-à-goutte
7	0533913	0533913	0533913	0533913	0533913	Fill plug	Füllschraube	Bouchon de remplissage
8	0533916	0533916	0533916	0533916	0533916	Lubricator bowl	Druckluftölerbecher	Cuve de lubrificateur
	0533917	0533917	0533917	0533917	0533917	Regulator relieving repair kit	Regulator relieving repair kit	Trousse de réparation du régulateur de décompression
	0533918	0533918	0533918	0533918	0533918	Body connector O-ring kit (4 pieces)	O-Ring-Kit für Gehäuseanschluss (4 Stück)	Trousse du joint torique du connecteur du corps (4 pièces)

(GB) **High Pressure Filter**
(F) **Filtre à haute pression**

(D) **Hochdruckfilter**



Filter Assembly Specifications

Maximum Working Pressure..... 5000 psi (34.5 MPa) / 7500 psi (51.7 MPa)
Filter Area..... 18 in² (116 cm²)
Outlet Ports (1) 1/4" NPT(F) for bleed valve
(1) 3/8" NPT(F) with 1/4 NPSM(M) hose connection
(1) 3/8" NPT(F) plugged for additional gun hookup.
Wetted Parts..... Carbon steel with electroless nickel and cadmium plating, stainless steel, tungsten carbide, Teflon

Spezifikationen

Maximaler Arbeitsdruck..... 34,5 MPa (5000 psi) / 51,7 MPa (7500 PSI)
Filterbereich 116 cm² (18 in²)
Ablassöffungen (1) 1/4" NPT(F) für das Ablassventil
(1) 3/8" NPT(F) mit 1/4 NPSM(M) Schlauchverbindung
(1) 3/8" NPT(F) verschlossen, für zusätzliche Spritzpistolenanschluss.
Nassteile..... Stromloser vernickelter unlegierter Kohlenstoffstahl, Edelstahl, Wolframcarbid, Teflon

Caractéristiques

Pression de travail maximale 34,5 MPa (5000 psi) / 51,7 MPa (7500 PSI)
Surface du filtre 116 cm² (18 in²)
Orifices de sortie (1) 1/4" NPT(F) pour la soupape de décharge
(1) 3/8" NPT(F) avec raccord de tuyau 1/4 NPSM(M)
(1) 3/8" NPT(F) branché pour la connexion d'un pistolet supplémentaire.
Pièces mouillées Acier au carbone avec revêtement de nickel et cadmium autocatalytiques, acier inoxydable, carbure de tungstène, Teflon.

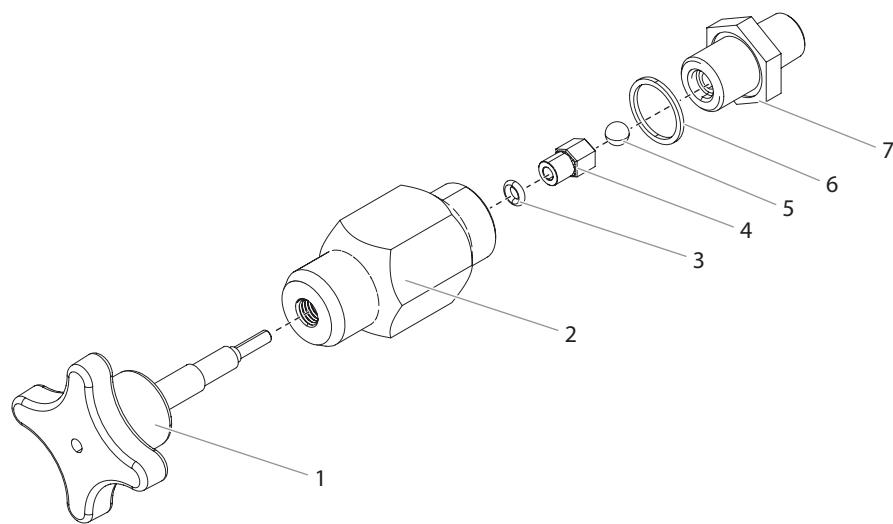
Pos.	Max 5000 PSI (34.5 MPa)			Max 7500 PSI (51.7 MPa)		(GB) Description	(D) Benennung	(F) Description
	730	745	940	960	975			
1	0290423A	0290423A	0290423A	920-930A	920-930A	Filter cap	Gehäusedeckel	Couvercle du corps
2	920-004	920-004	920-004	920-004	920-004	Filter element, 50 M	Filterpatrone, 50 Maschen	Cartouche de filtre 50 mailles
	-----	-----	920-005*	920-005*	920-005*	Filter element, 5 M	Filterpatrone, 5 Maschen	Cartouche de filtre 5 mailles
	-----	-----	920-007*	920-007*	920-007*	Filter element, 100 M	Filterpatrone, 100 Maschen	Cartouche de filtre 100 mailles
3	920-006	920-006	920-006	920-006	920-006	Gasket, Teflon (thick)	Dichtung dick	Joint épais
4	920-070	920-070	920-070	920-070	920-070	Gasket, Teflon (thin)	Dichtung dünn	Joint mince
5	808-555	808-555	808-555	808-555	808-555	Hex fitting, 3/8"	Sechskantschraube, 3/8"	Raccord hexagonal, 0,9 cm
6	227-033	227-033	227-033	-----	-----	Pipe plug (2)	Verschlusschraube (2)	Vis bouchon (2)
	-----	-----	-----	227-033	227-033	Pipe plug	Verschlusschraube	Vis bouchon
7	0290424A	0290424A	0290424A	920-931A	920-931A	Filter body	Gehäuse	Corps
8	227-027	227-027	227-027	-----	-----	Pipe plug	Verschlusschraube	Vis bouchon
9	920-103	920-103	920-103	920-103	920-103	Ball	Kugel	Bille

* Optional / Optional / Facultatif

(GB) Bleed Valve Assembly

(F) Assemblage de la soupape de décharge

(D) Ablassschlauchbaugruppe



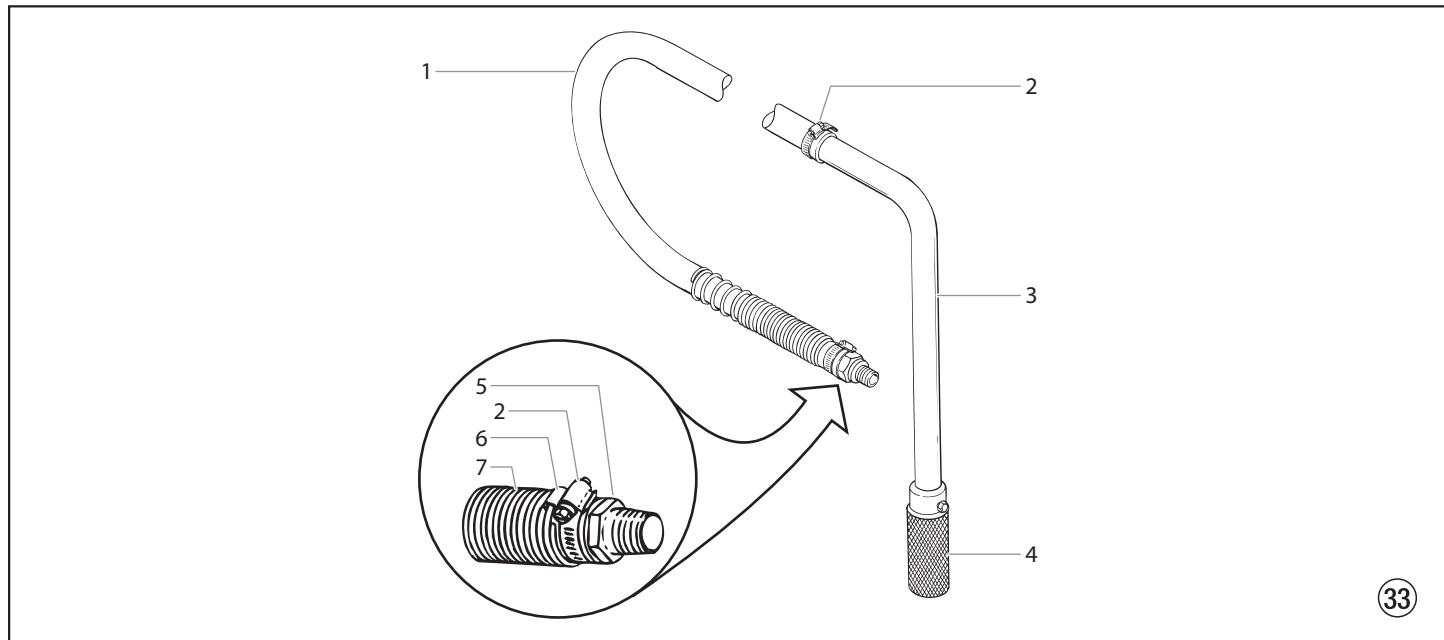
(32)

Pos.	730	745	940	960	975	(GB) Description	(D) Benennung	(F) Description
1	944-024	944-024	944-024	944-024	944-024	Knob	Knopf	Bouton
2	944-020	944-020	944-020	944-020	944-020	Valve housing	Ventilgehäuse	Logement de la soupape
3	944-004	944-004	944-004	944-004	944-004	O-ring	O-Ring	Joint torique
4	944-026	944-026	944-026	944-026	944-026	Valve stop	Ventilarretierung	Butée de soupape
5	761-715	761-715	761-715	761-715	761-715	Ball	Kugel	Bille
6	945-003	945-003	945-003	945-003	945-003	Gasket	Scheibe	Joint d'étanchéité
7	944-904	944-904	944-904	944-904	944-904	Valve seat	Ventilsitz	Siège de la soupape

(GB) Siphon Hose Assembly

(F) Assemblage du tuyau de siphon

(D) Syphonschlauchbaugruppe



33

Pos.	730C	745C	940C	960C	975C	(GB) Description	(D) Benennung	(F) Description
1	0533906	0533906	0533906	0533906	0533906	Hose	Schlauch	Tuyau
2	103-679	103-679	103-679	103-679	103-679	Hose clamp	Schlauchklemme	Collier du tuyau
3	0509763	0509763	0509763	0509763	0509763	Tube	Rohr	Tube
4	0509762A	0509762A	0509762A	0509762A	0509762A	Filter screen	Enlassieb	Grille d'entrée d'air
5	0509760	0509760	0509760	0509760	194-761	Adapter	Adapter	Adaptateur
6	103-119	103-119	103-119	103-119	103-119	Clip	Bügel	Agrafe
7	103-125	103-125	103-125	103-125	103-125	Spring	Feder	Ressort
	0533219	0533219	0533219	0533219	0533221	Siphon hose assembly (includes items 1-7)	Syphonschlauch- baugruppe (beinhaltet Teile 1-7)	Assemblage du tuyau de siphon (inclus les éléments 1-7)

Pos.	730W	745W	940W	960W	975W	(GB) Description	(D) Benennung	(F) Description
1	0533907	0533907	0533907	0533907	0533907	Hose	Schlauch	Tuyau
2	103-679	103-679	103-679	103-679	103-679	Hose clamp	Schlauchklemme	Collier du tuyau
3	103-585	103-585	103-585	103-585	103-585	Tube	Rohr	Tube
4	0509762A	0509762A	0509762A	0509762A	0509762A	Filter screen	Enlassieb	Grille d'entrée d'air
5	0509760	0509760	0509760	0509760	194-761	Adapter	Adapter	Adaptateur
6	103-119	103-119	103-119	103-119	103-119	Clip	Bügel	Agrafe
7	103-125	103-125	103-125	103-125	103-125	Spring	Feder	Ressort
	0533220	0533220	0533220	0533220	0533222	Siphon hose assembly (includes items 1-7)	Syphonschlauch- baugruppe (beinhaltet Teile 1-7)	Assemblage du tuyau de siphon (inclus les éléments 1-7)

Accessories for PowrCoat units Zubehör für PowrCoat-Geräte Accessoires pour groupes PowrCoat

#	(GB) Description	(D) Benennung	(F) Description
103-826	5 Gal. Siphon Hose Assembly w/Rock Catcher 1" x 4.5'	5 Gal. Saugschlauch w/Steinabschneider 1" x 4.5'	Assemblage du tuyau de siphon de 19 litres avec grille à roches de 2,5 cm x 1,4 m
103-808	55 Gal. Siphon Hose Assembly w/Rock Catcher 1" x 6'	55 Gal. Saugschlauch w/Steinabschneider 1" x 6'	Assemblage du tuyau de siphon de 208 litres avec grille à roches de 2,5 cm x 2 m
0509762A	Rock Catcher	Steinabschneider	Grille à roches
930-004	Paint Filter Element, 0 Mesh (for mastics)	Farbfilterelement, Maschenweite 0 für Mastik)	Élément filtrant, 0 mesh (pour les mastics)
930-005	Paint Filter Element, 5 Mesh (for multicolors and heavy materials)	Farbfilterelement, Maschenweite 5 (für Mehrfarben und schwere Materialien)	Élément filtrant, 5 mesh (pour les peintures multicolores et lourdes)
930-006	Paint Filter Element, 50 Mesh (for latex and normal architectural materials)	Farbfilterelement, Maschenweite 50 (für Latexfarbe und herkömmliche Architekturmaterialeien)	Élément filtrant, 50 mesh (pour les peintures au latex et les peintures bâtiment normales)
930-007	Paint Filter Elements, 100 Mesh (for stains, lacquers and fine materials)	Farbfilterelement, Maschenweite 100 (für Beize, Lacke und feine Materialien)	Élément filtrant, 100 mesh (pour les teintures, les vernis-laque et les produits légers)
550-110	S-5 and 1/4" Hose Kit	S-5 sowie 1/4" Schlauch-Kit	S-5 et trousse de tuyau de 0,6 cm
314-480	Piston Lube™	Piston Lube™	Piston Lube™
430-362	Coolflo™ Hydraulic Fluid, 1 Quart	Coolflo™ Hydraulikflüssigkeit, 1 Quart	Fluide hydraulique Coolflo™, 0,9 litre
430-361	Coolflo™ Hydraulic Fluid, 1 Gallon	Coolflo™ Hydraulikflüssigkeit, 1 Gallone	Fluide hydraulique Coolflo™, 3,8 litres
975-212	2-Gun Manifold with Ball Valves, 1/4"	2-fach Pistolenanschluss mit Kugelventilen, 1/4"	Collecteur à deux pistolets avec soupapes à bille, 0,6 cm
975-213	3-Gun Manifold with Ball Valves, 1/4"	3-fach Pistolenanschluss mit Kugelventilen, 1/4"	Collecteur à trois pistolets avec soupapes à bille, 0,6 cm
975-312	2-Gun Manifold with Ball Valves, 3/8"	2-fach Pistolenanschluss mit Kugelventilen, 3/8"	Collecteur à deux pistolets avec soupapes à bille, 1 cm
975-313	3-Gun Manifold with Ball Valves, 3/8"	3-fach Pistolenanschluss mit Kugelventilen, 3/8"	Collecteur à trois pistolets avec soupapes à bille, 1 cm
808-550A	3/8" NPS(M) x 3" hex fitting	3/8" Gewindeanschluss nach nationalem Standard (M) x 3" Sechskantschraube	NPS (mâle) de 1 cm x raccord hexagonal de 7,5 cm



Airless Tip Selection

Tips are selected by the orifice size and fan width. The proper selection is determined by the fan width required for a specific job and by the orifice size that will supply the desired amount of fluid and accomplish proper atomization.

For light viscosity fluids, smaller orifice tips generally are desired. For heavier viscosity materials, larger orifice tips are preferred. Please refer to the chart below.

Do not exceed the sprayer's recommended tip size.

The following chart indicates the most common sizes and the appropriate materials to be sprayed.

Tip Size	Spray Material	Filter Type
.011 - .013	Lacquers and stains	100 mesh filter
.015 - .019	Oil and latex	60 mesh filter
.021 - .026	Heavy bodied latex and blockfillers	30 mesh filter

Fan widths measuring 8" to 12" (20 to 30 cm) are preferred because they offer more control while spraying and are less likely to plug.



Auswahl an Airless Düsen

Die Düsen werden je nach Düsendurchmesser und Strahlbreite ausgewählt. Die Auswahl hängt von der Strahlbreite ab, die für eine spezielle Arbeit erforderlich ist sowie von der Düsendurchmesser, die die gewünschte Menge an Flüssigkeit aufträgt und für eine korrekte Zerstäubung sorgt.

Für Flüssigkeiten mit leichter Viskosität werden in der Regel Düsen mit kleinerem Düsendurchmesser eingesetzt. Für Materialien mit schwererer Viskosität werden größere Düsendurchmesser bevorzugt. Beachten Sie diesbezüglich die untere Tabelle.



Verwenden Sie für das Sprühgerät keine Düsenöffnungsgrößen, die größer als empfohlen sind.

Aus der folgenden Tabelle können Sie die üblichen Größen und die geeigneten Materialien, die aufgesprüht werden können, entnehmen.

Düsendurchmesser	Spritzmaterial	Filtertyp
.011 - .013	Lacke und Farbe	100 Maschen
.015 - .019	Öl und Latex	60 Maschen
.021 - .026	Dickflüssiges Latex und Blockfüller	30 Maschen

Strahlbreiten von 8" bis 12" (20 bis 30 cm) sind zu bevorzugen, weil sie beim Sprühen besser kontrolliert werden können und seltener verstopfen.



Choix des embouts à dépression

Le choix des embouts est fonction de la taille de l'orifice et de la largeur du ventilateur. La largeur du ventilateur requise pour une tâche particulière ainsi que la taille de l'orifice permettant de projeter la quantité de produit souhaitée avec l'atomisation requise déterminent le meilleur choix.

En présence de liquides moins visqueux, les embouts munis d'un orifice plus petit sont recommandés. Pour les produits plus épais, les embouts munis d'un orifice plus gros seront préférés. Se reporter au tableau ci-dessous.



Ne pas utiliser un embout de taille supérieure à celle recommandée pour le vaporisateur.

Le tableau suivant indique les embouts les plus utilisés ainsi que le produit à vaporiser en fonction de chaque embout.

Taille de l'embout	Produit vaporisé	Type de filtre
.011 - .013	Laques et teintures	100 mailles
.015 - .019	Peintures à huile et au latex	60 mailles
.021 - .026	Peintures épaisses au latex et matériaux de remplissage	30 mailles

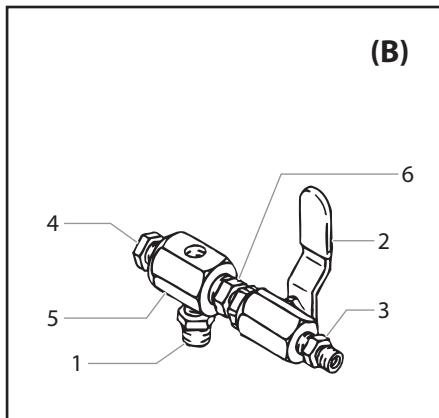
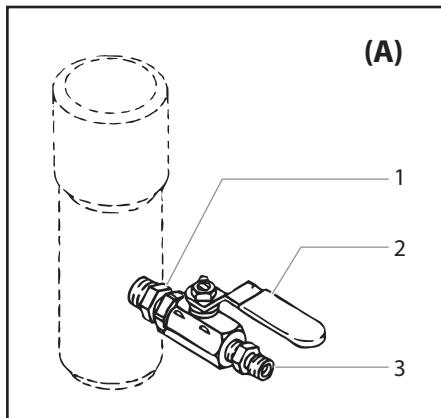
Les ventilateurs d'une largeur de 20 à 30 cm (8 à 12 pouces) seront préférés du fait qu'ils permettent une plus grande maîtrise et risquent moins de s'obstruer.

(GB) Gun Manifold Assemblies (Optional)

(F) Ensembles de collecteur de pistolet (facultatifs)

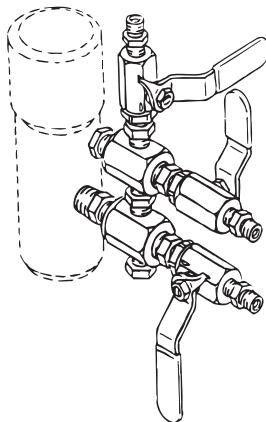
Single Gun • Einfache Pistole • Pistolet simple

**1-Gun add-on
1-Pistolenerweiterung
Pistolet simple additionnel**



Pos.	#	(GB) Benennung	(D) Benennung	(F) Description	(A)		(B)	
					975-111 (1/4" / 6,35 mm)	975-311 (3/8" / 9,53 mm)	975-200 (1/4" / 6,35 mm)	975-300 (3/8" / 9,53 mm)
1	814-002	Nipple, hex	Sechskantnippel	Raccord hexagonal	1		1	
	814-004	Nipple, hex	Sechskantnippel	Raccord hexagonal		1		1
2	940-553	Ball valve	Ballventil	Souape à bille	1		1	
	941-555	Ball valve	Ballventil	Souape à bille		1		1
3	227-006	Nipple, hex	Sechskantnippel	Raccord hexagonal	1		1	
	808-555	Nipple, hex	Sechskantnippel	Raccord hexagonal		1		1
4	227-033	Pipe plug	Rohrstöpsel	Bouchon fileté			1	1
5	970-100	Block, manifold	Block, Düsenkanal	Bloc, collecteur			1	1
6	814-004	Nipple, hex	Sechskantnippel	Raccord hexagonal			1	1

Multiple Gun • Mehrfachpistole • Pistolet multiple



**3-Gun manifold assembly
Pistole mit 3-fach Anschluss
Ensemble du collecteur à trois pistolets**

#	Benennung Description Description	975-212 2-Gun (1/4" / 6,35 mm)	975-213 3-Gun (1/4" / 6,35 mm)	975-214 4-Gun (1/4" / 6,35 mm)	975-312 2-Gun (3/8" / 9,53 mm)	975-313 3-Gun (3/8" / 9,53 mm)	975-314 4-Gun (3/8" / 9,53 mm)
975-111	A (1/4", 6,35 mm)	1	1	1			
975-311	A (3/8", 9,53 mm)				1	1	1
975-200	B (1/4", 6,35 mm)	1	2	3			
975-300	B (3/8", 9,53 mm)				1	2	3



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