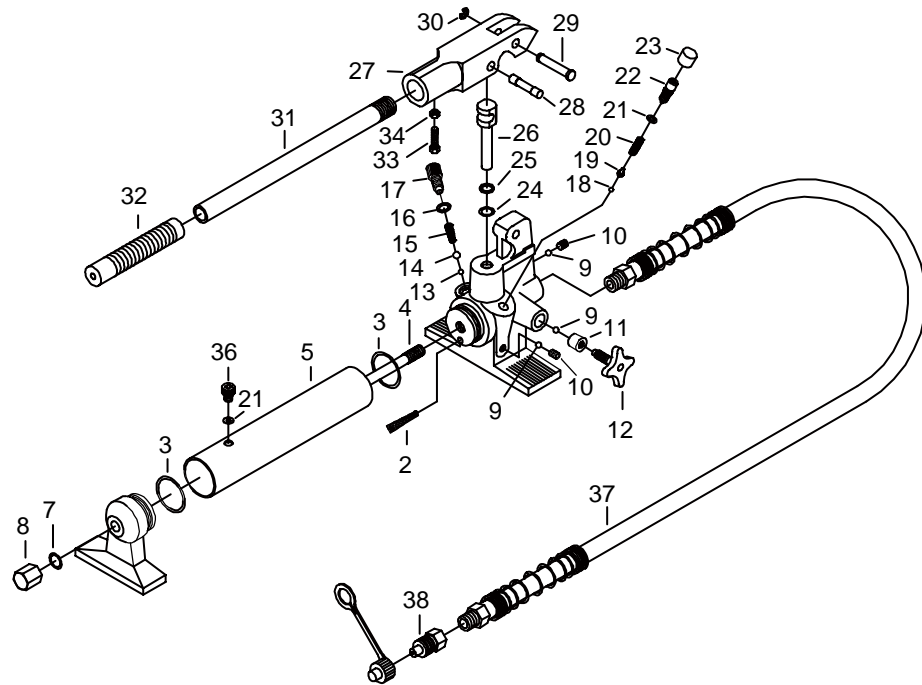


**Parts List &  
 Operating Instructions**

for:

**9106A  
 9107A**

**Single-Speed  
 Hydraulic Hand Pump**



**Parts List**

Item No.	Qty.	Description	Item No.	Qty.	Description
2	1	Oil Filter	21	2	O-ring
3	2	O-ring	22	1	Overload Cover Screw
4	1	Screw	23	1	Cap
5	1	Reservoir	24	1	O-ring
7	1	O-ring	25	1	Back-up Ring
8	1	Nipple	26	1	Piston
9	3	Check Ball	27	1	Yoke
10	2	Set Screw	28	1	Piston Pin
11	1	O-ring	29	1	Yoke Pin
12	1	Release Valve	30	1	Retaining Ring
13	1	Check Ball	31	1	Handle
14	1	Check Ball	32	1	Handle Grip
15	1	Spring	33	1	Screw
16	1	Washer	34	1	Nut
17	1	Valve Cover Screw	36	1	Air Release Screw
18	1	Check Ball	37	1	Hose
19	1	Spring End Cap	38	1	Coupler
20	1	Spring			

## Repair Kits for 9106A and 9107A

Item No.	Qty.	Description
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**Air Release Screw Kit No. 521603 includes:**

21	1	O-ring
36	1	Air Release Screw

**Handle Kit No. 521598 (9106A) or  
No. 521610 (9107A) includes:**

31	1	Handle
32	1	Handle Grip

**Handle Pivot Kit No. 521604 includes:**

27	1	Yoke
28	1	Piston Pin
29	1	Yoke Pin
30	1	Retaining Ring

**Handle Stop Bolt Kit No. 521599 includes:**

33	1	Screw
34	1	Nut

**Hardware Kit No. 521605 includes:**

9	2	Check Ball
10	2	Set Screw
13	1	Check Ball
14	1	Check Ball
15	1	Spring
16	1	Washer
17	1	Valve Cover Screw
18	1	Check Ball
19	1	Spring End Cap
20	1	Spring
21	1	O-ring
22	1	Overload Cover Screw
23	1	Cap

**Hose Half Coupler Kit No. 504888 includes:**

38	1	Coupler
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**Hose Kit No. 222618 includes:**

37	1	Hose
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Item No.	Qty.	Description
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**Piston Kit No. 521600 includes:**

24	1	O-ring
25	1	Back-up Ring
26	1	Piston

**Release Screw Kit No. 521601 includes:**

9	1	Check Ball
11	1	O-ring
12	1	Release Valve

**Reservoir Kit No. 521602 (9106A) or  
No. 521611 (9107A) includes:**

2	1	Oil Filter
3	2	O-ring
4	1	Screw
5	1	Reservoir
7	1	O-ring
8	1	Nipple
21	1	O-ring
36	1	Air Release Screw

**Seal Kit No. 222623 (9106A) or  
No. 222622 (9107A) includes:**

2	1	Oil Filter
3	2	O-ring
7	1	O-ring
11	1	O-ring
16	1	Washer
21	2	O-ring
24	1	O-ring
25	1	Back-up Ring

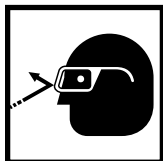
## Safety Precautions



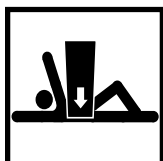
**WARNINGS:** To prevent personal injury,



- Read and understand all safety precautions and operating instructions before using this pump. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator's native language.



- Only qualified operators should install, operate, adjust, maintain, clean, repair, or transport this machinery.



- Wear eye protection that meets ANSI Z87.1 and OSHA standards.
- These components are designed for general use in normal environments. These components are not specifically designed for lifting and moving people, agri-food machinery, certain types of mobile machinery, or special work environments such as: explosive, flammable, or corrosive. Only the user can decide the suitability of this machinery in these conditions or extreme environments. SPX will supply information as necessary to help make these decisions.

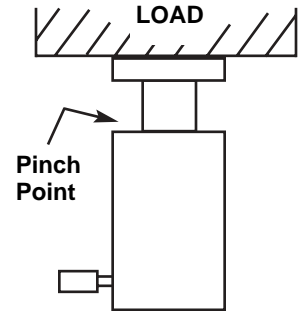


- Avoid off-center loads that could damage the cylinder or ram and/or cause loss of load, possibly causing serious injury or death. Control the load at all times to prevent shearing the threads and loss of load. Ensure that everyone is clear of the load.

- Before operating the pump, tighten all hose connections. Do not overtighten. Connections need only be tightened securely and leak-free. Overtightening can cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.
- Should a hydraulic hose rupture, burst, or become disconnected, immediately shut off the pump and turn the release valve knob counterclockwise to release all pressure. Never grasp a leaking pressurized hose with your hands. The force of escaping fluid could cause serious injury.
- Periodically inspect the hose for wear. Do not subject the hose to potential hazards such as fire, sharp surfaces, extreme heat or cold, or heavy impact. Do not allow the hose to kink, twist, curl, crush, cut, or bend so tightly that the fluid flow within the hose is blocked or reduced. These conditions could damage the hose, which could result in personal injury.
- To prevent deterioration, hoses must not come in contact with corrosive materials, such as creosote-impregnated objects and some paints. Hose deterioration can result in personal injury. Consult the manufacturer before painting a hose. Never paint a coupler.
- Do not use the hose to move attached equipment. Stress can damage the hose and possibly cause personal injury.
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Use only approved hydraulic fluid.
- All components in the hydraulic system must match the maximum pressure rating of the pump.
- To prevent expelling high pressure oil into the atmosphere, do not extend the cylinder beyond the suggested maximum stroke. If this does occur, seals must be replaced.
- Do not exceed the rated capacity of the cylinder. Excess pressure can result in personal injury.

## Safety Precautions contd.

- Inspect each cylinder and coupler before each use to prevent unsafe conditions from developing. Do not use cylinders if they are damaged, altered, or in poor condition. Do not use cylinders with bent or damaged couplers, or damaged port threads.
- Before adding hydraulic fluid, retract the system to prevent overfilling the pump reservoir. An overfill may cause personal injury due to excess reservoir pressure created when cylinders are retracted.
- Avoid pinch points or crush points that can be created by the load or parts of the cylinder.



This guide cannot cover every hazard or situation—use the pump keeping SAFETY FIRST in mind.

## Set-Up

### Hydraulic Connections

**IMPORTANT:** Seal all hydraulic connections with a high grade, nonhardening thread sealant. Teflon tape may be used — if only one layer of tape is used and it is applied carefully (two threads back) to prevent the tape from being pinched by the coupler and broken off inside the pipe end. Loose pieces of tape could travel through the system and obstruct the flow of fluid or cause jamming of precision-fit parts. ®

1. Use a household ammonia cleaner to clean all areas around the fluid ports of the pump and cylinder. Clean all hose ends, couplers, and union ends.

**Note:** Keep the cylinder clean at all times. When the cylinder is not in use, keep the piston rod fully retracted and upside down. Use protective covers on disconnected quick couplers. Limit the stroke on spring return cylinders to prolong spring life.

2. Remove thread protectors from the hydraulic fluid outlets, and connect the hose assembly.
3. Couple the hose to the cylinder.
4. The use of a hydraulic pressure or tonnage gauge (not included) is strongly recommended. Remove the pipe plug from the gauge port of the valve, thread the gauge into this port, and seal with a high grade, nonhardening thread sealant or Teflon tape.

**⚠ WARNING:**



- The gauge must have the same pressure rating as the pump and cylinder. Personal injury can result if the wrong gauge is used.
- Turn the release valve knob counterclockwise to release all pressure BEFORE removing or tightening hose couplings.

**Preventive Maintenance**

Follow these maintenance tips to keep your equipment in its best working condition.

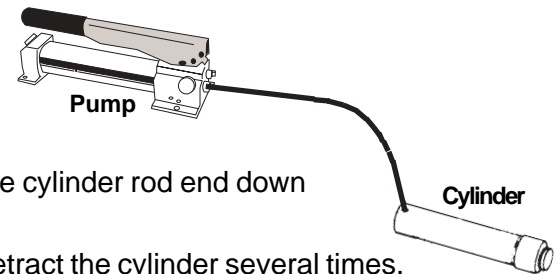
**IMPORTANT: Any repair or servicing that requires dismantling the pump must be performed in a dirt-free environment by a qualified technician.**

- Keep the hydraulic system, including hose connections and equipment attached to the cylinder, as free from dirt and grime as possible. Seal all unused couplers with dust covers.
- Apply lubricant regularly to all pivot and rubbing points. Use a good grade of No. 10 motor oil or grease. Do not use dry lubricants.

**Bleeding Air From The System**

Air can accumulate in the hydraulic system during the initial set-up, or after prolonged use, causing the cylinder to respond slowly or in an unstable manner. To remove the air:

1. Position the cylinder at a lower level than the pump, and turn the cylinder rod end down (see diagram).
2. With no load on the system and the pump vented, extend and retract the cylinder several times. Air will be released into the pump reservoir. Follow the fluid level instructions for your reservoir type to release the air from the reservoir and top off the fluid supply.

**Hydraulic Fluid Level**

**⚠ WARNING: Cylinder(s) must be fully retracted before checking the fluid level. Turn the release valve knob counterclockwise to release all pressure before breaking any hydraulic connection in the system.**

Check the hydraulic fluid level in the reservoir periodically. Use a funnel with a filter to add hydraulic fluid if needed.

1. Place the pump on a flat surface.
2. Remove filler plug No. 36 (see parts list).
3. The hydraulic fluid should be visible in the cylinder above screw No. 4 (see parts list). Do not overfill.

## Troubleshooting Guide

**IMPORTANT:** The following troubleshooting and repair procedures should be performed by qualified personnel familiar with this equipment using the correct tools.

**NOTE:** All the following statements may not apply to your particular model. Use the guide as a general reference for troubleshooting.

Trouble	Cause	Solution
<b>Pump losing pressure</b>	<ol style="list-style-type: none"> <li>1. System components leaking.</li> <li>2. Directional control valve leaks or not adjusted correctly.</li> <li>3. Fluid leaking past outlet check seat(s)</li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Repair or replace as necessary.</i></li> <li>2. * <i>Reseat, repair, or replace directional control assembly and correctly adjust.</i></li> <li>3. * <i>Check for dirt. Reseat pump body and/or replace poppet(s) or ball(s).</i></li> </ol>
<b>Handle rises after each stroke</b>	<ol style="list-style-type: none"> <li>1. Fluid leaking past outlet check seat(s).</li> </ol>	<ol style="list-style-type: none"> <li>1. * <i>Check for dirt. Reseat pump body and/or replace poppet(s) or ball(s).</i></li> </ol>
<b>Pump not delivering fluid</b>	<ol style="list-style-type: none"> <li>1. Low fluid level in reservoir.</li> <li>2. Intake filter is dirty.</li> <li>3. Seats worn and not seating correctly.</li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Check fluid level per instructions.</i></li> <li>2. <i>Remove reservoir and clean filter.</i></li> <li>3. * <i>Repair seats or replace pump body.</i></li> </ol>
<b>Pump does not reach full pressure</b>	<ol style="list-style-type: none"> <li>1. Low fluid level in reservoir.</li> <li>2. System components leaking.</li> <li>3. Directional control valve leaks or not adjusted correctly.</li> <li>4. Incorrectly adjusted relief valve.</li> <li>5. Fluid leaking past inlet or outlet checks, or high pressure piston seal damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Check fluid level per instructions.</i></li> <li>2. <i>Repair or replace as necessary.</i></li> <li>3. * <i>Reseat, repair, or replace directional control assembly and correctly adjust.</i></li> <li>4. * <i>Readjust.</i></li> <li>5. * <i>Reseat or repair inlet or outlet checks, or replace high pressure piston seal.</i></li> </ol>
<b>Pump handle can be pushed down (slowly) without raising the load</b>	<ol style="list-style-type: none"> <li>1. Inlet checks are not seating.</li> <li>2. Damaged piston assembly or piston seals leaking.</li> </ol>	<ol style="list-style-type: none"> <li>1. * <i>Check for dirt and/or reseat valve seats.</i></li> <li>2. * <i>Replace piston assembly and/or piston seals.</i></li> </ol>
<b>Pump handle operates with a spongy action</b>	<ol style="list-style-type: none"> <li>1. Air trapped in system.</li> <li>2. Too much fluid in reservoir.</li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Position cylinder lower than pump. Extend and return cylinder several times. Follow bleeding instructions.</i></li> <li>2. <i>Check fluid level per instructions.</i></li> </ol>

\* SPX recommends these hand pump repairs be performed by an Authorized Hydraulic Service Center. Locate the Service Center nearest you on the SPX web site: [www.otctools.com](http://www.otctools.com).