



# MA1578111AA.1

**ITEM NUMBERS:**

A1573701, A1577541, A1578111, A1578131,  
A1578151, A1578203, A1578173, A157711,  
A157712, A157594, A1577110, A15782030,  
A157121, A157123, A157124, A157130,  
A1578171, A1578181, A1578201

# Owner's Manual

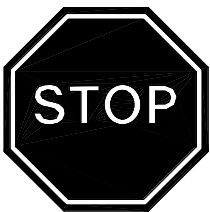
## Pressure Washer Pump: For high pressure cleaning machines.



### ⚠ WARNING

**Read this manual.**

Serious injury or death can result if safety instructions are not followed.



**Pump is shipped with oil.**

**Must check oil level before use.**

- Remove shipping plug and install vented fill cap. (Comet Pumps)
- Remove shipping tape and black vent plug (if present) from oil fill cap. (Cat Pumps)
- Remove shipping plug and install dipstick. (General Pumps)
- Remove shipping plug and install dipstick. (NorthStar Pumps)
- Remove shipping plug and install vented fill cap. (Powerhorse Pumps)
- See pump oil cap section of this manual.

**Closely inspect all components.**

- If you have damaged components then: Contact the freight company that delivered the unit and file a claim.
- If you have missing components then: Contact Customer Service at 1-800-270-0810.

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**Any Questions, Comments, Problems or Parts Orders**  
***Call NorthStar Product Support 1-800-270-0810***

## Hazard Signal Word Definitions






	<p>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</p>
	<p>DANGER (red) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</p>
	<p>WARNING (orange) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>CAUTION (yellow) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</p>
	<p>CAUTION (yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.</p>

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## Table of Contents

Important Safety Rules .....	4, 5
Pump Oil Cap and Pump Component Identification...	6
Operation Instructions .....	7-9
Water Supply.....	7
Start-Up/Shut-Down Instructions.....	8
Applying Chemicals. ....	9
Maintenance and Storage.....	10-12
Maintenance Mode and Maintenance Schedule...	10
Pump Oil Change.....	11
Long Term Storage.....	12
Winter Storage.....	12
Troubleshooting .....	13
Specifications .....	14
Parts Explosions .....	15
Pump Explosions .....	17-50
Limited Warranty.....	51

# Important Safety Rules


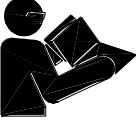




 <b>WARNING</b>	
	<p><b>1.) Read owner's manual completely.</b>            Serious injury or death can result if safety instructions are not followed. You must be 16 or older to operate this machine. Keep untrained people away.</p>
	<p><b>2.) Skin puncture hazard.</b>            High pressure fluid can inject under skin resulting in serious injury including amputation. Do not direct spray at people or animals.            -If skin injection happens, seek IMMEDIATE surgical treatment.            -Do not check for leaks with hand. Instead, use a piece of cardboard to check for leaks.            -Do not use unit if exterior hose damage is evident. Make sure all fittings are tight before starting. Relieve system pressure before servicing.            -Know how to stop engine and bleed pressures quickly. Be thoroughly familiar with the controls.            -Make sure accessories meet the unit's temperature and pressure limits.            -Stop engine, bleed pressure, and engage spray gun safety lock before leaving unit unattended.</p>
  	<p><b>3.) Risk of fire and explosion.</b>            Hot exhaust fumes from engine can cause fire. Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.            -Position muffler at least 7 feet from combustible objects.            -Before adding fuel, stop the engine and keep heat, sparks, and flame away. Do not add fuel when engine is running or still hot. No smoking near engine.            -Do not pump fuel directly into engine at gas station. Static charge can build and ignite fuel. Use a UL approved fuel container to transfer gas to the engine. Wipe up fuel spills immediately.            -Only store and handle fuel outdoors. Gasoline vapors can ignite if they collect inside an enclosure. Explosion can result.            -Do not change or add to exhaust system. Fire can result.            -Do not change or add fuel tanks or fuel lines. Fire can result.            -Before each use, check fuel tank and fuel lines for leaks. Any fuel leak is a fire hazard. Fix any fuel leaks before starting engine.            -During transportation take precautions to make sure pressure washer will not tip over and cause a fuel leak fire hazard.</p>
	<p><b>4.) Poisonous gas.</b>            This machine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it.            -ONLY run machine outdoors and away from air intakes.            -NEVER run machine inside homes, garages, sheds, or other semi-enclosed spaces. These spaces can trap poisonous gases, EVEN IF you run a fan or open doors and windows.            If you start to feel sick, dizzy, or weak while using this machine, shut it off and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.</p>

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**Save These Instructions**

## Important Safety Rules



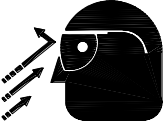


<b>⚠️ WARNING</b>	
	<p><b>5.) Risk of exposure to dangerous chemicals.</b></p> <p>Serious injury or death can result if chemical manufacturer instructions are not followed.</p> <ul style="list-style-type: none"> <li>-Wear protective gloves when handling and cleaning with chemicals.</li> <li>-Understand all safety hazards and first aid for all chemicals being used.</li> <li>-When cleaning filters, check if chemicals have been used and take any precautions that are recommended by the chemical manufacturer.</li> <li>-Different chemicals may interact dangerously with each other, always follow chemical manufacturer directions before switching chemicals.</li> <li>-Calculate the correct amount of chemical to mix, dispose of excess chemical per the manufacturer instructions.</li> <li>-Never spray flammable liquids.</li> </ul>
	<p><b>6.) Risk of electrocution.</b></p> <p>Electricity can kill you. Keep water away from electrical outlets and electrical devices.</p>
	<p><b>7.) Flying objects.</b></p> <p>Small particles may fly out while spraying. Wear safety glasses. Serious eye injury can occur.</p> <p>Make sure nozzle is secure before squeezing trigger. If nozzle is not secure it will become a projectile.</p>
	<p><b>8.) Fall hazard.</b></p> <p>Pressure washer creates puddles and slippery surfaces. Keep good footing and balance. Serious injury can occur.</p> <ul style="list-style-type: none"> <li>-Wear footwear capable of maintaining a good grip on wet surfaces.</li> <li>-Gun kicks back. Hold with both hands.</li> <li>-Do not overreach or stand on unstable supports.</li> <li>-Do not stand on ladders or scaffolding.</li> <li>-Do not place pressure washer on soft or unstable ground.</li> </ul>
<b>⚠️ CAUTION</b>	
	<p><b>1.) Hot muffler.</b></p> <p>You can be burned by muffler. Do not touch.</p>

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# Pump Oil Cap and Pump Component Identification

<p>A157711 &amp; A1577110</p> <p>chemical injector water outlet water inlet pressure adjustment shipping plug (install vented fill cap*)</p>	<p>A1577541</p> <p>shipping plug (install vented fill cap*) chemical injector water outlet water inlet</p>	<p>A157114</p> <p>pressure adjustment water inlet water outlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>
<p>A157115</p> <p>pressure adjustment shipping plug (install vented fill cap*) water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>	<p>A1578173</p> <p>shipping plug (install vented dipstick*) pressure adjustment water outlet water inlet chemical injector</p>	<p>A1573701</p> <p>pressure adjustment water outlet water inlet chemical injector shipping plug (install vented dipstick*)</p>
<p>A1578131 &amp; A1578111</p> <p>shipping plug (install vented fill cap*) pressure adjustment water outlet water inlet chemical injector</p>	<p>A157117</p> <p>shipping plug (install vented dipstick*) pressure adjustment water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>	<p>A1578181 &amp; A157124</p> <p>pressure adjustment chemical injector water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>
<p>A157712</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water inlet water outlet</p>	<p>A1578151</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water outlet water inlet</p>	<p>A1578203</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water outlet water inlet</p>
<p>A157121</p> <p>pressure adjustment shipping plug (install vented dipstick*) chemical injector water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>	<p>A15782030</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water outlet water inlet</p>	<p>A157594</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>
<p>A1578201 &amp; A157127</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>	<p>A157130</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p>	<p>A157123/ A1578171</p> <p>shipping plug (install vented dipstick*) pressure adjustment chemical injector water outlet water inlet</p> <p>remove shipping tape and black vent plug (if present) from oil fill cap</p> <p>FIG06867</p>

\*Note: Discard shipping plug and o-ring.

# Operation Instructions

## Water Supply

- 1.) Make sure the water supply is clean. Debris can cause excess pump wear and reduce performance.
- 2.) An insufficient water supply will damage your pump. Make sure the water supply is steady and is 20% over the rated flow of your pump. Use a stopwatch to time how long it takes to fill a 5-gallon bucket with your garden hose. The bucket must fill faster than the times listed in the table below.

<b>Model</b>	<b>Time to fill 5-gallon bucket</b>
A157711	100 seconds
A1577541	100 seconds
A1578111	100 seconds
A1578173	100 seconds
A1573701	84 seconds
A1578131	84 seconds
A157712	63 seconds
A1578151	72 seconds
A1578171	100 seconds
A1578181	84 seconds
A1578203	72 seconds
A157594	63 seconds
A1577110	100 seconds
A15782030	50 seconds
A1578201	72 seconds
A157121	100 seconds
A157123	100 seconds
A157124	84 seconds
A157130	50 seconds

- 3.) The water supply garden hose must have an inside diameter of at least 5/8". If the hose is more than 100 ft. long, the diameter must be at least 3/4".
- 4.) Never use a reservoir tank as a water source. Drawing water out of a tank may cause pump cavitation and damage to your pump. This pressure washer is designed for a pressurized water source such as a city water faucet. However, the water source pressure must not exceed 115 psi (8 bar).
- 5.) Always use a flexible rubber hose for your water supply. Do not use rigid piping.
- 6.) Always keep a fire extinguisher rated "ABC" nearby.

# Operation Instructions

## Start-Up Instructions

1. Attach garden hose to water inlet.
2. Attach pressure hose to water outlet and gun.
3. Attach spray gun to lance.
4. Turn water supply ON.
5. Squeeze trigger to purge air from pump.
6. Insert nozzle.
7. Start engine.

## Shut-Down Instructions

1. Turn engine OFF.
2. Turn water supply OFF.
3. Squeeze trigger to relieve system pressure.
4. Remove garden hose.
5. Remove pressure hose.
6. Turn fuel valve OFF (if equipped).

## **WARNING**



### **Skin puncture hazard.**

High pressure fluid can inject under skin resulting in serious injury including amputation. Do not direct spray at people or animals.

-If skin injection happens, seek IMMEDIATE surgical treatment.

-Do not check for leaks with hand. Instead, use a piece of cardboard to check for leaks.

-Do not use unit if exterior hose damage is evident. Make sure all fittings are tight before starting. Relieve system pressure before servicing.

-Know how to stop engine and bleed pressures quickly. Be thoroughly familiar with the controls.

-Make sure accessories meet the unit's temperature and pressure limits.

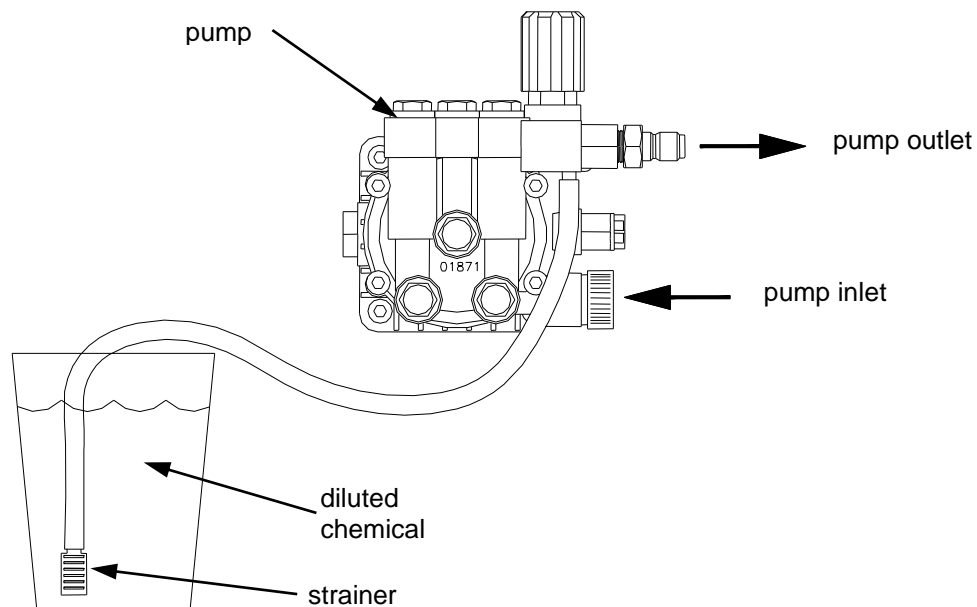
-Stop engine and bleed pressures before leaving unit unattended.

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# Operation Instructions

## Applying Chemicals

- 1.) Install the black nozzle to spray chemicals onto the cleaning surface.
- 2.) Start the pressure washer according to the start-up instructions.
- 3.) Submerge the chemical hose in cleaning solution.
- 4.) Squeeze the spray gun trigger. The chemical injector will draw the chemical into the water stream.
- 5.) Apply chemicals evenly onto the cleaning surface. Allow the chemicals to react with the dirt, then clean at high pressure with green nozzle.
- 6.) Never use more chemical than is necessary to clean the surface.
- 7.) To clean the chemical injector, draw water through the strainer until all the chemical is purged from the system.



## **⚠️ WARNING**

### **Risk of exposure to dangerous chemicals.**

Serious injury or death can result if chemical manufacturer instructions are not followed.

- Wear protective gloves when handling and cleaning with chemicals.
- Understand all safety hazards and first aid for all chemicals being used.
- When cleaning filters, check if chemicals have been used and take any precautions that are recommended by the chemical manufacturer.
- Different chemicals may interact dangerously with each other, always follow chemical manufacturer directions before switching chemicals.
- Calculate the correct amount of chemical to mix, dispose of excess chemical per the manufacturer instructions.
- Never spray flammable liquids.



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# Maintenance and Storage

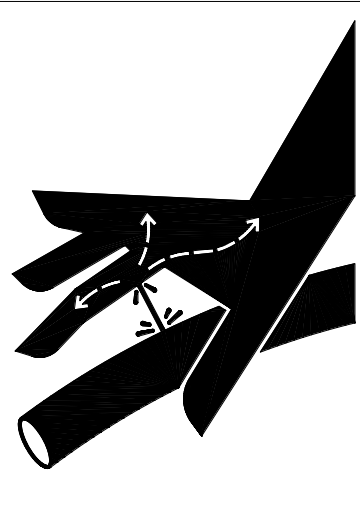
## Maintenance Mode

Before performing any maintenance on the pressure washer, it must be placed in maintenance mode.

- 1.) Turn off engine.
- 2.) Turn off water supply.
- 3.) Squeeze trigger to relieve system pressure.
- 4.) Shut off fuel valve.
- 5.) Unplug spark plug wire from spark plug, (see engine owners' manual).

## Maintenance Schedule

What to Check	When to Check	What to Do
Inlet Filter	Each Use	Visually inspect and clean inlet filter with clear water.
Pressure Hose	Each Use	Visually inspect pressure hose and hose couplings. Replace hose if any of the following is evident: hose coupling is damaged, wire mesh is exposed or damaged, hose is permanently kinked or flattened, outer hose cover is blistered or loose.
Bolts	Each Use	Tighten any loose bolts.
Engine Oil	See engine manual	See engine manual for oil change instructions
Pump Oil	After 1 <sup>st</sup> 50hrs, then 3mo/500hr	Change pump oil. See pump oil change instructions on next page.



## ⚠ WARNING

### Skin injection hazard.

High pressure fluid can inject under skin resulting in serious injury including amputation.

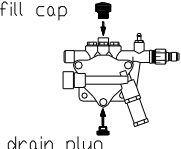
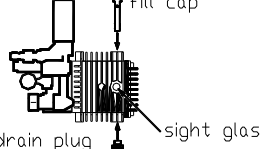
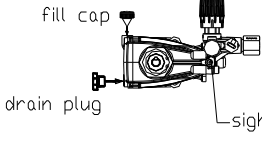
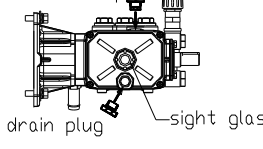
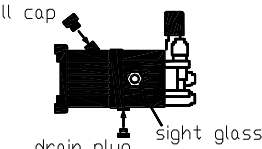
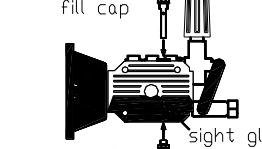
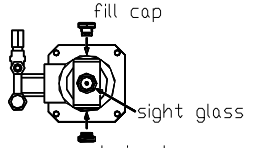
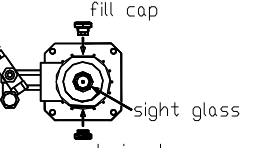
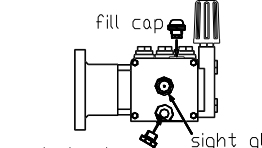
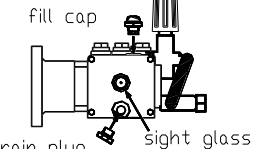
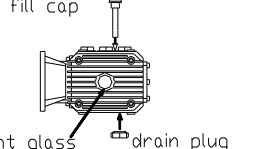
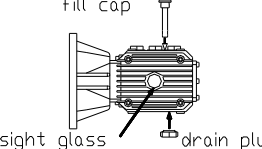
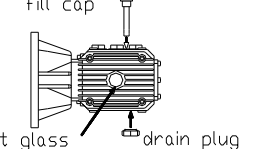
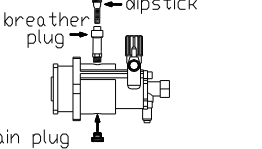
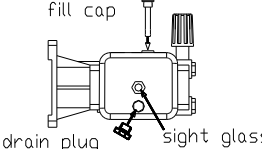
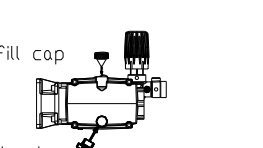
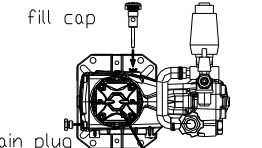
- Make sure all fittings are tight before applying pressure. Relieve system pressure before servicing.
- Do not check for leaks with hand. Instead, use a piece of cardboard to check for leaks.
- If skin injection happens, seek immediate "Surgical Treatment".

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# Maintenance and Storage

## Pump Oil Change

- 1.) Place a suitable container below the pump to catch used oil, then remove the oil fill cap and oil drain plug.
- 2.) Allow the used oil to drain completely, then reinstall the drain plug and tighten securely.
- 3.) Please dispose of used oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash, pour it on the ground or down the drain.
- 4.) With the pump in a level position, fill to the halfway point on the oil sight glass (see pump oil capacities below). For Comet or NorthStar pumps use Universal Tractor Transmission Oil or Mobil1 synthetic oil (15W50). For Cat pumps use SAE30 non-detergent oil or Cat Pump Oil Item# 22158. For General Pumps use SAE30 non-detergent oil. For Powerhorse pumps, use SAE30 non-detergent.

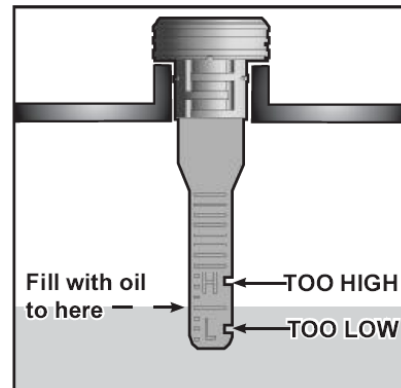
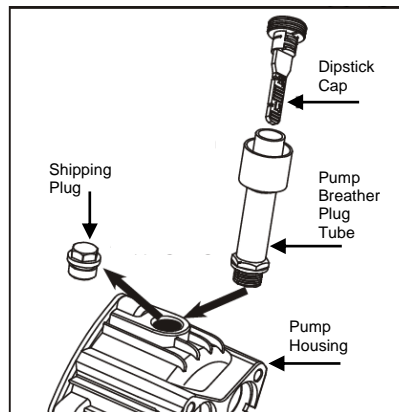
<p>A1577541</p>  <p>fill cap</p> <p>drain plug</p> <p>Oil capacity: 3.4 oz. (.10 L)</p>	<p>A1573701</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 11 oz. (.33 L)</p>	<p>A157114</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 4.3 oz. (.13L)</p>
<p>A157115 &amp; A157117</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 22.6 oz. (.62L)</p>	<p>A1578131 &amp; A1578111</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 5.7 oz. (.17L)</p>	<p>A1578151</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 10.3 oz. (.30L)</p>
<p>A157123 &amp; A1578171</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 8.5 oz. (.25L)</p>	<p>A1578181 &amp; A157124</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 10.2 oz. (.30L)</p>	<p>A1578201 &amp; A157127</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 22.6 oz. (.62L)</p>
<p>A157594</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 22.6 oz. (.62L)</p>	<p>A1578173</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 11 oz. (.32L)</p>	<p>A1578203</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 10.3 oz. (.30L)</p>
<p>A15782030</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 19 oz. (.56L)</p>	<p>A157711 &amp; A1577110</p>  <p>fill cap</p> <p>drain plug</p> <p>breather plug</p> <p>dipstick</p> <p>Oil capacity: 5 oz. (.15L)</p>	<p>A157712</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 20.3 oz. (.60L)</p>
<p>A157121</p>  <p>fill cap</p> <p>drain plug</p> <p>Oil capacity: 4.3 oz. (.13L)</p>	<p>A157130</p>  <p>fill cap</p> <p>drain plug</p> <p>sight glass</p> <p>Oil capacity: 16.9 oz. (.50L)</p>	

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# Maintenance and Storage

## Checking Oil Level for A157711 & A1577110

- 1.) Turn off engine, allow it to cool and disconnect the spark plug wire.
- 2.) Twist the dipstick cap until the arrow on the cap lines up with the arrow on the breather plug. Remove the dipstick from the breather plug. Then remove the breather plug from the pump.
- 3.) Wipe the dipstick off with a clean dry cloth. Insert the dipstick into the pump housing and remove it. The oil level should be at least to the lower "L" notch on the dipstick, but not above the upper "H" notch. Add above recommended oil as needed.
- 4.) Thread the pump breather plug tube back into the pump housing.
- 5.) Align the arrow on the dipstick cap with the arrow on the breather plug tube, insert it, and twist it to secure. Reconnect the spark plug.



## Long Term Storage

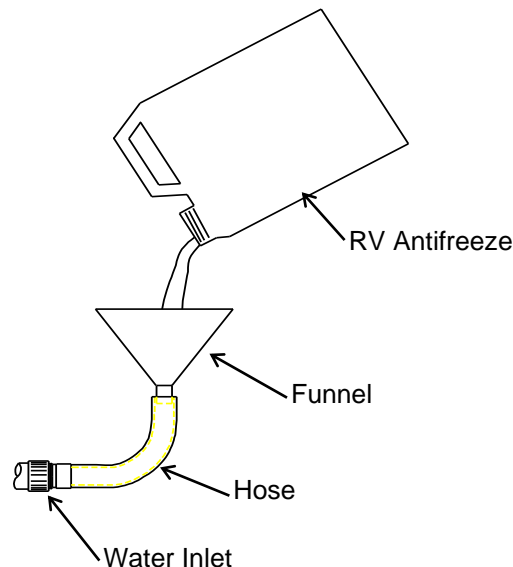
Follow the engine owner's manual for storing the engine.

## Winter Storage

Protect your pump, hose, and gun from freezing.

Items needed: 12" piece of garden hose or equivalent, funnel and RV antifreeze (approximately 6 oz.)

- 1.) Follow the storage instructions listed above.
- 2.) Disconnect spark plug cable. Make sure the engine start switch is OFF, and the fuel valve is OFF.
- 3.) Attach the garden hose with funnel to the pump inlet (see illustration).
- 4.) Pour RV antifreeze into the funnel, pull the engine recoil until antifreeze comes out the pump outlet.
- 5.) Drain all water from the high-pressure hose. Depress trigger on gun and drain all water out of gun/lance.



## Troubleshooting

<b>Problem</b>	<b>Solution</b>
Engine will not start	SOLUTION: A,B
Low/Surging pressure or no water flow	SOLUTION: C,D,E,F,G,H
No chemical injection	SOLUTION: I,J,K,L
<b>Cause</b>	<b>Solution</b>
<b>A-</b> Low oil shutdown	See engine manual for oil requirements
<b>B-</b> Engine starting instructions not followed	See engine manual for starting instructions
<b>C-</b> Insufficient water supply	See water supply section of this manual
<b>D-</b> Plugged pump inlet filter	See maintenance section of this manual
<b>E-</b> Wrong nozzle	Make sure high-pressure nozzle is being used
<b>F-</b> Plugged nozzle	Remove nozzle, check for blockage
<b>G-</b> Worn nozzle	Replace nozzle
<b>H-</b> Leak in pressure hose	Replace pressure hose
<b>I-</b> Wrong nozzle	Make sure chemical nozzle is being used
<b>J-</b> Back pressure from extra long discharge hose	Try shorter hose
<b>K-</b> Leak in chemical siphon hose	Replace hose – use hose clamps if necessary
<b>L-</b> Chemical strainer not submerged	Make sure strainer is completely submerged

## Specifications

Item #	PSI	GPM	Max Water Temp	Power	Shaft Size	Nozzle Size
A1573701	2500	3.0	140°F	5-6.5hp Gas engine	3/4" keyed	#3.5
A1577541	2700	2.5		5-6.5hp Gas engine	3/4" keyed	#3.0
A1578111	2700	2.5		5-6.5hp Gas engine	3/4" keyed	#3.0
A157711	3000	2.5		5-6.5hp Gas engine	3/4" keyed	#3.0
A1578173	3000	2.5		5-6.5hp Gas engine	3/4" keyed	#3.0
A1578131	3000	3.0		8-9hp Gas engine	1" keyed	#3.5
A157712	3500	4.0		11-13hp Gas engine	1" keyed	#4.0
A1578151	4000	3.5		11-13hp Gas engine	1" keyed	#3.5
A1578171	2750	2.5		5-6.5hp Gas engine	3/4" keyed	#3.0
A1578181	3200	3.0		8-9hp Gas engine	1" keyed	#3.5
A1578203	4000	3.5		11-13hp Gas engine	1" keyed	#3.5
A157594	4000	4.0		15hp Gas engine	1" keyed	#4.0
A1577110	3000	2.5		5-6.5hp Gas engine	3/4" keyed	#3.0
A15782030	3000	5.0		11-13hp Gas engine	1" keyed	#5.5
A1578201	4000	3.5		11-13hp Gas engine	1" keyed	#3.5
A157121	3100	2.5		5-6hp Gas engine	3/4" keyed	#3.0
A157123	3300	2.5		5-6.5hp Gas engine	3/4" keyed	#3.0
A157124	3600	3		8-9hp Gas engine	1" keyed	#3.5
A157130	3000	5		11-13hp Gas engine	1" keyed	#5.5

The manufacturer reserves the right to make improvements in design and/or changes in specifications at any time without incurring any obligation to install them on units previously sold.

# Parts Explosions

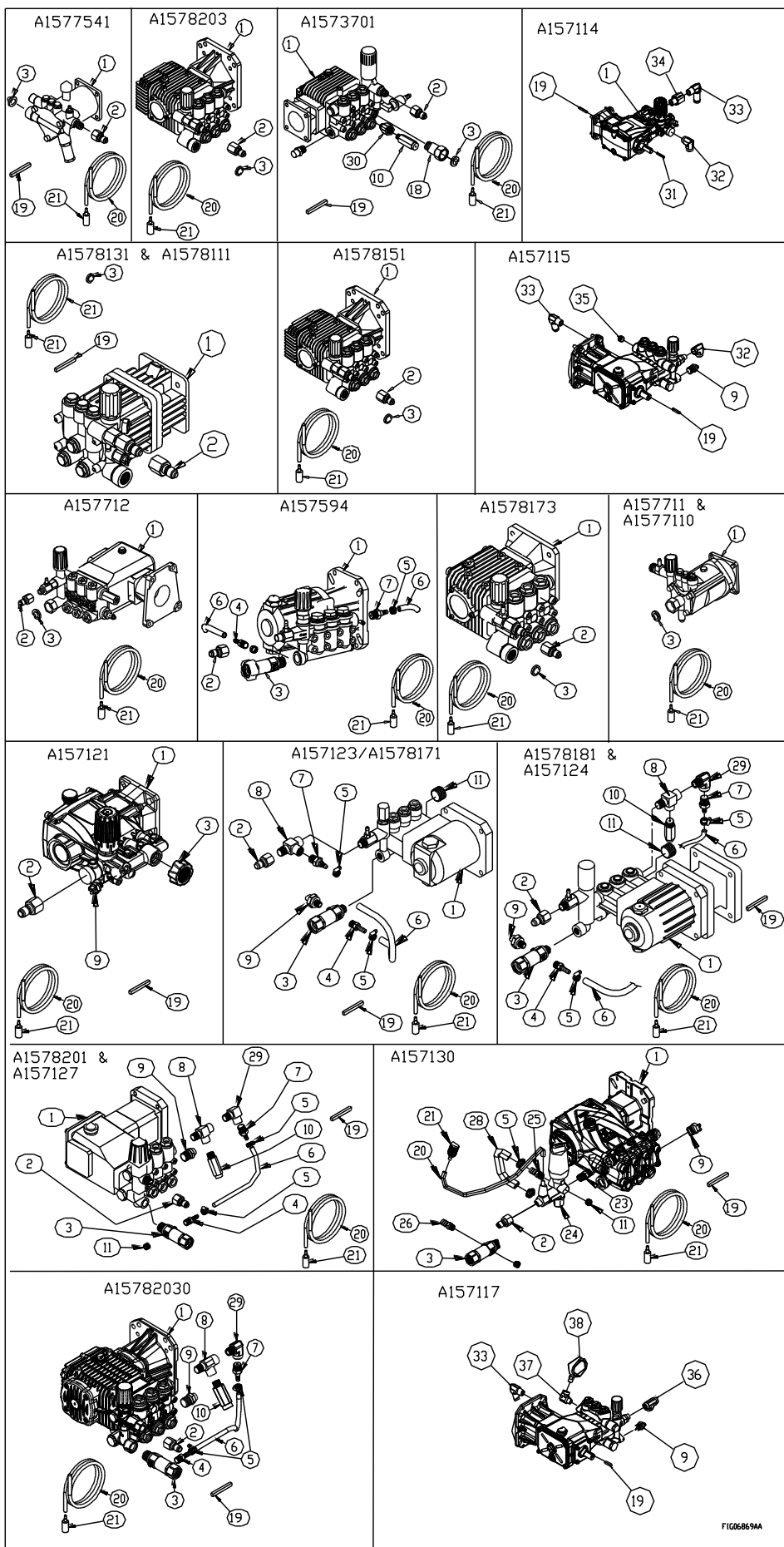
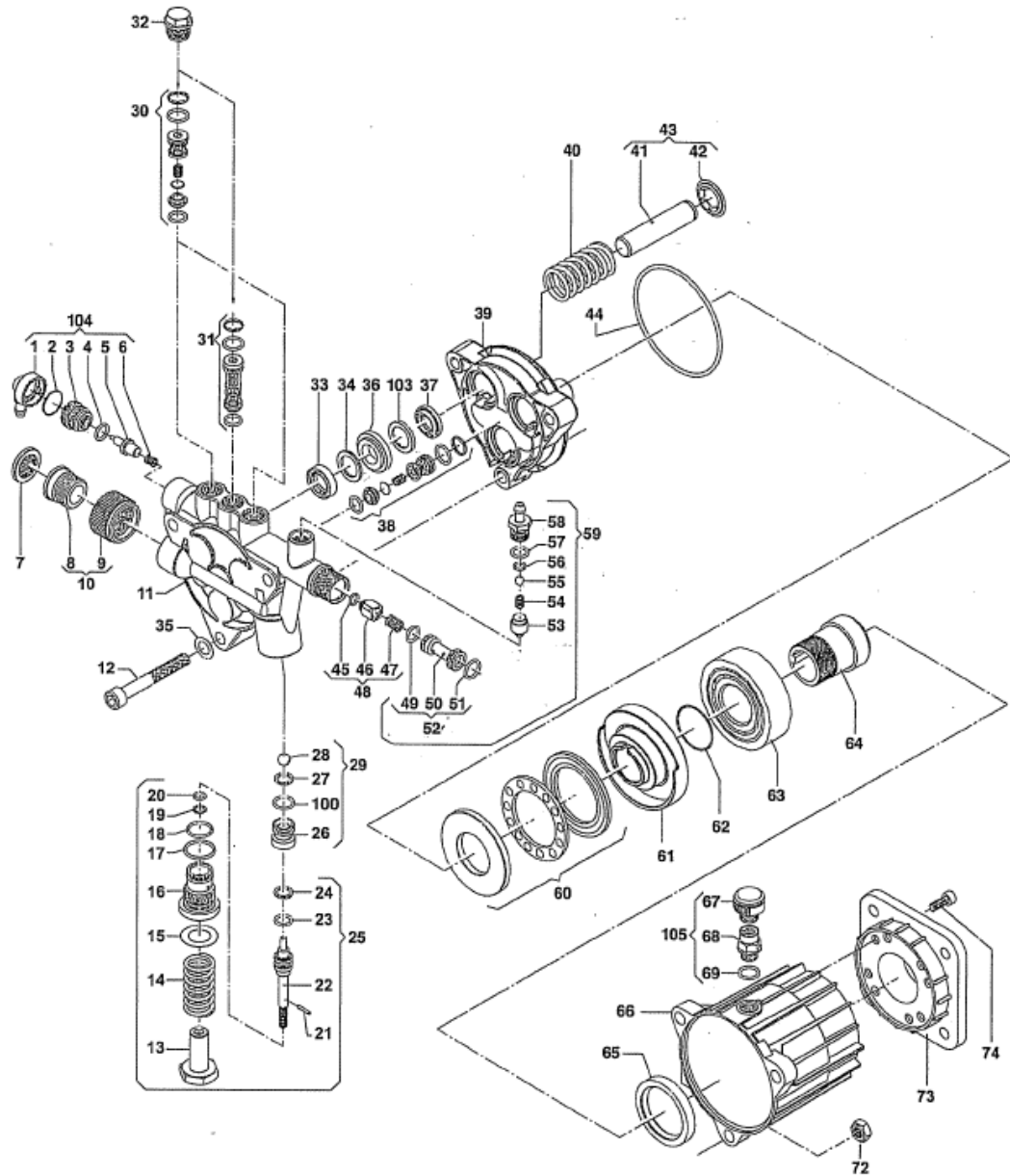


FIG06869AA

## Parts Explosions (cont'd)

Item	Part#	Description	Qty	Model
1	A1577541	Comet VRX Pump	1	A1577541
	A1573701	General TP 2530		A1573701
	A1578111	Comet AXD Pump		A1578111
	A1578131	Comet AXD Pump		A1578131
	A1578151	Comet ZWD Pump		A1578151
	A1578173	NorthStar NSLW Pump		A1578173
	A1578203	NorthStar NSZW Pump		A1578203
	A157711	3025A Pump		A157711
	A157712	1807A Pump		A157712
	A157594	Cat 67DX39G1 Pump		A157594
	A1577110	3025A Easy Start Pump		A1577110
	A15782030	NorthStar NSSHFD Pump		A15782030
	A157121	Comet DWD2530, Pump		A157121
	A157123	Cat 4DNX Pump		A157123, 8171
	A157124	Cat 4SPX Pump	A157124, 8181	
A1578101	Cat Pump	A1578201		
A157130	GP ME11511G8	A157130		
2	777915	Quick Connect Outlet Plug	1	1573701, 8131, 8151, 8173, 8203, 712, 594, 7710, 8203, A157121, 7123, 7124, 7130, 8171, 8181, 8201
	221009			A1577541
	777913			A1578111
3	4027	Inlet Filter	1	A1577541, 3701, 8111, 8131, 8151, 8173, 8203, 711, 712, 7710
	800985			A157123, 7124, 8171, 8181
	800986	Inlet Filter 1/2" NPT X 1/4"	1	A1578101, 7130, A157594, 82030
	800429	Garden Hose Adapter	1	A157121
4	777340	1/4" X 1/4" Hose Barb Fitting	1	A15782030, A157123, 7124, 8171, 8181, 8201, 594
	796161	1/8" NPT X 1/4" Hose Barb Fitting	1	A157121
5	777834	1/4" Hose Clamp	2	A15782030, A157121, 7123, 7124, 8181, 8201, 594
	777119	3/4" Hose Clamp	2	A157130
6	805555	1/4" Braided Chem. Hose – 14"	1	A15782030, A157121, 7123, 7124, 7130, 8171, 8181, 8201, 594
7	38584	Easy Start Valve	1	A15782030, 8171, 8181, 8201, 7123, 7124, 594
	801964			A157121
8	777347	3/8" Street Tee	1	A15782030, A157121, 7123, 7124, 8171, 8181, 8201
9	CO1215068300	Thermal Valve	1	A157121
	35918			A157123, 7124, 8171, 8181
	777836			A15783701, 82030, A1578201, 7130
10	777376	Pop Off Valve	1	A1578201
	22393			A15782030, 3701, A157124
11	777838	1/4" NPT Plug	1	A157123, 124, 127, 594
	777837	3/8" NPT Plug	1	A157130
18	35813	Manifold Inlet	1	A1573701
19	82141	3/16" x 1.5" Shaft Key	1	A1578173, A1578111, A157124, 7130
	82142	3/16" x 2" Shaft Key		A1573701
	82143	1/4" x 1-3/4" Shaft key		A1578131, 8151, 82030, A157121, A157123, 8171, 8201
20	805557	1/4" Braided Chem. Hose – 36"	1	All
21	221222	Chemical Strainer	1	All
23	2296	3/8" hex nipple	1	A157130
24	788419	Unloader Valve	1	A157130
25	777839	1/2" Nipple x 3/8" MPT	1	A157130
26	777840	1/2" Barb x 1/4" MPT	1	A157130
28	805648	1/2" PVC Hose – 12"	1	A157130
29	777410	3/8" Street Elbow	1	A15782030, A157124, 8181
30	777423	1/4" MNPT x 3/8" FNPT	1	A1573701

# Comet VRX Pump Exploded View



Ref #	Code	Description	Qty
1	2801 0079	Thermo Valve Cover	1
2	1210 0218	O-Ring	1
3	0424 0402	Thermal Valve Body	1
4	1210 0475	O-Ring	1
5	3230 0031	Sensor	1
6	1802 0217	Spring	1
7	1002 0116	Suction Filter	1
8	2803 0395	Quick Coupler	1
9	1223 0093	Wing Nut	1
10	2800 0096	Straight Hose Tail Kit	3
11	3218 0351	Pump Manifold	1
12	3609 0195	Screw	3

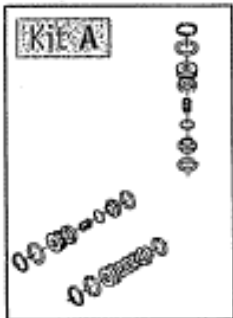
Ref #	Code	Description	Qty
39	2432 0018	Pump Crankcase	1
40	1802 0213	Piston Spring	3
41	2409 0099	Piston	3
42	0009 0267	Ring	3
43	5026 0260	Piston Kit	3
44	1210 0391	O-Ring	1
45	1210 0463	O-Ring	1
46	2409 0102	Check Valve	1
47	1802 0218	Spring	1
48	5026 0262	Check Valve Kit	1
49	1210 0465	O-Ring	1
50	0801 0066	Detergent Injector	1

# Comet VRX Pump Exploded View

13	3202 0276	Plug	1
14	1802 0219	Regulation Valve Spring	1
15	2811 0117	Washer	1
16	3605 0104	Special Screw	1
17	1210 0392	O-Ring	1
18	1210 0470	O-Ring	1
19	0009 0272	Ring	1
20	1210 0055	O-Ring	1
21	3021 0034	Elastic Pin	1
22	0015 0187	Valve Rod	1
23	1210 0465	O-Ring	1
24	0009 0112	Backup Ring	1
25	1215 0334	Regulation Valve Kit	1
26	3009 0136	Regulation Valve Seal	1
27	1210 0170	O-Ring	1
28	3003 0032	Ball	1
29	5026 0269	Regulation Valve Seat Kit	1
30	1220 0061	Delivery Valve	2
31	1220 0062	Delivery Valve	1
32	3302 0279	Plug	3
33	1241 0068	Packing	3
34	0009 0274	Anti-Extr. Ring	3
35	2811 0004	Washer	3
36	0009 0270	Packing Retainer	3
37	0019 0111	Oil Seal	3
38	1220 0061	Suction Valve	3

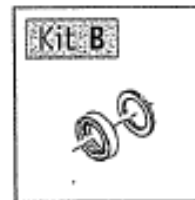
51	1210 0170	O-Ring	1
52	1410 0322	Detergent Injector Kit	1
53	0204 0051	Bushing	1
54	1802 0216	Spring	1
55	3003 0033	Ball	1
56	1210 0466	O-Ring	1
57	1210 0465	O-Ring	1
58	2800 0104	Detergent Straight Hose Tail	1
59	5026 0261	Complete Detergent Kit	1
60	0436 0020	Axial Ball Bearing	1
61	0001 0460	Throu-Eccentric Shaft	1
62	1210 0394	O-Ring	1
63	0438 0081	Ball Bearing	1
64	0031 0012	Pump Crankshaft	1
65	0019 0112	Oil Seal	1
66	0403 0156	Pump Crankcase	1
67	3200 0071	Plug	1
68	2417 0064	Extension	1
69	1210 0492	O-Ring	1
72	0604 0015	Nut	3
73	3016 0042	Support	1
74	3625 0062	Screw	4
100	0009 0225	Anti-Extr. Ring	1
103	3000 0781	Oil Seal Spacer	3
104	5026 0276	Thermo Valve Kit	1
105	3200 0093	Oil Tap Kit	1

**Complete Valve Kit (50260270)**



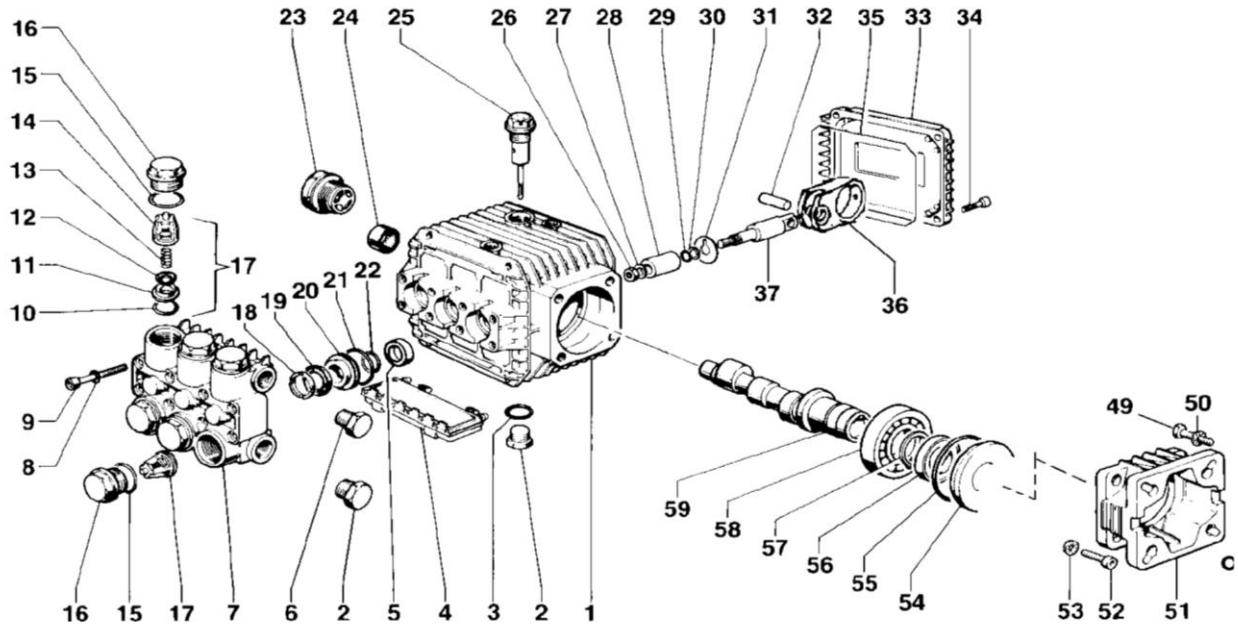
Part #	Code	Qty
30	1220 0061	2
31	1220 0062	1
38	1220 0061	3

**Piston Seal Kit (502602556)**



Part #	Code	Qty
33	1241 0068	3
34	0009 0274	3

# General Pump Triplex 2530 Exploded View



\*Unloader not shown

ITEM	PART #	DESCRIPTION	QTY
1	51.0106.22	CRANKCASE	1
2	98.2100.00	PLUG, 3/8	1
3	90.3833.00	O-RING	1
4	51.2091.02	PROTECTOR	1
5	90.1565.00	OIL SEAL	3
6	98.2041.00	PLUG, 1/4	1
7	51.1200.41	MANIFOLD	1
8	96.6938.00	WASHER	8
9	99.1943.00	SCREW	8
10	90.3841.00	O-RING	6
11	36.2003.66	VALVE SEAT	6
12	36.2001.76	VALVE PLATE	6
13	94.7376.00	SPRING	6
14	36.2025.51	VALVE CAGE	6
15	90.3847.00	O-RING	6
16	98.2216.00	VALVE CAP	6
17	36.7115.01	VALVE ASSEMBLY	6
18	51.1000.51	HEAD RING	3
19	90.2620.00	PACKING	3
20	51.0800.70	PACKING RETAINER	3
21	90.3604.00	O-RING	3
22	90.3835.00	O-RING	3
23	97.5968.00	SIGHT GLASS	1
24	20.2128.35	NEEDLE BEARING	1
25	98.2103.00	OIL DIP STICK	1
26	92.2216.00	NUT	3
27	96.7008.00	WASHER	3
28	51.0400.09	PLUNGER, 15mm	3
29	90.3572.00	O-RING	3
30	90.5022.00	BACK UP RING	3
31	96.0707.00	FLINGER WASHER	3
32	97.0310.00	CONNECTING ROD PIN	3
33	51.1600.22	CRANKCASE COVER	1
34	99.1867.00	SCREW	4

ITEM	PART #	DESCRIPTION	QTY
35	90.3917.00	COVER O-RING	1
36	51.0301.22	CONNECTING ROD	3
37	51.0500.56	PLUNGER ROD	3
49	99.2730.00	SCREW, J34 OPTION	4
50	96.7014.00	WASHER, J34 OPTION	4
51	10.0346.22	FLANGE, J34 OPTION	1
52	99.1867.00	SCREW	4
53	96.6938.00	WASHER	4
54	50.2115.51	SPACER	1
55	90.4097.00	O-RING	1
56	90.1644.00	OIL SEAL	1
57	90.0667.00	SNAP RING	1
58	20.2835.21	BEARING	1
59	51.0221.65	CRANKSHAFT	1

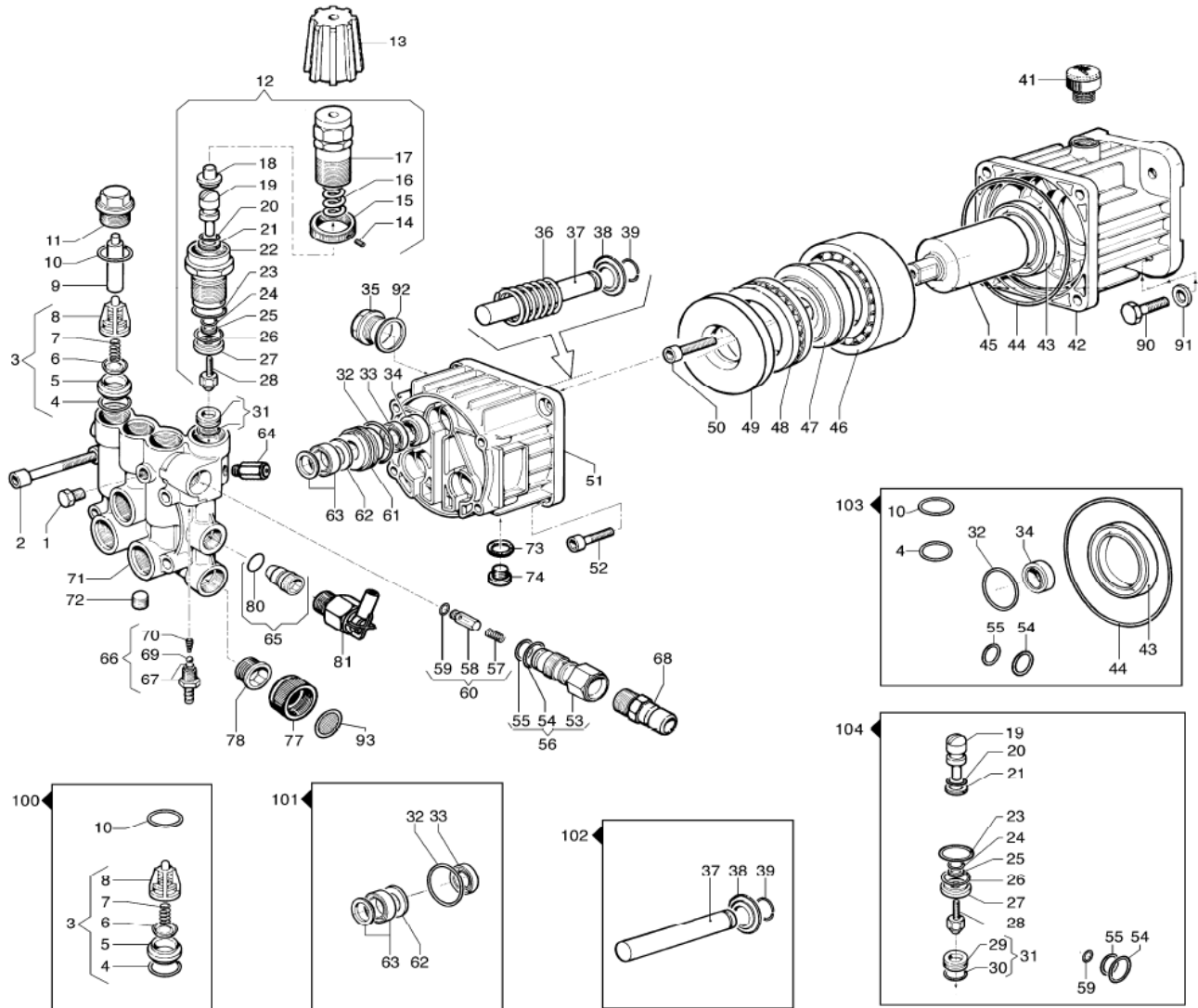
## VALVE KIT

123		
ITEM	PART #	QTY
10	90.3841.00	6
11	36.2003.66	6
12	36.2001.76	6
13	94.7376.00	6
14	36.2025.51	6

## SEAL KIT

97		
ITEM	PART #	QTY
18	51.1000.51	3
19	90.2620.00	3
21	90.3604.00	3
22	90.3835.00	3

# Comet AXD Pump Exploded View



Ref #	Part #	Description	Qty
1	CO3202001800	Cap	1
2	CO3609001400	Screw	4
3	CO1220004500	Suct./Del. Valve Ass.y kit	6
4	CO1210004900	O-Ring	6
5	CO3009012900	Valve Seat	6
6	CO3604002800	Suct./Del. Valve	6
7	CO1802019200	Suct./Del. Valve Spring	6
8	CO1205003300	Suct./Del. Valve Cage	6
9	CO0601027300	Spacer	2
10	CO1210015100	O-Ring	6
11	CO3202023600	Plug	6
12	CO1215058600	Regulation Valve Ass.y	1
13	CO1817006400	Knob	1
14	CO3622003000	Stop Adjustable Nut	1

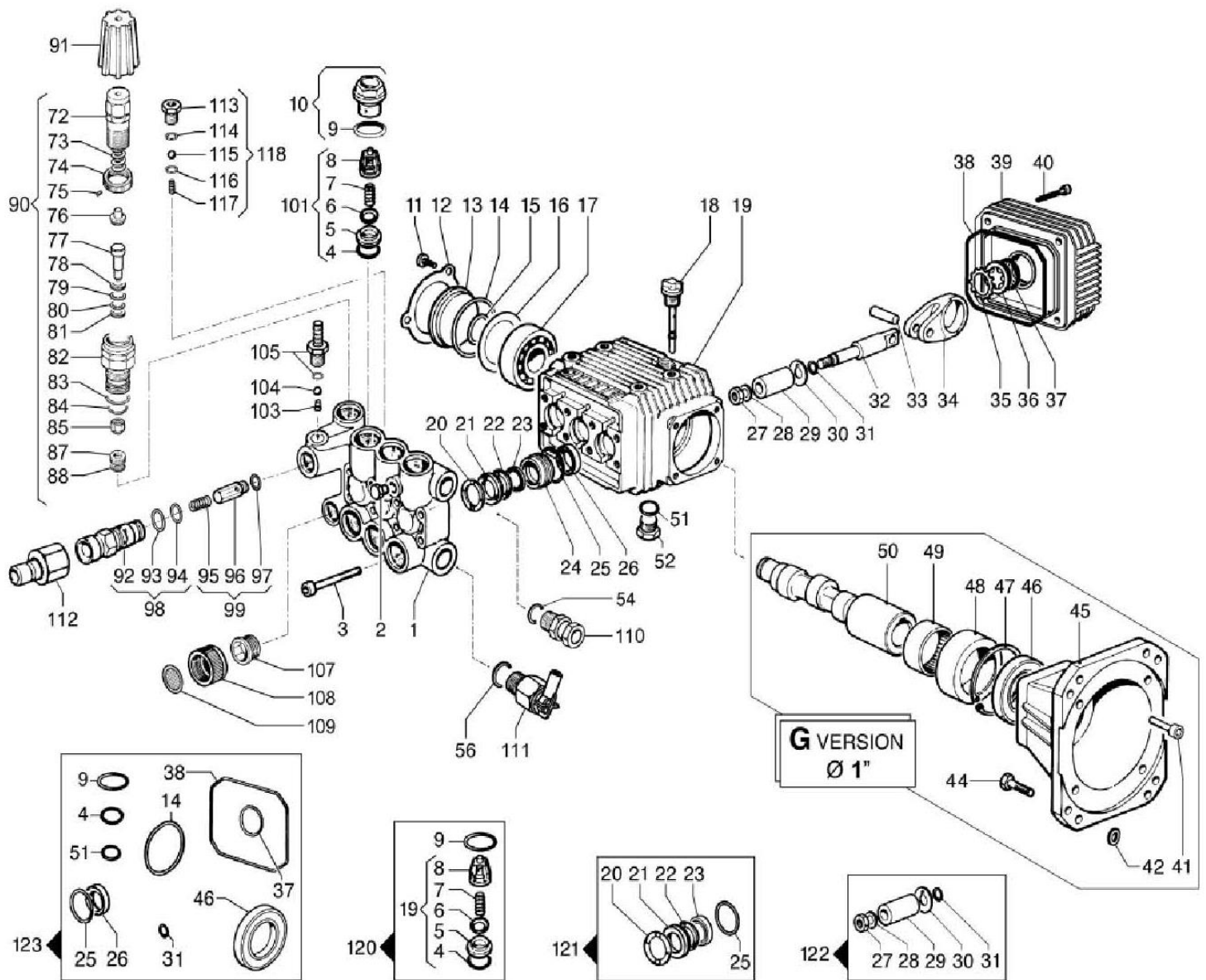
Ref #	Part #	Description	Qty
46	CO0438008000	Ball Bearing	1
47	CO0001045300	Eccentric Shaft	1
48	CO0436001900	Axial Bearing	1
49	CO2816002600	Thrust Bearing	1
50	CO3609000500	Screw	1
51	N/A	Pump Crankcase	1
52	CO3609000500	Screw	4
53	CO3410032900	Injector Body	1
54	CO1210004000	O-Ring	1
55	CO1210004900	O-ring	1
56	CO3410034800	Injector Body Kit	1
57	CO1802019700	Spring	1
58	CO2409008600	Check Valve	1
59	CO1210046000	O-Ring	1

## Comet AXD Pump Exploded View

15	CO1227002200	Ring Nut	1
16	CO1802018200	Spring (Wire Ø3,25)	1
17	CO0204004600	Bushing	1
18	CO0009020700	Spring Spacer	1
19	CO2409008800	Piston Rod	1
20	N/A	O-Ring	1
21	CO0009020500	Spring Spacer	1
22	N/A	Bushing	1
23	CO1210040700	O-Ring	1
24	CO1210040500	O-Ring	1
25	CO0009020500	Ring	1
26	CO1210040400	O-Ring	1
27	N/A	Ring	1
28	CO2409008800 CO3002065400	Unloader Ball	1
31	CO3009001300	Valve Seat Kit	1
32	CO1210035600	O-Ring	3
33	CO1241005700	Packing	3
34	CO0019005800	Oil Seal	3
35	CO3201002700 CO1210004800	Oil Indicator	1
36	CO1802015300	Spring	3
37	CO2409008900	Piston	3
38	N/A	Ring	3
39	CO0009022000	Ring	3
41	CO3200007100	Plug	1
42	CO3002054700	Support	1
43	CO0019003400	Oil Seal	1
44	CO1210042900	O-Ring	1
45	CO0001044600	Hollow Shaft	1

60	CO2409009100	Check Valve Kit	1
61	CO0009026100	Ring	3
62	CO0009026200	Ring	3
63	CO1241005900	Packing	3
64	CO1215031100	Safety Valve	1
65	CO0608003000	Easy Start Device	1
66	CO2803043500	Chem. Coupling Kit	1
67	N/A	Chem. Coupling	1
68	CO8102032300	Quick Coupler	1
69	CO3003002400	Detergent Ball	1
70	CO1802018000	Detergent Spring	1
71	N/A	Manifold	1
72	CO3200001700	Plug	1
73	CO1209011700	Gasket	1
74	CO3200009600	Plug - Cap	1
77	See # 78	Wing Nut	1
78	CO2800051100	Garden Hose Tail w/Wing Nut	1
80	CO1210004100	O-Ring	1
81	CO1215035400	Thermal Valve	1
90	N/A	Screw	4
91	CO2811000400	Washer	4
92	CO1210004800	O-Ring	1
93	CO8102045000	Filter	1
100	CO5025001400	Complete Valve Kit	1
101	CO5019008600	Piston Seal Kit	1
102	CO2409010300	Ø 14mm Piston Kit	1
103	CO5019007900	Pump Seal Kit	1
104	N/A	Valve Maintenance Kit	1

# Comet ZWD Pump Exploded View

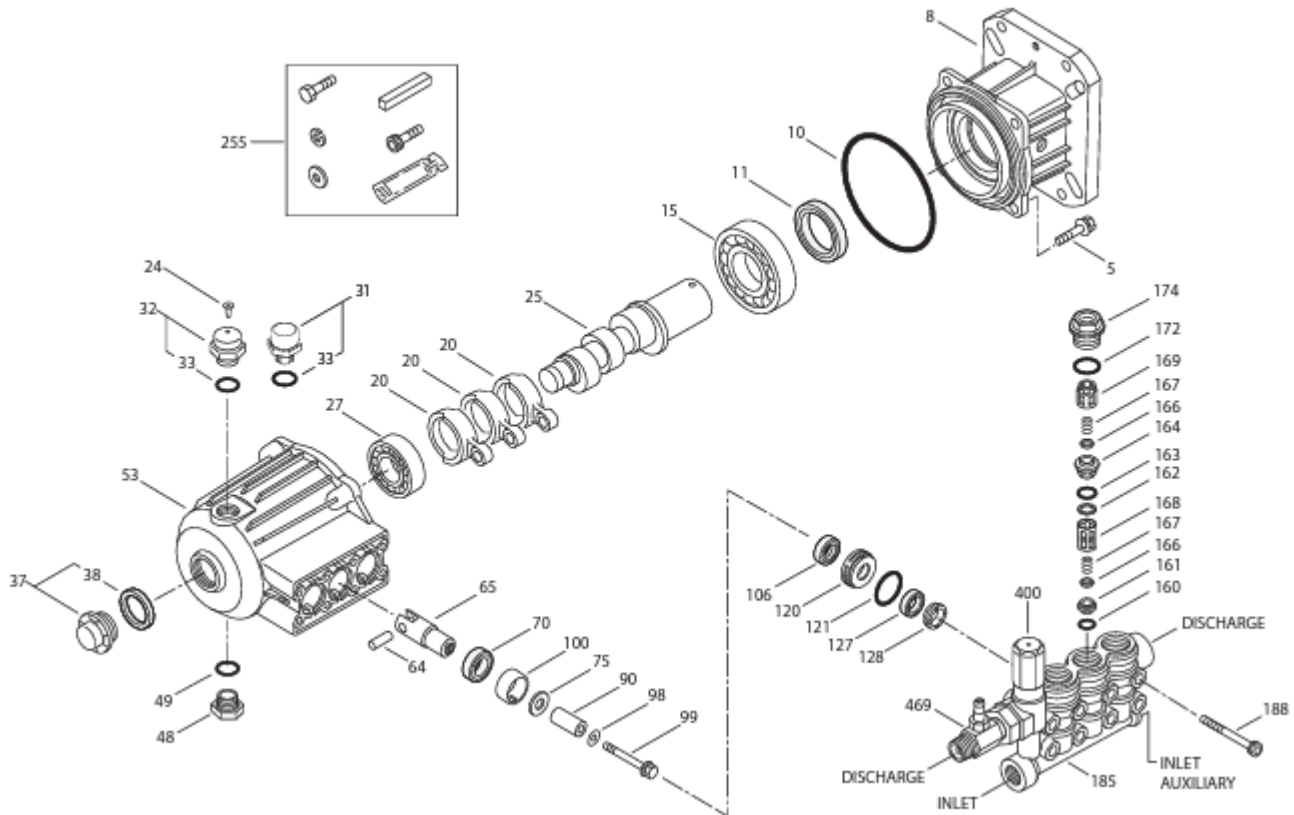


# Comet ZWD Pump Exploded View

	Code	Description	Qty
1	3218 0424	Brass Pump Manifold Kit	1
2	3202 0018	Plug	1
3	3609 0014	Screw	8
4	1210 0046	O-Ring	6
5	3009 0087	Suct. /Del. Valve Seat	6
6	3604 0017	Suct. /Del. Valve	6
7	1802 0177	Spring	6
8	1205 0025	Suct. /Del. Valve Cage	6
9	1210 0048	O-Ring	6
10	3202 0315	Plug + O-Ring	6
11	3609 0088	Screw	3
12	1004 0012	Crankcase Flange	1
13	0402 0329	Aluminum Cover	1
14	1210 0386	O-Ring	1
15	3019 0011	Outer Seeger	1
16	0009 0275	Spacer	1
17	0438 0069	Ball Bearing	1
18	3200 0051	Oil Dipstick	1
19	0403 0199	Pump Crankcase	1
20	0009 0196	Packing Head Ring	3
21	1241 0065	Packing	3
22	0009 0223	Back Ring	3
23	1241 0030	Packing	3
24	0009 0222	Packing Retainer	3
25	1210 0223	O-Ring	3
26	0019 0095	Oil Seal	3
27	0600 0048	Special Bolt	3
28	2811 0080	Washer	3
29	0202 0020	Ceramic Bushing	3
30	2812 0038	Washer	3
31	1210 0055	O-Ring	3
32	2409 0044	Piston Guides	3
33	3011 0014	Gudgeon Pin	3
34	0205 0050	Con. Rod Assembly	3
35	3019 0033	Outer Seeger	1
36	3201 0026	Oil Indicator	1
37	1210 0333	O-Ring	1
38	1210 0621	O-Ring	1
39	0402 0391	Cover	1
40	3609 0180	Screw	4
41	3609 0032	Screw	4
42	2811 0098	Washer	4
44	3607 0168	Hexagonal Screw	4
45	3016 0023	Flange	1
46	0019 0102	Oil Seal	1
47	3020 0012	Inner Seeger	1
48	0204 0038	Bushing	1
49	0437 0045	Bearing	1
50	0001 0415	Eccentric Shaft	1
51	1210 0441	O-Ring	1

Part #	Code	Description	Qty
52	3200 0007	Cap	1
54	2811 0084	Washer	1
56	2811 0086	Washer	1
72	0204 0072	Bushing	1
73	1802 0279	Spring	1
74	1227 0051	Ring Nut	1
75	3622 0049	Stop Adjustable Nut	1
76	0009 0367	Spring Spacer	1
77	2409 0148	Rod	1
78	0009 0365	Ring	1
79	1210 0613	O-Ring	1
80	1210 0614	O-Ring	1
81	0009 0366	Ring	1
82	0204 0071	Bushing	1
83	1210 0615	O-Ring	1
84	1210 0616	O-Ring	1
85	3002 0673	Support/Ball	1
87	3009 0164	Valve Seat	1
88	1210 0603	O-Ring	1
90	1215 0404	Reg. Valve Kit + Seat	1
91	1817 0053	Pressure knob	1
92	3410 0297	Injector Body	1
93	1210 0398	O-Ring	1
94	1210 0402	O-Ring	1
95	1802 0197	Spring	1
96	2409 0122	Check Valve	1
97	1210 0460	O-Ring	1
98	3410 0296	Injector Body Kit	1
99	2409 0123	Check Valve Kit	1
101	1220 0030	Suct. /Del. Valve Assy kit	6
103	1802 0180	Detergent Spring	1
104	3003 0026	Detergent Ball	1
105	2803 0552	Detergent Coupling	1
107	2803 0395	Special Coupling	1
108	1223 0108	Wing Nut	1
109	1002 0158	Water Filter	1
110	1215 0381	Safety Valve	1
111	1215 0329	Thermal Valve	1
112	2803 3380	Quick Outlet Coupler	1
113	3202 0319	Easy Start Cap	1
114	1210 0463	O-Ring	1
115	3003 0033	Easy Start Ball	1
116	1210 0463	O-Ring	1
117	1802 0277	Easy Start Spring	1
118	5033 0010	Easy Start Kit	1
120	5025 0011	Valve Kit	1
121	5019 0064	Water Seal Kit	1
122	2409 0071	Piston Kit	1
123	5019 0065	Oil Seal Kit	1

# Cat 67DX39G1 Pump Exploded View



## PARTS LIST

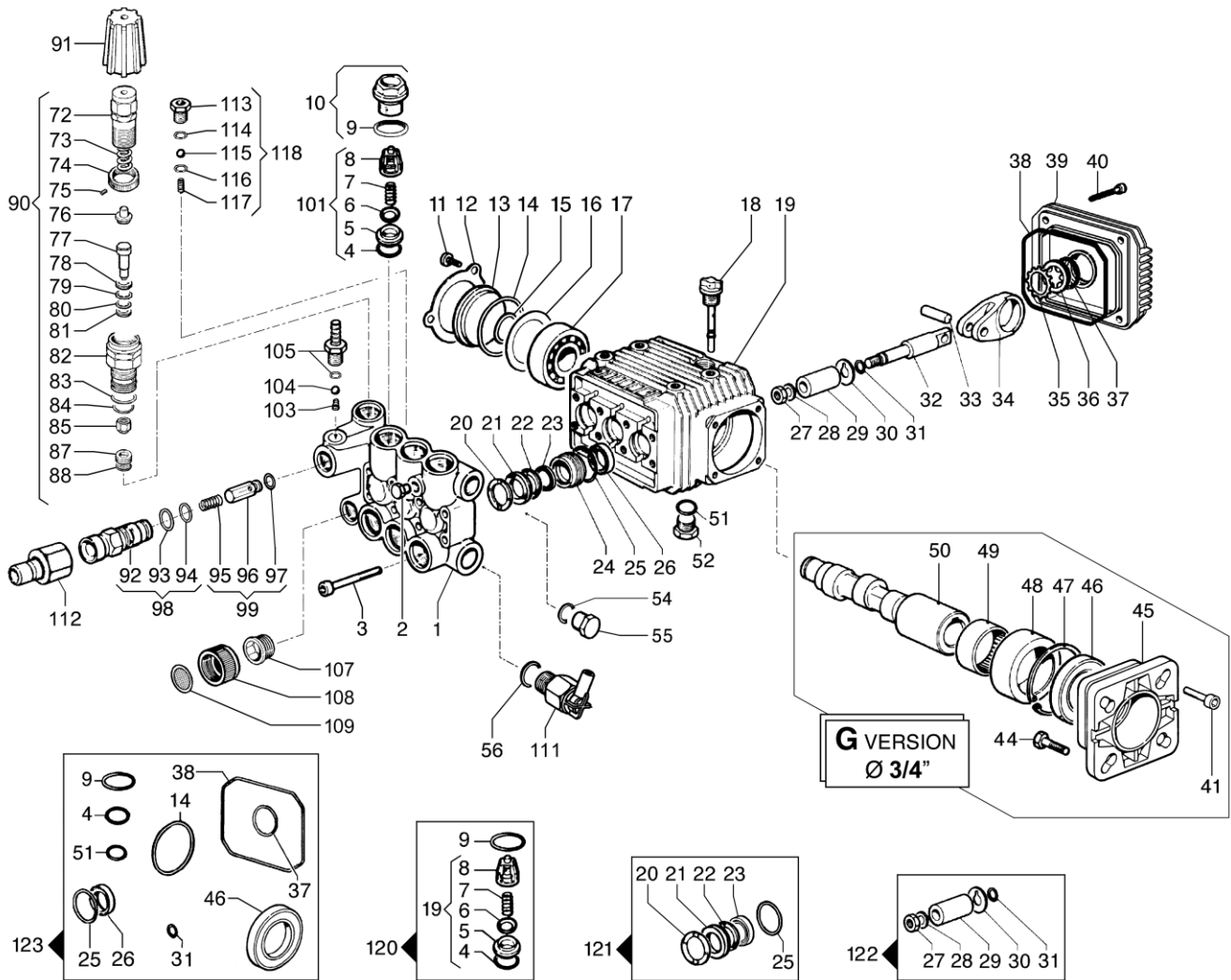
ITEM	P/N	MATL	DESCRIPTION	QTY
5	127285	STCPR	Screw, HH, Sems (M8 x 25)	4
8	49361	AL	Cover, Adapter Bearing	1
10	14043	NBR	O-Ring, Bearing Cover	1
11	125351	NBR	Seal, Oil Crankshaft	1
15	146421	STL	Bearing, Ball - Inner	1
20	49364	TNM	Rod, Connecting	3
24	549608	LDPE	Plug, Oil Cap	1
25	49391	CM	Crankshaft (10.3mm)	1
27	49363	STL	Bearing, Ball - Outer	1
31	549726	—	Cap, Vented with O-Ring (Rain Cap)	1
32	547961	RTP	Cap, Oil Filler with O-Ring	1
33	14179	NBR	O-Ring, Filler Cap-70D	1
37	92241	PC	Gauge, Oil Bubble with Gasket-80D	1
38	44428	NBR	Gasket, Flat, Oil Gauge-80D	1
48	44842	NY	Plug, Drain	1
49	14179	NBR	O-Ring, Drain Plug-70D	1
53	49352	AL	Crankcase	1
64	49366	CM	Pin, Crosshead	3
65	49368	BB	Rod, Plunger	3
70	47215	NBR	Seal, Oil Crankcase	3
75	49370	S	Slinger, Barrier	3
90	49367	CC	Plunger (M14 x 28)	3
98	46730	NBR	Washer, Seal-90D	3
99	49369	S	Retainer, Plunger (See Tech Bulletin 074)	3
100	49371	NY	Retainer, Seal	3

ITEM	P/N	MATL	DESCRIPTION	QTY
106	45188	NBR	Seal, LPS with S-Spring	3
120	49374	BB	Case, Seal	3
121	13977	NBR	O-Ring, Seal Case-70D	3
127	49606	PTFE	V-Packing (Black)	3
128	49605	D	Adapter, Male	3
160	26129	NBR	O-Ring, Inlet Valve Seat-70D	3
161	49378	S	Seat, Inlet	3
162	48361	D	Backup Ring, Discharge Seat	3
163	43358	NBR	O-Ring, Discharge Seat-70D	3
164	49376	S	Seat, Discharge	3
166	547098	S	Valve	6
167	49354	S	Spring	6
168	49377	PVDF	Retainer, Spring, Inlet	3
169	547441	PVDF	Retainer, Spring, Discharge	3
172	49382	NBR	O-Ring, Valve Plug-90D	3
174	49380	BB	Plug, Valve (See Tech Bulletin 074)	3
185	49372	BB	Head, Manifold	1
188	126512	STCPR	Screw, HSH (M8 x 65) (See Tech Bulletin 074)	8
197	941517	BB	Assembly, GH (1/2" NPT(M) x 3/4" GH(F))	1
255	31445	STZP	Assembly, Bolt Mount, Gas	1
300	76262	NBR	Kit, Seal (Includes: 98, 106, 121, 127, 128)	1
310	76260	NBR	Kit, Valve Pre-Assembled (Includes: 160-164, 166, 167, 168, 169, 172)	1
400	—	—	Unloader, Integral (See Individual Parts)	1
469	7367	BB	Injector, Chemical Fixed	1

*Italics are optional items. R Components comply with RoHS Directive.*

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM=Chrome-moly D=Acetal LDPE=Low Density Polyethylene  
 NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS  
 STCPR=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength

# NorthStar NSLW Pump Exploded View



Part #	Code	Description	Qty
1	3218 0424	Brass Pump Manifold Kit	1
2	3202 0018	Plug	1
3	3609 0014	Screw	8
4	1210 0046	O-Ring	6
5	3009 0087	Suct. /Del. Valve Seat	6
6	3604 0017	Suct. /Del. Valve	6
7	1802 0177	Spring	6
8	1205 0025	Suct./Del. Valve Cage	6
9	1210 0048	O-Ring	6
10	3202 0315	Plug + O-Ring	6
11	3609 0088	Screw	3
12	1004 0012	Crankcase Flange	1
13	0402 0329	Aluminum Cover	1
14	1210 0386	O-Ring	1
15	3019 0011	Outer Seeger	1
16	0009 0275	Spacer	1
17	0438 0069	Ball Bearing	1
18	3200 0051	Oil Dipstick	1
19	0403 0199	Pump Crankcase	1
20	0009 0196	Packing Head Ring	3

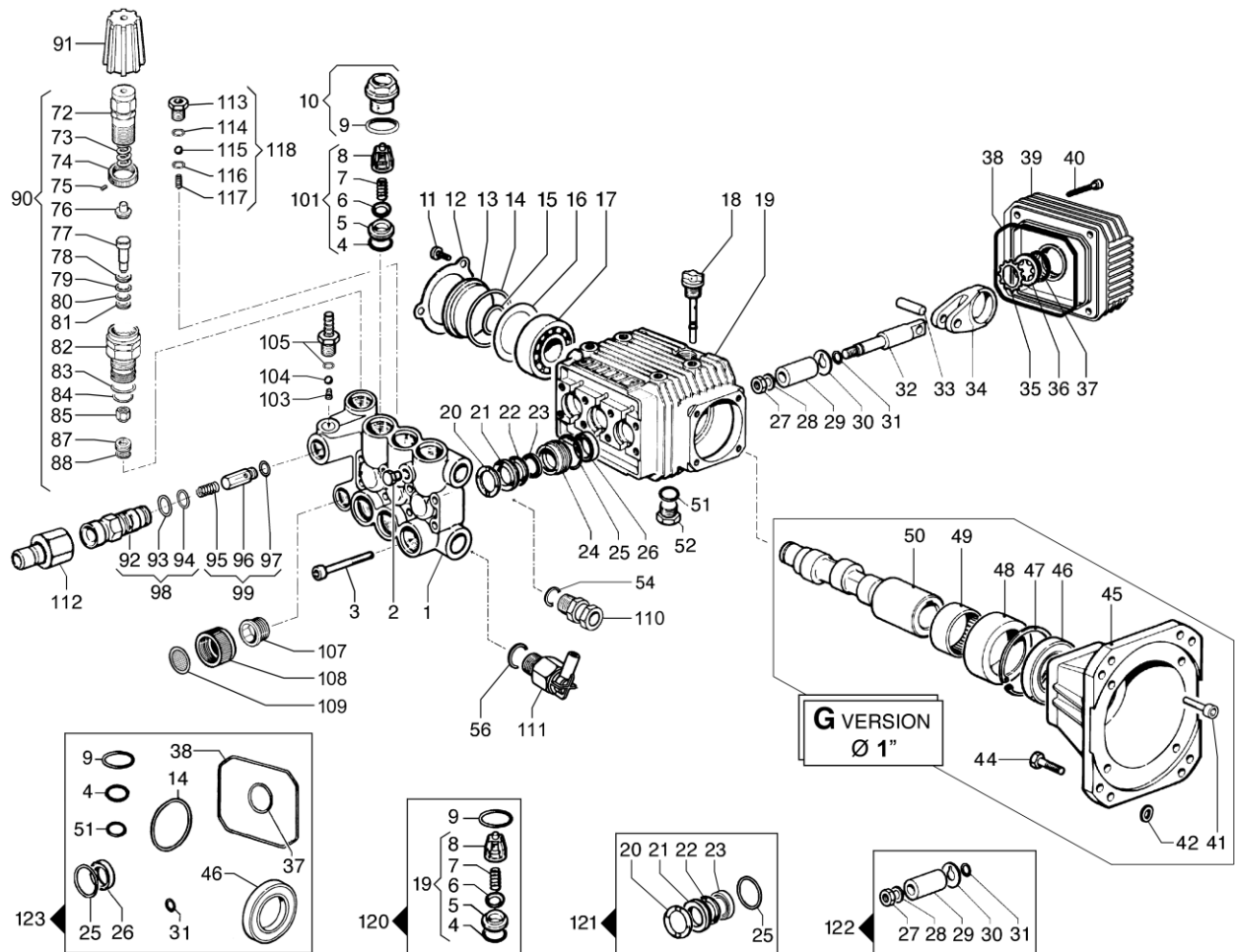
Part #	Code	Description	Qty
54	2811 0084	Washer	1
55	3200 0007	Cap	1
56	2811 0086	Washer	1
72	0204 0072	Bushing	1
73	1802 0279	Spring	1
74	1227 0051	Ring Nut	1
75	3622 0049	Stop Adjustable Nut	1
76	0009 0367	Spring Spacer	1
77	2409 0148	Rod	1
78	0009 0365	Ring	1
79	1210 0613	O-Ring	1
80	1210 0614	O-Ring	1
81	0009 0366	Ring	1
82	0204 0071	Bushing	1
83	1210 0615	O-Ring	1
84	1210 0616	O-Ring	1
85	3002 0673	Support/Ball	1
87	3009 0164	Valve Seat	1
88	1210 0603	O-Ring	1
90	1215 0403	Reg. Valve Kit + Seat	1

## NorthStar NSLW Pump Exploded View

21	1241 0065	Packing	3
22	0009 0223	Back Ring	3
23	1241 0030	Packing	3
24	0009 0222	Packing Retainer	3
25	1210 0223	O-Ring	3
26	0019 0095	Oil Seal	3
27	0600 0048	Special Bolt	3
28	2811 0080	Washer	3
29	0202 0020	Ceramic Bushing	3
30	2812 0038	Washer	3
31	1210 0055	O-Ring	3
32	2409 0044	Piston Guides	3
33	3011 0014	Gudgeon Pin	3
34	0205 0050	Con. Rod Assembly	3
35	3019 0033	Outer Seeger	1
36	3201 0026	Oil Indicator	1
37	1210 0333	O-Ring	1
38	1210 0621	O-Ring	1
39	0402 0392	Cover	1
40	3609 0180	Screw	4
41	3609 0032	Screw	4
44	3607 0199	Hexagonal Screw	4
45	3016 0012	Flange	1
46	0019 0102	Oil Seal	1
47	3020 0012	Inner Seeger	1
48	0204 0038	Bushing	1
49	0437 0045	Bearing	1
50	0001 0399	Eccentric Shaft	1
51	1210 0441	O-Ring	1
52	3200 0007	Cap	1

91	1817 0064	Pressure Knob	1
92	3410 0288	Injector Body	1
93	1210 0398	O-Ring	1
94	1210 0402	O-Ring	1
95	1802 0197	Spring	1
96	2409 0122	Check Valve	1
97	1210 0460	O-Ring	1
98	3410 0287	Injector Body Kit	1
99	2409 0123	Check Valve Kit	1
101	1220 0030	Suct. /Del. Valve Assy kit	6
103	1802 0180	Detergent Spring	1
104	3003 0026	Detergent Ball	1
105	2803 0552	Detergent Coupling	1
107	2803 0395	Special Coupling	1
108	1223 0108	Wing Nut	1
109	1002 0158	Water Filter	1
110	1215 0381	Safety Valve	1
111	1215 0329	Thermal Valve	1
112	2803 3380	Quick Outlet Coupler	1
113	3202 0319	Easy Start Cap	1
114	1210 0463	O-Ring	1
115	3003 0033	Easy Start Ball	1
116	1210 0463	O-Ring	1
117	1802 0277	Easy Start Spring	1
118	5033 0010	Easy Start Kit	1
120	5025 0011	Valve Kit	1
121	5019 0064	Water Seal Kit	1
122	2409 0071	Piston Kit	1
123	5019 0065	Oil Seal Kit	1

# NorthStar NSZW Pump Exploded View



Part #	Code	Description	Qty
1	3218 0424	Brass Pump Manifold Kit	1
2	3202 0018	Plug	1
3	3609 0014	Screw	8
4	1210 0046	O-Ring	6
5	3009 0087	Suct. /Del. Valve Seat	6
6	3604 0017	Suct. /Del. Valve	6
7	1802 0177	Spring	6
8	1205 0025	Suct. /Del. Valve Cage	6
9	1210 0048	O-Ring	6
10	3202 0315	Plug + O-Ring	6
11	3609 0088	Screw	3
12	1004 0012	Crankcase Flange	1
13	0402 0329	Aluminum Cover	1
14	1210 0386	O-Ring	1
15	3019 0011	Outer Seeger	1
16	0009 0275	Spacer	1
17	0438 0069	Ball Bearing	1
18	3200 0051	Oil Dipstick	1
19	0403 0199	Pump Crankcase	1
20	0009 0196	Packing Head Ring	3
21	1241 0065	Packing	3
22	0009 0223	Back Ring	3

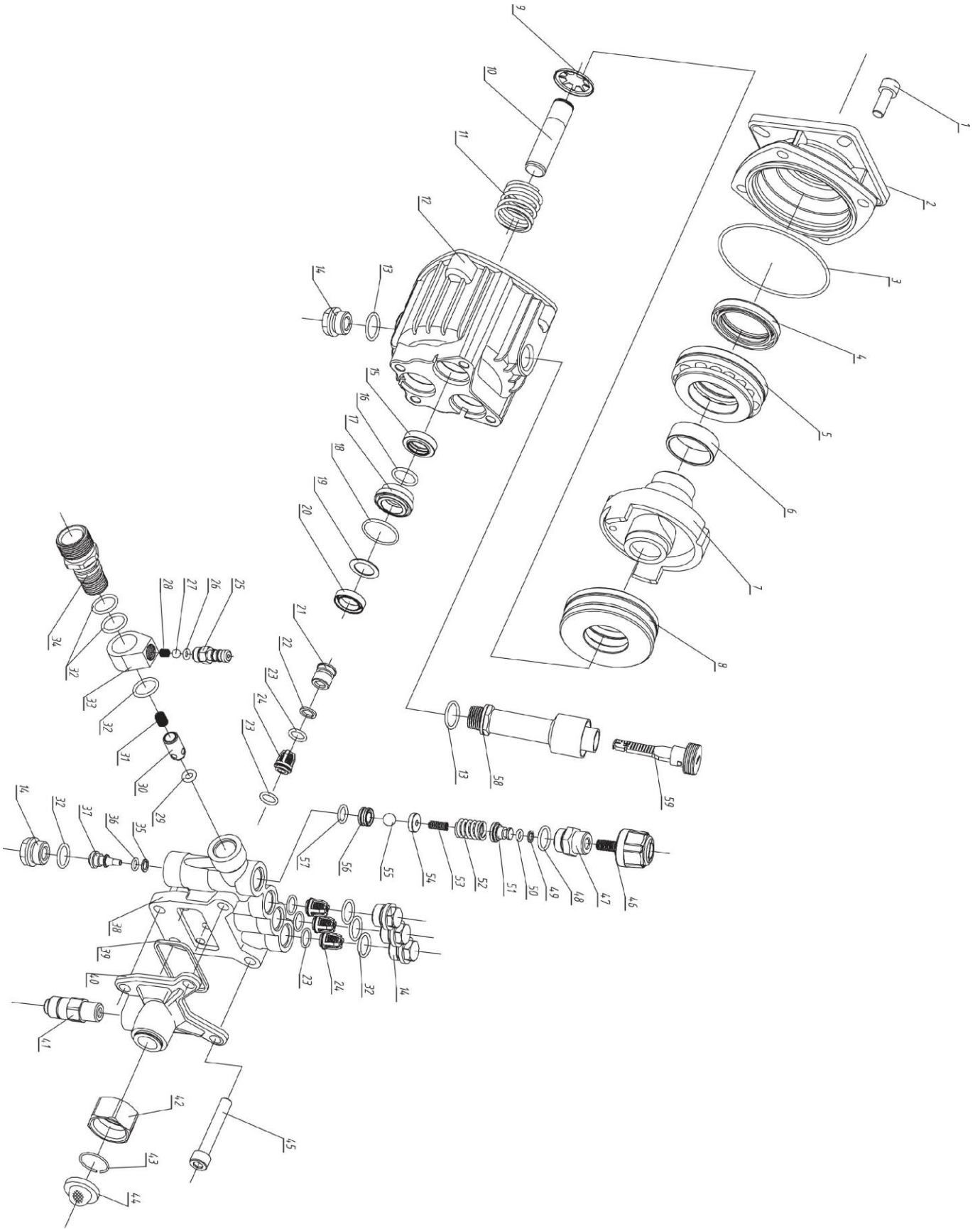
Part #	Code	Description	Qty
52	3200 0007	Cap	1
54	2811 0084	Washer	1
56	2811 0086	Washer	1
72	0204 0072	Bushing	1
73	1802 0279	Spring	1
74	1227 0051	Ring Nut	1
75	3622 0049	Stop Adjustable Nut	1
76	0009 0367	Spring Spacer	1
77	2409 0148	Rod	1
78	0009 0365	Ring	1
79	1210 0613	O-Ring	1
80	1210 0614	O-Ring	1
81	0009 0366	Ring	1
82	0204 0071	Bushing	1
83	1210 0615	O-Ring	1
84	1210 0616	O-Ring	1
85	3002 0673	Support/Ball	1
87	3009 0164	Valve Seat	1
88	1210 0603	O-Ring	1
90	1215 0404	Reg. Valve Kit + Seat	1
91	1817 0053	Pressure knob	1
92	3410 0297	Injector Body	1

## NorthStar NSZW Pump Exploded View

23	1241 0030	Packing	3
24	0009 0222	Packing Retainer	3
25	1210 0223	O-Ring	3
26	0019 0095	Oil Seal	3
27	0600 0048	Special Bolt	3
28	2811 0080	Washer	3
29	0202 0020	Ceramic Bushing	3
30	2812 0038	Washer	3
31	1210 0055	O-Ring	3
32	2409 0044	Piston Guides	3
33	3011 0014	Gudgeon Pin	3
34	0205 0050	Con. Rod Assembly	3
35	3019 0033	Outer Seeger	1
36	3201 0026	Oil Indicator	1
37	1210 0333	O-Ring	1
38	1210 0621	O-Ring	1
39	0402 0391	Cover	1
40	3609 0180	Screw	4
41	3609 0032	Screw	4
42	2811 0098	Washer	4
44	3607 0168	Hexagonal Screw	4
45	3016 0023	Flange	1
46	0019 0102	Oil Seal	1
47	3020 0012	Inner Seeger	1
48	0204 0038	Bushing	1
49	0437 0045	Bearing	1
50	0001 0415	Eccentric Shaft	1
51	1210 0441	O-Ring	1

93	1210 0398	O-Ring	1
94	1210 0402	O-Ring	1
95	1802 0197	Spring	1
96	2409 0122	Check Valve	1
97	1210 0460	O-Ring	1
98	3410 0296	Injector Body Kit	1
99	2409 0123	Check Valve Kit	1
101	1220 0030	Suct. /Del. Valve Assy kit	6
103	1802 0180	Detergent Spring	1
104	3003 0026	Detergent Ball	1
105	2803 0552	Detergent Coupling	1
107	2803 0395	Special Coupling	1
108	1223 0108	Wing Nut	1
109	1002 0158	Water Filter	1
110	1215 0381	Safety Valve	1
111	1215 0329	Thermal Valve	1
112	2803 3380	Quick Outlet Coupler	1
113	3202 0319	Easy Start Cap	1
114	1210 0463	O-Ring	1
115	3003 0033	Easy Start Ball	1
116	1210 0463	O-Ring	1
117	1802 0277	Easy Start Spring	1
118	5033 0010	Easy Start Kit	1
120	5025 0011	Valve Kit	1
121	5019 0064	Water Seal Kit	1
122	2409 0071	Piston Kit	1
123	5019 0065	Oil Seal Kit	1

# 3025A Pump Exploded View



## 3025A Pump Exploded View

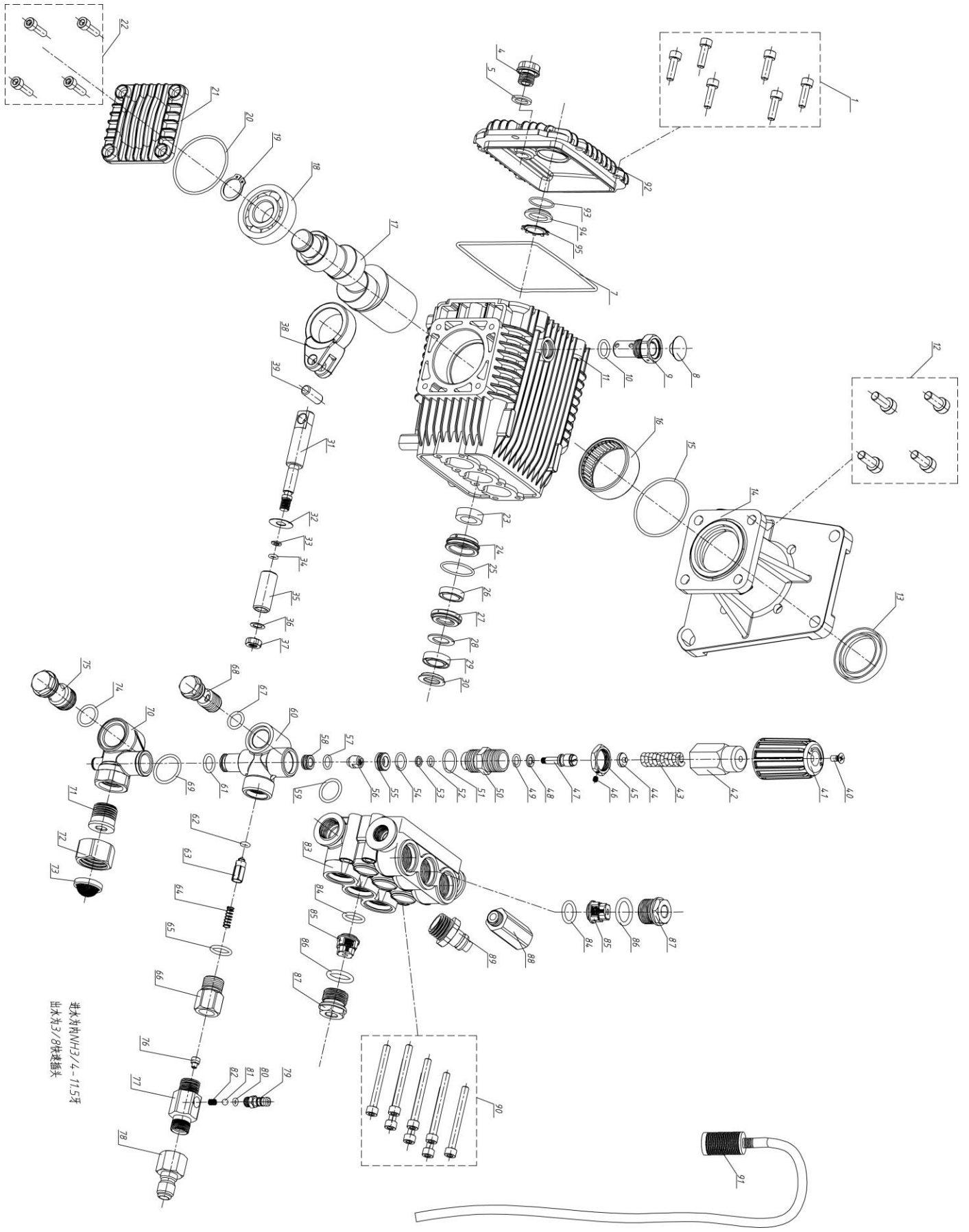
Item	Description	Part #	Qty	Item	Description	Part #	Qty
1	Socket head screw	781361	1	31	Cone valve spring	Kit #4	1
2	Pump basal flange	Kit #1	1	32	O-ring 14.2X1.9	Kit #4 Or Kit #5	7
3	O-ring 80X2.4	Kit #1	1	33	Hose barb seat	Kit #4	1
4	Radial shaft seal FB36-50-7	Kit #1	1	34	Outlet nut M22x1.5-14	Kit #4	1
5	Angular contact bearing	N/A	1	35	Back up ring 9X6.2X1.2	Kit #5	1
6	Wearable sheath	N/A	1	36	O-ring 6X1.78	Kit #5	1
7	Wobble plate	N/A	1	37	Back water valve core	Kit #5	1
8	Front bearing (51307B)	N/A	1	38	Pump head	N/A	1
9	Spring disk	N/A	1	39	Inlet water seal	Kit #6	1
10	Plunger	N/A	1	40	Inlet water body	Kit #6	1
11	Plunger spring	N/A	1	41	Thermal relief valve	781401	1
12	Crankcase	N/A	1	42	Inlet swivel nut	Kit #7	1
13	O-ring 14.2X1.9	781373	2	43	Clip ring	Kit #7	1
14	Outlet plug	Kit #5	5	44	Water filter	Kit #7	1
15	Oil seal	Kit #2	3	45	Socket head screw M8X50	N/A	4
16	O-ring 15X2.2	Kit #2	3	46	Adjusting screw	Kit #8	1
17	Spacer	Kit #2	3	47	Adjusting screw plug	Kit #8	1
18	O-ring 21.8X1.9	Kit #2	3	48	O-ring 15X2.5	Kit #8	1
19	Water seal	Kit #2	3	49	Back up ring 8.4X5.3X1.2	Kit #8	1
20	Compaction washer	Kit #2	3	50	O-ring 5.2X1.9	Kit #8	1
21	Inlet plug	N/A	3	51	Spring holder	Kit #8	1
22	Washer	N/A	3	52	Big pressure spring	Kit #8	1
23	O-ring 9.8X1.9	781383 or Kit #3	9	53	Small pressure spring	Kit #8	1
24	Valve	781384 or Kit #3	6	54	Ball holder	Kit #8	1
25	Hose barb	Kit #4	1	55	Steel ball 8.7	Kit #8	1
26	O-ring Ø3.68X1.78	Kit #4	1	56	Back water valve port	Kit #8	1
27	Steel ball	Kit #4	1	57	O-ring 9.25X1.78	Kit #8	1
28	Small cone spring	Kit #4	1	58	Breather Plug	Kit #9	1
29	O-ring 5.3X2.65	Kit #4	1	59	Dipstick		
30	Outlet cone valve	Kit #4	1				

N/A – part not available to order

## 3025A Pump Exploded View

Kit #	Description	Item #	Items Included	Qty	Kit Part #	Kit Qty Needed
1	Flange w/ Seal Kit	2	Pump basal flange	1	782837	1
		3	O-ring 80X2.4	1		
		4	Radial shaft seal FB36-50-7	1		
2	Seal Kit	15	Oil seal	1	782843	3
		16	O-ring 15X2.2	1		
		17	Spacer	1		
		18	O-ring 21.8X1.9	1		
		19	Water seal	1		
		20	Compaction washer	1		
3	Valve Kit	23	O-ring 9.8X1.9	1	781122	6
		24	Valve	1		
4	Outlet Kit w/ Injector	25	Hose barb	1	782838	1
		26	O-ring Ø3.68X1.78	1		
		27	Steel ball	1		
		28	Small cone spring	1		
		29	O-ring 5.3X2.65	1		
		30	Outlet cone valve	1		
		31	Cone valve spring	1		
		32	O-ring 14.2X1.9	1		
		33	Hose barb seat	1		
		34	Outlet nut M22x1.5-14	1		
5	Valve Cap Kit	14	Outlet plug	1	782839	5
		32	O-ring 14.2X1.9	1		
		35	Back up ring 9X6.2X1.2	1		
		36	O-ring 6X1.78	1		
		37	Back water valve core	1		
6	Inlet Flange Kit	39	Inlet water seal	1	782840	1
		40	Inlet water body	1		
7	Inlet Kit	42	Inlet swivel nut	1	782841	1
		43	Clip ring	1		
		44	Water filter	1		
8	Unloader Kit	46	Adjusting screw	1	782842	1
		47	Adjusting screw plug	1		
		48	O-ring 15X2.5	1		
		49	Back up ring 8.4X5.3X1.2	1		
		50	O-ring 5.2X1.9	1		
		51	Spring holder	1		
		52	Big pressure spring	1		
		53	Small pressure spring	1		
		54	Ball holder	1		
		55	Steel ball 8.7	1		
		56	Back water valve port	1		
57	O-ring 9.25X1.78	1				
9	Breather Plug with Dipstick Kit	58	Breather Plug	1	785819	1
		59	Dipstick	1		

# 1807A Pump Exploded View



进水管NH3/4-11.5寸  
出水为3/8吋接头

## 1807A Pump Exploded View

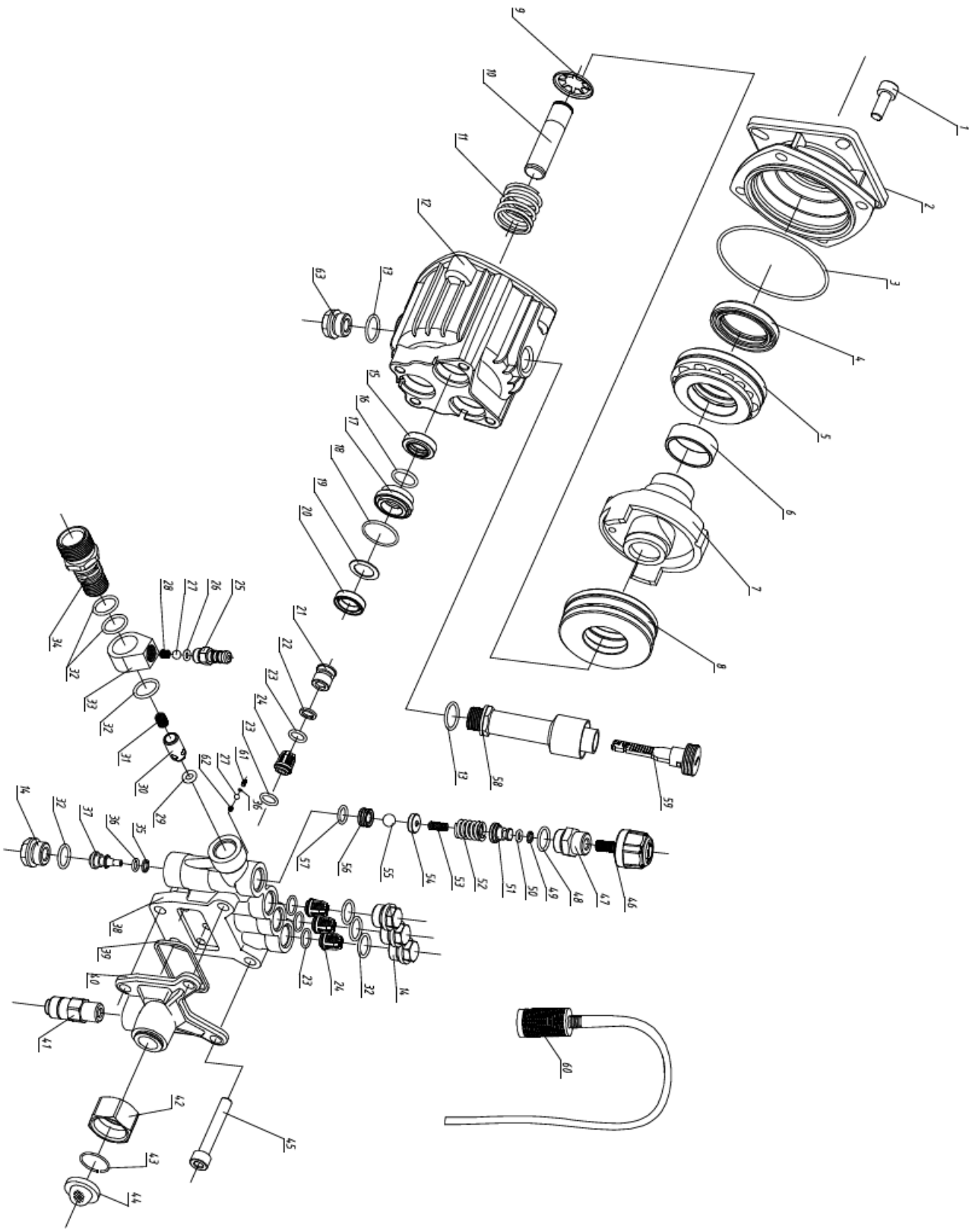
Item	Description	Part #	Qty	Item	Description	Part #	Qty
1	Screw M6*16	N/A	6	50	Valve body	Kit #11	1
4	Drain plug	Kit #1	1	51	O-ring Ø17.17*1.78	Kit #11	1
5	Gasket, drain plug	Kit #1	1	52	O-ring Ø6.08*1.78	Kit #11	1
7	O-ring Ø110*3	Kit #2	1	53	Backup ring 6.2*9*1.2	Kit #11	1
8	Cover, oil plug, Black	Kit #3	1	54	O-ring Ø 12.42*1.78	Kit #11	1
9	Oil plug	Kit #3	1	55	Seat, valve body	Kit #11	1
10	O-ring Ø12.6*1.8	Kit #3	1	56	Bullet	Kit #11	1
11	Crankcase	N/A	1	57	O-ring Ø9.25*1.78	Kit #11	1
12	Screw M8*20	N/A	4	58	Seat	Kit #11	1
13	Oil seal, crankshaft 40*52*7	Kit #4	1	59	O-ring Ø18.2*2.4	Kit #11	1
14	Flange	Kit #4	1	60	Outlet Tee connector	Kit #11	1
15	O-ring Ø51.8*2.2	Kit #4	1	61	O-ring Ø11.6*2.4	Kit #11	1
16	Needle roller bearing NK42/20	N/A	1	62	O-ring Ø4.2*2.4	Kit #11	1
17	Crankshaft	N/A	1	63	Checking valve	Kit #11	1
18	Ball bearing 6304	N/A	1	64	Spring	Kit #11	1
19	Clip Ø20	N/A	1	65	O-ring Ø15*2.5	Kit #11	1
20	O-ring Ø51.8*2.2	Kit #5	1	66	Outlet connector	Kit #11	1
21	Cover, crankshaft	Kit #5	1	67	O-ring Ø12.2*2.4	Kit #11 or Kit #8	1
22	Screw M8*16	N/A	4	68	Outlet banjo bolt	Kit #11 or Kit #8	1
23	Oil seal, plunger	Kit #6	3	69	O-ring Ø23.4*2.4	Kit #11	1
24	Locating ring	Kit #6	3	70	Inlet Tee connector	Kit #11	1
25	O-ring Ø 26.7*1.78	Kit #6	3	71	Inlet connector	Kit #11	1
26	Low pressure seal	Kit #6	3	72	Swivel nut	Kit #11	1
27	Compaction ring	Kit #6	3	73	Water filter	Kit #11	1
28	Compaction flake	Kit #6	3	74	O-ring Ø16.2*2.4	Kit #11 or Kit #8	1
29	High pressure seal	Kit #6	3	75	Inlet banjo bolt	Kit #11 or Kit #8	1
30	Supporting ring	Kit #6	3	76	Water injection tube	Kit #11 or Kit #9	1
31	Plunger rod	N/A	3	77	Soap injector	Kit #11 or Kit #9	1
32	Checking ring	Kit #7	3	78	3/8 quick connect plug	Kit #11 or Kit #9	1
33	Backup ring	Kit #7	3	79	Soap suction nozzle	Kit #11 or Kit #9	1
34	O-ring	Kit #7	3	80	O-ring Ø3.68*1.78	Kit #11 or Kit #9	1
35	Ceramic pipe	Kit #7	3	81	Ball	Kit #11 or Kit #9	1
36	Plain washer	Kit #7	3	82	Spring	Kit #11 or Kit #9	1
37	Fix nut M8	Kit #7	3	83	Manifold head	N/A	1
38	Connecting rod	N/A	3	84	O-ring Ø15.54*2.62	Kit #10	6
39	Fix pin Ø9*23	N/A	3	85	Valve	Kit #10	6
40	Fix screw M6*5	Kit #11	1	86	O-ring Ø18*2.65	Kit #10	6
41	Plastic cap, knob	Kit #11	1	87	Valve plug	N/A	6
42	Knob	Kit #11	1	88	Pop off valve	782191	1
43	Spring	Kit #11	1	89	Thermal relief valve	782192	1
44	Spring seat	Kit #11	1	90	Bolt M8*65	N/A	8
45	Jam nut	Kit #11	1	91	Siphon filter	782194	1
46	Fix screw M4*4	Kit #11	1	92	Crankcase Cover	Kit #2	1
47	Valve rod	Kit #11	1	93	O-ring	Kit #1	1
48	Backup ring 8.2*11*1.2	Kit #11	1	94	Oil Gauge	Kit #1	1
49	O-ring Ø7.65*1.78	Kit #11	1	95	Spring Disk	Kit #1	1

N/A – part not available to order

## 1807A Pump Exploded View

Kit #	Description	Items Included	Qty	Part #	Kits Qty Needed
1	Oil Drain Plug & Sight Glass Kit	4 Drain plug	1	784969	1
		5 Gasket, drain plug	1		
		93 O-ring	1		
		94 Oil Gauge	1		
		95 Spring Disk	1		
2	Crankcase Cover Kit	7 O-ring Ø110*3	1	784968	1
		92 Crankcase Cover	1		
3	Breather Cap w/dipstick Kit	8 Cover, oil plug, Black	1	782846	1
		9 Oil plug	1		
		10 O-ring Ø12.6*1.8	1		
4	Flange w/Seal Kit	13 Oil seal, crankshaft 40*52*7	1	782847	1
		14 Flange	1		
		15 O-ring Ø51.8*2.2	1		
5	Crankshaft Cover Kit	20 O-ring Ø51.8*2.2	1	782848	1
		21 Cover, crankshaft	1		
6	Seal Kit	23 Oil seal, plunger	1	782849	3
		24 Locating ring	1		
		25 O-ring Ø 26.7*1.78	1		
		26 Low pressure seal	1		
		27 Compaction ring	1		
		28 Compaction flake	1		
		29 High pressure seal	1		
		30 Supporting ring	1		
7	Plunger Kit	32 Checking ring	1	782878	3
		33 Backup ring	1		
		34 O-ring	1		
		35 Ceramic pipe	1		
		36 Plain washer	1		
		37 Fix nut M8	1		
8	Banjo Bolt Kit	67 O-ring Ø12.2*2.4	1	782852	1
		68 Outlet banjo bolt	1		
		74 O-ring Ø16.2*2.4	1		
		75 Inlet banjo bolt	1		
9	Chemical Injector Kit	76 Water injection tube	1	782853	1
		77 Soap injector	1		
		78 3/8 quick connect plug	1		
		79 Soap suction nozzle	1		
		80 O-ring Ø3.68*1.78	1		
		81 Ball	1		
		82 Spring	1		
10	Valve Kit	84 O-ring Ø15.54*2.62	6	782850	1
		85 Valve	6		
		86 O-ring Ø18*2.65	6		
11	Unloader Kit W/Injector	40-82 See Pump Parts List	N/A	782851	1

# 3025A W/Easy Start Pump Exploded View



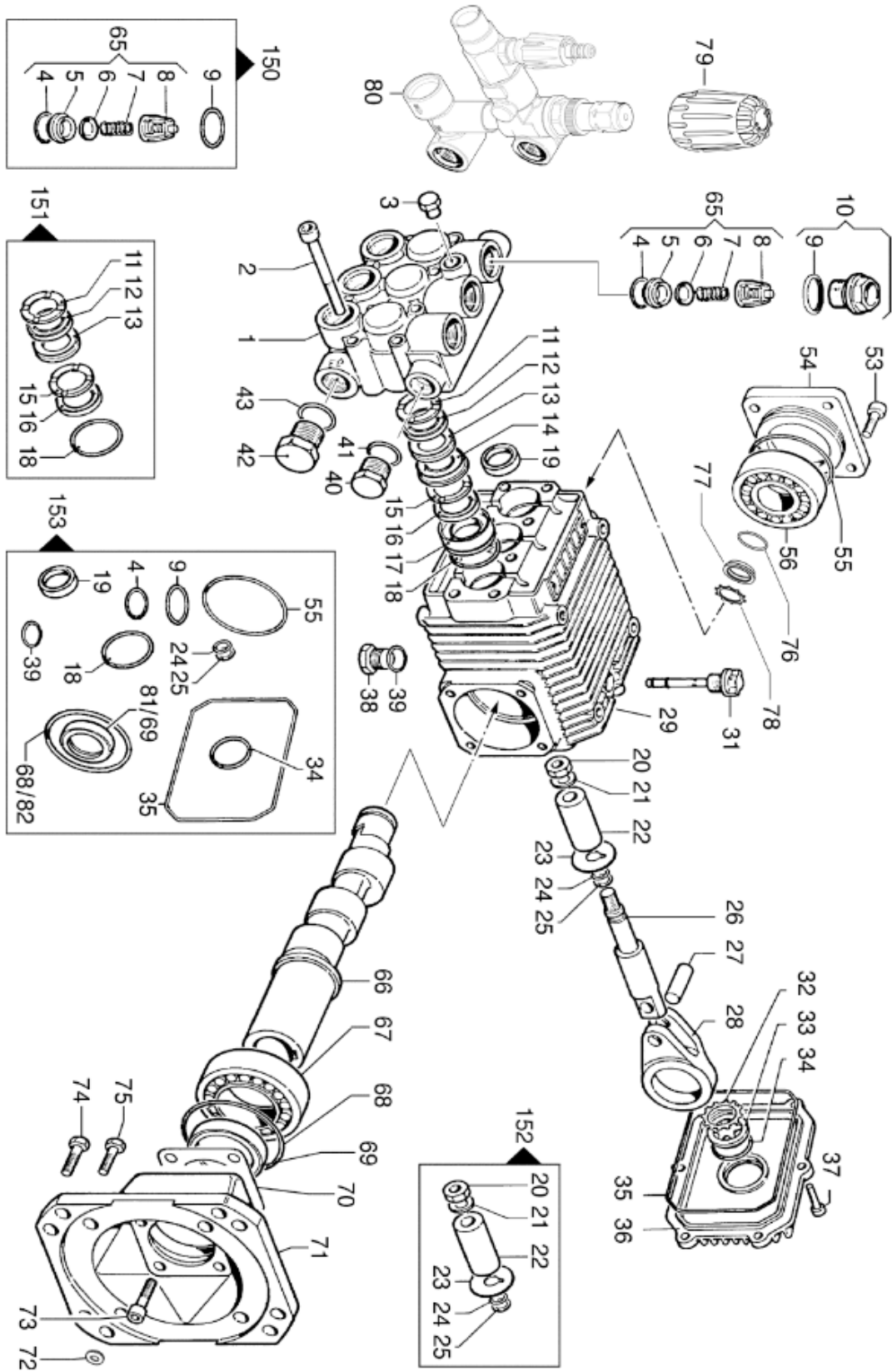
## 3025A W/Easy Start Pump Exploded View

Item	Description	Part #	Qty	Item	Description	Part #	Qty
1	Socket head screw	781361	1	32	O-ring 14.2X1.9	Kit #4 or Kit #5	7
2	Pump basal flange	Kit #1	1	33	Hose barb seat	Kit #4	1
3	O-ring 80X2.4	Kit #1	1	34	Outlet nut M22x1.5-14	Kit #4	1
4	Radial shaft seal FB36-50-7	Kit #1	1	35	Back up ring 9X6.2X1.2	Kit #5	1
5	Angular contact bearing	N/A	1	36	O-ring 6 X1.78	Kit #5 or Kit #10	2
6	Wearable sheath	N/A	1	37	Back water valve core	Kit #5	1
7	Wobble plate	N/A	1	38	Pump head	N/A	1
8	Front bearing (51307B)	N/A	1	39	Inlet water seal	Kit #6	1
9	Spring disk	N/A	1	40	Inlet water body	Kit #6	1
10	Plunger	N/A	1	41	Thermal relief valve	781401	1
11	Plunger spring	N/A	1	42	Inlet swivel nut	Kit #7	1
12	Crankcase	N/A	1	43	Clip ring	Kit #7	1
13	O-ring 14.2X1.9	781373	2	44	Water filter	Kit #7	1
14	Outlet plug	Kit #5	4	45	Socket head screw M8X50	N/A	4
15	Oil seal	Kit #2	3	46	Adjusting screw	Kit #8	1
16	O-ring 15X2.2	Kit #2	3	47	Adjusting screw plug	Kit #8	1
17	Spacer	Kit #2	3	48	O-ring 15X2.5	Kit #8	1
18	O-ring 21.8X1.9	Kit #2	3	49	Back up ring 8.4X5.3X1.2	Kit #8	1
19	Water seal	Kit #2	3	50	O-ring 5.2X1.9	Kit #8	1
20	Compaction washer	Kit #2	3	51	Spring holder	Kit #8	1
21	Inlet plug	N/A	3	52	Big pressure spring	Kit #8	1
22	Washer	N/A	3	53	Small pressure spring	Kit #8	1
23	O-ring 9.8X1.9	781383 or Kit #3	9	54	Ball holder	Kit #8	1
24	Valve	781384 or Kit #3	6	55	Steel ball 8.7	Kit #8	1
25	Hose barb	Kit #4	1	56	Back water valve port	Kit #8	1
26	O-ring Ø3.68X1.78	Kit #4	1	57	O-ring 9.25X1.78	Kit #8	1
27	Steel ball	Kit #4 or Kit #10	2	58	Breather Plug Tube	Kit #9	1
28	Small cone spring	Kit #4	1	59	Dipstick		1
29	O-ring 5.3X2.65	Kit #4	1	60	Siphon hose with filter	789237	1
30	Outlet cone valve	Kit #4	1	61	Easy start	Kit # 10	1
31	Cone valve spring	Kit #4	1	62	Spring		1
				63	Drain plug	789480	1

## 3025A W/Easy Start Pump Exploded View

Kit #	Description	Item #	Items Included	Qty	Kit Part #	Kit Qty Needed
1	Flange w/ Seal Kit	2	Pump basal flange	1	782837	1
		3	O-ring 80X2.4	1		
		4	Radial shaft seal FB36-50-7	1		
2	Seal Kit	15	Oil seal	1	782843	3
		16	O-ring 15X2.2	1		
		17	Spacer	1		
		18	O-ring 21.8X1.9	1		
		19	Water seal	1		
		20	Compaction washer	1		
3	Valve Kit	23	O-ring 9.8X1.9	1	781122	6
		24	Valve	1		
4	Outlet Kit w/ Injector	25	Hose barb	1	782838	1
		26	O-ring Ø3.68X1.78	1		
		27	Steel ball	1		
		28	Small cone spring	1		
		29	O-ring 5.3X2.65	1		
		30	Outlet cone valve	1		
		31	Cone valve spring	1		
		32	O-ring 14.2X1.9	1		
		33	Hose barb seat	1		
		34	Outlet nut M22x1.5-14	1		
5	Valve Cap Kit	14	Outlet plug	1	782839	4
		32	O-ring 14.2X1.9	1		
		35	Back up ring 9X6.2X1.2	1		
		36	O-ring 6X1.78	1		
		37	Back water valve core	1		
6	Inlet Flange Kit	39	Inlet water seal	1	782840	1
		40	Inlet water body	1		
7	Inlet Kit	42	Inlet swivel nut	1	782841	1
		43	Clip ring	1		
		44	Water filter	1		
8	Unloader Kit	46	Adjusting screw	1	782842	1
		47	Adjusting screw plug	1		
		48	O-ring 15X2.5	1		
		49	Back up ring 8.4X5.3X1.2	1		
		50	O-ring 5.2X1.9	1		
		51	Spring holder	1		
		52	Big pressure spring	1		
		53	Small pressure spring	1		
		54	Ball holder	1		
		55	Steel ball 8.7	1		
		56	Back water valve port	1		
57	O-ring 9.25X1.78	1				
9	Breather Plug with Dipstick Kit	58	Breather Plug Tube	1	791075	1
		59	Dipstick	1		
10	Easy Start Kit	27	Steel ball	1	789479	1
		36	O-ring 6X1.78	1		
		61	Easy start	1		
		62	Spring	1		

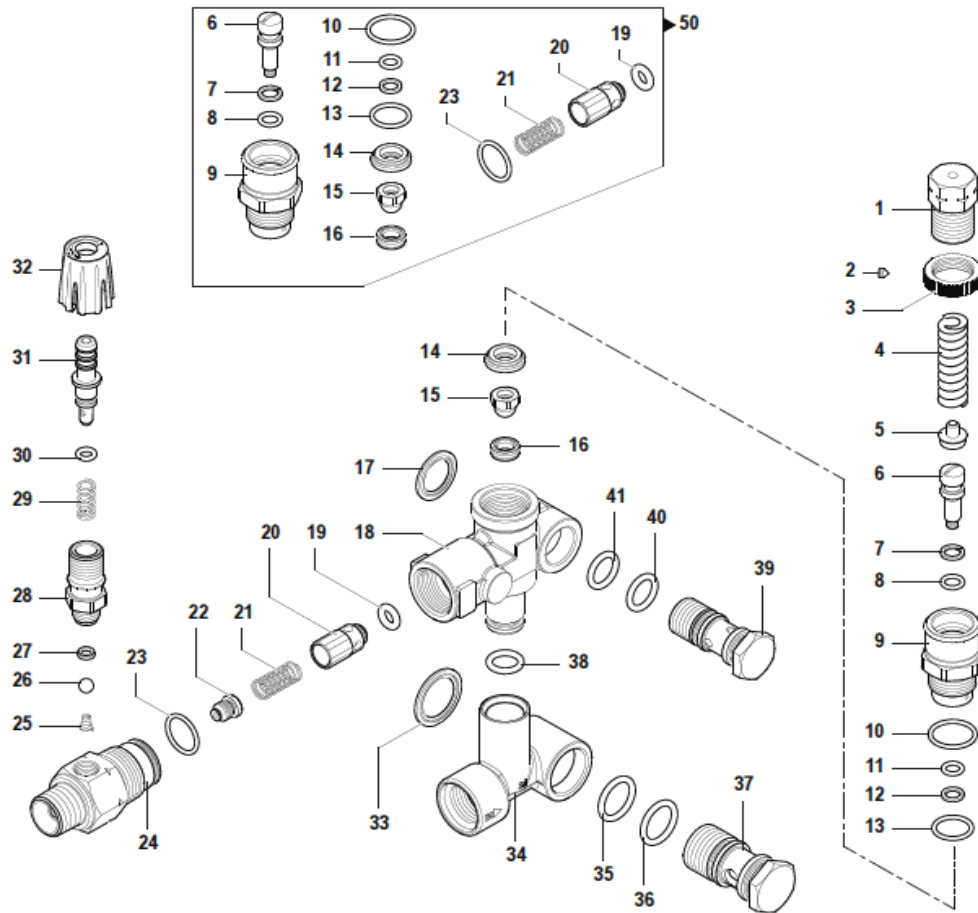
# NSSHFD5030 Pump Exploded View



## NSSHFD5030 Pump Exploded View

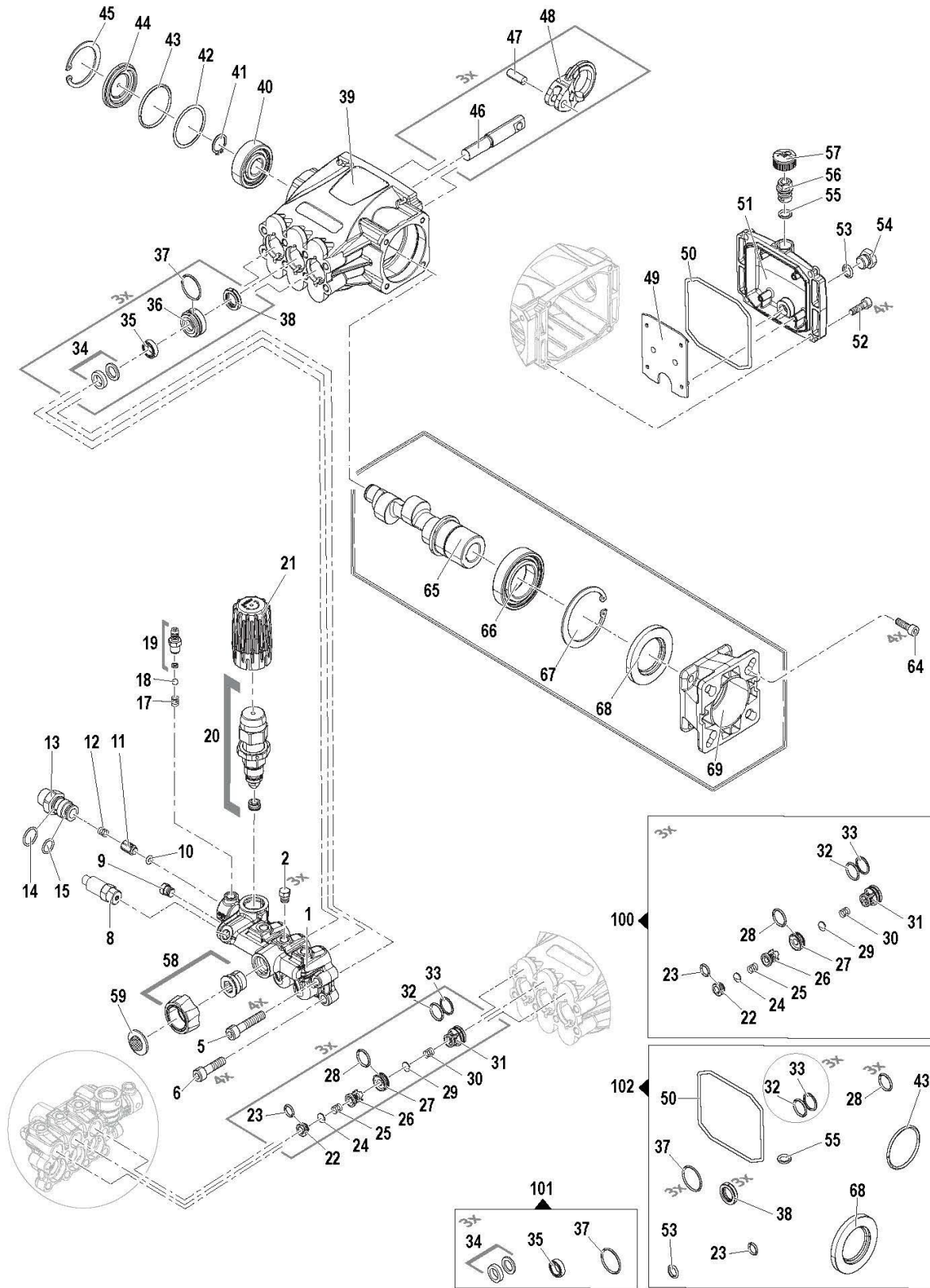
Ref #	Part #	Description	Qty	Ref #	Part #	Description	Qty
1	Not Available	Manifold	1	37	CO3609003000	Screw	6
2	Not Available	Screw	8	38	CO3200000700	Cap	1
3	CO3202011200	Cap	1	39	CO1210044100	O-Ring	1
4	CO1210004600	O-Ring	6	40	CO3200000700	Cap	1
5	CO3009008700	Suct./Del. Valve Seat	6	41	CO2811008400	Washer	1
6	Not Available	Suct./Del. Valve	6	42	CO3202001500	Cap	1
7	CO1802017700	Suct. Del. Valve Spring	6	43	CO2811008600	Washer	1
8	Not Available	Suct./Del. Valve Cage	6	53	CO3609003200	Screw	4
9	CO1210004800	O-Ring	6	54	Not Available	Flange	1
10	CO3202031200	Cap + O-ring	6	55	CO1210038800	O-Ring	1
11	Not Available	Packing Head Ring	3	56	Not Available	Roller Bearing	1
12	Not Available	Packing	3	65	CO1220007200	Suct./Del. Valve Assy. Kit	6
13	Not Available	Back Ring	3	66	Not Available	Hollow Shaft	1
14	Not Available	Packing Retainer	3	67	Not Available	Roller Bearing	1
15	Not Available	Packing Head Ring	3	68	CO1210010900	O-Ring	1
16	CO1241002200	Packing	3	69	CO0019005200	Oil Seal	1
17	CO0009021700	Packing Retainer	3	70	Not Available	Shim 0.05mm	1
18	CO1210015600	O-Ring	3	70	Not Available	Shim 0.10mm	1
19	CO0019006600	Oil Seal	3	70	Not Available	Shim 0.19mm	1
20	CO0600005400	Special Bolt	3	70	Not Available	Shim 0.25mm	1
21	CO2811008200	Washer	3	71	Not Available	Flange	1
22	CO0202002200	Ceramic Bushing	3	72	Not Available	Washer	4
23	CO2812009400	Washer	3	73	Not Available	Screw	4
24	CO1210003900	O-Ring	3	74	CO3607011900	Hexagonal Screw	4
25	CO0009017000	Anti-Extr. Ring	3	75	Not Available	Hexagonal Screw	4
26	Not Available	Piston Guides	3	76	Not Available	O-Ring	1
27	Not Available	Gudgeon Pin	3	77	CO3201002600	Oil Indicator	1
28	Not Available	Con. Rod Assembly	3	78	CO3019003300	Snap Ring	1
29	Not Available	Pump Crankcase	1	79	CO1817009700	Knob	1
31	CO3200005100	Oil Dipstick	1	80	CO1215054800	Unloader Valve	1
32	CO3019003300	Snap Ring	1				
33	CO3201002600	Oil Indicator	1	150	CO5025002500	Valve Kit	1
34	Not Available	O-Ring	1	151	CO5019021800	Water Seal Kit	1
35	Not Available	O-Ring	1	152	CO2409007300	Piston Kit	1
36	Not Available	Crankcase Cover	1	153	CO5019025700	Oil Seal Kit	1

# NSSHFD5030 Pump Exploded View



Ref #	Part #	Description	Qty	Ref #	Part #	Description	Qty
1	Not Available	Bushing	1	22	CO3410036600	Injector Body 2.3	1
2	CO3622003000	Stop Adjustable Nut	1	23	Not Available	O-Ring	1
3	CO1227002200	Ring Nut	1	24	Not Available	Coupling	1
4	Not Available	Spring	1	25	CO1802018000	Spring	1
5	CO0009020700	Spring Spacer	1	26	CO3003002600	Ball	1
6	CO2409008800	Piston Rod	1	27	CO2812006700	Washer	1
7	Not Available	Anti-Extr. Ring	1	28	CO2803064600	Coupling	1
8	Not Available	O-Ring	1	29	CO1802034400	Spring	1
9	Not Available	Bushing	1	30	CO1210056400	O-Ring	1
10	CO1210061500	O-Ring	1	31	CO2803064500	Detergent Coupling	1
11	Not Available	O-Ring	1	32	CO1817009500	Knob	1
12	Not Available	Anti-Extr. Ring	1	33	Not Available	Gasket	1
13	Not Available	O-Ring	1	34	Not Available	Lower Body	1
14	Not Available	Gasket	1	35	CO1210041000	O-Ring	1
15	CO3002065400	Unloader Ball	1	36	CO1210041000	O-Ring	1
16	CO3009001300	Seat	1	37	CO2803063400	Coupling	1
17	Not Available	Gasket	1	38	Not Available	O-Ring	1
18	Not Available	Upper Body	1	39	CO2803063500	Coupling	1
19	CO1210057000	O-Ring	1	40	CO1210041100	O-Ring	1
20	Not Available	Check Valve	1	41	CO1210041100	O-Ring	1
21	Not Available	Spring	1	50	CO5015004900	Valve Repair Kit	1

# Pump Exploded View – Comet DWD

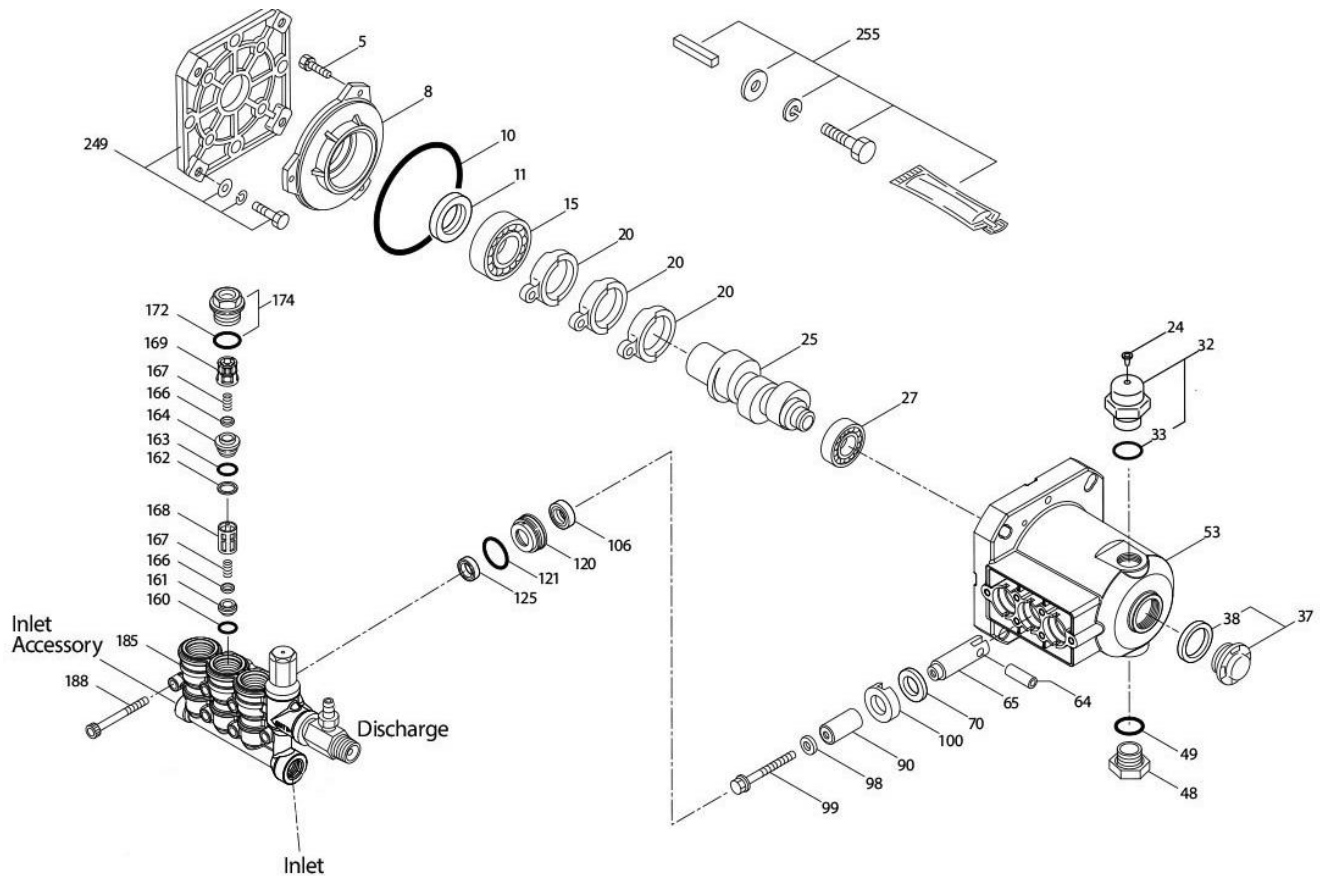


## Pump Exploded View – Comet DWD

Ref#	P/N	DESCRIPTION	QTY
1	Not Available	PUMP MANIFOLD	1
2	CO3202001800	CAP	3
5	CO3609033800	SCREW	4
6	CO3609027100	SCREW	4
8	CO1215068300	THERMAL RELIEF VAVLE	1
9	CO3202001800	SCREW	1
10	CO1210081500	O-RING	1
11	CO2409030800	CHECK VALVE	1
12	CO1802019700	SPRING	1
13	CO3410031800	EJECTOR	1
14	CO1210004000	O-RING	1
15	CO1210004900	O-RING	1
17	CO1802018000	SPRING	1
18	CO3003002400	BALL	1
19	CO2803042400	HOSE FITTING	1
20	CO1215066700	REGULATING VALVE KIT	1
21	CO1817011100	VALVE KNOB	1
22	CO3009024600	SUCTION/DISCHARGE VALVE SEAT	3
23	CO1210046500	O-RING	3
24	CO3604006300	SUCTION/DISCHARGE VALVE	3
25	CO1802025700	SUCTION/DISCHARGE VALVE SPRING	3
26	CO1205009400	SUCTION/DISCHARGE VALVE CAGE	3
27	CO3009024500	SUCTION/DISCHARGE VALVE SEAT (DISCHARGE SIDE)	3
28	CO1210041500	O-RING	3
29	CO3604006300	SUCTION/DISCHARGE VALVE	3
30	CO1802025700	SUCTION/DISCHARGE VALVE SPRING	3
31	CO1205009200	SUCTION/DISCHARGE VALVE CAGE (DISCHARGE SIDE)	3
32	CO1210082400	O-RING	3
33	CO0009095000	RING	3
34	CO1241023100	SEALING RING	3
35	CO1241024000	SEALING RING	3
36	CO0009094400	PACKING RETAINER	3
37	CO1210033300	O-RING	3
38	CO0019018500	SEALING RING	3

Ref#	P/N	DESCRIPTION	QTY
39	Not Available	PUMP CRANKCASE	1
40	CO0438014900	BEARING	1
41	CO3019001200	OUTER SEEGER	1
42	CO0009032700	AXIAL RING	1
43	CO1210035700	O-RING	1
44	CO0402055300	SIDE COVER	1
45	CO3020004600	INNER SEEGER	1
46	Not Available	PISTON	3
47	CO3011004400	PIN	3
48	CO0205010500	CONNECTION ROD	3
49	CO2404021800	COVER PLATE	1
50	CO1210082500	O-RING	1
51	CO0402055200	CRANKCASE COVER	1
52	CO3625006200	SCREW	4
53	CO1210004400	O-RING	1
54	CO3200000400	CAP	1
55	CO1210005600	O-RING	1
56	CO3202043400	CAP	1
57	CO0402053700	CAP	1
58	CO2800053700	SUCTION FITTING KIT	1
59	4027	WATER FILTER	1
64	CO3609003200	SCREW	4
65	CO0001101400	ECCENTRIC SHAFT	1
66	CO0438001500	BEARING	1
67	CO3020001200	INNER SEEGER	1
68	CO0019007500	SEALING RING	1
69	CO3016001200	MOTOR/PUMP SUPPORT	1
REPAIR KIT			
100	CO5025009800	COMPLETE VALVE KIT INCLUDES: 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33	1
101	CO5019076600	WATER SEAL KIT INCLUDES: 34, 35, 37	1
102	CO5019076800	23, 28, 32, 33, 37, 38, 43, 50, 53, 68	1

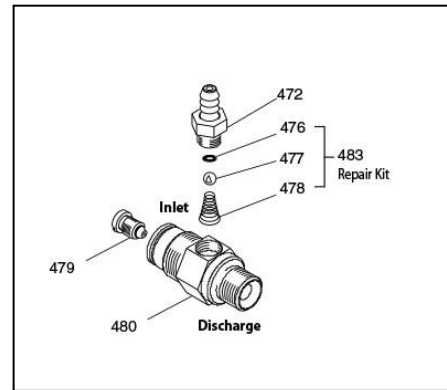
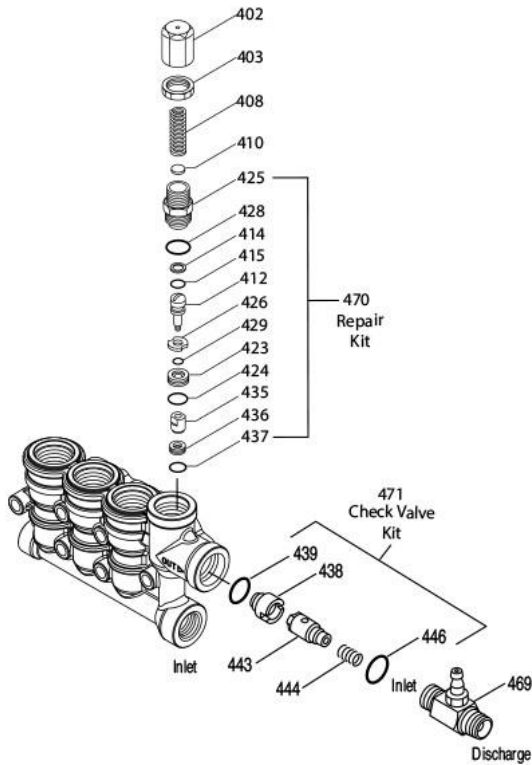
# Pump Exploded View – Cat 4DNX



Ref#	P/N	DESCRIPTION	QTY
5	CA549360	SCREW	3
8	CA547153	BEARING COVER	1
10	CA14041	O-RING, BEARING COVER	1
11	CA55337	OIL SEAL	1
15	CA14488	INNER BALL BEARING	1
20	CA547048	CONNECTING ROD	3
24	Not Available	OIL PLUG CAP	1
25	CA49883	CRANKSHAFT	1
27	CA15710	BALL BEARING	1
32	CA547961	CAP	1
33	CA14179	O-RING FOR OIL FILTER CAP	1
37	CA92241	GAUGE, BUBBLE OIL W/GASKET	1
38	CA44428	GASKET, FLAT FLEX OIL GAUGE	1
48	CA44842	DRAIN PLUG	1
49	CA14179	O-RING FOR DRAIN PLUG	1
53	Not Available	CRANKCASE	1
64	CA46229	CROSSHEAD PIN	3
65	CA542402	PLUNGER ROD	3
70	CA47215	OIL SEAL	3
90	CA547091	PLUNGER	3
98	CA46730	WASHER	3
99	CA542405	RETAINER, PLUNGER	3

Ref#	P/N	DESCRIPTION	QTY
100	CA46233	RETAINER, SEAL	3
106	CA49816	SEAL	3
120	Not Available	SEAL CASE	3
121	CA13976	O-RING FOR SEAL CASE	3
125	CA49824	SEAL	3
160	CA17428	O-RING, INLET	3
161	CA547077	SEAT, INLET	3
162	CA48361	BACK-UP RING	3
163	CA43358	O-RING	3
164	CA547076	SEAT, DISCHARGE	3
166	CA547098	VALVE	6
167	CA46865	SPRING	6
168	CA543988	RETAINER, SPRING, INLET	3
169	CA49764	RETAINER, SPRING, DISCHARGE	3
172	CA142807	O-RING FOR PLUG	3
174	CA547104	PLUG, VALVE W/O-RING	3
185	Not Available	HEAD, MANIFOLD W/UNLOADER BODY	1
188	CA549357	SCREW	6
249	CA30520	ADAPTER MOUNT ASSEMBLY	1
255	CA30516	BOLT MOUNT ASSEMBLY	1
300	CA76975	SEAL KIT INCLUDES: 98, 106, 121, 125	1
310	CA76976	VALVE KIT INCLUDES: 160, 161, 162, 163, 164, 166, 167, 168, 169, 172	1

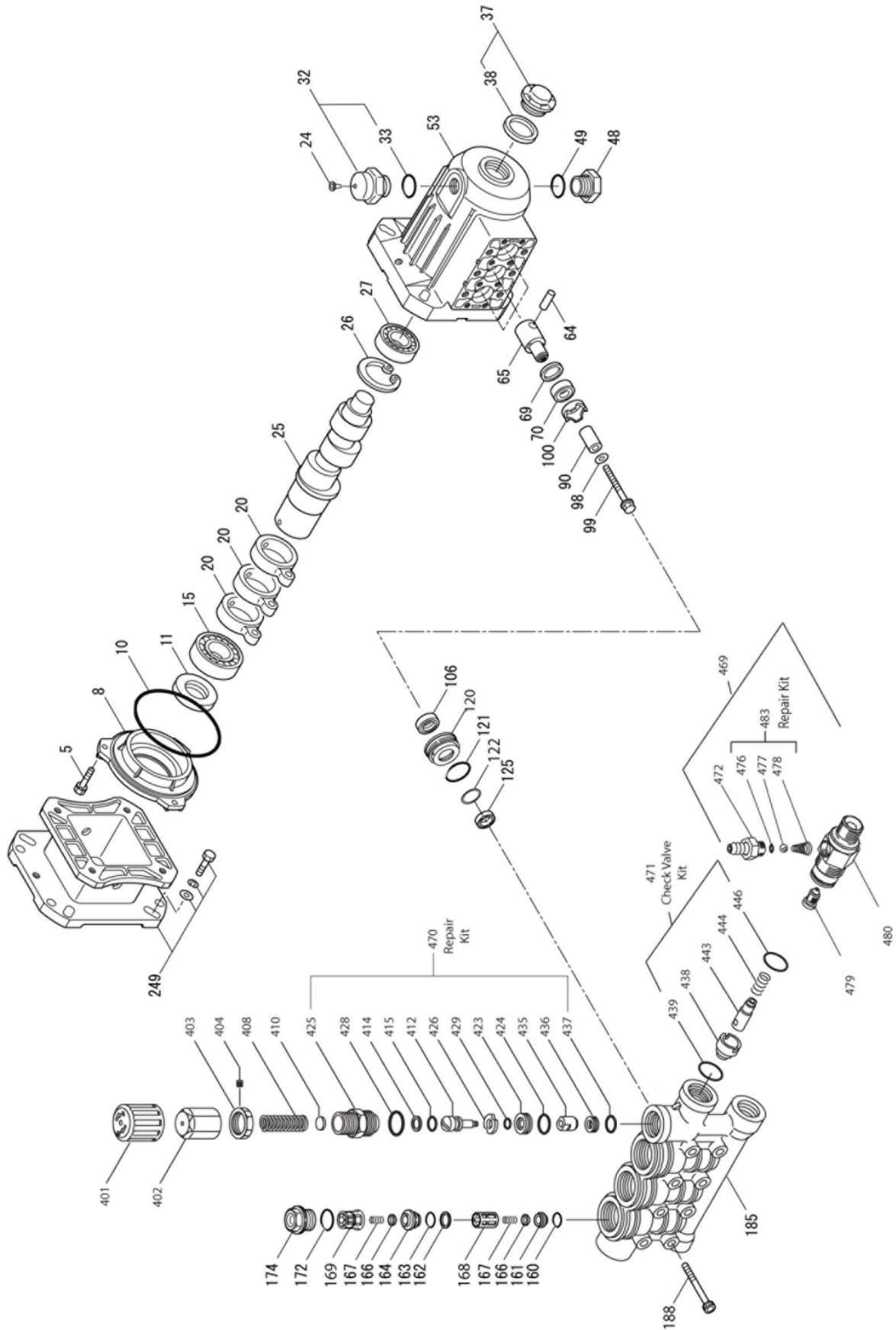
# Pump Exploded View Continued – Cat 4DNX



Ref#	P/N	DESCRIPTION	QTY
402	CA547798	ADJUSTING CAP	1
403	CA45070	LOCK NUT	1
408	CA32094	PRESSURE SPRING	1
410	CA549352	SPRING RETAINER	1
412	CA45694	PISTON STEM	1
414	CA20184	BACK UP RING	1
415	CA14190	O-RING, PISTON STEM	1
423	CA46249	RETAINER VALVE	1
424	CA13966	O-RING, VALVE RETAINER (OUTER)	1
425	CA547799	PISTON RETAINER	1
426	CA46250	WASHER	1
428	CA26133	O-RING, VALVE RETAINER	1
429	CA17399	O-RING, PISTON RETAINER (INNER)	1
435	CA547800	VALVE	1
436	CA49664	SEAT	1
437	CA13963	O-RING, SEAT	1

Ref#	P/N	DESCRIPTION	QTY
438	CA46254	SEAT, CHECK VALVE	1
439	CA13963	O-RING, CHECK VALVE SEAT	1
443	CA49765	VALVE, CHECK	1
444	CA45924	SPRING	1
446	CA26133	O-RING, BODY	1
468	CA31767	O-RING KIT INCLUDES: 414, 415, 424, 428, 429, 437, 439, 446	1
469	CA7332	CHEMICAL FIXED INJECTOR	1
470	CA76179	UNLOADER REPAIR KIT INCLUDES: 412, 414, 415, 423, 424, 425, 426, 428, 429, 435, 436, 437	1
471	CA76146	CHECK VALVE KIT INCLUDES: 438, 439, 443, 444, 446	1
472	Not Available	BARB	1
476	Not Available	O-RING, BARB -70D	1
477	Not Available	BALL	1
478	Not Available	SPRING	1
479	Not Available	ORIFICE	1
480	Not Available	BODY	1
483	CA76176	KIT, REPAIR (INCLUDES: 476, 477, 478)	1

# Pump Exploded View – Cat 4SPX

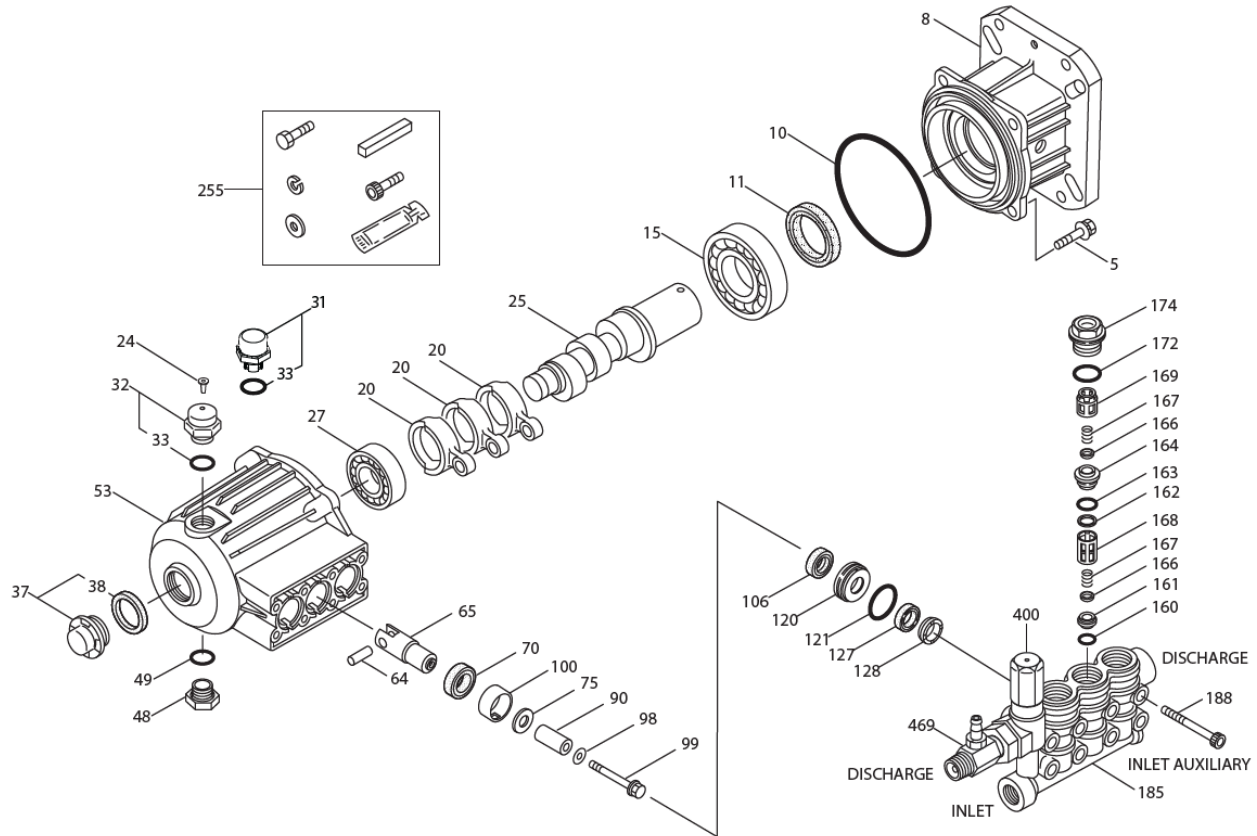


## Pump Parts List – Cat 4SPX

Ref#	P/N	DESCRIPTION	QTY
5	Not Available	SCREW	3
8	CA547084	BEARING COVER	1
10	CA14041	O-RING, BEARING COVER	1
11	CA125351	OIL SEAL	1
15	Not Available	INNER BALL BEARING	1
20	CA547020	CONNECTING ROD	3
24	Not Available	OIL PLUG CAP	1
25	Not Available	CRANKSHAFT	1
26	Not Available	RING, RETAINING	1
27	CA15710	BALL BEARING	1
32	CA547961	CAP	1
33	CA14179	O-RING, 70D (FOR OIL FILTER CAP)	1
37	CA92241	GAUGE, BUBBLE OIL W/GASKET	1
38	CA44428	GASKET, FLAT FLEX OIL GAUGE	1
48	CA44842	DRAIN PLUG	1
49	CA14179	O-RING, 70D (FOR DRAIN PLUG)	1
53	Not Available	CRANKCASE	1
64	CA16948	CROSSHEAD PIN	3
65	CA548872	PLUNGER ROD	3
69	CA126259	WASHER, OIL SEAL	3
70	CA25301	OIL SEAL	3
90	CA547091	PLUNGER	3
98	CA46730	WASHER	3
99	CA542405	RETAINER, PLUNGER	3
100	CA44869	RETAINER, SEAL	3
106	CA45188	SEAL	3
120	CA49942	SEAL CASE	3
121	CA13977	O-RING FOR SEAL CASE	3
122	CA49943	RING, SUPPORT	3
125	CA49824	SEAL	3
160	CA17428	O-RING, INLET	3
161	CA547077	SEAT, INLET	3
162	CA48361	BACK-UP RING	3
163	CA43358	O-RING	3
164	CA547076	SEAT, DISCHARGE	3
166	CA547098	VALVE	6
167	CA46865	SPRING	6
168	CA543988	RETAINER, SPRING, INLET	3
169	CA49764	RETAINER, SPRING, DISCHARGE	3
172	CA142807	O-RING FOR PLUG	3
174	CA547104	PLUG, VALVE W/O-RING	3
185	Not Available	HEAD, MANIFOLD W/UNLOADER BODY	1

Ref#	P/N	DESCRIPTION	QTY
188	Not Available	SCREW	6
249	CA31643	ADAPTER MOUNT ASSEMBLY	1
401	CA547797	HANDLE, ADJUSTING	1
402	CA547798	ADJUSTING CAP	1
403	CA548671	LOCK NUT	1
404	CA548675	SCREW, SET	1
408	CA32094	PRESSURE SPRING	1
410	CA549352	SPRING RETAINER	1
412	CA45694	PISTON STEM	1
414	CA20184	BACK UP RING	1
415	CA14190	O-RING, PISTON STEM	1
423	CA46249	RETAINER VALVE	1
424	CA13966	O-RING, VALVE RETAINER (OUTER)	1
425	CA547799	PISTON RETAINER	1
426	CA46250	WASHER	1
428	CA26133	O-RING, 80D (FOR PISTON RETAINER)	1
429	CA17399	O-RING, VALVE RETAINER (INNER)	1
435	CA547800	VALVE	1
436	CA49664	SEAT	1
437	CA13963	O-RING, 70D (FOR SEAT)	1
438	CA46254	SEAT, CHECK VALVE	1
439	CA13963	O-RING, 70D (FOR CHECK VALVE SEAT)	1
443	CA547826	VALVE, CHECK	1
444	CA45924	SPRING	1
446	CA26133	O-RING, 70D (FOR BODY)	1
469	CA7332	CHEMICAL FIXED INJECTOR	1
470	CA76179	UNLOADER REPAIR KIT INCLDS: 412, 414, 415, 423, 424, 425, 426, 429, 431, 435, 436, 437	1
471	CA76146	CHECK VALVE KIT INCLDS: 438, 439, 443, 444, 446	1
472	Not Available	BARB	1
476	See # 483	O-RING, BARB	1
477	See # 483	BALL	1
478	See # 483	SPRING	1
479	Not Available	ORIFICE	1
480	Not Available	BODY	1
483	CA76176	KIT, REPAIR INCLDS: 476, 477, 478	1
Kit #1	CA76977	SEAL KIT INCLDS: 98, 106, 121, 125	1
Kit #2	CA76976	VALVE KIT INCLDS: 160, 161, 162, 163, 164, 166, 167, 168, 169, 172	1
Kit #3	CA31767	O-RING KIT INCLDS: 414, 415, 424, 429, 437, 439, 446)	1

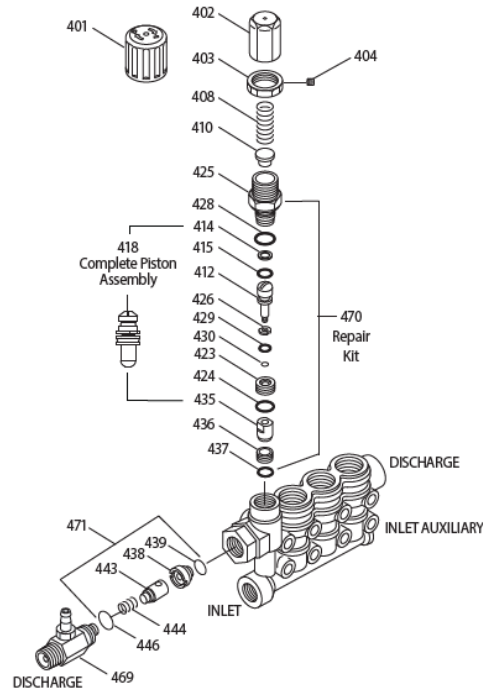
# Pump Exploded View – Cat (A1578201) – Rev. AA



Ref#	P/N	DESCRIPTION	QTY
5	Not Available	SCREW	4
8	Not Available	BEARING COVER	1
10	CA14023	O-RING, BEARING COVER	1
11	CA125351	OIL SEAL	1
15	CA146421	INNER BALL BEARING	1
20	CA49364	CONNECTING ROD	3
24	CA549608	PLUG, OIL CAP	1
25	CA49391	CRANKSHAFT	1
27	CA49363	BALL BEARING	1
31	CA549726	CAP, VENTED W/ O-RING	1
32	CA547961	CAP	1
33	CA14179	O-RING FOR OIL FILTER CAP	1
37	CA92241	GAUGE, BUBBLE OIL W/GASKET	1
38	CA44428	GASKET, FLAT OIL GAUGE	1
48	CA44842	DRAIN PLUG	1
49	CA14179	O-RING FOR DRAIN PLUG	1
53	CA49352	CRANKCASE	1
64	CA49366	CROSSHEAD PIN	3
106	CA45188	SEAL	3
120	CA49374	SEAL CASE	3
121	CA13977	O-RING FOR SEAL CASE	3
127	CA49606	V-PAVKING	3
98	CA46730	WASHER, SEAL-90D	3
99	CA49369	RETAINER, PLUNGER	3
100	CA49371	RETAINER, SEAL	3

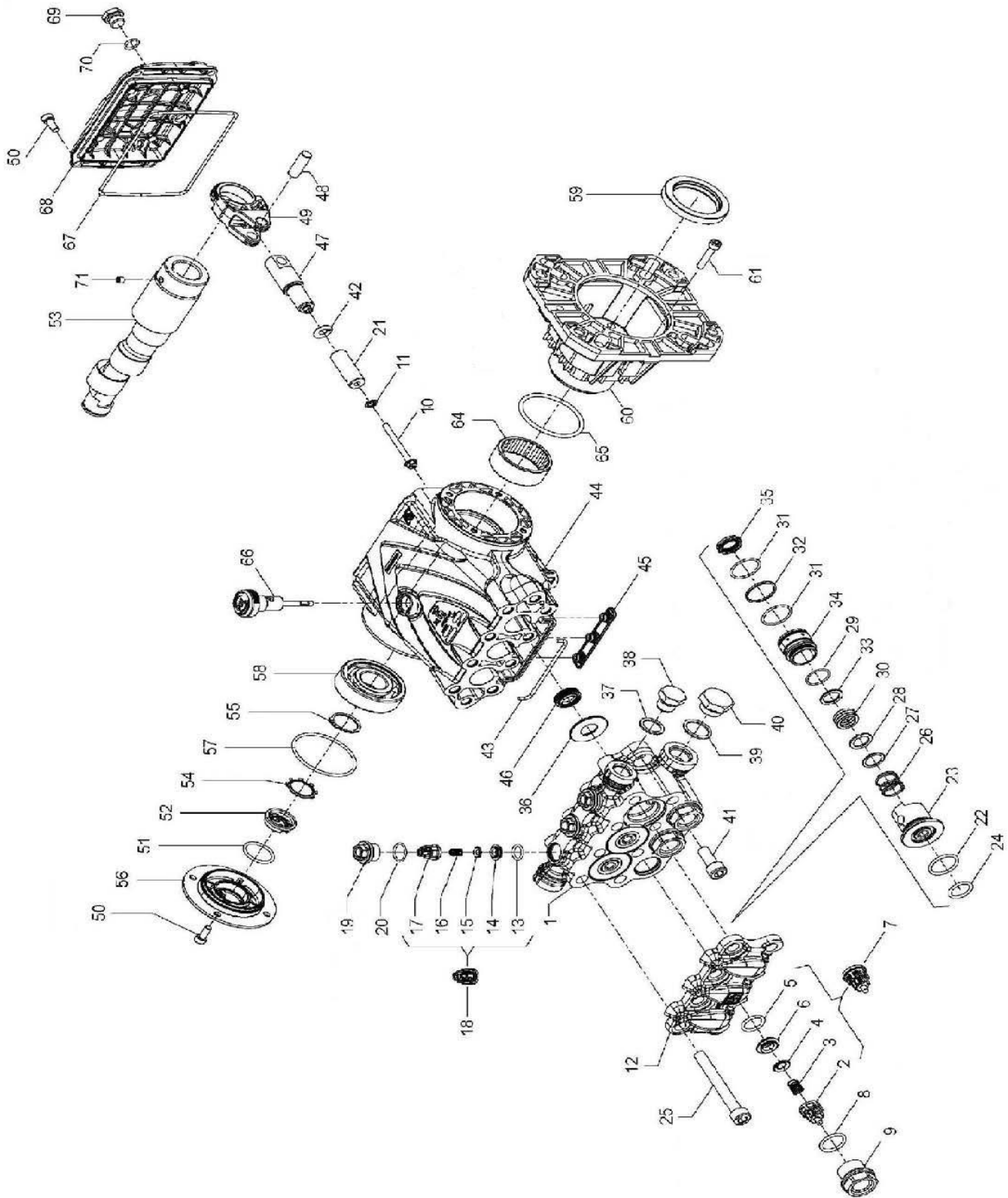
Ref#	P/N	DESCRIPTION	QTY
128	CA49605	MALE ADAPTER	3
160	CA26129	O-RING, INLET VALVE SEAT	3
161	CA49378	SEAT, INLET	3
162	CA48361	BACK-UP RING, DISCHARGE SEAT	3
163	CA43358	O-RING	3
164	CA49376	SEAT, DISCHARGE	3
166	CA547098	VALVE	6
167	CA49354	SPRING	6
168	CA49377	RETAINER, SPRING, INLET	3
169	CA547441	RETINER, SPRING	3
172	CA49382	O-RING FOR PLUG	3
174	CA49380	PLUG, VALVE W/O-RING	3
185	CA49372	HEAD, MANIFOLD W/UNLOADER BODY	1
188	CA126512	SCREW	8
255	CA31445	BOLT MOUNT ASSY.	1
300	CA76362	SEAL KIT (INCLUDES: 98, 106, 121, 127, 128)	1
310	CA76260	VALVE KIT (INCLUDES: 160-164, 166, 167, 168, 169, 172)	1
469	CA7367	INJECTOR, CHEMICAL FIXED	1

# Pump Exploded View Continued – Cat (A1578201) – Rev. AA.1



Ref#	P/N	DESCRIPTION	QTY	Ref#	P/N	DESCRIPTION	QTY
401	CA49100	HANDLE, ADJUSTING (BLACK)	1	460	CA126974	FITTING, DISCHARGE, 3/8"	1
402	<i>Not Available</i>	CAP, ADJUSTING	1	468	CA31708	KIT, O-RING (INCLUDES: 414, 415, 424, 428-430, 437, 446, 454)	1
403	CA125521	NUT, LOCKING (M25X1)	1	469	CA7367	INJECTOR, CHEMICAL FIXED	1
404	CA88953	SCREW, SET (M4X4)	1	470	CA31556	KIT, REPAIR (INCLUDES: 418,425,428,436,437)	1
408	CA45198	SPRING, PRESSURE	1	471	CA76185	KIT, CHECK VALVE (INCLUDES: 443, 444, 446)	1
410	CA49101	RETAINER, SPRING	1	472	<i>Not Available</i>	BARB	1
412	CA49103	STEM, PISTON	1	476	<i>Not Available</i>	O-RING, BARB – 70D	1
414	CA129638	BACK-UP-RING, PISTON STEM	1	477	<i>Not Available</i>	BALL	1
415	CA49104	O-RING, PISTON STEM – 90D	1	478	<i>Not Available</i>	SPRING	1
423	CA49105	RETAINER, VALVE	1	479	<i>Not Available</i>	ORIFICE	1
424	CA49106	O-RING, VALVE RETAINER – 70D	1	480	<i>Not Available</i>	BODY	1
425	CA49102	RETAINER, PISTON	1	468	CA31708	KIT, O-RING (INCLUDES: 414, 415, 424, 428-430, 437, 446, 454)	1
426	CA49107	WASHER	1	469	CA7367	INJECTOR, CHEMICAL FIXED	1
428	CA26133	O-RING, PISTON RETAINER – 80D	1	480	<i>Not Available</i>	BODY	1
429	CA22056	O-RING, VALVE RETAINER – 70D	1	483	CA76176	KIT, INJECTOR REPAIR (INCLUDES: 476, 477, 478)	1
430	CA49123	BACK-UP-RING, VALVE RETAINER	1				
435	CA49383	VALVE/BALL ASSEMBLY	1				
436	CA49384	SEAT	1				
437	CA13965	O-RING, SEAT – 70D	1				
438	CA49386	SEAT, CHECK VALVE	1				
439	CA13963	O-RING, CHECK VALVE SEAT	1				
444	CA117275	SPRING, CHECK VALVE	1				
446	CA26133	O-RING, BODY – 80D	1				
443	CA49245	VALVE, CHECK W/NBR O-RING	1				

# Pump Exploded View – General Pump ME11511G8



# Pump Exploded View – General Pump ME11511G8

Ref#	P/N	DESCRIPTION	QTY
1	Not Available	Manifold Ø 15	1
2	GP36202551	Inlet Valve Guide	3
3	GP94737600	Inlet Spring, Ø9.4x14.8	3
4	GP36200176	Spherical Inlet Valve	3
5	GP90384100	O-ring, Ø17.13x2.62	3
6	GP36200366	Valve Seat	3
7	GP36711501	Inlet Valve Assy.	3
8	GP90384700	O-ring, Ø20.29x2.62	3
9	GP98222500	Plug, M24x1.5x16.7	3
10	GP99169000	Plunger Bolt	3
11	GP96690500	Washer Ø5.0x11.5x0.4	3
12	GP81210015	Front Cover	1
13	GP90367400	O-ring, Ø12x2	3
14	GP36211366	Valve Seat Outlet	3
15	GP36211276	Poppet Outlet Valve	3
16	GP94733300	Outlet Spring	3
17	GP36211151	Valve Guide	3
18	GP36719301	Outlet Valve Assy.	3
19	GP98213750	Valve Cap	3
20	GP90359300	O-ring Ø15.6x1.78	3
21	GP58040109	Plunger Ø15x42	3
22	GP90385800	O-ring, Ø23.81x2.62, Ø15	3
23	GP81210870	Cartridge Bushing, KC, Ø15	3
24	GP90384300	O-ring, Ø17.86x2.62 Ø15	3
25	GP99378950	Bolt M10x85 Zinc	8
26	GP94749000	Spring, Ø19x17, Ø15	3
27	GP81211256	Spring Ring, Ø15	3
28	GP81211451	Scraper Ring, KC, Ø15	3
29	GP90351800	O-ring, Ø20x1.5 Ø15	3
30	GP90552500	Sealing Ring, KC, Ø15x21x9	3
31	GP90360400	O-ring Ø25.12x1.78 Ø15	6
32	GP90516900	Anti-extrusion Ring Ø26x29x1 Ø15	3
33	GP90508930	Anti-extrusion Ring Ø15x21x1.5	3
34	GP81211070	Intermediate Ring, KC, Ø15	3
35	GP90260800	Sealing Ring, LP, Ø15x22x5	3

Ref#	P/N	DESCRIPTION	QTY
36	GP81210670	Bottom Ring, Ø15	3
37	GP96738000	Washer Ø17.5x23x1.5	1
38	GP98210050	Plug, G3/8"x13	1
39	GP96751400	Washer, Ø21.5x27x1.5	1
40	GP98218700	Plug, G1/2"x10	2
41	GP99366800	Bolt M10x25	2
42	Not Available	Washer, Ø7.5x18x0.5	3
43	Not Available	Gasket Ø3x99	1
44	Not Available	Crankcase	1
45	Not Available	Drip Cover	1
46	GP90156550	Seal Ø15x24x5.0/7.0	3
47	Not Available	Plunger Guide	3
48	GP97734000	Pin Ø10x29.5	3
49	Not Available	Plunger Rod	3
50	GP99183700	Bolt M6x14	8
51	GP90385900	O-ring, Ø25.07x2.62	1
52	GP53210851	Oil Sight Glass	1
53	Not Available	Crank Shaft (ME11511G8)	1
54	GP90067100	Stop Ring	1
55	Not Available	Stop Ring	1
56	Not Available	Side Cover	1
57	GP90389800	O-ring, Ø56.82x2.62	1
58	Not Available	Bearing	1
59	GP90169000	Oil Seal	1
60	Not Available	Flange, Gas Engine	1
61	GP99191200	Bolt, M06x30	4
64	Not Available	Needle Bearing	1
65	GP90409700	O-ring, Ø55.56x3.53	1
66	Not Available	Dipstick with O-ring	1
67	GP90392600	O-ring, Ø120.32x2.62	1
68	GP81160022	Rear Cover	1
69	GP98204250	Plug, G1/4"x9	1
70	GP90358500	O-ring, Ø10.82x1.78	1
71	Not Available	Bolt, M6x06	1

REPAIR KITS					
KIT NO	GPK269	GPK271	GPK292	GPK358	GPK359
ITEM NO'S INCLUDED IN KIT	2, 3, 4, 5, 6, 13, 14, 15, 16, (7), (18)	46	8, 9, 19, 20	22, 24, 28, 29, 30, 31, 32, 33, 35	22, 23, 24, 26, 27, 28, 32, 33, 34, 35
NUMBERS OF CYLINDERS KIT WILL SERVICE	3	3	3	3	1

# Limited Warranty

Dear Valued Customer:

The Northstar or Powerhorse Product you just purchased is built with the finest material and craftsmanship. Use this product properly and enjoy the benefits from its high performance. By purchasing a Northstar or Powerhorse product, you show a desire for quality and durability. Like all mechanical equipment this unit requires a due amount of care. Treat this unit like the high-quality piece of machinery it is. Neglect and improper handling may impair its performance. Please thoroughly read the instructions and understand the operation before using your product. Always contact Northstar Product Support at 1-800-270-0810 or Powerhorse Product Support at 1-866-443-2576 prior to having any service or warranty work performed, as some services performed by parties other than Northstar or Powerhorse approved service centers may void this warranty. This warranty is in lieu of any other warranty expressed or implied and Northstar or Powerhorse assumes no other responsibility or liability outside that expressed within this warranty.

## Limited Warranty

Northstar or Powerhorse shall warranty any piece of equipment manufactured, or parts of equipment manufactured, to be free from defects in material or workmanship for a period of:

<b>Powerhorse Warranty</b>		
Item #	Consumer Warranty Period	Commercial Warranty Period
A157711 A157712 A1577110	12 months from date of purchase by user	12 months from date of purchase by user
<b>Northstar Warranty</b>		
Item #	Consumer Warranty Period	Commercial Warranty Period
A1573701, A1577541, A1578111, A1578131, A1578151, A1578171, A157594, A1578181, A1578201	12 months from date of purchase by user	12 months from date of purchase by user
A1578203 A1578173 A15782030	12 months from date of purchase by user	12 months from date of purchase by user

“Consumer use” means personal residential household use by a consumer. “Commercial use” means all other uses, including use for commercial, income producing or rental purposes or when purchased by a business.

This warranty applies to the original purchaser of the equipment (verification of purchase, in the form of a receipt, is the responsibility of the buyer), is non-transferable, and covers parts and labor. Parts will be replaced or repaired at no charge, except when the equipment has failed due to lack of proper maintenance. If a part is no longer available, the part may be replaced with a similar part of equal function. Any misuse, abuse, alteration or improper installation or operations will void warranty. Determining whether a part is to be replaced or repaired is the sole decision of Northstar or Powerhorse. Northstar or Powerhorse will not provide for replacement of complete products due to defective parts. Any costs incurred due to replacement or repair of items outside of a Northstar or Powerhorse approved facility is the responsibility of the buyer and not covered under warranty. Transportation costs to and from service center is the responsibility of the customer.

In addition to the normal warranty, Northstar or Powerhorse shall warrant any normal wear item from defects in material or workmanship for a period of 90 days from the date of purchase by user. Normal wear items include, but are not limited to, nozzles, quick connect fittings, valves, seals, hoses, springs, O-rings, unloader valves and filter elements.

This warranty specifically excludes the following; failure of parts due to damage caused by accident, fire, flood, windstorm, acts of God, applications not approved by Northstar or Powerhorse in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer’s specifications, damage related to rodent and/or insect infestation and damage caused by vandalism. Additional exclusions: loss of running time, inconvenience, loss of income, or loss of use, including any implied warranty of merchantability of fitness for a specific use. Also, Outdoor Power Equipment needs periodic parts and service to perform well, and this warranty does not cover instances when normal use has exhausted the life of a component or the engine.

This warranty does not cover any personal injury or damage to surrounding property caused by failure of any part. Repair or replacement of parts does not extend the warranty period.

Please fill in the following information and have it on hand when you call in on a warranty claim.

Customer Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Northstar or Powerhorse Date Code: \_\_\_\_\_

Item Number: \_\_\_\_\_



Assembled by  
Northern Tool & Equipment Company, Inc.  
Burnsville, MN 55306  
[NorthernTool.com](http://NorthernTool.com)