




# MA157204K

**ITEM NUMBERS:**

A157204, A157205, A157207, A157304,  
A157598, A1572042, A1572081, A1572082,  
A1572091, A1572092, A157134, A157136,  
A1572041, A1571107, A1571108, A1571109

# Owner's Manual

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

	<b>⚠ WARNING</b>
	<p><b>Read this manual.</b> Serious injury or death can result if safety instructions are not followed.</p>

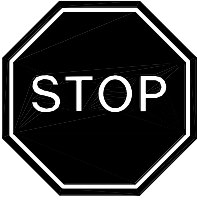
	<p><b>Pump is shipped with oil. Must check oil level before use.</b></p> <ul style="list-style-type: none"><li>- Remove shipping plug and install vented fill cap. (Comet Pumps)</li><li>- Remove shipping tape and black vent plug (if present) from oil fill cap. (Cat Pumps)</li><li>- Remove shipping plug and install dipstick. (General Pumps)</li><li>- Remove shipping plug and install dipstick. (NorthStar Pumps)</li><li>- Remove shipping plug and install vented fill cap. (Powerhorse Pumps)</li><li>- See pump oil cap section of this manual.</li></ul>
	<p><b>Closely inspect all components.</b></p> <ul style="list-style-type: none"><li>-If you have damaged components then: Contact the freight company that delivered the unit and file a claim.</li><li>-If you have missing components then: Contact Customer Service at 1-800-270-0810.</li></ul>

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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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# 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

## **WARNING**



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

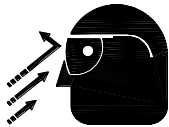
Serious injury or death can result if chemical manufacturer instructions are not followed.

- 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.



### **6.) Risk of electrocution.**

Electricity can kill you. Keep water away from electrical outlets and electrical devices.



### **7.) Flying objects.**

Small particles may fly out while spraying. Wear safety glasses. Serious eye injury can occur. Make sure nozzle is secure before squeezing trigger. If nozzle is not secure it will become a projectile.



### **8.) Fall hazard.**

Pressure washer creates puddles and slippery surfaces. Keep good footing and balance. Serious injury can occur.

- Wear footwear capable of maintaining a good grip on wet surfaces.
- Gun kicks back. Hold with both hands.
- Do not overreach or stand on unstable supports.
- Do not stand on ladders or scaffolding.
- Do not place pressure washer on soft or unstable ground.



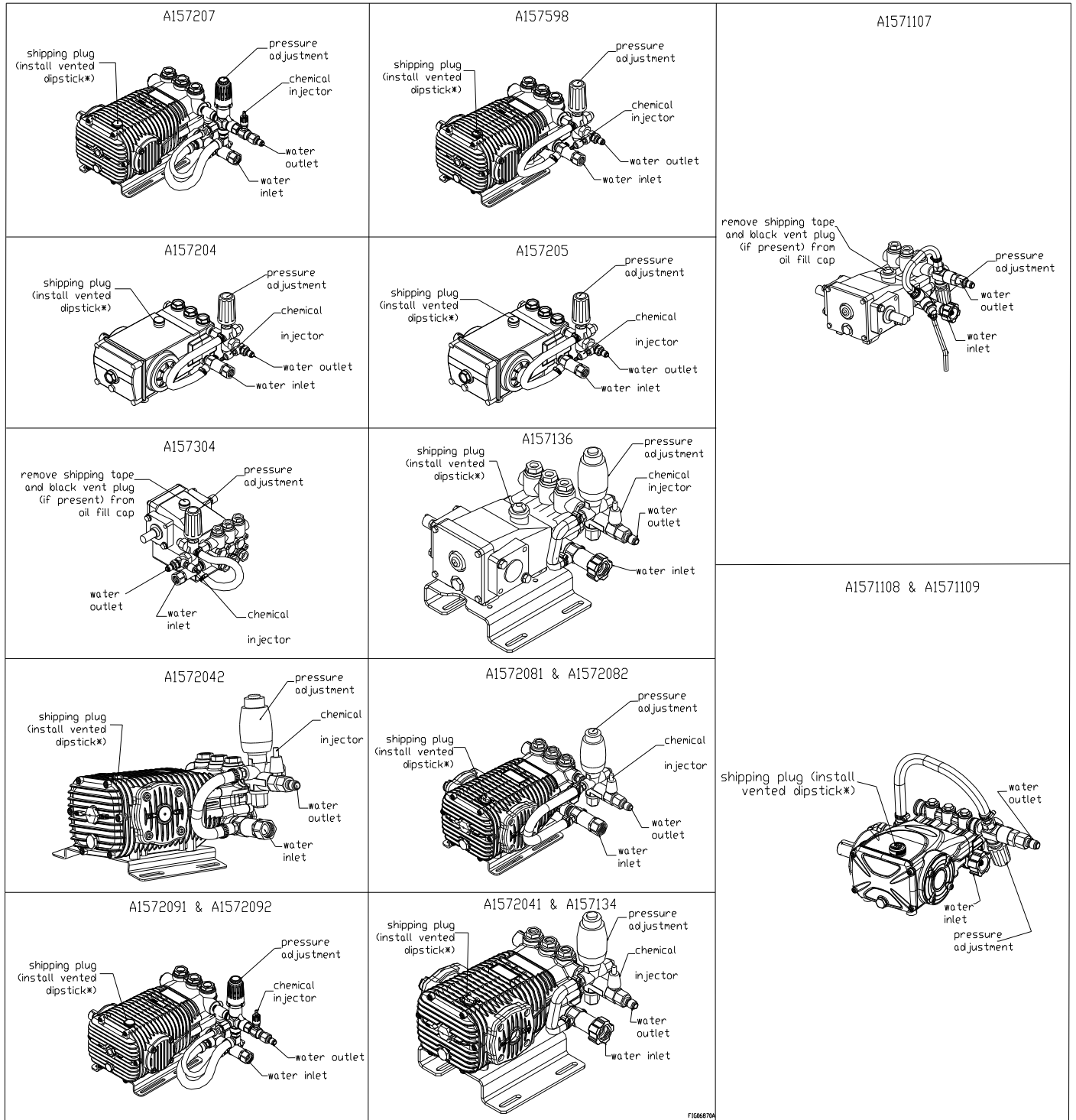
## **CAUTION**

### **1.) Hot muffler.**

You can be burned by muffler. Do not touch.

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# Pump Oil Cap and Pump Component Identification



\*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.

Model	Time to fill 5-gallon bucket
A157204	63 seconds
A157205	56 seconds
A157207	50 seconds
A157304	56 seconds
A157598	**tank only
A1572041	72 seconds
A1572042	46 seconds
A1572081	56 seconds
A1572082	42 seconds
A1572091	50 seconds
A1572092	36 seconds
A157134	72 seconds
A157136	72 seconds
A1571107	125 seconds
A1571108	80 seconds
A1571109	63 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.) Always use a flexible rubber hose for your water supply. Do not use rigid piping.
- 5.) Never use a reservoir tank as a water source with the exception of pump A157598. 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).
- 6.) **\*\*Warning:** The A157598 pump can only be used with a tank. Direct feed from a normal city water hookup can cause cavitation and damage to your pump. Inadequate plumbing between a feed tank and the pressure washer can cause damage to the pump from cavitation. Cavitation will occur if you select too small of fittings and hose to connect the feed tank to the pressure washer. (We recommend 3/4" hose and fittings or larger) Also, place the pressure washer right next to the feed tank so the connection hose will be as short as possible.

## Connecting to motor/engine

See **Specifications** section for maximum RPM of the pump and horsepower required.

Keep a fire extinguisher rated "ABC" nearby. Keep it properly charged and be familiar with its use.

Model	Direction of Rotation
A157204, A157205, A157207, A157304, A157598, A1572042, A1572081, A1572082, A1572091, A1572092, A157134, A157136, A1572041, A1571107, A1571108, A1571109	Bi-directional

# Operation Instructions

## Start-Up Instructions

1. Attach garden hose or tank 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/motor.

## Shut-Down Instructions

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


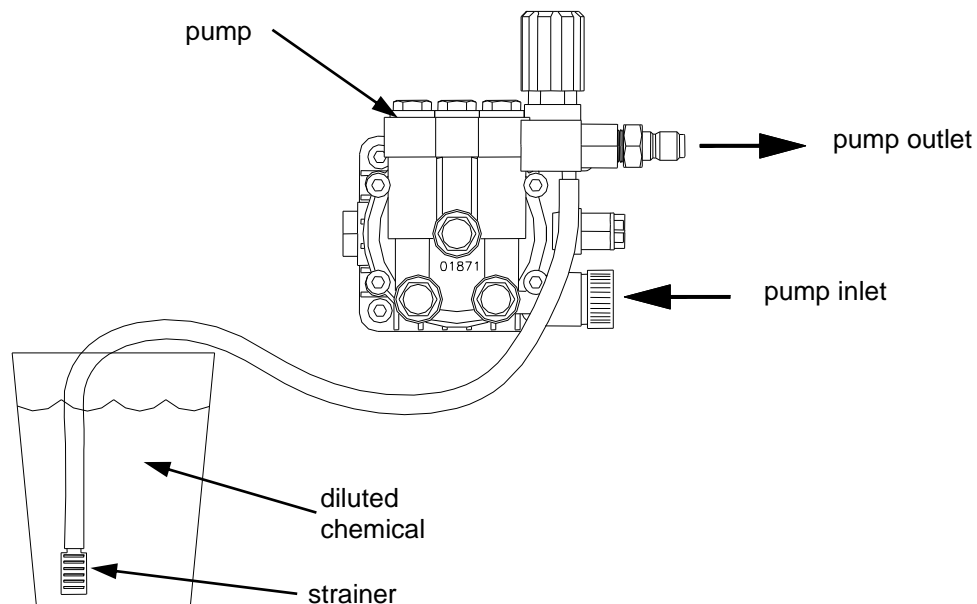
	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p><b>Skin puncture hazard.</b> High pressure fluid can inject under skin resulting in serious injury including amputation. Do not direct spray at people or animals. -If skin injection happens, seek IMMEDIATE surgical treatment. -Do not check for leaks 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 and bleed pressures before leaving unit unattended.</p>
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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).

## Belt Tension

Some general rules of belt tension are:

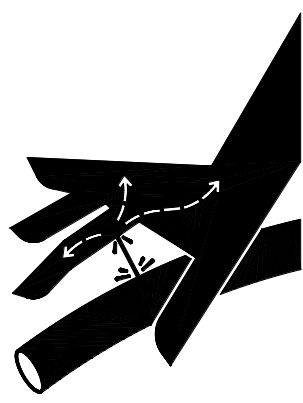
- 1.) Ideal tension is the lowest tension without belt slippage.
- 2.) Over tightening decreases belt and bearing life.
- 3.) Keep belts clean and free of foreign material that may cause slippage.
- 4.) Tighten belts when slipping.
- 5.) We recommend not applying belt dressing. May cause damage and early belt failure.

## Tightening Belts

- 1) Loosen pump mount bolts (4 places).
- 2) Ensure all belts are the same tension
- 3) Re-tighten pump mount bolts.
  - a) Torque mounting bolts to 29.4 ft-lbs.
- 4) Check belt tension after first 24 hours of running then routinely with each oil change.

## 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.

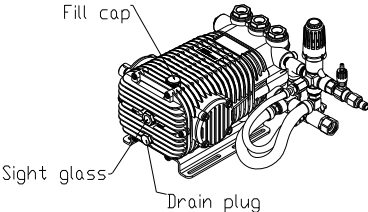
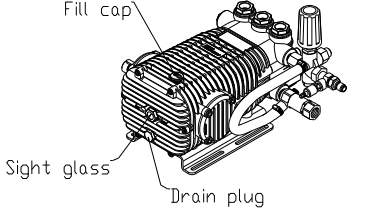
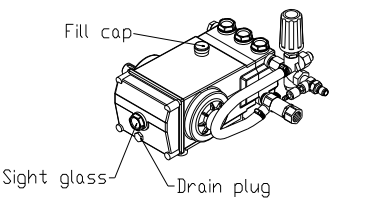
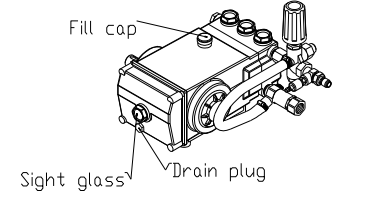
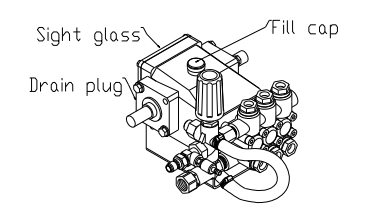
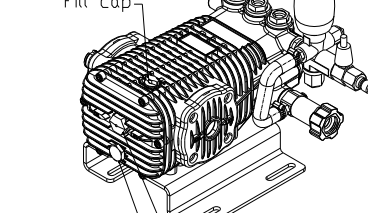
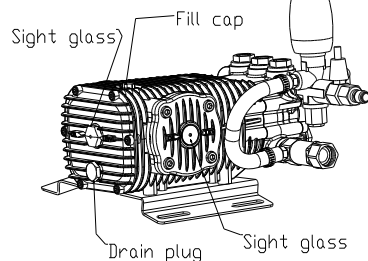
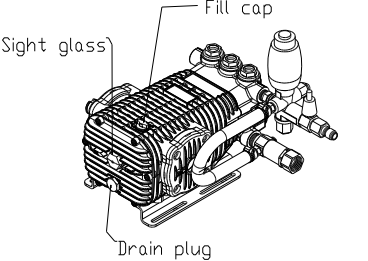
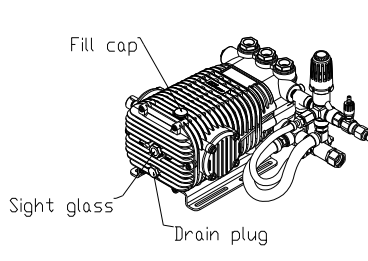
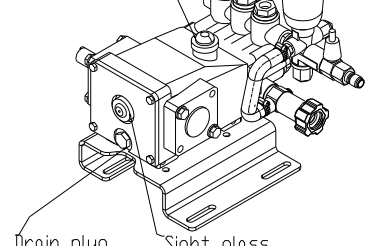
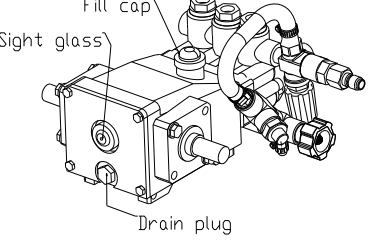
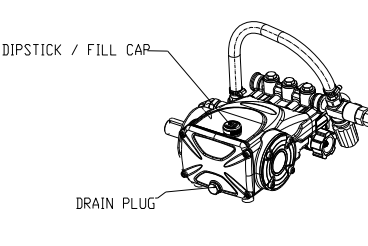
- Make sure all fittings are tight before applying pressure. Relieve system pressure before servicing.
- Do not check for leaks with hand. Instead, use a piece of cardboard to check for leaks.
- If skin injection happens, seek immediate "Surgical Treatment".

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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.

<p>A157207</p>  <p>Oil capacity: 40.60oz (1.2L)</p>	<p>A157598</p>  <p>Oil capacity: 40.60oz (1.2L)</p>	<p>A157204</p>  <p>Oil capacity: 15.0oz (.44L)</p>
<p>A157205</p>  <p>Oil capacity: 15.0oz (.44L)</p>	<p>A157304</p>  <p>Oil capacity: 37.0oz (1.09L)</p>	<p>A1572041 &amp; A157134</p>  <p>Oil capacity: 17.0oz (.41L)</p>
<p>A1572042</p>  <p>Oil capacity: 26.88oz (.79L)</p>	<p>A1572081 &amp; A1572082</p>  <p>Oil capacity: 26.88oz (.79L)</p>	<p>A1572091 &amp; A1572092</p>  <p>Oil capacity: 35.84oz (1.05L)</p>
<p>A157136</p>  <p>Oil capacity: 26.88oz (.79L) FIG06871A</p>	<p>A1571107</p>  <p>Oil capacity: 17.0oz (.50L)</p>	<p>A1571108 &amp; A1571109</p>  <p>Oil capacity: 14.0oz (.41L)</p>

# Maintenance and Storage

## Long Term Storage

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

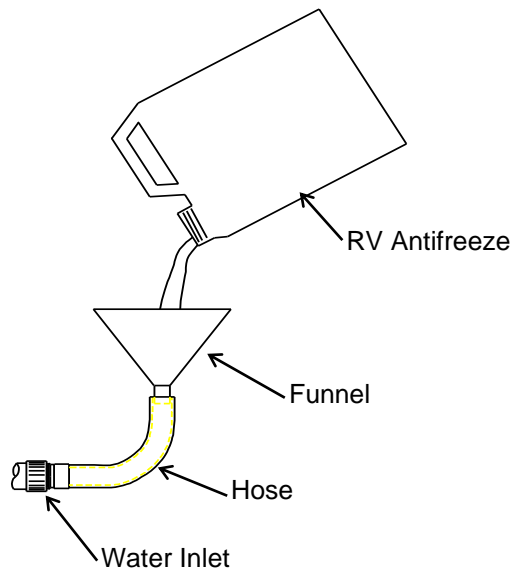
## Winter Storage

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.

ONLY ON A1572092



# Troubleshooting

<b>Problem</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 RPM	Max Water Temp	Power	Nozzle Size
A157204	4000	4.0	1450	140°F	15 (gas) / 11 (elec.)	4.0
A157304	3500	4.5	1650		15 (gas) / 11 (elec.)	4.5
A157205	4000	4.5	1750		16 (gas) / 12.5 (elec.)	4.5
A157207	5000	5.0	1750		23 (gas) / 17.5 (elec.)	4.5
A157598	4000	7.0	1750		25 (gas) / 18.5 (elec.)	7.0
A1572041	4000	3.5	3400		15 (gas) / 11 (elec.)	3.5
A1572042	3000	5.0	1450		15 (gas) / 11 (elec.)	5.5
A1572081	4000	4.5	1450		16 (gas) / 12.5 (elec.)	4.5
A1572082	3000	6.0	1450		16 (gas) / 12.5 (elec.)	7.0
A1572091	5000	5.0	1750		23 (gas) / 17.5 (elec.)	4.5
A1572092	3500	7.0	1450		23 (gas) / 17.5 (elec.)	7.0
A157134	4000	3.5	1450		15 (gas) / 11 (elec.)	3.5
A157136	4000	3.5	1450		15 (gas) / 11 (elec.)	3.5
A1571107	1500	2.0	1650		3 (gas) / 2 (elec.)	3.5
A1571108	2500	3.0	1450		8 (gas) / 6 (elec.)	3.5
A1571109	3000	4.0	1750		11 (gas) / 8 (elec.)	4.5

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.

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

# Parts Explosion Rev. K

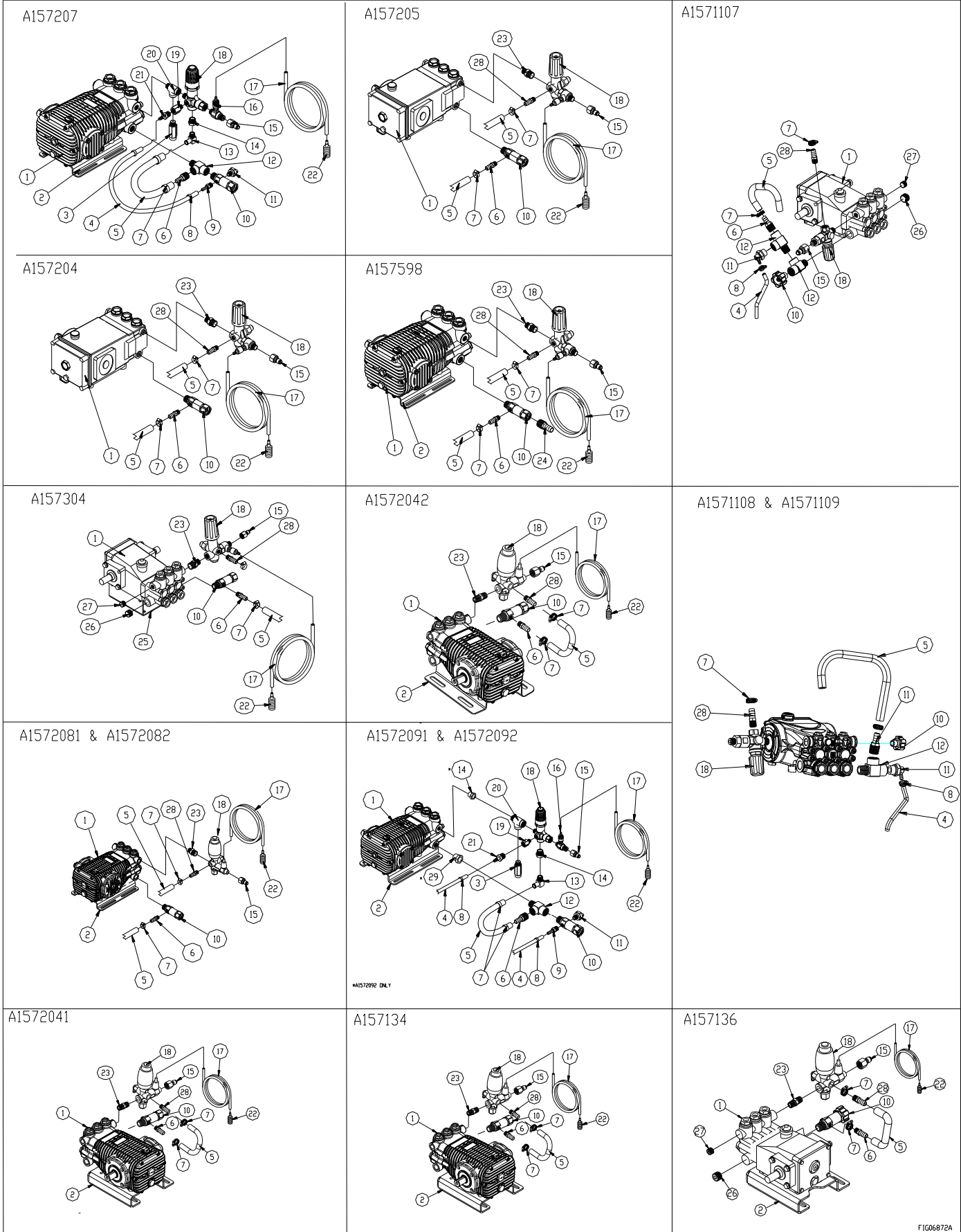


FIG06872A

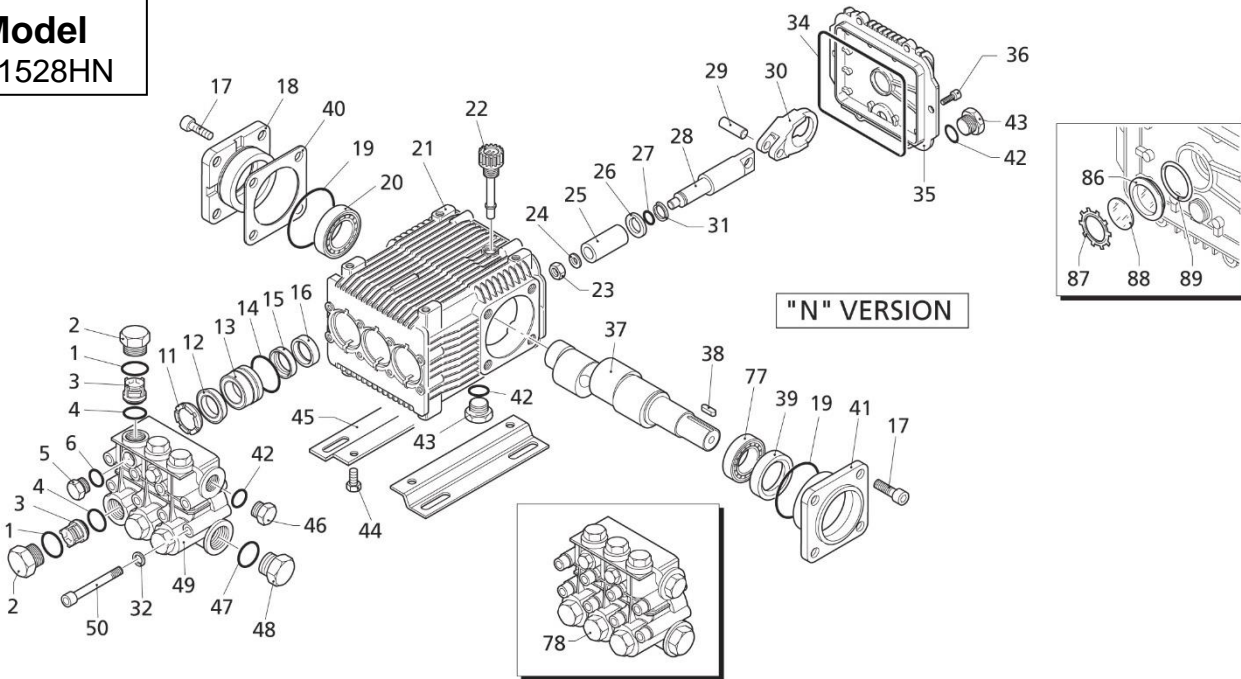
# Parts Explosion Rev. K (cont'd)

Item	Part#	Description	Qty	Model
1	780382	AR RK	1	A157204
	31310	Cat 5CP		A157304
	780368	AR RKA		A157205
	777374	Comet TWS		A157207
	779536	NorthStar TWS		A157598
	800434	Pump, Comet RW4040S		A157134
	800485	Pump, CAT 5CP4120CSS		A157136
	N/A	NorthStar NSB3540		A1572041
	N/A	NorthStar NSSHFB5030		A1572042
	N/A	NorthStar NSB4540		A1572081
	N/A	NorthStar NSSHFB6030		A1572082
	N/A	NorthStar NSB5050		A1572091
	N/A	NorthStar NSSHF7035		A1572092
	N/A	Cat 5CP3120		A1571107
	N/A	GP EPHT1813S		A1571108
	N/A	GP EPHT1812S		A1571109
2	777377	Rail Kit	1	A157207, A157598, A1572042, A1572081, A1572082, A1572091, A1572092
	800195	BG-Pump Mount		A157134, A157136
3	777376	Pop Off Valve	1	A157207, A1572091, A1572092
4	805691	1/4" Braided Hose – 12"	1	A157207, A1572091, A1572092
	805553	1/4" Braided Hose – 6"	1	A1571107, A1571108, A1571109
5	805648	1/2" Low Pressure Hose – 12"	1	A157598, A157204, A157205, A157207, A157304, A1572041, A1572042, A1572081, A1572082, A1572091, A1572092
	805693	1/2" Low Pressure Hose – 30"	1	A157134, A157136
	805690	1/2" Low Pressure Hose – 15"	1	A1571107, A1571108, A1571109
6	2294	1/2" Hose Barb to 1/4" MPT-PW	1	A157207, A1572091, A1572092, A1571107, A1571108, A1571109
	777840		1	A157598, A157204, A157205, A157304, A1572041, A1572042, A1572081, A1572082, A157134, A157136
7	777119	1/2" Hose Clamp	2	All
8	777834	1/4" Hose Clamp	2	A157207, A1572091, A1572092, A1571107, A1571108, A1571109
9	777340	1/4" Hose Barb	1	A157207, A1572091, A1572092
10	800986	Filter, Inlet 1/2" NPT X 3/4" FGH	1	A157598, A157204, A157205, A157304, A1572042, A1572081, A1572082
	800783			A157134, A157136
11	35918	Thermal Protector	1	A1571107, A1571108, A1571109
	803209			A157207, A1572091, A1572092
				A1571107, A1571108, A1571109
12	777639	1/2" Brass Street Tee	1	A157207, A1572091, A1572092, A1571108, A1571109
13	32808	1/2" Hose Barb Elbow	2	A1571107
			1	A157207, A1572091, A1572092
14	30048	Reducer	1	A157207, A1572091
			2	A1572092
15	777395	3/8" QC Plug	1	A157207, A1572091, A1572092
	777915			A157598, A157204, A157205, A157304, A1572041, A1572042, A1572081, A1572082, A1571107, A1571108, A1571109
16	789668	Chemical Injector	1	A157207, A1572091, A1572092
17	805557	1/4" Braided Hose – 36"	1	All
18	777375	Unloader	1	A157207, A1572091, A1572092
	788419			A157598, A157204, A157205, A157304, A1572041, A1572042, A1572081, A1572082, A157134, A157136
	788420			A1571107, A1571108, A1571109
19	777423	1/4" Adapter	1	A157207, A1572091, A1572092
20	777347	Tee Forged	1	A157207, A1572091, A1572092
21	38584	Easy Start Valve	1	A157207, A1572091, A1572092
22	221222	Chemical Strainer	1	All
23	2296	3/8" Hex Nipple	1	A157598, A157204, A157304, A157205, A1572041, A1572042, A1572081, A1572082, A157134, A157136
24	782050	3/4" Hose Barb	1	A157598
25	32325	Pump Mount	1	A157304
26	30511	1/2" Hex Plug	1	A157304, A157136, A1571107
27	777837	3/8" Hex Plug	1	A157304, A157136, A1571107
28	777839	1/2" Nipple x 3/8" MPT	1	A157598, A157204, A157205, A157304, A1572041, A1572042, A1572081, A1572082, A157134, A157136, A1571107, A1571108, A1571109
29	50CSC128	3/4" x 1/2" Reducer	1	1572092
N/A	82155	Zip tie	2	A157134, A157136

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

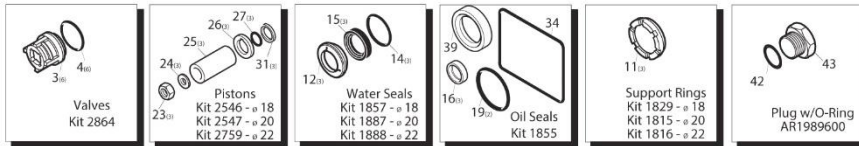
# Pump Exploded Views – A157204

**Model**  
RK1528HN



"N" VERSION

## Repair Kits



## Special Parts / Kits

Code	Description	Qty
2809	Viton water seals ø18	1
2810	Viton water seals ø20	1
2811	Viton water seals ø22	1
42213	Kit for up to 180° F ø18 High Temp	1
2820	Kit for up to 180° F ø20 High Temp	1
1837	Rail Kit 5/8" - 2 Rails & 4 Bolts	1
2633	Rail Kit 1-3/4" - 2 Rails & 4 Bolts	1
2633H	Rail Kit 2-5/8" - 2 Rails & 4 Bolts	1
42149	Single Cylinder Piston Kit ø18	1

Pos	Code	Description	Qty	Pos	Code	Description	Qty	Pos	Code	Description	Qty
1	960160	O-Ring ø17.86x2.62	6	26	1380950	Spacer	3	77	1383140	Bearing	1
2	960090	Valve cap - Brass (478 in/lbs)	6	27	600180	O-Ring ø7.66x1.78	3	78	1389270	Complete pump head ø18 H	1
3	960850	Valve cap - SS (478 in/lbs)	6	28	1380920	Guiding piston	3	79	1389272	Complete pump head ø18 H	1
4	1380740	Valve cap - NP (478 in/lbs)	6	29	1380060	Piston pin	3	80	1389271	Complete pump head ø18	1
5	960090T	Valve cap - 1/4" threaded - Brass (478 in/lbs)	1	30	1383020	Con rod - Bronze > 3000 PSI	3	81	1389212	Complete pump head ø20 H	1
6	960850T	Valve cap - 1/4" threaded - SS (478 in/lbs)	1	31	1383050	Con rod - Aluminum < 3000 PSI	3	82	1389220	Complete pump head ø22 H	1
7	1389051	Complete valve	6	32	1080401	Back-up ring	3	83	1260250	Oil sight glass	1
8	880830	O-Ring ø15.54x2.62	6	33	1780510	Washer	1	84	1260430	Snap ring	1
9	880581	Plug 1/4" G - Brass	2	34	1780510	O-Ring	1	85	1780690	Contrast disc	1
10	1380690	Plug 1/4" G NP	2	35	1789010	Complete cover	1	86	1140450	O-Ring ø20.24x2.62	1
11	820510	O-Ring ø10.82x1.78	2	36	1343510	Bolt M6x14 (89 in/lbs)	6	AR64516	Oil	1	
12	960110	Support ring ø18	3	37	2280070	Crankshaft 24mm	1	OIL CAPACITY - 15 OZ			
13	840300	Support ring ø20	3	38	2280060	Crankshaft 24mm	1				
14	840320	Support ring ø22	3	39	1380520	Key	1				
15	1382740	High pressure packing ø18	3	40	180340	Oil seal	1				
16	840290	High pressure packing ø20	3	41	1380120	Shim 0.10 mm	1-3				
17	840330	High pressure packing ø22	3	42	1380130	Shim 0.20 mm	1-3				
18	1380090	Piston guide ø18	3	43	1380530	Shim 0.25 mm	1-3				
19	1380150	Piston guide ø20	3	44	1382810	Shim 0.05 mm	1-3				
20	1380160	Piston guide ø22	3	45	1380040	Open bearing support (217 in/lbs)	1				
21	961240	O-Ring ø31.47x1.78	3	46	740290	O-Ring ø14x1.78	3				
22	880330	Low pressure seal ø18	3	47	1980740	Plug 3/8" G	2				
23	840280	Low pressure seal ø20	3	48	1260470	Bolt M8x10	4				
24	840340	Low pressure seal ø22	3	49	1380141	Rail 5/8"	2				
25	1383130	Oil seal	3	50	Z-Bracket 1-3/4"	Z-Bracket	2				
26	850370	Bolt M8x16 (217 in/lbs)	8	51	Z-Bracket 2-5/8"	Z-Bracket	2				
27	1380050	Closed bearing support	1	52	1980740	Plug 3/8" G	1				
28	640030	O-Ring ø59.99x2.62	2	53	1981180	Plug 3/8" G NP	1				
29	2280240	Bearing	1	54	180101	O-Ring ø17.5x2	1				
30	1382770	Pump housing	1	55	820361	Plug 1/2" G	1				
31	880130	Vented oil cap	1	56	960870	Plug 1/2" G NP	1				
32	962010	Nut M8 (106 in/lbs)	3	57	1381070	Pump head - NP ø18	1				
33	962000	Washer ø8.1	3	58	1381071	Pump head - Brass ø18	1				
34	1380940	Ceramic piston ø18	3	59	1380020	Pump head - Brass ø20-22	1				
35	1380930	Ceramic piston ø20	3	60	1380680	Pump head - NP ø20-22	1				
36	1382360	Ceramic piston ø22	3	61	820150	Head bolt M8x70 (217 in/lbs)	8				

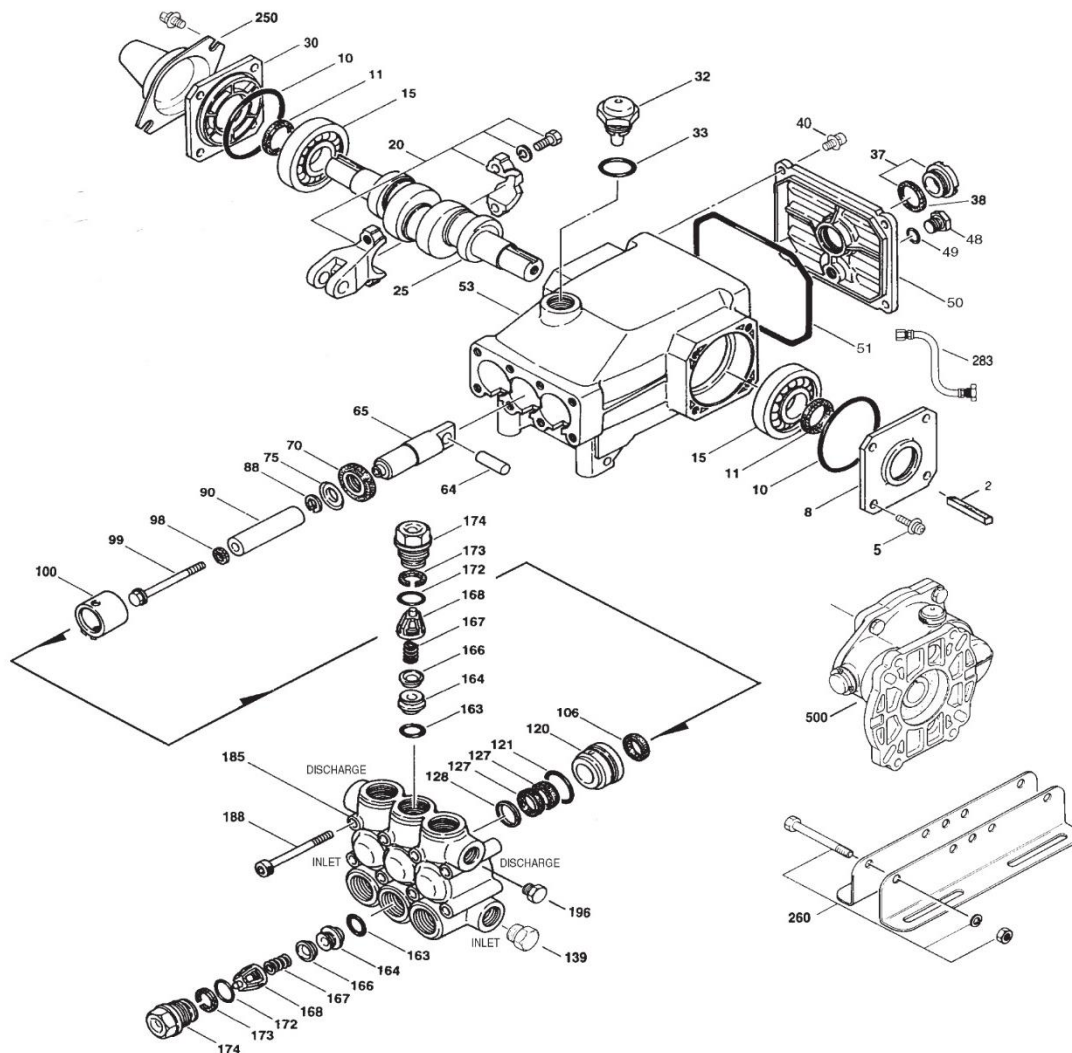
## Legend

ø 18	ø 20	ø 22
For ■	For □	For ★
RK15.15	RK18.20H	RK21.20H
RK15.20H	RK18.28H	
RK15.28H		

Over 3600psi

# Pump Exploded Views – A157304

**Model**  
5CP3120



	<b>5CP3120</b>	<b>MATL</b>		
299	814843	FBB	Head, Complete	1
300	33629	NBR	Kit, Seal (Incls: 98,106,121,127,128) <b>Standard</b>	1
	31340	FPM*	Kit, Seal (Incls: 98,106,121,127,128) <b>.0110</b>	1
	◆ 31730	EPDM*	Kit, Seal (Incls: 98,106,121,127,128) <b>.0220</b>	1
	31665	HT	Kit, Seal (Incls: 98,106,121,127,128) <b>.3000</b>	1
	76556	STHT	Kit, Seal (Incls: 98,106,120,121,127,128) <b>.3400</b>	1
310	33060	NBR	Kit, Valve Preassembled (Incls: 163,164,166-168,172,173) <b>Standard, .3000, .3400</b>	2
	31345	FPM	Kit, Valve Preassembled (Incls: 163,164,166-168,172,173) <b>.0110</b>	2
	◆ 31735	EPDM	Kit, Valve Preassembled (Incls: 163,164,166-168,172,173) <b>.0220</b>	2
350	30696	STZP	Pliers, Reverse	1
400	7850	BB	Modular Unloader (See Individual Data Sheet)	1
500	—	—	Gearbox (See Individual Data Sheet)	1
—	6107	—	Oil, Bottle (21 oz.) ISO 68 Hydraulic	1

**Bold print part numbers are unique to a particular pump model.** *Italics are optional items.* [ ] Date of latest production change.

◆ Silicone oil/grease required. † Production parts are different than repair parts. R Components comply with RoHS Directive.

\*Review individual parts in each kit for material code identification.

View Tech Bulletins 002, 003, 024, 036, 043, 053, 060, 061, 064, 073, 074, 077, 078 and 083 for additional information.

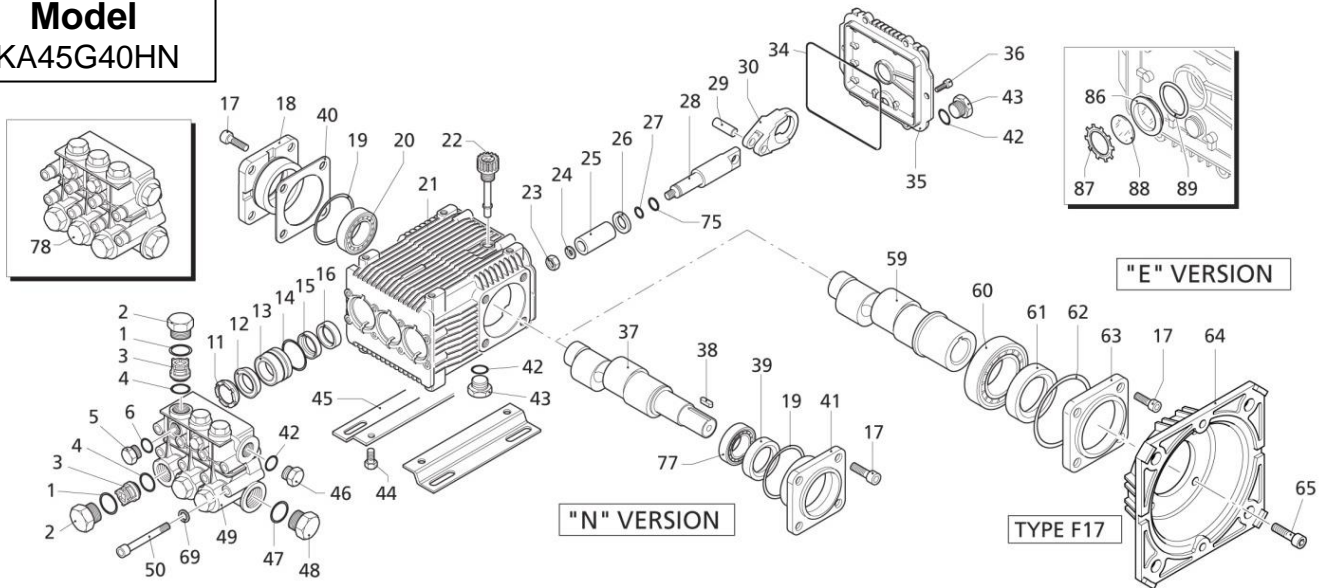
MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated BBNP=Brass/Nickel Plated CC=Ceramic  
CM=Chrome-moly D=Acetal EPDM=Ethylene Propylene Diene Monomer FBB=Forged Brass FCM=Forged Chrome-moly FPM=Fluorocarbon  
HT=Hi-Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride S=304SS SS=316SS SNG=Special Blend (Buna)  
ST2=Special Blend PTFE Grey STHT=Special PTFE High Temp STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated TNM=Special High Strength

# Pump Exploded Views - A157304 (cont'd)

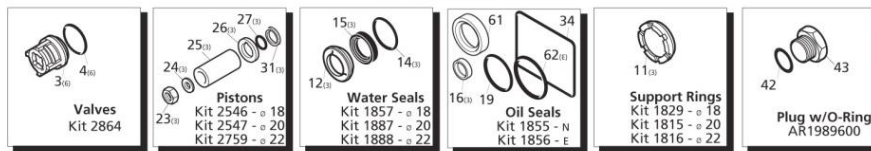
ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>5CP3120</b>	<b>MATL</b>	
2	30057	STL	Key (M6x6x25)
5	96031	STZP	Screw, HHC, Sems (M8x16)
	126542	STCPR	Screw, HHC, Sems (M8x16)
8	46910	AL	Cover, Bearing
10	14028	NBR	O-Ring, Bearing Cover - 70D
11	43222	NBR	Seal, Oil, Crankshaft - 70D
15	14480	STL	Bearing, Ball
20	48742	TNM	Rod, Connecting Assy [10/01]
25	<b>46928</b>	<b>FCM</b>	Crankshaft, Dual End, M18 - 5CP3120
	—	—	Crankshaft, Single End, M18 - 5CP3120CSS, 5CP3120CSSG1
30	—	—	Cover, Bearing - 5CP3120CSS, 5CP3120CSSG1 [After 12/10]
	—	—	Cover, Bearing Blind - 5CP3120G1 [Prior to 12/10]
32	46798	—	Cap, Oil Filler, Domed
33	14179	NBR	O-Ring, Oil Filler Cap - 70D
37	92241	—	Gauge, Oil, Bubble w/Gasket - 80D
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D
40	92519	STZP	Screw, HHC, Sems (M6x16)
	125824	STCPR	Screw, HHC, Sems (M6x16)
48	25625	STCP	Plug, Drain (1/4"x19B5P)
49	23170	NBR	O-Ring, Drain Plug - 70D
50	46940	AL	Cover, Rear
51	14044	NBR	O-Ring, Rear Cover
53	48617	AL	Crankcase
64	46746	CM	Pin, Crosshead
65	48458	BBNP	Rod, Plunger
70	46838	NBR	Seal, Oil, Crankcase - 70D
75	43900	S	Slinger, Barrier
88	45697	S	Washer, Keyhole (M18x10)
90	46884	CC	Plunger (M16x50)
98	46730	NBR	Washer, Seal - 90D
	48394	FPM	Washer, Seal - 90D
	◆ 48432	EPDM	Washer, Seal
99	† 48201	SS	Retainer, Plunger w/Stud (M6)
100	46749	PVDF	Retainer, Seal
106	43316	NBR	Seal, LPS w/S-Spg
	106660	FPM	Seal, LPS w/S-Spg
	◆ 49134	EPDM	Seal, LPS w/S-Spg
	76316	ST2	Seal, LPS w/S-Spg
120	46888	BB	Case, Seal (Press-in-style)
121	13978	NBR	O-Ring, Seal Case - 70D
	14329	FPM	O-Ring, Seal Case
	◆ 48904	EPDM	O-Ring, Seal Case
127	43319	SNG	V-Packing
	46287	HT*	V-Packing
128	46618	NY	Adapter, Male
139	22179	BBCP	Plug, Inlet (1/2"NPTM)
163	17547	NBR	O-Ring, Seat - 85D
	11685	FPM	O-Ring, Seat - 85D
	◆ 46648	EPDM	O-Ring, Seat - 70D
164	45790	S	Seat
166	46429	S	Valve
167	43750	S	Spring
168	† 44565	PVDF	Retainer, Spring
172	17549	NBR	O-Ring, Valve Plug - 70D
	26996	FPM	O-Ring, Valve Plug - 70D
	◆ 49133	EPDM	O-Ring, Valve Plug
173	48365	D	Back-up-Ring, Valve Plug
174	45900	BB	Plug, Valve
185	46886	FBB	Manifold, Head
188	126513	STCPR	Screw, HSH (M8x70)
196	22187	BBCP	Plug, Discharge (3/8"NPTM)
250	<b>118672</b>	<b>STCP</b>	Protector, Shaft
255	30243	STZP	Mount, Direct
260	30611	STZPR	Mount, Rail, Assy (4.22")
	30613	STZPR	Mount, Rail, Assy (5.02")
	76513	STZPR	Mount, Rail, Assy (5.52")
265	<b>30659</b>	—	Kit, Complete Mounting (Incls: 30611, 30633, 118672) (Belt Drive Only)
275	30944	STL	Assembly, Hub & Key (Incls: 30945, 30057)
283	76334	—	Kit, Oil Indicator (3/8" x 24") (See Individual Data Sheet)
	34334	—	Kit, Oil Drain (3/8" x 24") (See Individual Data Sheet)

# Pump Exploded Views – A157205

**Model**  
RKA45G40HN



## Repair Kits



## Special Parts / Kits

Code	Description	Qty
2809	Viton water seals ø18	1
2810	Viton water seals ø20	1
2811	Viton water seals ø22	1
42213	Kit for up to 180° F ø18 High Temp	1
2820	Kit for up to 180° F ø20 High Temp	1
1837	Rail Kit 5/8" - 2 Rails & 4 Bolts (N only)	1
2633	Rail Kit 1-3/4" - 2 Rails & 4 Bolts (N only)	1
2633H	Rail Kit 2-5/8" - 2 Rails & 4 Bolts (N only)	1
42149	Single Cylinder Piston Kit ø18	1

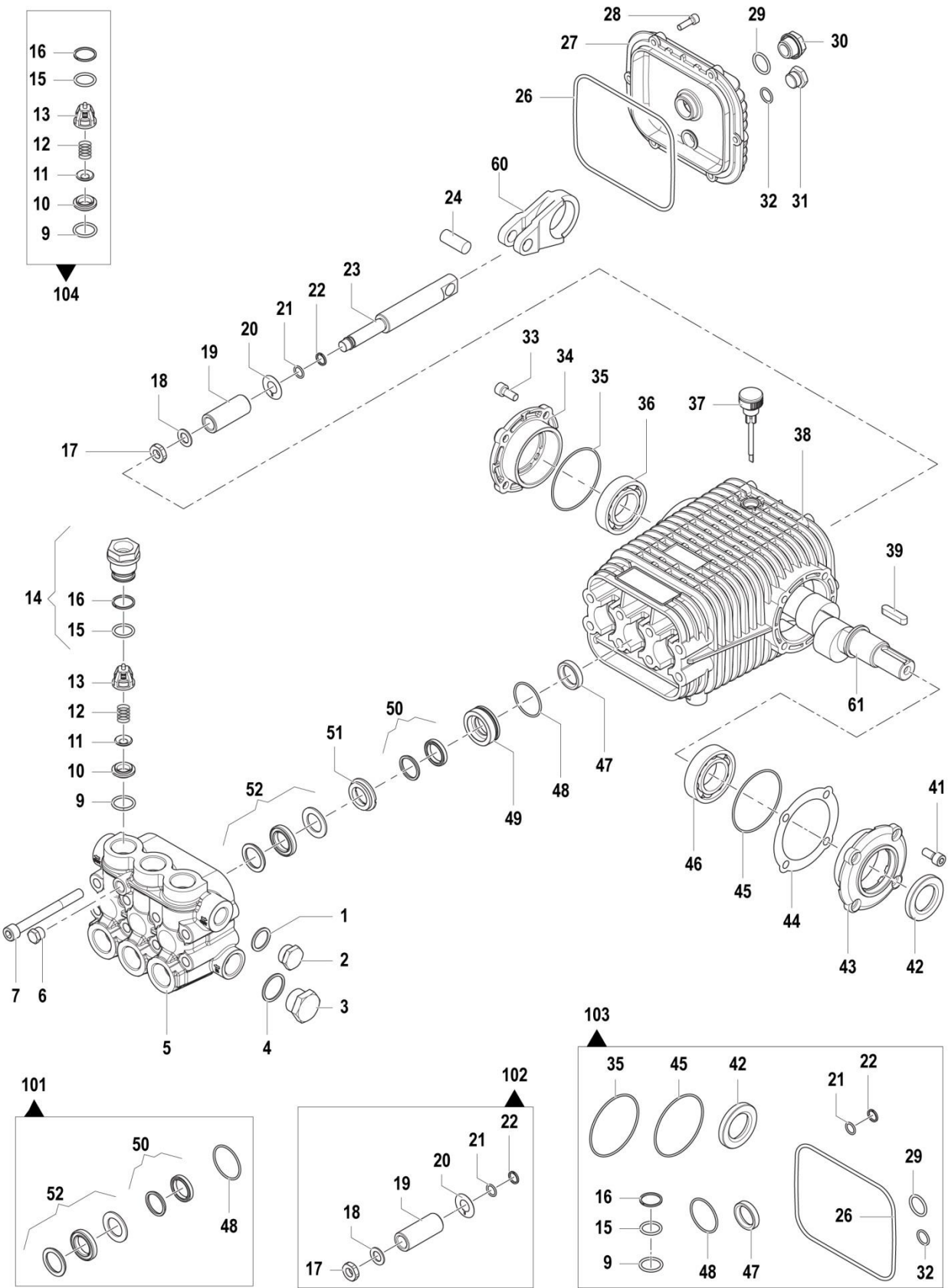
Pos	Code	Description	Qty	Pos	Code	Description	Qty	Pos	Code	Description	Qty
1	960160	O-Ring ø17.86x2.62	6	30	1383020	Con rod - Bronze > 3000 PSI	3	61	621170	Oil seal	1
2	960090	Valve cap - Brass (478 in/lbs)	6	31	1383050	Con rod - Aluminum < 3000 PSI	3	62	1380220	O-Ring ø72.75x1.78	1
3	960850	Valve cap - SS (478 in/lbs)	6	34	1780510	O-Ring	1	63	1380210	Compete cover	1
4	1380740	Valve cap - NP (478 in/lbs)	6	35	1789010	Complete cover	1	64	1591	Electric Flange F17	1
5	960090T	Valve cap - 1/4" threaded - Brass (478 in/lbs)	1	36	1343510	Bolt M6x14 (89 in/lbs)	6	65	620610	Bolt	4
6	960850T	Valve cap - 1/4" threaded - SS (478 in/lbs)	1	37	2280100	Crankshaft 24mm	1	69	1381850	Washer	8
7	1389051	Complete valve	6	38	2280090	Crankshaft 24mm	1	70	1389270	Complete pump head - Brass ø18	1
8	880830	O-Ring ø15.54x2.62	6	39	2280070	Crankshaft 24mm	1	71	1389272	Complete pump head - NP ø18	1
9	880581	Plug 1/4" G - Brass	2	40	2280060	Crankshaft 24mm	1	72	1389271	Complete pump head - NP ø18	1
10	1380690	Plug 1/4" G NP	2	41	2280110	Crankshaft 24mm - NL	1	73	1389208	Complete pump head - Brass ø20	1
11	820510	O-Ring ø10.82x1.78	2	42	1380520	Key	1	74	1389212	Complete pump head - NP ø20	1
12	960110	Support ring ø18.3	3	43	180340	Oil seal	1	75	1389268	Complete pump head - Brass ø22	1
13	840300	Support ring ø20.3	3	44	1380120	Shim 0.10 mm	1-3	76	1389269	Complete pump head - NP ø22	1
14	840320	Support ring ø22.3	3	45	1380130	Shim 0.20 mm	1-3	77	1080401	Back-up ring	3
15	1382740	High pressure packing ø18.3	3	46	1380530	Shim 0.25 mm	1-3	78	840370	Bearing	1
16	840290	High pressure packing ø20.3	3	47	1382810	Shim 0.05 mm	1-3	79	1260250	Oil sight glass	1
17	840330	High pressure packing ø22.3	3	48	1380040	Open bearing support (217 in/lbs)	1	80	1260430	Snap ring	1
18	1380090	Piston guide ø18.3	3	49	740290	O-Ring ø14x1.78	3	81	1780690	Contrast disc	1
19	1380150	Piston guide ø20.3	3	50	1980740	Plug 3/8" G	2	82	1140450	O-Ring ø20.24x2.62	1
20	1380160	Piston guide ø22.3	3	51	1260470	Bolt M8x10	4	83			
21	961240	O-Ring ø31.47x1.78	3	52	1380141	Rail 5/8" (N Version only)	2	84	AR64516	Oil	1
22	880330	Low pressure seal ø18.3	3	53	Z-Bracket 1-3/4	Rail 1-3/4" (N Version only)	2	85			
23	840280	Low pressure seal ø20.3	3	54	Z-Bracket	Rail 2-5/8" (N Version only)	2	86			
24	840340	Low pressure seal ø22.3	3	55	1980740	Plug 3/8" G	1	87			
25	1383130	Oil seal	3	56	1981180	Plug 3/8" G NP	1	88			
26	850370	Bolt M8x16 (217 in/lbs)	8	57	180101	O-Ring ø17.5x2	1	89			
27	1380050	Closed bearing support	1	58	820361	Plug 1/2" G	1				
28	640030	O-Ring ø59.99x2.62	2	59	960870	Plug 1/2" G NP	1				
29	2280240	Bearing	1	60	1381071	Pump head - Brass ø18	1				
	1382770	Pump housing	1		1381070	Pump head - NP ø18	1				
	880130	Vented oil cap	1		1380020	Pump head - Brass ø20	1				
	962010	Nut M8 (106 in/lbs)	3		1380680	Pump head - NP ø20	1				
	962000	Washer ø8.1	3		1383010	Pump head - Brass ø22	1				
	1380940	Ceramic piston ø18.3	3		1383310	Pump head - NP ø22	1				
	1380930	Ceramic piston ø20.3	3		820150	Head bolt M8x70 (217 in/lbs)	8				
	1382360	Ceramic piston ø22.3	3		2280260	Hollow shaft ø1-1/8" ○ 1	1				
	1380950	Slinger	3		2280200	Hollow shaft ø1-1/8" ● 1	1				
	600180	O-Ring ø7.66x1.78	3		2280270	Hollow shaft ø1-1/8" ■ 1	1				
	1380920	Guiding piston	3		2280280	Hollow shaft ø1-1/8" ★ 1	1				
	1380060	Piston pin	3		1380320	Bearing	1				

## Legend

Ø 18	Ø 18	Ø 20	Ø 22
For ○	For ●	For ■	For ★
RKA3.5G22	RKA4G20	RKA5.5G13	RKA6.5G13
RKA3.5G25	RKA4G30A	RKA5.5G20H	RKA6.5G20H
RKA3.5G30H	RKA4G30	RKA5.5G26H	
RKA3.5G40H	RKA4G30H	RKA5.5G30H	
	RKA4G35H		For ★
	RKA4G40H		RKA7G13
			RKA7G20H
For □			
RKA4.5G17			
RKA4.5G25H			
RKA4.5G30H	For ◆		
RKA4.5G35H	RKA4G35NL		
RKA4.5G40H			

# Pump Exploded Views – A157207

**Model**  
TWS5050S



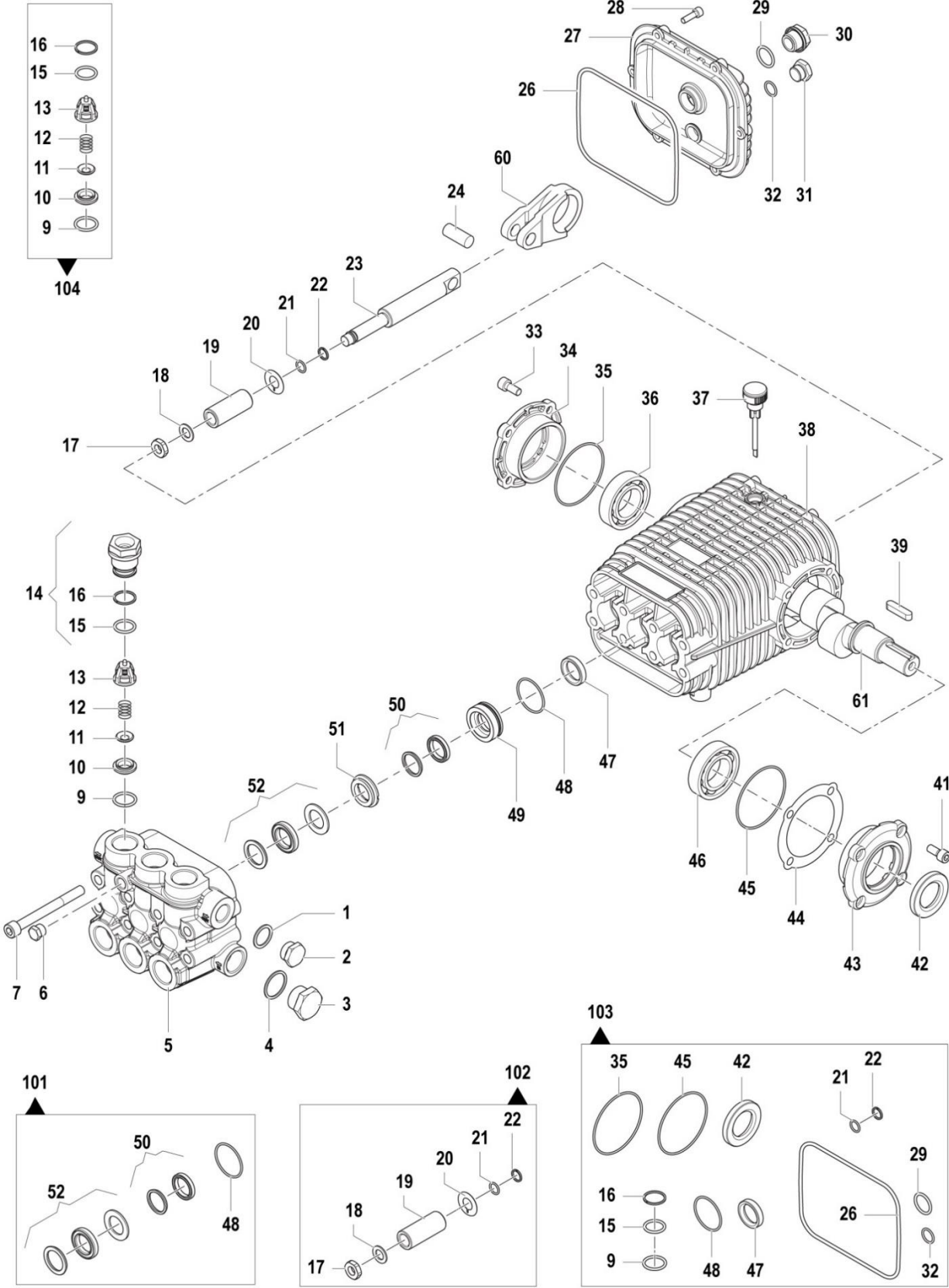
## Pump Exploded Views - A157207 (cont'd)

Ref #	Part #	Description	Qty
1	CO2811008400	WASHER	1
2	CO3200000700	PLUG, 3/8"	1
3	CO3202001500	CAP, G1/2"	1
4	CO2811008600	WASHER	1
5	CO3218034500	MANIFOLD	1
6	CO3200000400	PLUG, 1/4"	1
7	CO3609017900	SCREW, M10 X 100	8
9	CO1210015300	O-RING	6
10	CO3009014400	SUCTION/DELIVERY VALVE SEAT	6
11	CO3604001700	SUCTION/DELIVERY SEAT	6
12	CO1802017700	SUCTION/DELIVERY VALVE SPRING	6
13	CO1205004300	SUCTION/DELIVERY CAGE	6
14	CO3202031600	VALVE PLUG KIT + ORING	6
15	CO1210002100	O-RING	6
16	CO0009028900	ANTI-EXTRUSION RING	6
17	CO0600005400	SPECIAL BOLT	3
18	CO2811008200	WASHER	3
19	CO0202004200	CERAMIC BUSHING	3
20	CO2812009400	WASHER	3
21	CO1210072700	O-RING	3
22	CO0009017000	ANTI-EXTRUSION RING	3
23	CO2409010900	PISTON	3
24	CO3011002600	GUDGEON PIN	3
26	CO1210034900	O-RING	1
27	CO0402026900	COVER	1
28	CO3609003200	SCREW, M6 X 20	6
29	CO1210004800	O-RING	1
30	CO3201002700	PLUG, G1/2"	1
31	CO3200000700	PLUG, G3/8"	1

Ref #	Part #	Description	Qty
32	CO1210044100	O-RING	1
33	CO3609015700	SCREW, M8 X 18	4
34	CO1009019600	FLANGE	1
35	CO1210044800	O-RING	1
36	CO0440002800	ROLLER BEARING	1
37	CO3200007500	OIL DIPSTICK	1
38	CO0403015500	PUMP CRANKCASE	1
39	CO1602005500	KEY, 8 X 7 X 35	1
41	CO3609015700	SCREWM, M8 X 18	4
42	CO0019003200	OIL SEAL	1
43	CO1009019500	FLANGE	1
44	CO0601030400	SPACER, 0.05	1
	CO0601030500	SPACER, 0.1	1
	CO0601030600	SPACER, 0.19	1
	CO0601030700	SPACER, 0.25	1
45	CO1210044800	O-RING	1
46	CO0440002800	ROLLER BEARING	1
47	CO0019012200	OIL SEAL	3
48	CO1210054700	O-RING	3
49	CO0009028500	PACKING RETAINER	3
50	CO1241007400	PACKING	3
51	CO0009028400	PACKING RETAINER	3
52	CO1241007300	PACKING	3
60	CO0205007100	CONNECTING ROD	3
61	CO0001049500	THROUGHSHAFT (5050S)	1
101	CO5019064500	WATER SEAL KIT	1
102	CO2409011600	PISTON KIT	1
103	CO5019064900	OIL SEAL KIT	1
104	CO5025002100	COMPLETE VALVE KIT	1

# Pump Exploded Views – A157598

**Model**  
TWS7040S



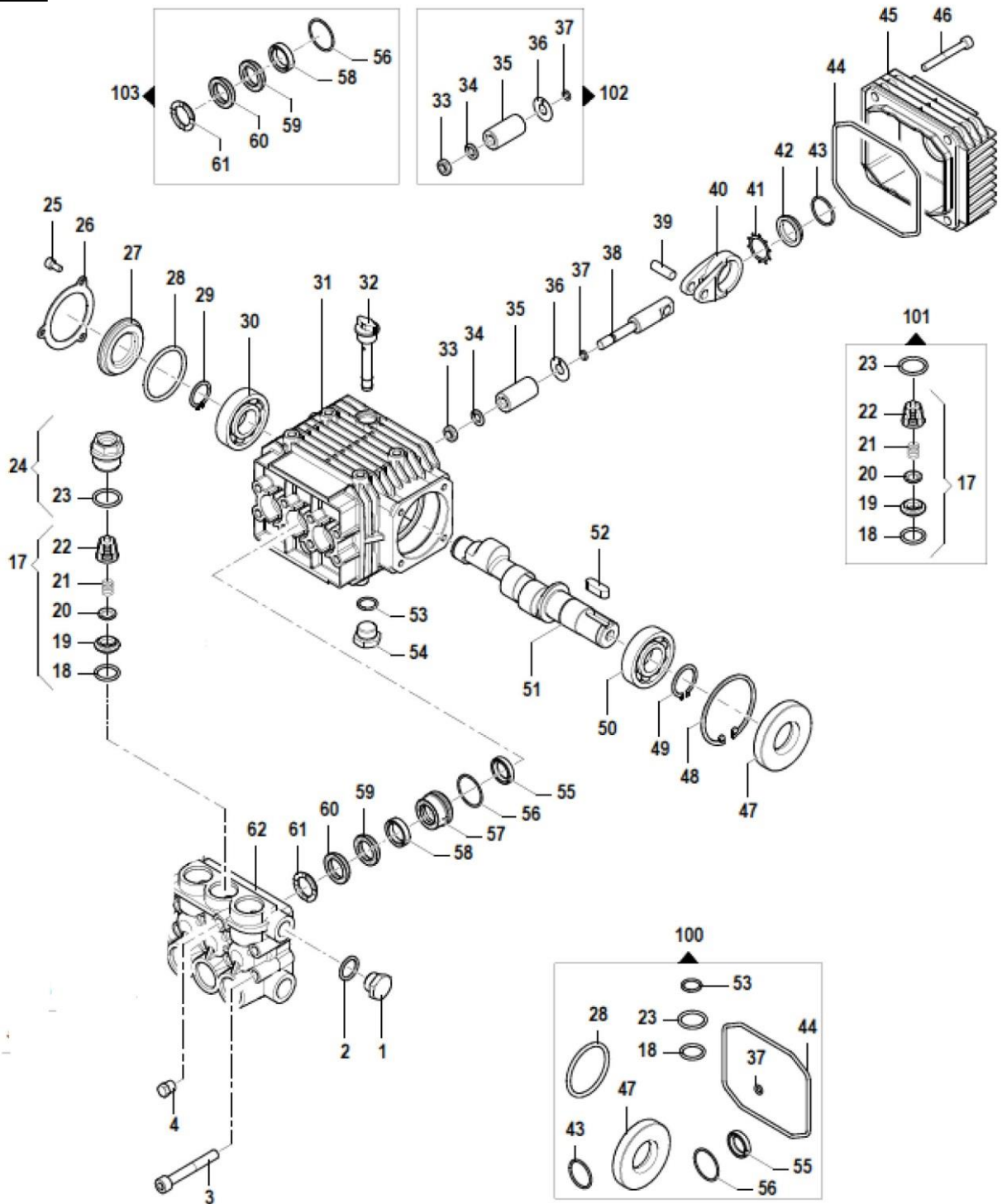
## Pump Exploded Views - A157598 (cont'd)

Ref #	Part #	Description	Qty
1	CO2811008400	WASHER	1
2	CO3200000700	PLUG, 3/8"	1
3	CO3202001500	CAP, G1/2"	1
4	CO2811008600	WASHER	1
5	CO3218034500	MANIFOLD	1
6	CO3200000400	PLUG, 1/4"	1
7	CO3609017900	SCREW, M10 X 100	8
9	CO1210015300	O-RING	6
10	CO3009014400	SUCTION/DELIVERY VALVE SEAT	6
11	CO3604001700	SUCTION/DELIVERY SEAT	6
12	CO1802017700	SUCTION/DELIVERY VALVE SPRING	6
13	CO1205004300	SUCTION/DELIVERY CAGE	6
14	CO3202031600	VALVE PLUG KIT + ORING	6
15	CO1210002100	O-RING	6
16	CO0009028900	ANTI-EXTRUSION RING	6
17	CO0600005400	SPECIAL BOLT	3
18	CO2811008200	WASHER	3
19	CO0202004200	CERAMIC BUSHING	3
20	CO2812009400	WASHER	3
21	CO1210072700	O-RING	3
22	CO0009017000	ANTI-EXTRUSION RING	3
23	CO2409010900	PISTON	3
24	CO3011002600	GUDGEON PIN	3
26	CO1210034900	O-RING	1
27	CO0402026900	COVER	1
28	CO3609003200	SCREW, M6 X 20	6
29	CO1210004800	O-RING	1
30	CO3201002700	PLUG, G1/2"	1
31	CO3200000700	PLUG, G3/8"	1

Ref #	Part #	Description	Qty
32	CO1210044100	O-RING	1
33	CO3609015700	SCREW, M8 X 18	4
34	CO1009019600	FLANGE	1
35	CO1210044800	O-RING	1
36	CO0440002800	ROLLER BEARING	1
37	CO3200007500	OIL DIPSTICK	1
38	CO0403015500	PUMP CRANKCASE	1
39	CO1602005500	KEY, 8 X 7 X 35	1
41	CO3609015700	SCREWM, M8 X 18	4
42	CO0019003200	OIL SEAL	1
43	CO1009019500	FLANGE	1
44	CO0601030400	SPACER, 0.05	1
	CO0601030500	SPACER, 0.1	1
	CO0601030600	SPACER, 0.19	1
	CO0601030700	SPACER, 0.25	1
45	CO1210044800	O-RING	1
46	CO0440002800	ROLLER BEARING	1
47	CO0019012200	OIL SEAL	3
48	CO1210054700	O-RING	3
49	CO0009028500	PACKING RETAINER	3
50	CO1241007400	PACKING	3
51	CO0009028400	PACKING RETAINER	3
52	CO1241007300	PACKING	3
60	CO0205007100	CONNECTING ROD	3
61	CO0001049000	THROUGHSHAFT (7040S)	1
101	CO5019064500	WATER SEAL KIT	1
102	CO2409011600	PISTON KIT	1
103	CO5019064900	OIL SEAL KIT	1
104	CO5025002100	COMPLETE VALVE KIT	1

# Pump Exploded Views – A1572041

**Model**  
NSB3540



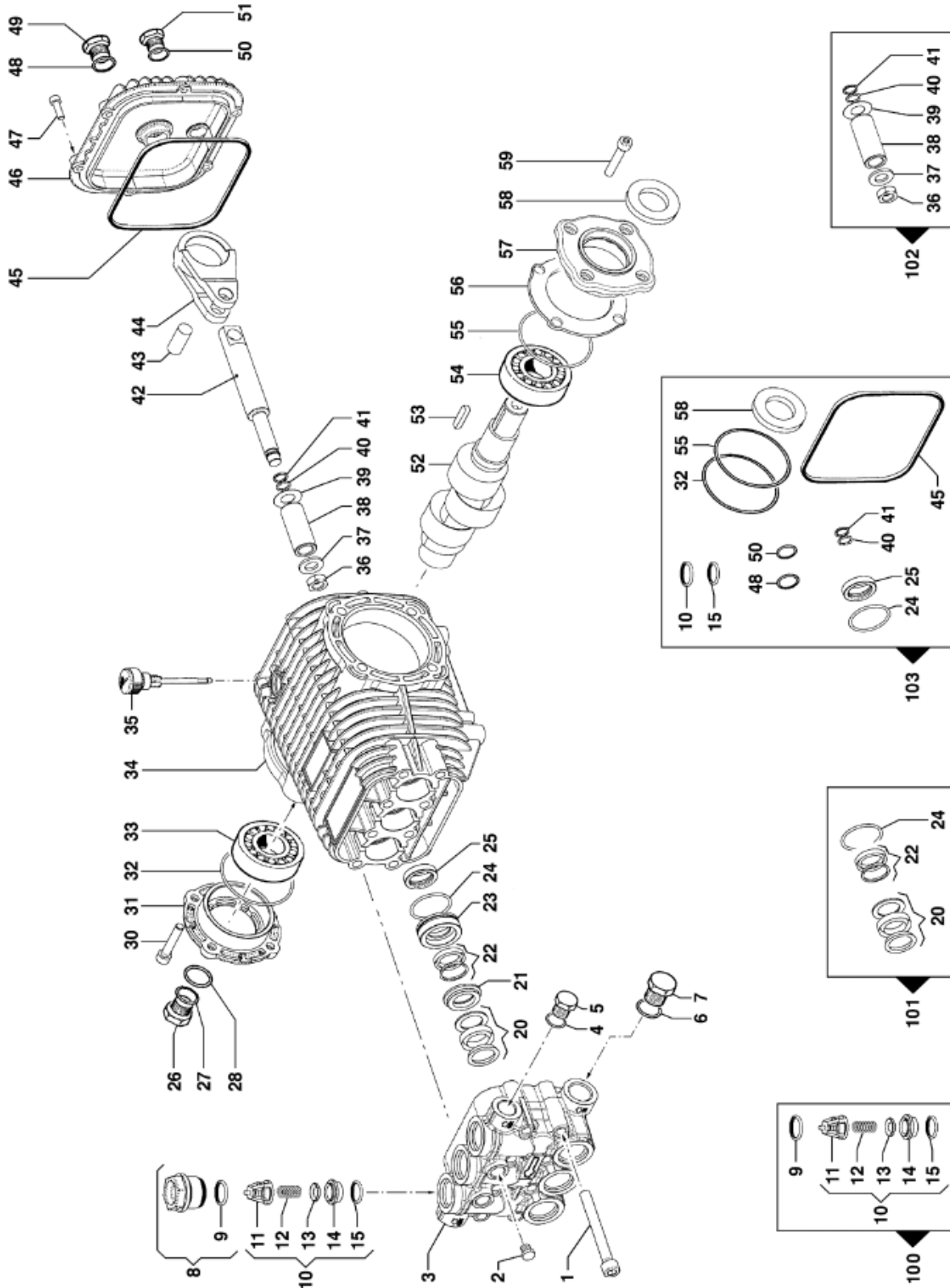
## Pump Exploded Views – A1572041 (cont'd)

Ref #	Part #	Description	Qty
1	CO320000700	Cap, 3/8"	1
2	CO2811008400	Washer (7 x 22 x 1.5)	1
3	CO3609001400	Screw, M8 x 55	8
4	CO3202001800	Plug	1
17	CO1220003000	Suction/Valve Assy Kit	6
18	CO1210004600	O-ring	6
19	CO3009008700	Suction/Del. Valve Seat	6
20	See #101	Suction/Del. Valve	6
21	CO1802017700	Spring	6
22	CO1205002500	Suction/Del. Valve Cage	6
23	CO1210004800	O-ring	6
24	CO3202031200	Plug and O-ring	6
25	CO3609008800	Screw, M5 x 10	3
26	CO1004001200	Crankcase Flange	1
27	CO0402032900	Aluminum Cover	1
28	CO1210038600	O-ring	1
29	CO3019001100	Outer Seeger	1
30	CO0438006900	Ball Bearing	1
31	Not Available	Pump Crankcase	1
32	CO3200005100	Oil Dipstick	1
33	CO0600004800	Special Bolt	3
34	CO2811008000	Washer (8.2 x 14 x 1.5)	3
35	CO0202002000	Ceramic Bushing	3
36	CO2812003800	Washer	3
37	CO1210005500	O-ring (1.78 x 6.07)	3
38	CO2409004400	Piston Guides	3
39	CO3011001400	Gudgeon Pin	3

Ref #	Part #	Description	Qty
40	CO0205005000	Con. Rod Assy.	3
41	CO3019003300	Outer Seeger	1
42	CO3201002600	Oil Indicator	1
43	CO1210033300	O-ring	1
44	CO1210062100	O-ring	1
45	See #103	Cover	1
46	Not Available	Screw	4
47	Not Available	Oil Seal	1
48	CO3020001200	Inner Seeger	1
49	CO3019000600	Outer Seeger	1
50	CO0438007100	Bearing (25 x 62 x 17)	1
51	Not Available	Eccentric Shaft	1
52	Not Available	Key	1
53	CO1210044100	O-ring (2 x 14)	1
54	CO3200000700	Cap, 3/8"	1
55	CO1210022300	O-ring (1.78 x 26.7)	3
56	CO0019009500	Oil Seal (15 x 24 x 5)	3
57	CO0009022200	Packing Retainer	3
58	CO1241003000	Packing (15 x 22 x 5.5)	3
59	CO0009022300	Back Ring	3
60	Not Available	Packing	3
61	CO0009019600	Packing Head Ring	3
62	Not Available	Brass Pump Manifold	1
100	CO5019068300	Oil Seal Kit	1
101	CO5025001100	Valve Kit	1
102	CO2409007100	Piston Kit	1
103	CO5019006400	Water Seal Kit	1

# Pump Exploded Views – A1572042

**Model**  
NSSHFB5030



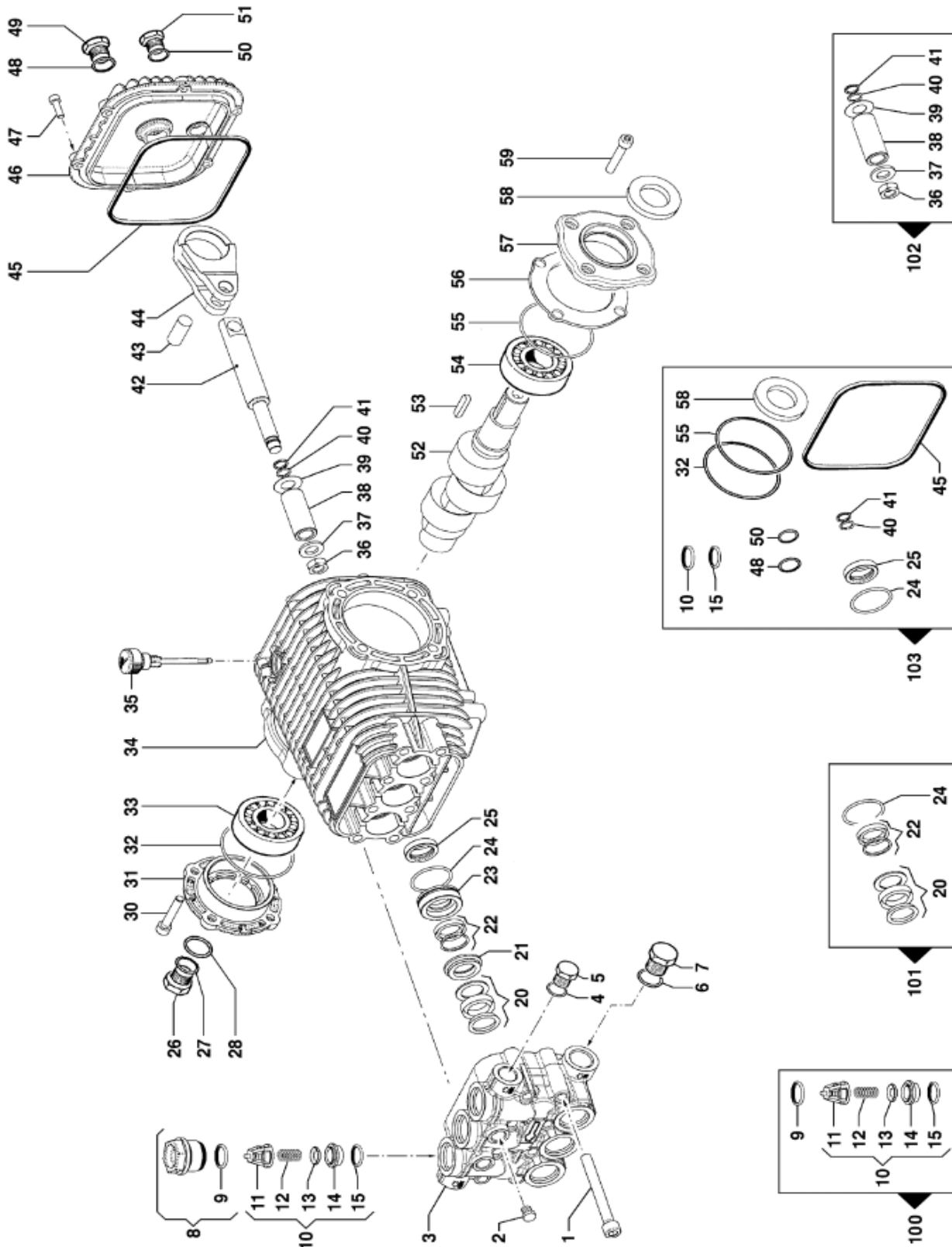
# Pump Exploded Views – A1572042 (cont'd)

Ref #	Part #	Description	Qty
1	<i>Not Available</i>	Screw	8
2	CO3202011200	Plug, 1/4"	1
3	<i>Not Available</i>	Pump Manifold	1
4	CO2811008400	Washer (16.7 x 22 x 1.5)	1
5	CO3200000700	Plug, 1/8"	1
6	CO2811008600	Washer (21.2 x 27 x 1.5)	1
7	CO3202001500	Plug, 1/2"	1
8	CO3202031500	Valve Plug Kit & O-ring	6
9	CO1210004800	O-ring	6
10	CO1220007200	Suction/Delivery Valve	6
11	<i>See #100</i>	Suction/Delivery Valve Cage	6
12	CO1802017700	Suction/Delivery Valve Spring	6
13	<i>See #100</i>	Suction/Delivery Valve	6
14	CO3009008700	Suction/Delivery Valve Seat	6
15	CO1210004600	O-ring (2.62 x 17.13)	6
20	<i>See #101</i>	Packing	3
21	CO0009035200	Packing Retainer	3
22	<i>See #101</i>	Packing	3
23	CO0009035300	Packing Retainer	3
24	CO1210015600	O-ring (1.78 x 31.47)	3
25	CO0019012800	Oil Seal (20 x 28 x 5)	3
26	CO3201002600	Oil Level Plug	1
27	CO1210033300	O-ring (1.78 x 23.52)	1
28	CO3019003300	Seeger	1
30	<i>Not Available</i>	Screw	4
31	<i>Not Available</i>	Flange	1
32	<i>See #103</i>	O-Ring	1
33	CO0440003100	Roller Bearing (30 x 62 x 21.25)	1
34	<i>Not Available</i>	Pump Crankcase	1
35	CO3200005100	Oil Dipstick	1
36	CO0600005400	Special Bolt	3

Ref #	Part #	Description	Qty
37	CO2811008200	Washer (8.4 x 16 x 1.5)	3
38	CO0202002400	Ceramic Bushing	3
39	CO2812009400	Washer	3
40	CO1210003900	O-ring (1.78 x 7.66)	3
41	CO0009017000	Anti-Extr. Ring	3
42	CO2409013900	Piston Rod	3
43	<i>Not Available</i>	Gudgeon Pin	3
44	<i>Not Available</i>	Connecting Rod	3
45	CO1210036900	O-ring (3.53 x 117.1)	1
46	CO0402045900	Cover, Red	1
47	CO3609003000	Screw (M5 x 20)	6
48	CO1210004800	O-ring (2.62 x 20.24)	1
49	CO3201002700	Oil Level Plug	1
50	CO1210044100	O-ring	1
51	CO3200000700	Plug, 1/8"	1
52	<i>Not Available</i>	Solid Crankshaft (24mm)	1
53	CO1602001300	Key (8 x 7 x 30)	1
54	CO0440003100	Roller Bearing (30 x 62 x 21.25)	1
55	<i>Not Available</i>	O-Ring	1
56	CO0601030400	Spacer (0.05)	1
	CO0601030500	Spacer (.01)	1
	CO0601030600	Spacer (.19)	1
	CO0601030700	Spacer (.25)	1
57	<i>Not Available</i>	Flange	1
58	<i>Not Available</i>	Oil Seal	1
59	<i>Not Available</i>	Screw	4
100	CO5025002500	Complete Valve Kit	1
101	CO5019067200	Water Seal Kit	1
102	CO2409014500	Piston Kit	1
103	CO5019067500	Oil Seal Kit	1

# Pump Exploded Views – A1572081

**Model**  
NSB4540



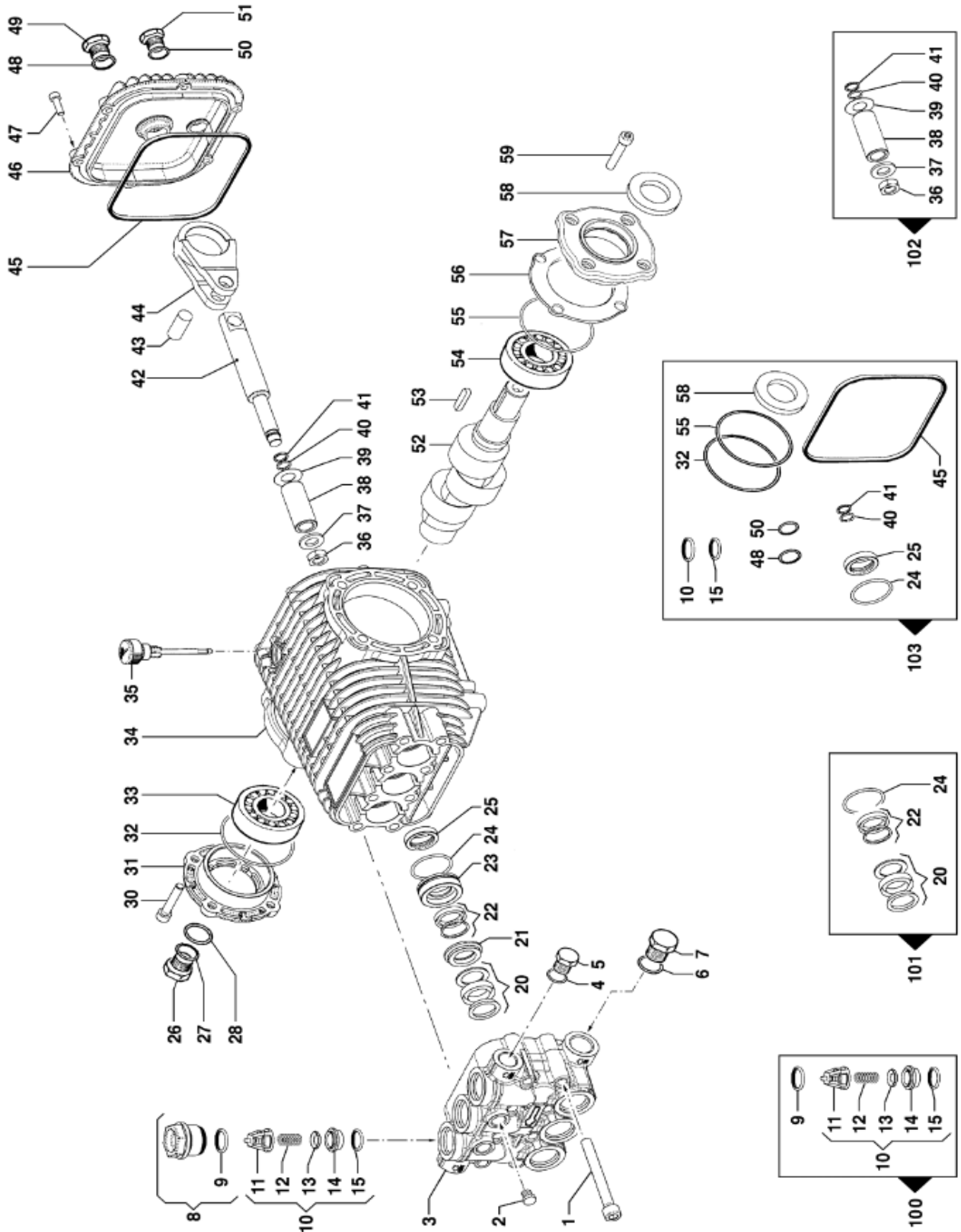
# Pump Exploded Views – A1572081 (cont'd)

Ref #	Part #	Description	Qty
1	<i>Not Available</i>	Screw	8
2	CO3202011200	Plug, 1/4"	1
3	<i>Not Available</i>	Pump Manifold	1
4	CO2811008400	Washer (16.7 x 22 x 1.5)	1
5	CO3200000700	Plug, 1/8"	1
6	CO2811008600	Washer (21.2 x 27 x 1.5)	1
7	CO3202001500	Plug, 1/2"	1
8	CO3202031500	Valve Plug Kit & O-ring	6
9	CO1210004800	O-ring	6
10	CO1220003000	Suction/Delivery Valve	6
11	CO1205002500	Suction/Delivery Valve Cage	6
12	CO1802017700	Suction/Delivery Valve Spring	6
13	<i>Not Available</i>	Suction/Delivery Valve	6
14	CO3009008700	Suction/Delivery Valve Seat	6
15	CO1210004600	O-ring (2.62 x 17.13)	6
20	<i>Not Available</i>	Packing	3
21	CO0009035800	Packing Retainer	3
22	<i>Not Available</i>	Packing	3
23	CO0009035900	Packing Retainer	3
24	CO1210015600	O-ring (1.78 x 31.47)	3
25	CO0019012800	Oil Seal (20 x 28 x 5)	3
26	CO3201002600	Oil Level Plug	1
27	CO1210033300	O-ring (1.78 x 23.52)	1
28	CO3019003300	Seeger	1
30	<i>Not Available</i>	Screw	4
31	<i>Not Available</i>	Flange	1
32	<i>Not Available</i>	O-Ring	1
33	CO0440003100	Roller Bearing (30 x 62 x 21.25)	1
34	<i>Not Available</i>	Pump Crankcase	1
35	CO3200005100	Oil Dipstick	1
36	CO0600005400	Special Bolt	3

Ref #	Part #	Description	Qty
37	CO2811008200	Washer (8.4 x 16 x 1.5)	3
38	CO0202002200	Ceramic Bushing	3
39	CO2812009400	Washer	3
40	CO1210003900	O-ring (1.78 x 7.66)	3
41	CO0009017000	Anti-Extr. Ring	3
42	CO2409013900	Piston Rod	3
43	<i>Not Available</i>	Gudgeon Pin	3
44	<i>Not Available</i>	Connecting Rod	3
45	CO1210036900	O-ring (3.53 x 117.1)	1
46	CO0402045900	Cover, Red	1
47	CO3609003000	Screw (M5 x 20)	6
48	CO1210004800	O-ring (2.62 x 20.24)	1
49	CO3201002700	Oil Level Plug	1
50	CO1210044100	O-ring	1
51	CO3200000700	Plug, 1/8"	1
52	<i>Not Available</i>	Solid Crankshaft (24mm)	1
53	CO1602001300	Key (8 x 7 x 30)	1
54	CO0440003100	Roller Bearing (30 x 62 x 21.25)	1
55	<i>Not Available</i>	O-Ring	1
56	CO0601030400	Spacer (0.05)	1
	CO0601030500	Spacer (.01)	1
	CO0601030600	Spacer (.19)	1
	CO0601030700	Spacer (.25)	1
57	<i>Not Available</i>	Flange	1
58	<i>Not Available</i>	Oil Seal	1
59	<i>Not Available</i>	Screw	4
100	CO5025001100	Complete Valve Kit	1
101	CO5019067300	Water Seal Kit	1
102	CO2409014600	Piston Kit	1
103	CO5019067500	Oil Seal Kit	1

# Pump Exploded Views – A1572082

**Model**  
NSSHFB6030



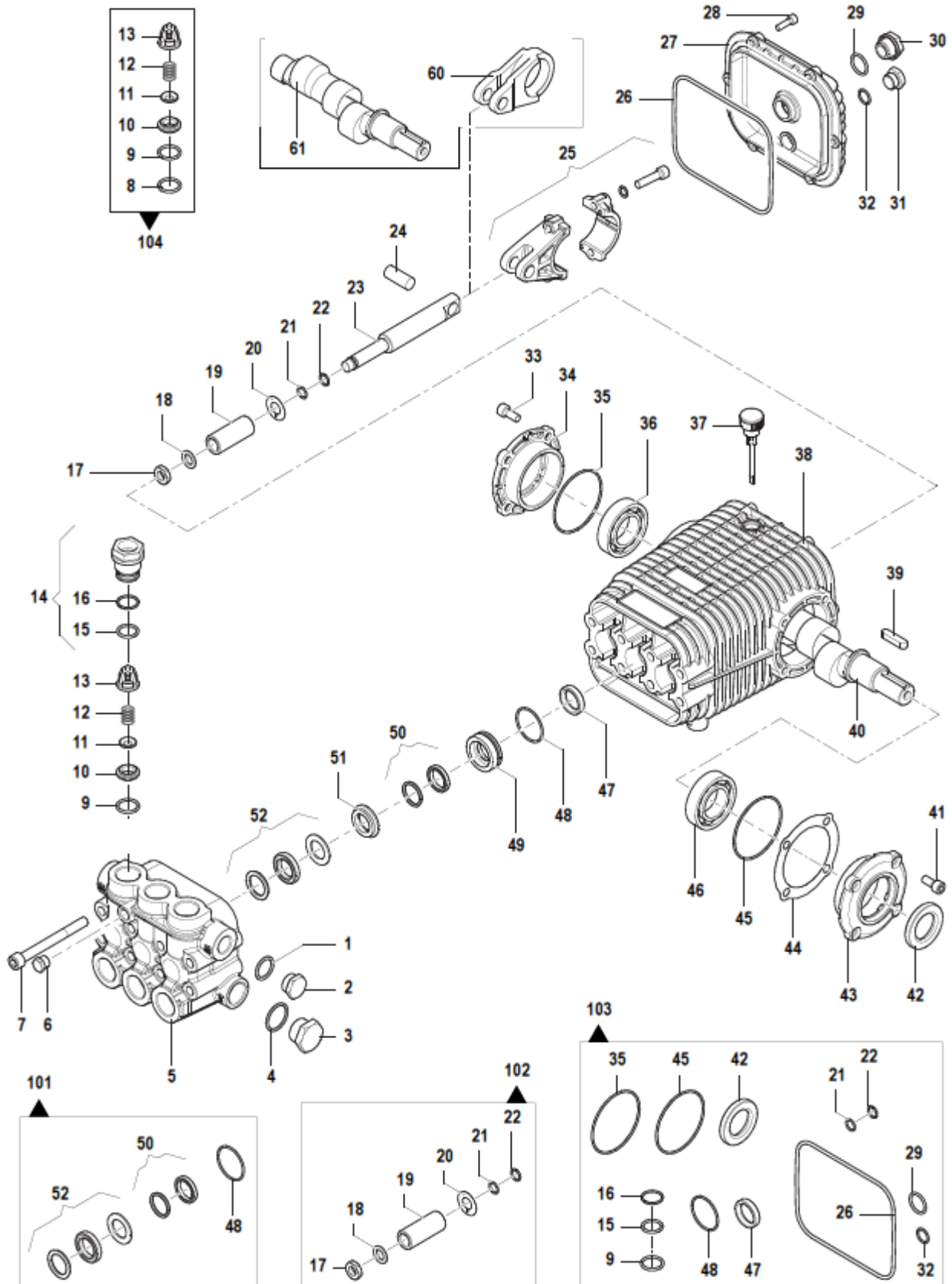
# Pump Exploded Views – A1572082 (cont'd)

Ref #	Part #	Description	Qty
1	<i>Not Available</i>	Screw	8
2	CO3202011200	Plug, 1/4"	1
3	<i>Not Available</i>	Pump Manifold	1
4	CO2811008400	Washer (16.7 x 22 x 1.5)	1
5	CO3200000700	Plug, 1/8"	1
6	CO2811008600	Washer (21.2 x 27 x 1.5)	1
7	CO3202001500	Plug, 1/2"	1
8	CO3202031500	Valve Plug Kit & O-ring	6
9	CO1210004800	O-ring	6
10	CO1220007200	Suction/Delivery Valve	6
11	<i>Not Available</i>	Suction/Delivery Valve Cage	6
12	CO1802017700	Suction/Delivery Valve Spring	6
13	<i>Not Available</i>	Suction/Delivery Valve	6
14	CO3009008700	Suction/Delivery Valve Seat	6
15	CO1210004600	O-ring (2.62 x 17.13)	6
20	<i>Not Available</i>	Packing	3
21	CO0009035200	Packing Retainer	3
22	<i>Not Available</i>	Packing	3
23	CO0009035300	Packing Retainer	3
24	CO1210015600	O-ring (1.78 x 31.47)	3
25	CO0019012800	Oil Seal (20 x 28 x 5)	3
26	CO3201002600	Oil Level Plug	1
27	CO1210033300	O-ring (1.78 x 23.52)	1
28	CO3019003300	Seeger	1
30	<i>Not Available</i>	Screw	4
31	<i>Not Available</i>	Flange	1
32	<i>Not Available</i>	O-Ring	1
33	CO0440003100	Roller Bearing (30 x 62 x 21.25)	1
34	<i>Not Available</i>	Pump Crankcase	1
35	CO3200005100	Oil Dipstick	1
36	CO0600005400	Special Bolt	3

Ref #	Part #	Description	Qty
37	CO2811008200	Washer (8.4 x 16 x 1.5)	3
38	CO0202002400	Ceramic Bushing	3
39	CO2812009400	Washer	3
40	CO1210003900	O-ring (1.78 x 7.66)	3
41	CO0009017000	Anti-Extr. Ring	3
42	CO2409013900	Piston Rod	3
43	<i>Not Available</i>	Gudgeon Pin	3
44	<i>Not Available</i>	Connecting Rod	3
45	CO1210036900	O-ring (3.53 x 117.1)	1
46	CO0402045900	Cover, Red	1
47	CO3609003000	Screw (M5 x 20)	6
48	CO1210004800	O-ring (2.62 x 20.24)	1
49	CO3201002700	Oil Level Plug	1
50	CO1210044100	O-ring	1
51	CO3200000700	Plug, 1/8"	1
52	<i>Not Available</i>	Solid Crankshaft (24mm)	1
53	CO1602001300	Key (8 x 7 x 30)	1
54	CO0440003100	Roller Bearing (30 x 62 x 21.25)	1
55	<i>Not Available</i>	O-Ring	1
56	CO0601030400	Spacer (0.05)	1
	CO0601030500	Spacer (.01)	1
	CO0601030600	Spacer (.19)	1
	CO0601030700	Spacer (.25)	1
57	<i>Not Available</i>	Flange	1
58	<i>Not Available</i>	Oil Seal	1
59	<i>Not Available</i>	Screw	4
100	CO5025002500	Complete Valve Kit	1
101	CO5019067200	Water Seal Kit	1
102	CO2409014500	Piston Kit	1
103	CO5019067500	Oil Seal Kit	1

# Pump Exploded Views – A1572091

**Model**  
NSB5050



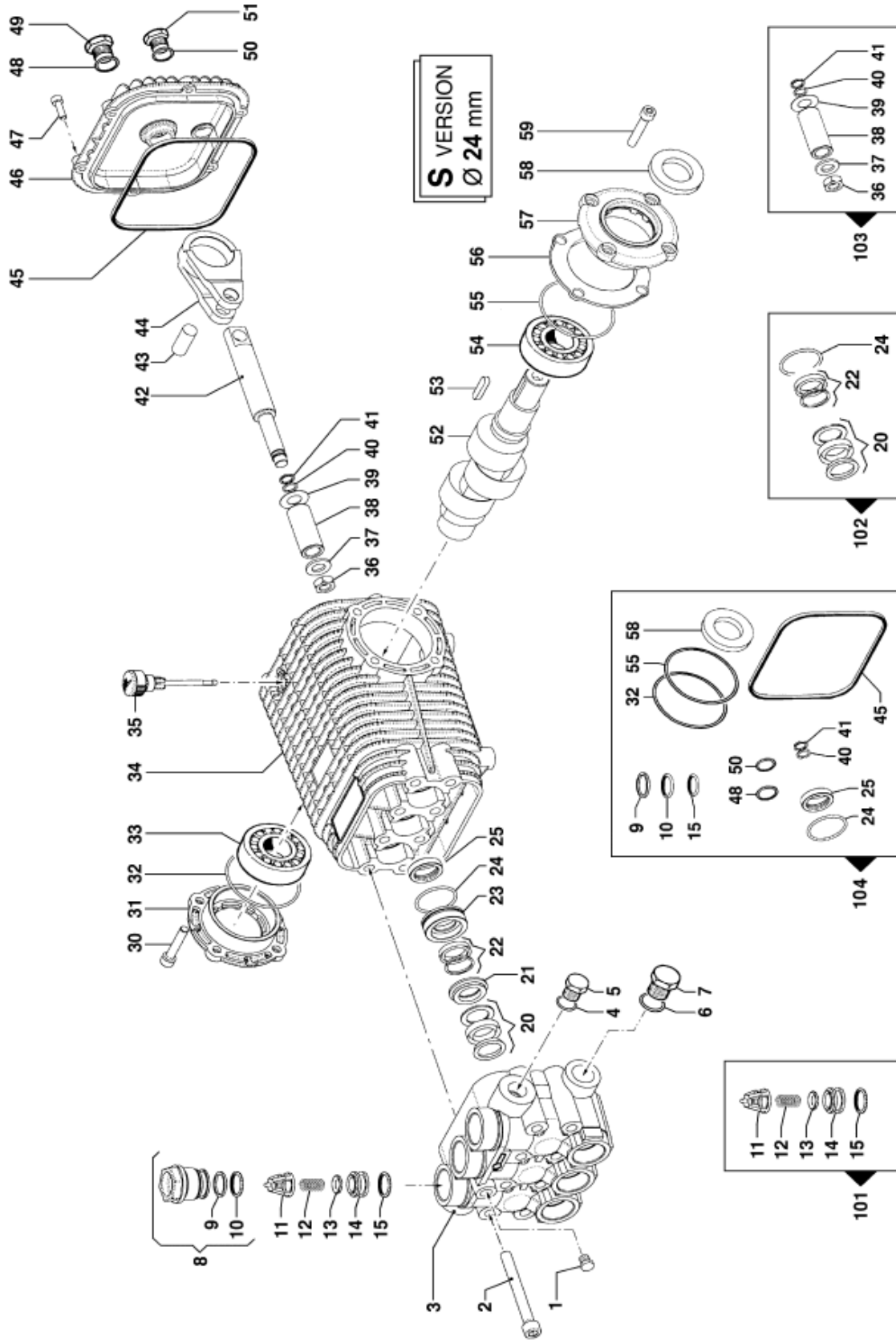
# Pump Exploded Views – A1572091 (cont'd)

Ref #	Part #	Description	Qty
1	CO2811008400	Washer (16.7 x 22 x 1.5)	1
2	CO3200000700	Plug, 3/8"	1
3	CO3202001500	Cap, G1/2	1
4	CO2811008600	Washer (10.5 x 18 x 2)	1
5	<i>Not Available</i>	Pump Manifold	1
6	CO3200000400	Plug, 1/4"	1
7	<i>Not Available</i>	Screw	8
9	<i>Not Available</i>	O-Ring	6
10	CO3009014400	Suction/Delivery Valve Seat	6
11	CO3604001700	Suction/Delivery Valve	6
12	CO1802017700	Suction/Delivery Valve Spring	6
13	CO1205004300	Suction/Delivery Valve Cage	6
14	CO3202031600	Valve Plug Kit	6
15	CO1210002100	O-ring (2.62 x 15.54)	6
16	CO0009028900	Anti-Extrusion Ring	6
17	CO0600005400	Special Bolt	3
18	CO2811008200	Washer	3
19	CO0202004200	Ceramic Bushing	3
20	CO2812009400	Washer	3
21	CO1210003900	O-ring (1.78 x 7.66)	3
22	CO0009017000	Anti-Extrusion Ring	3
23	<i>Not Available</i>	Piston	3
24	<i>Not Available</i>	Gudgeon Pin	3
25	<i>Not Available</i>	Connecting Rod Kit	3
26	CO1210039400	O-ring (3.53 x 142.5)	1
27	CO0402035100	Cover	1
28	<i>Not Available</i>	Screw	6
29	CO1210004800	O-ring (2.62 x 20.24)	1
30	CO3201002700	Oil Sight Glass	1
31	CO3200000700	Plug, 3/8"	1

Ref #	Part #	Description	Qty
32	CO1210044100	O-ring (2 x 14)	1
33	<i>Not Available</i>	Screw	4
34	<i>Not Available</i>	Flange	1
35	CO1210044800	O-ring (2 x 70)	1
36	CO0440002800	Roller Bearing	1
37	CO3200007500	Oil Dipstick	1
38	CO0403018600	Crankcase	1
39	CO1602005500	Shaft Key (8 x 7 x 35)	1
40	<i>Not Available</i>	Through shaft	1
41	<i>Not Available</i>	Screw	4
42	CO0019003200	Oil Seal (30 x 52 x 7)	1
43	<i>Not Available</i>	Flange	1
44	CO0601030400	Spacer (.05)	1
	CO0601030500	Spacer (.10)	1
	CO0601030600	Spacer (.19)	1
	CO0601030700	Spacer (.25)	1
45	CO1210044800	O-Ring	1
46	CO0440002800	Roller Bearing (30 x 62 x 25)	1
47	CO0019012200	Oil Seal (22 x 32 x 7)	3
48	CO1210054700	O-ring (2 x 37)	3
49	CO0009028500	Packing Retainer	3
50	<i>Not Available</i>	Packing	3
51	CO0009028400	Packing Retainer	3
52	<i>Not Available</i>	Packing	3
60	CO0205007100	Connecting Rod	3
61	<i>Not Available</i>	Through shaft	1
101	CO5019064500	Water Seal Kit	1
102	CO2409011600	Piston Kit "C"	1
103	CO5019064900	Oil Seal Kit	1
104	CO5025002100	Complete Valve Kit	1

# Pump Exploded Views – A1572092

**Model**  
NSSHF7035

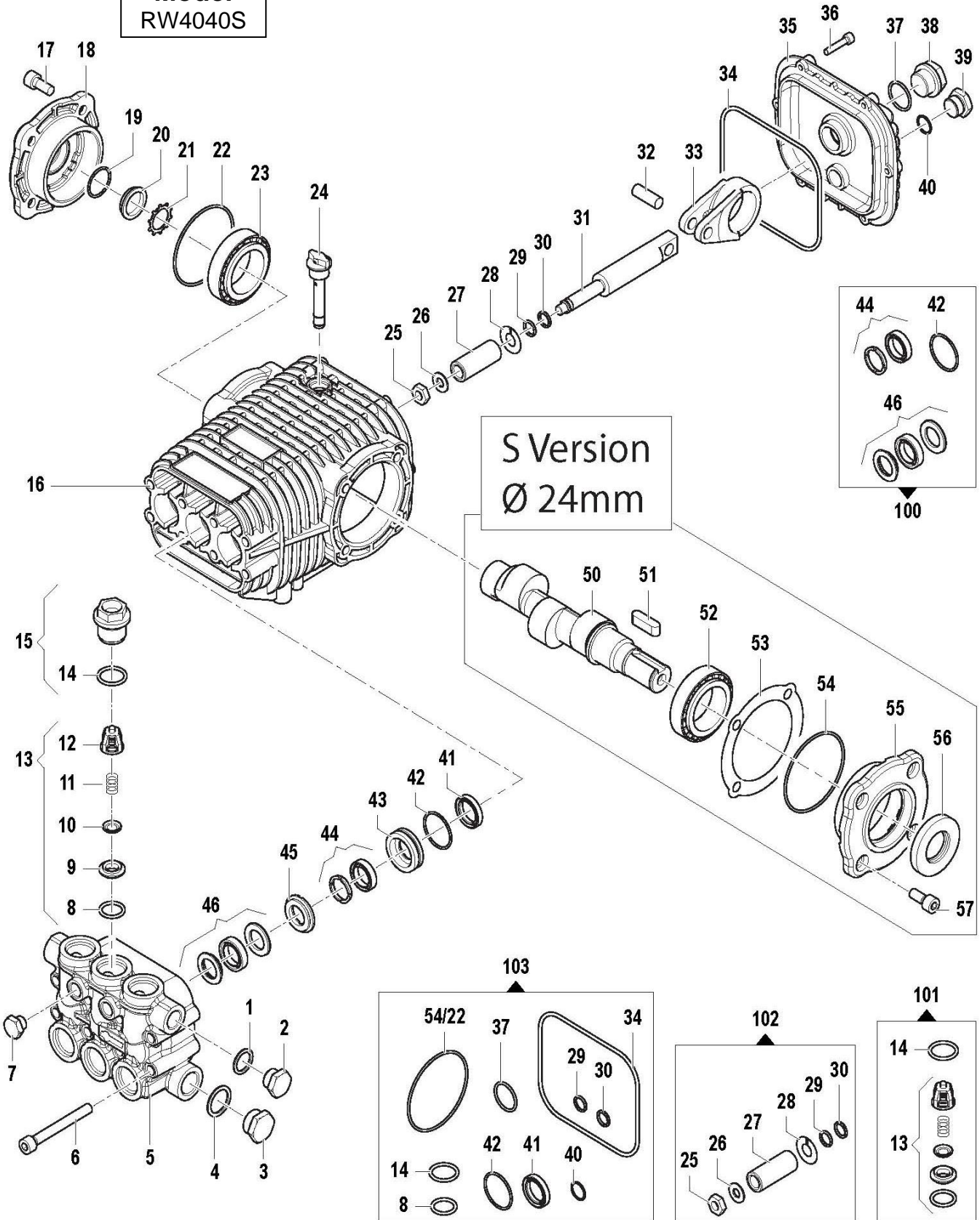


# Pump Exploded Views – A1572092 (cont'd)

Ref #	Part #	Description	Qty	Ref #	Part #	Description	Qty
1	CO3202011200	Plug, 1/4"	1	38	CO0202004300	Ceramic Bushing	3
2	<i>Not Available</i>	Screw	8	39	<i>Not Available</i>	Washer	3
3	<i>Not Available</i>	Pump Manifold	1	40	CO1210017000	O-ring (1.78 x 10.78)	3
4	CO2811008600	Washer (21.2 x 27 x 1.5)	1	41	CO0009022500	Anti-Extrusion Ring	3
5	CO3202001500	Plug, 1/2"	1	42	<i>Not Available</i>	Piston	3
6	CO2811007900	Washer (27.7 x 32.5 x 1.5)	1	43	<i>Not Available</i>	Gudgeon Pin	3
7	CO3202011500	Plug, 3/4"	1	44	CO0205007100	Connecting Rod	3
8	CO3202031700	Valve Plug Kit & O-Ring	6	45	CO1210034900	O-ring (3.53 x 142.5)	1
9	CO0009029000	Anti-Extrusion Ring	6	46	<i>Not Available</i>	Cover	1
10	CO1210004800	O-ring (2.62 x 20.54)	6	47	CO3609003200	Screw (M6 x 20)	6
11	CO1205003800	Suction/Delivery Valve Cage	6	48	CO1210004800	O-ring (2.62 x 20.54)	1
12	CO1802024400	Suction/Delivery Valve Spring	6	49	CO3201002700	Plug, 1/2"	1
13	CO3604003200	Suction/Delivery Valve	6	50	CO1210044100	O-ring (2 x 14)	1
14	CO3009014500	Suction/Delivery Valve Seat	6	51	CO3200000700	Plug, 3/8"	1
15	CO1210004800	O-ring (2.62 x 20.54)	6	52	<i>Not Available</i>	Through shaft	1
20	<i>Not Available</i>	Packing	3	53	CO1602005500	Key (8 x 7 x 3.5)	1
21	CO0009028200	Packing Retainer	3	54	CO0440002800	Roller Bearing (30 x 62 x 25)	1
22	<i>Not Available</i>	Packing	3	55	CO1210044800	O-Ring (2 x 70)	1
23	CO0009028300	Packing Retainer	3	56	<i>Not Available</i>	Spacer (0.05)	1
24	<i>Not Available</i>	O-Ring	3			Spacer (0.1)	1
25	CO0019012200	Oil Seal	3			Spacer (0.19)	1
30	<i>Not Available</i>	Screw	4			Spacer (0.25)	1
31	<i>Not Available</i>	Flange	1	57	<i>Not Available</i>	Flange	1
32	CO1210044800	O-Ring (2 x 70)	1	58	<i>Not Available</i>	Oil Seal	1
33	CO0440002800	Roller Bearing (30 x 62 x 25)	1	59	<i>Not Available</i>	Screw	4
34	<i>Not Available</i>	Pump Crankcase	1	101	CO5025002000	Complete Valve Kit	1
35	CO3200007500	Oil Dipstick	1	102	CO5019064600	Water Seal Kit	1
36	CO0600006200	Special Bolt	3	103	CO2409011400	Piston Kit	1
37	<i>Not Available</i>	Washer	3	104	CO5019064400	Oil Seal Kit	1

# Pump Exploded Views – A157134

**Model**  
RW4040S



## Pump Exploded Views - A157134 (cont'd)

Ref #	Part #	Description	Qty
1	2811 0084	Washer	1
2	3200 0007	Plug	1
3	3202 0015	Plug	1
4	2811 0086	Washer	1
5	3218 0393	Pump Manifold	1
6	3609 0039	Screw	8
7	3200 0004	Plug	1
8	12100046	O-Ring	6
9	3009 0087	Suction/Delivery Valve Seat	6
10	3604 0017	Suction/Delivery Valve	6
11	1802 0177	Suct./Delivery Valve Spring	6
12	1205 0025	Suction/Delivery Valve Cage	6
13	1220 0030	Suction/Delivery Valve	6
14	1210 0048	O-Ring	6
15	3202 0315	Valve Plug Kit + O-Ring	6
16	0403 0168	Pump Crankcase	1
17	3609 0157	Screw	4
18	1009 0242	Flange	1
19	1210 0451	O-Ring	1
20	3201 0026	Oil Level Plug	1
21	3019 0033	Seeger	1
22	1210 0448	O-Ring	1
23	0440 0031	Roller Bearing	1
24	3200 0051	Oil Dipstick	1
25	0600 0054	Special Bolt	3
26	2811 0082	Washer	3
27	0202 0022	Ceramic Bushing	3
28	2812 0094	Washer	3

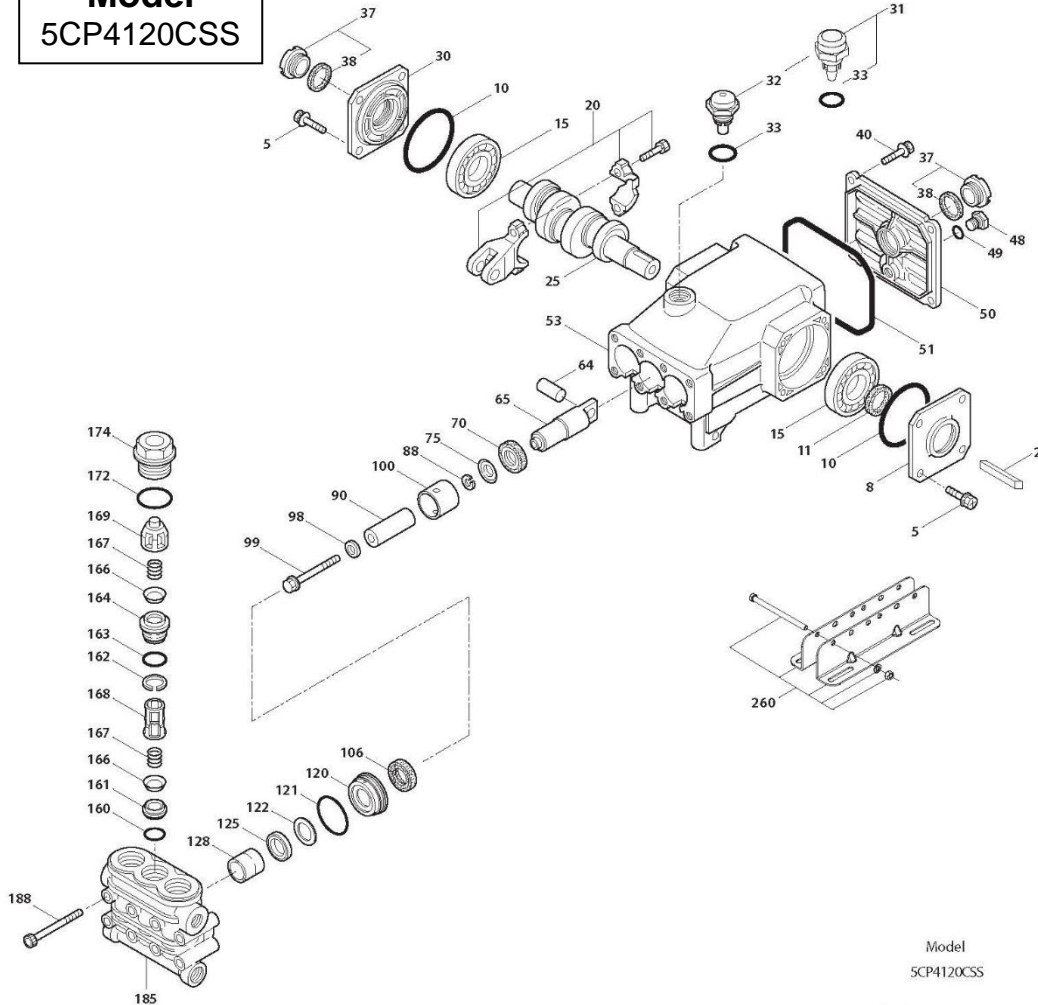
Ref #	Part #	Description	Qty
29	1210 0039	O-Ring	3
30	0009 0170	Anti-Extr. Ring	3
31	2409 0139	Piston	3
32	3011 0016	Gudgeon Pin	3
33	0205 0044	Connecting Rod	3
35	0402 0307	Cover	1
36	3609 0030	Screw	6
37	1210 0048	O-Ring	1
38	3201 0027	Oil Level Plug	1
39	3200 0007	Plug	1
40	1210 0441	O-Ring	1
41	0019 0128	Oil Seal	3
42	1210 0156	O-Ring	3
43	0009 0359	Packing Retainer	3
44	1241 0074	Packing	3
45	0009 0358	Packing Retainer	3
46	1241 0073	Packing	3
50	0001 0570	Solid Crankshaft	1
51	1602 0013	Key	1
52	0440 0031	Roller Bearing	1
53	0601 0307	Spacer	1
54	1210 0448	O-Ring	1
54	1210 0448	O-Ring	1
55	1009 0241	Flange	1
56	0019 0007	Oil Seal	1
57	3609 0157	Screw	4

### **Spare Parts Kit:**

Ref #	Part #	Description	Qty
100	5019 0673	Water Seal Kit	1
101	5025 0011	Complete Valve Kit	1
102	2409 0146	Piston Kit	1
103	5019 0675	Oil Seal Kit	1

# Pump Exploded Views – A157136

**Model**  
5CP4120CSS



VALVE KIT-77026

ITEM	PART #	QTY
160	11346	3
161	49918	3
162	49844	3
163	49845	3
164	49917	3
166	46429	6
167	43750	6
168	49847	3
169	44565	3
172	26089	3

SEAL KIT-76979

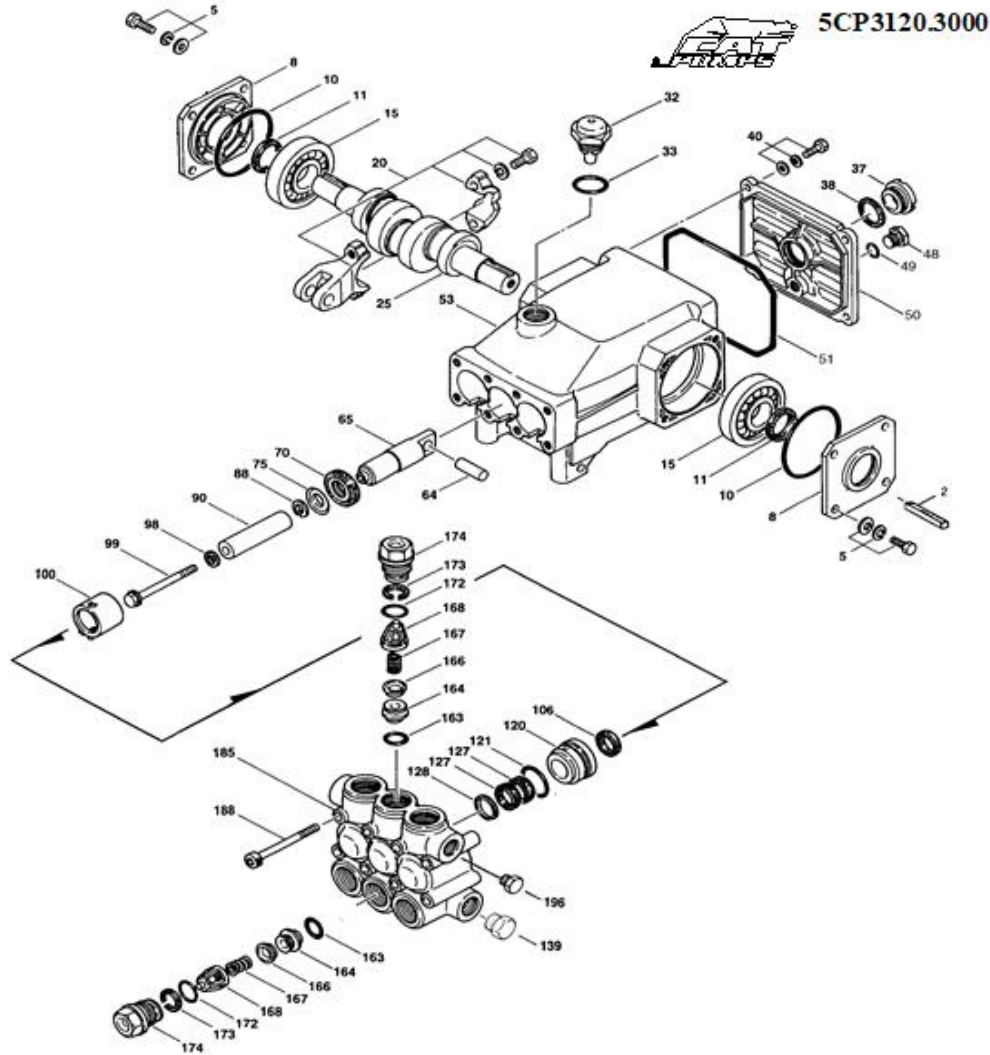
ITEM	PART #	QTY
98	11346	3
106	49918	3
121	49844	3
125	49845	3
128	49917	3

Model  
5CP4120CSS

ITEM	PART #	DESCRIPTION	QTY
2	30057	Key (M6x6x25)	1
5	126542	Screw, HHC, Sems (M8x16)	8
8	46910	Cover Bearing	1
10	14028	O-Ring, Bearing Cover	2
11	43222	Seal, Oil, Crankshaft	1
15	14480	Bearing, Ball	2
20	48742	Rod, Connecting Assembly	3
25	49773	Crankshaft, Single End (M20)	1
30	49776	Cover, Bearing	1
31	127409	Cap, Vented W/O-Ring (Rain Cap)	1
32	46798	Cap, Oil Filler, Domed	1
33	14179	O-Ring, Oil Filler Cap	1
37	92241	Gauge, Oil, Bubble w/Gasket	2
38	44428	Gasket, Flat, Oil Gauge	2
40	125824	Screw, HHC, Sems (M6x16)	4
48	25625	Plug, Drain (1/4"x19BSP)	1
49	23170	O-Ring, Drain Plug	1
50	46940	Cover, Rear	1
51	14044	O-Ring, Rear Cover	1
53	48617	Crankcase	1
64	46746	Pin, Crosshead	3
65	48458	Rod, Plunger	3
70	46838	Seal, Oil, Crankcase	3
75	43900	Slinger, Barrier	3
88	45697	Washer, Keyhole (M18x10)	3
90	49906	Plunger (M15 x 41)	3
98	46730	Washer, Seal	3
99	49907	Retainer, Plunger w/Stud (M6)	3

ITEM	PART #	DESCRIPTION	QTY
100	46749	Retainer, Seal	3
106	49913	Seal, LPS w/SS-Spg	3
120	49912	Case, Seal, (Press-in-style)	3
121	13980	O-Ring, Seal Case	3
122	49944	Ring, Support	3
125	49910	Seal, HPS	3
128	49990	Adapter, Male	3
139	22179	Plug, Inlet [1/2" NPT(M)]	1
160	11346	O-Ring, Inlet Seat	3
161	49918	Seat Inlet	3
162	49844	Back-up-Ring, Discharge Seat	3
163	49845	O-Ring, Discharge Seat	3
164	49917	Seat, Discharge	3
166	46429	Valve	6
167	43750	Spring	6
168	49847	Retainer, Spring, Inlet	3
169	44565	Retainer, Spring, Discharge	3
172	26089	O-Ring, Valve Plug	3
174	49920	Plug, Valve	3
185	49863	Manifold, Head	1
188	87868	Screw, HSH (M8 x 107)	8
196	22187	Plug, Discharge [3/8" NPT(M)]	1
255	30243	Mount, Direct	1
260	30611	Mount, Rail, Assy (4.22")	1
	30613	Mount, Rail, Assy (5.02")	1
	76513	Mount, Rail, Assy (5.52")	1
275	30944	Assembly, Hub & Key (Includes: 30945, 30057)	1

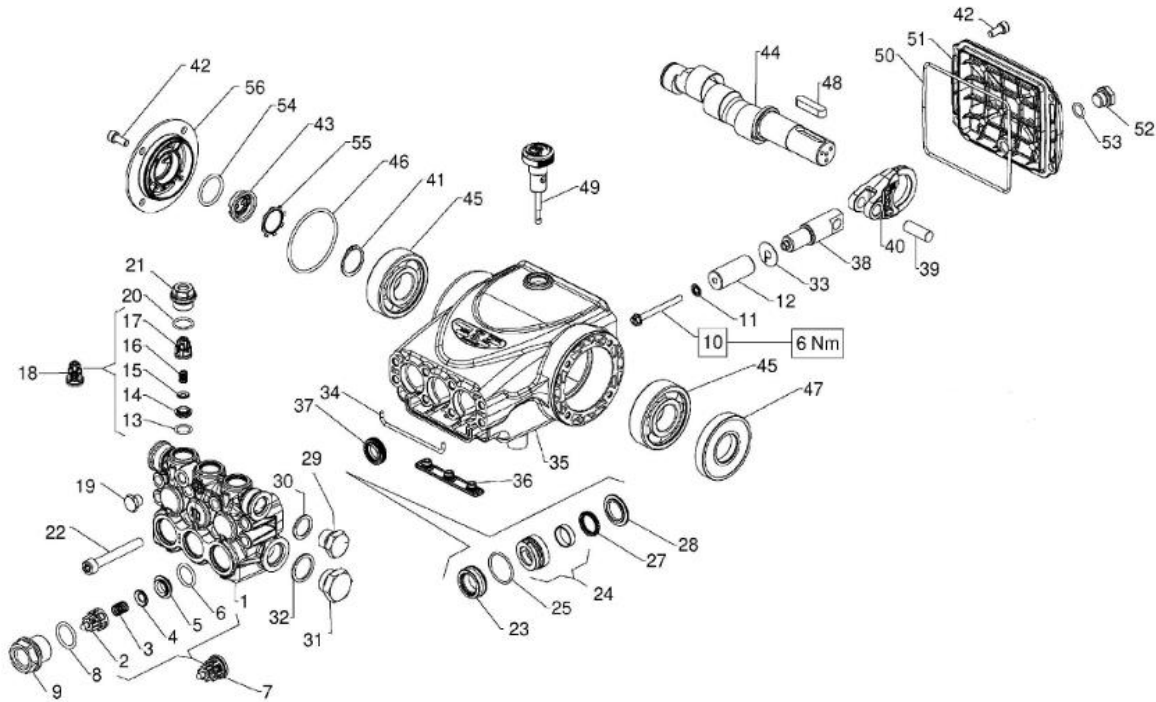
# Pump Exploded Views – A1571107



ITEM	PART #	DESCRIPTION	QTY
2	CA30057	Key (M6)	1
5	CA96031	Screw, Sem HC M8x16	8
8	CA46910	Cover Bearing	2/1
10	CA14028	O-Ring \, Bearing Cover	2
11	CA43222	Seal, Oil, Crankshaft	2
15	CA14480	Bearing	2
20	CA46743	Rod, Connecting Assembly	3
25	Not Available	Crankshaft, Dual End	1
30	CA48224	Cover, Bearing Blind	1
31	CA828710	Protector, Oil Cap	1
32	CA46798	Cap, Oil Filler, Domed	1
33	CA14179	O-Ring, Oil Filler Cap	1
37	CA43987	Gauge, Oil, Bubble	1
38	CA44428	gasket, Flat, Oil Gauge	1
40	CA92519	Screw, Sems HHC (M6x16)	4
48	CA25625	Plug, Drain	1
49	CA23170	O-Ring, Drain Plug	1
50	CA46940	Cover, Crankcase	1
51	CA14044	O-Ring, Crankcase Cover	1
53	Not Available	Crankcase	1
64	CA46746	Pin, Rist	3
65	CA46747	Rod, Plunger	3
70	CA46838	Seal, Oil, Crankcase	3
75	CA43900	Slinger, Barrier	3
88	CA45697	Washer, Keyhole (M18)	3

ITEM	PART #	DESCRIPTION	QTY
90	CA46884	Plunger (M50)	3
98	CA46730	Washer, Seal	3
99	CA46729	Retainer, Plunger w/Stud (M7)	3
100	CA46749	Retainer, Seal	3
106	CA43316	Seal, LPS w/S-Spg	3
120	CA46888	Case, Seal, Press-in-style	3
121	CA13978	O-Ring, Seal Case	3
127	CA46287	V-Packing	6
128	CA46618	Adapter, Male	3
139	CA22179	Plug, Inlet (1/2")	1
163	CA17547	O-Ring, Seat	6
164	CA46658	Seat	6
166	CA46429	Valve	6
167	CA43750	Spring	6
168	CA46583	Retainer, Spring	6
172	CA17549	O-Ring, Valve Plug	6
173	CA48365	Back-up-ring, Valve Plug	6
174	CA45900	Plug, Valve	6
185	CA46886	Manifold, Head	1
188	CA87872	Bolt, HSH (M8x70), Manifold Head	8
196	CA22187	Plug, Discharge (3/8")	1
KIT#1	CA31665	Seal Kit Includes: 98, 106, 121, 127, 128	1
KIT#2	CA33060	Valve Kit Includes: 163, 164, 166, 167, 168, 172, 173	2

# Pump Exploded Views – A1571108

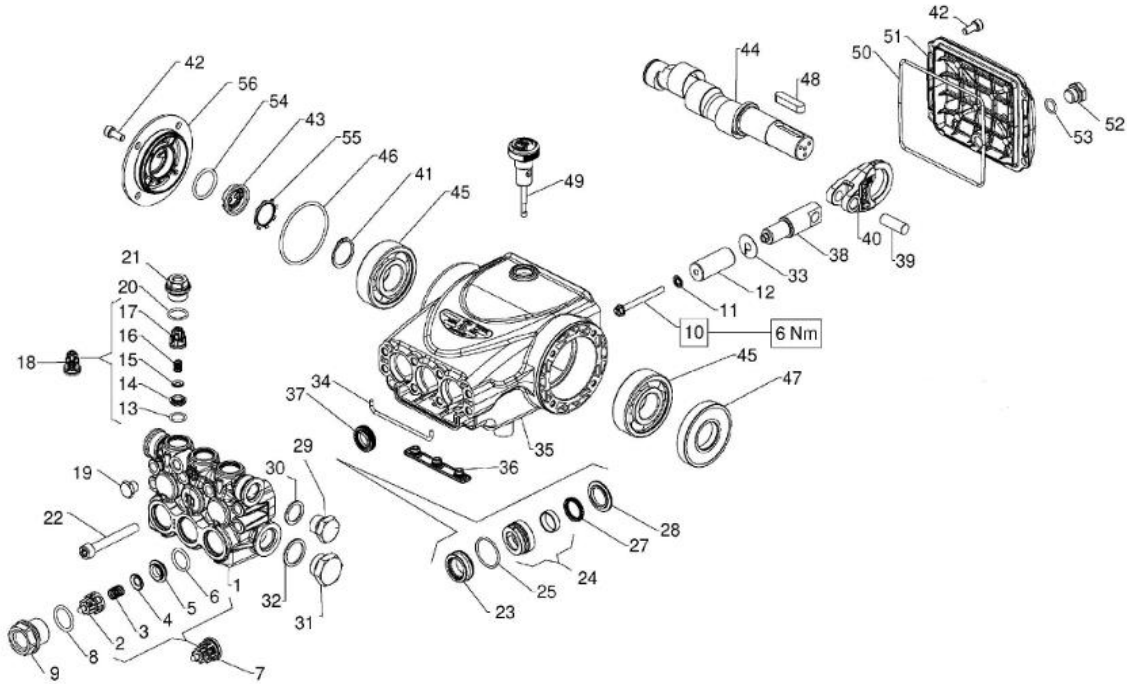


ITEM	PART #	DESCRIPTION	QTY
1	Not Available	Manifold, 18mm	1
2	GP36202551	Valve Cage	3
3	GP94737600	Spring, 9.4mm x 14.8	3
4	GP36200176	Valve	3
5	GP36200366	Valve Seat	3
6	GP701115	O-ring, 17.13x2.62	3
7	GP36726201	Valve Spring	3
8	GP90384750	O-ring, Ø20.24x2.62	3
9	GP98222500	Valve Cap, M24x1.5x16.7	3
10	GP99169000	Plunger Bolt, M5x55	3
11	GP96690500	Washer, Ø 5x11.5x0.4	3
12	GP58040209	Plunger, Ø 18x42	3
13	GP90367450	O-ring, Ø 12.42x1.78	3
14	GP36211366	O-ring, Ø 12.42x1.78	3
15	GP36211276	Outlet Valve Poppet	3
16	GP94733300	Spring, Ø 6.2x10.4	3
17	GP36211151	Outlet Valve Cage Guide	3
18	GP36729801	Complete Outlet Valve	3
19	GP98196700	Plug	3
20	GP701016	O-ring, Ø 15.6x1.78	3
21	GP98213750	Outlet Valve Cap, M18x1.5x10	3
22	GP99317500	Screw, M8x60	8
23	GP90221000	Head Ring, Ø 18	3
24	GP58606401	Packing, Ø 18, HT	3
25	GP90360650	Anti-ext. Ring, Ø 18	3
27	GP90220000	Intermed. Ring, Ø 18	3
28	GP58211270	Support Ring, Ø 18	3
29	GP98209900	Plug, G3/8"x13	1

ITEM	PART #	DESCRIPTION	QTY
30	GP96738000	Gasket, 17.5x23x1.5	1
31	GP98217900	Plug, 1/2" BSPx10	1
32	GP96751400	Gasket, Ø 21.5x27x1.5	1
33	GP96699000	Washer, Ø 7.5x15x0.5	3
34	GP58210582	Gasket, Ø 3x94	1
35	Not Available	Crankcase	1
36	GP58210451	Drip Cover	1
37	GP90156550	Oil Seal, Ø 15x24x5.7	3
38	GP58050066	Piston Guide	3
39	GP97734000	Piston Pin, Ø 10x29.5	3
40	GP58030022	Connecting Rod	3
41	GP90063500	Stop Ring Ø 25	1
42	GP99183700	Screw, M6x14	8
43	GP53210851	Oil Level Indicator	1
44	Not Available	Crankshaft, 12mm	1
45	GP91833100	Bearing, Premium	2
46	GP90389800	O-ring, Ø 56.82x2.62	1
47	GP90164100	Oil Seal, Ø 25x62x10	1
48	GP91489200	Key	1
49	GP98210500	Oil Dipstick	1
50	GP90392550	O-ring, Ø 113.97x2.62	1
51	GP58160022	Rear Cover	1
52	GP98204250	Plug, 1/4"x9	1
53	GP701013	O-ring, Ø 10.82x1.78	1
54	GP90385900	O-ring, Ø 25.07x2.62	1
55	GP90067100	Stop Ring	1
56	GP58150122	Side Cover	1

KIT NO	GPK415	GPK418	GPK271	GPK416	GPK417
ITEM NO'S INCLUDED IN KIT	2, 3, 4, 5, 6, 13, 14, 15, 16, 17, (7), (18)	8, 9, 20, 21	37	23, 25, 27	23, 24, 25, 27, 28
NUMBER OF ASSY'S IN KIT	6	6	3	3	1
NO. OF CYLINDERS KIT SERVICES	3	3	3	3	1

# Pump Exploded Views – A1571109



ITEM	PART #	DESCRIPTION	QTY
1	Not Available	Manifold, 18mm	1
2	GP36202551	Valve Cage	3
3	GP98204200	Spring, 9.4mm x 14.8	3
4	GP36200176	Valve	3
5	GP36200366	Valve Seat	3
6	GP71115	O-ring, 17.13x2.62	3
7	GP3672601	Valve Spring	3
8	GP90384750	O-ring, Ø20.24x2.62	3
9	GP98222500	Valve Cap, M24x1.5x16.7	3
10	GP99169000	Plunger Bolt, M5x55	3
11	GP96690500	Washer, Ø 5x11.5x0.4	3
12	GP58040209	Plunger, Ø 18x42	3
13	GP90367450	O-ring, Ø 12.42x1.78	3
14	GP36211366	O-ring, Ø 12.42x1.78	3
15	GP36211276	Outlet Valve Seat	3
16	GP94733300	Spring, Ø 6.2x10.4	3
17	GP36211151	Outlet Valve Cage Guide	3
18	GP36729801	Complete Outlet Valve	3
19	GP98196700	Plug	3
20	GP701016	O-ring, Ø 15.6x1.78	3
21	GP98213750	Outlet Valve Cap, M18x1.5x10	3
22	GP99317500	Screw, M8x60	8
23	GP90221000	Head Ring, Ø 18	3
24	GP58606401	Packing, Ø 18, HT	3
25	GP90360650	Anti-ext. Ring, Ø 18	3
27	GP90220000	Intermed. Ring, Ø 18	3
28	GP58211270	Support Ring, Ø 18	3
29	GP98209900	Plug, G3/8"x13	1

ITEM	PART #	DESCRIPTION	QTY
30	GP96738000	Gasket, 17.5x23x1.5	1
31	GP98217900	Plug, 1/2" BSPx10	1
32	GP96751400	Gasket, Ø 21.5x27x1.5	1
33	GP96699000	Washer, Ø 7.5x15x0.5	3
34	GP58210582	Gasket, Ø 3x94	1
35	Not Available	Crankcase	1
36	GP58210451	Drip Cover	1
37	GP90156550	Oil Seal, Ø 15x24x5.7	3
38	GP58050066	Piston Guide	3
39	GP97734000	Piston Pin, Ø 10x29.5	3
40	GP58030022	Connecting Rod	3
41	GP90063500	Stop Ring Ø 25	1
42	GP99183700	Screw, M6x14	8
43	GP53210851	Oil Level Indicator	1
44	Not Available	Crankshaft, 13mm	1
45	GP91833100	Bearing, Premium	2
46	GP90389800	O-ring, Ø 56.82x2.62	1
47	GP90164100	Oil Seal, Ø 25x62x10	1
48	GP91489200	Key	1
49	GP98210500	Oil Dipstick	1
50	GP90392550	O-ring, Ø 113.97x2.62	1
51	GP58160022	Rear Cover	1
52	GP98204250	Plug, 1/4"x9	1
53	GP701013	O-ring, Ø 10.82x1.78	1
54	GP90385900	O-ring, Ø 25.07x2.62	1
55	GP90067100	Stop Ring	1
56	GP58150122	Side Cover	1

KIT NO	GPK415	GPK418	GPK271	GPK416	GPK417
ITEM NO'S INCLUDED IN KIT	2, 3, 4, 5, 6, 13, 14, 15, 16, 17, (7), (18)	8, 9, 20, 21	37	23, 25, 27	23, 24, 25, 27, 28
NUMBER OF ASSY'S IN KIT	6	6	3	3	1
NO. OF CYLINDERS KIT SERVICES	3	3	3	3	1

# Limited Warranty

Dear Valued Customer:

The NorthStar 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 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.

## Limited Warranty

NorthStar 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 1 year from the date of purchase by user. NorthStar shall warranty any wear item, including, but not limited to, valves, seals, pump diaphragms, hoses, and filter elements to be free from defects in material or workmanship for a period of 90 days from the date of purchase by user. This warranty applies to the original purchaser of the equipment and is nontransferable. Verification of purchase is the responsibility of the buyer. Parts will be replaced or repaired at no charge, except when the equipment has failed due to lack of proper maintenance. 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.

**NOTE:** Some services performed by parties other than NorthStar may void warranty.

**This warranty covers parts only. It will not provide for replacement of complete products due to defective parts. Components not manufactured by NorthStar such as engines are guaranteed by their manufacturer and can be serviced at factory-authorized locations near you. Any costs incurred due to replacement or repair of items outside of a NorthStar approved facility is the responsibility of the buyer and not covered under warranty. NorthStar can supply you with the service center location in your area.**

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 in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer's specifications, 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.

Warranty does not cover items subject to normal wear such as tires, receptacles or any part subject to direct physical contact by the public. This warranty does not cover any personal injury or damage to surrounding property caused by failure of any part.

This warranty is in lieu of any other warranty expressed or implied and NorthStar assumes no other responsibility or liability outside that expressed within this warranty.

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

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

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

NorthStar Serial Number: \_\_\_\_\_

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

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**⚠️ WARNING:** This product can expose you to chemicals including acetaldehyde, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm.

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).



Assembled by  
Northern Tool & Equipment Company, Inc.  
Burnsville, MN 55306  
NorthernTool.com