



# M1578112G

**ITEM NUMBERS:** 1578112, 1578172  
1578182, 1578152,  
1578202, 1578203,  
1578173, 1577543,  
1577544

## Owner's Manual

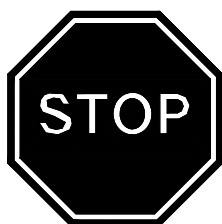
**Pressure Washer:** Machine that cleans dirty surfaces with high pressure water.



### ⚠ WARNING

**Read this manual.**

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



**Engine is shipped without oil.**

- Before starting engine, fill engine oil.
- See engine manual for engine oil requirements.

**Pump is shipped with oil.**

- Remove shipping plug and install vented fill cap. (Comet Pumps)
- Remove shipping tape from pump oil fill cap. (Cat 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.

fig01862

**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>

fig01453

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## ⚠ Important Safety Rules






	<h3 style="text-align: center;">⚠ WARNING</h3> <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>

fig01572

## Save These Instructions

## ⚠ Important Safety Rules




	<h1>⚠ WARNING</h1>
	<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>
	<h1>⚠ CAUTION</h1>
	<p><b>1.) Hot muffler.</b></p> <p>You can be burned by muffler. Do not touch.</p>

fig01846

## ⚠ Warning Label Locations

### START-UP INSTRUCTIONS

1. Attach garden hose.
2. Attach pressure hose.
3. Attach gun and 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



**1.) Skin puncture hazard.** Do not direct spray at people or animals. Seek IMMEDIATE surgical treatment.



**2.) Risk of fire and explosion.** Do not add fuel when engine is running or still hot.



**3.) Breathing hazard.** Poisonous fumes from engine can kill you. Do not operate indoors even if ventilated.



**4.) Risk of electrocution.** Keep water away from electric outlets and electric devices.



**5.) Read owner's manual.** Serious injury or death can result if safety instructions are not followed.

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FIG02833

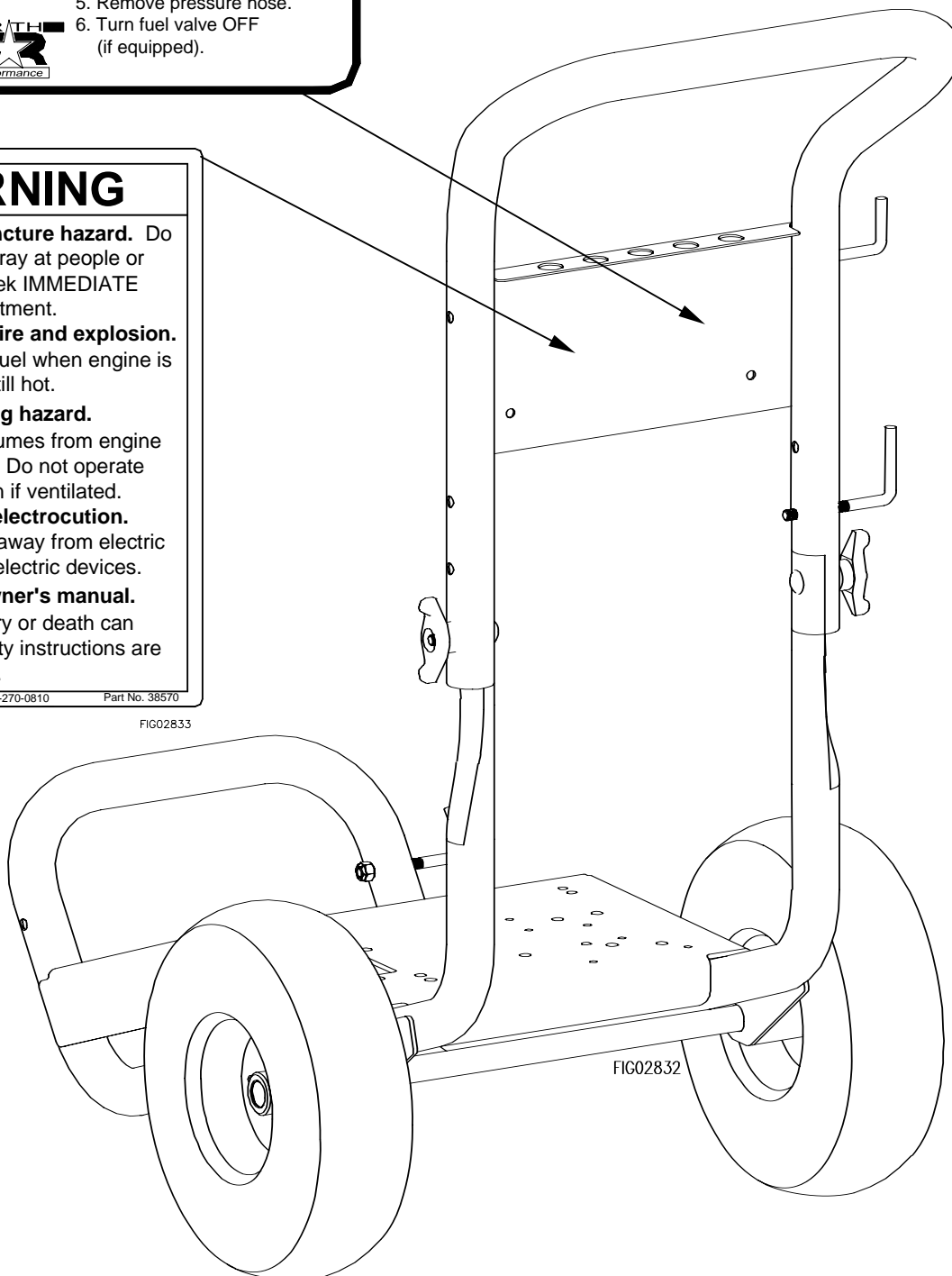


FIG02832

**Call 1-800-270-0810 to order new labels.**

Instruction Label: Part No. 32538

Warning Label: Part No. 781026 (includes hot muffler caution located on engine)

## **⚠ Assembly Instructions**

### **I.) Unpack**

Your pressure washer is shipped in two boxes except for models 1577543 and 1577544 which are shipped in one box. Separate and identify the components found in the box/boxes.

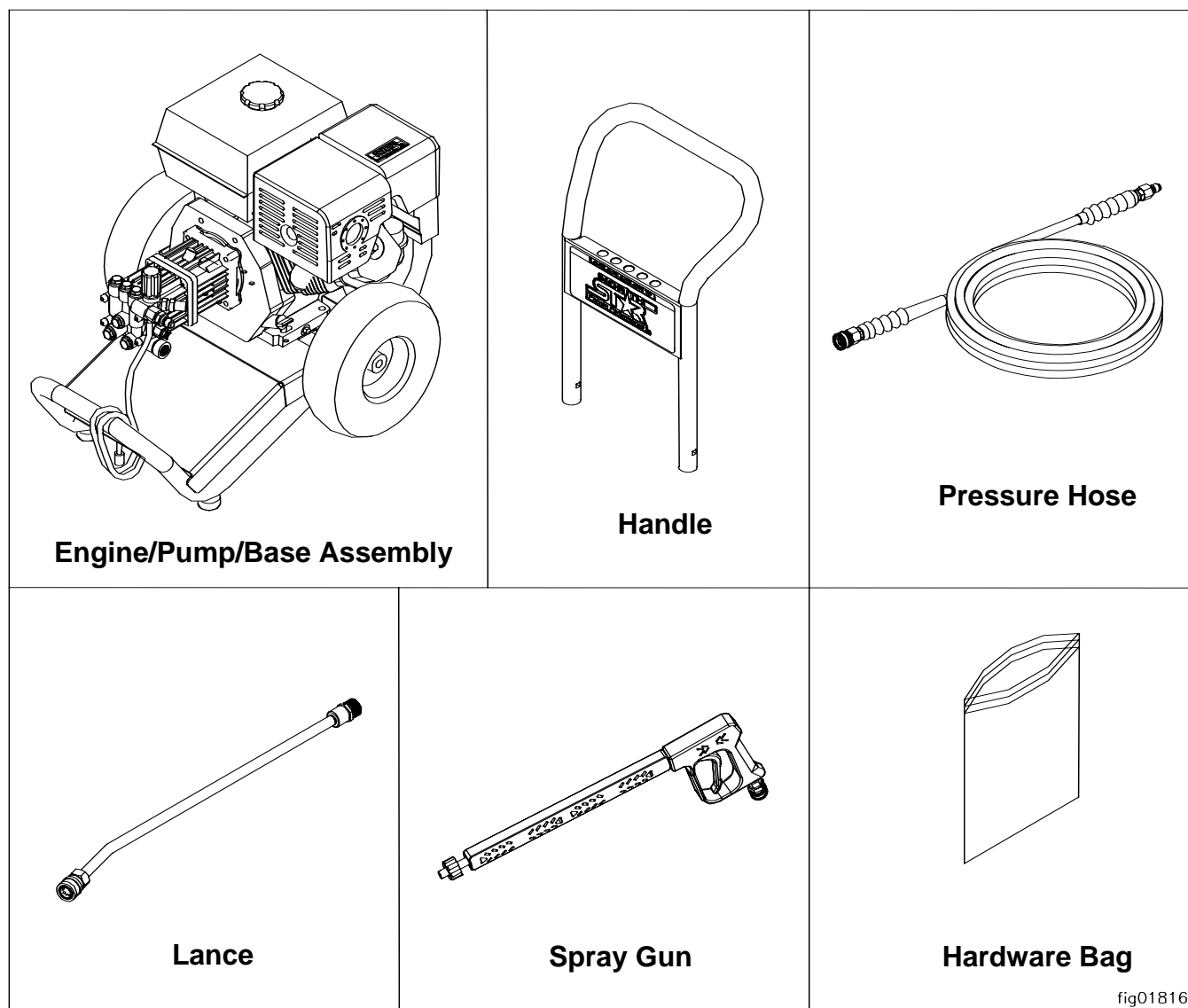


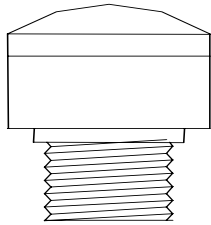
fig01816

\* Depending in model, components may appear differently than illustrated

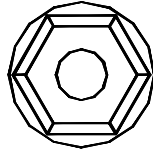
**Any Questions, Comments, Problems or Parts Orders**  
***Call NorthStar Product Support 1-800-270-0810***

# ⚠ Assembly Instructions

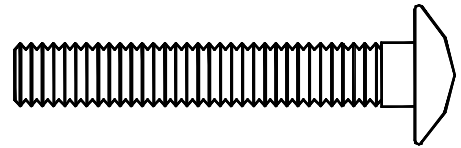
## II.) Hardware Bag



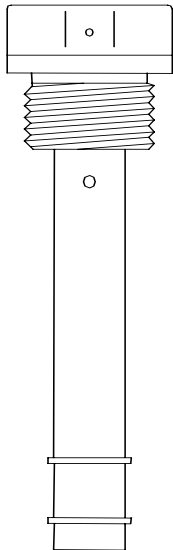
Vented fill cap  
1578112,  
1577543,1577544



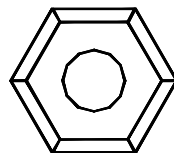
Flange Nut – Qty 2  
Part # 82019



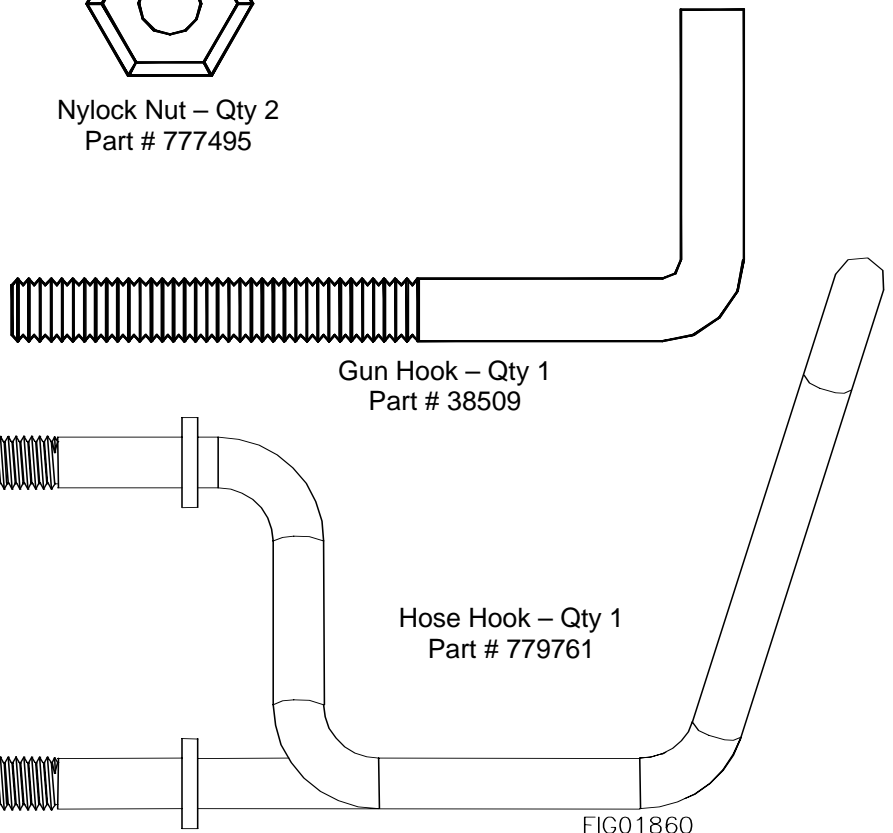
Carriage Bolt – Qty 2  
Part # 82233



Vented dipstick  
1578152,  
1578173, 1578203



Nylock Nut – Qty 2  
Part # 777495



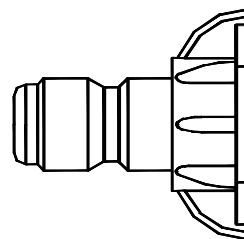
Gun Hook – Qty 1  
Part # 38509

Hose Hook – Qty 1  
Part # 779761

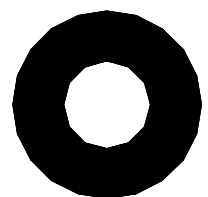
FIG01860



T- Handle Knob – Qty 2  
Part # 38578



Nozzle – Qty 2 or 5  
Varies by model



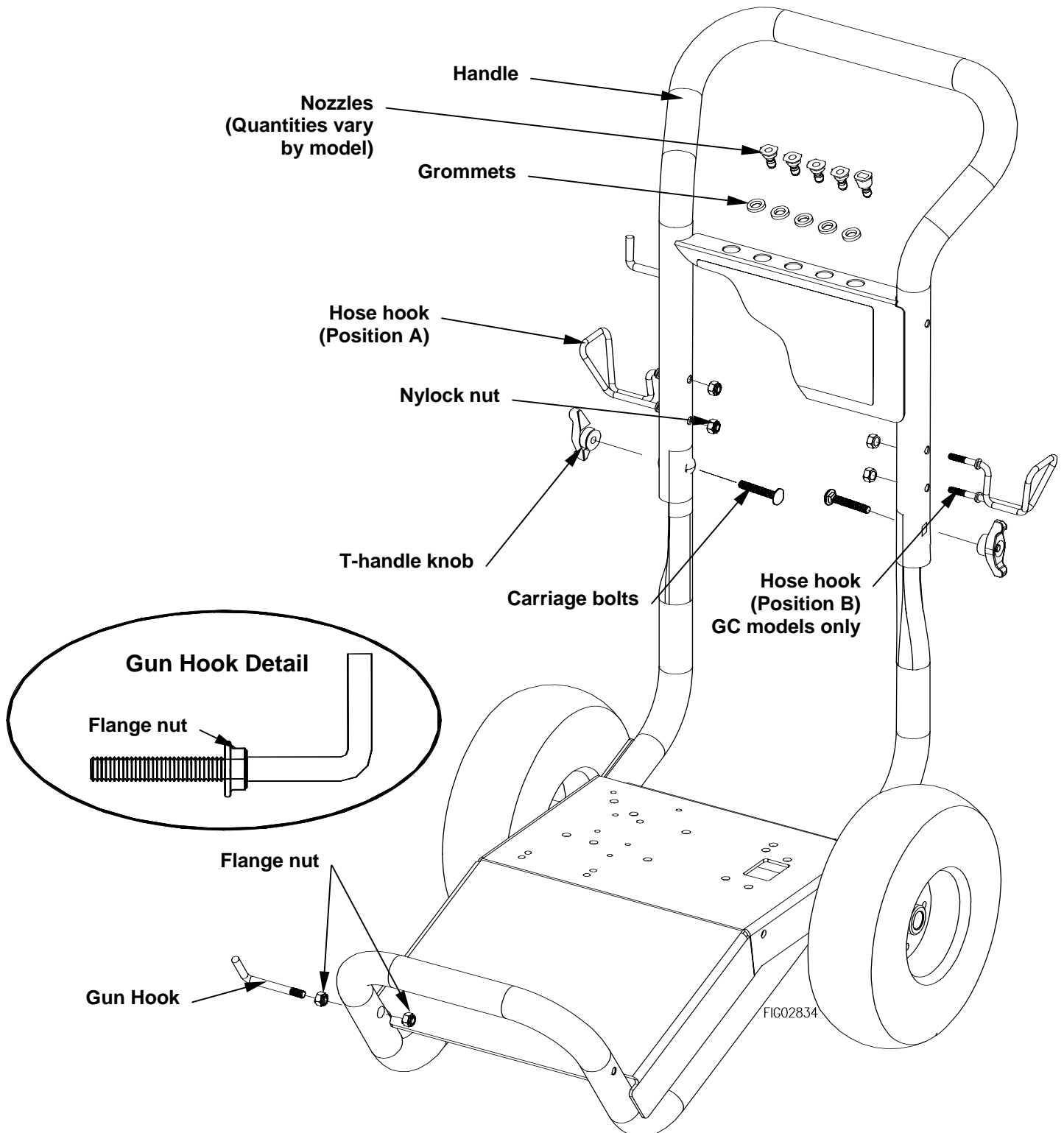
Grommet – Qty 5  
Part # 35198



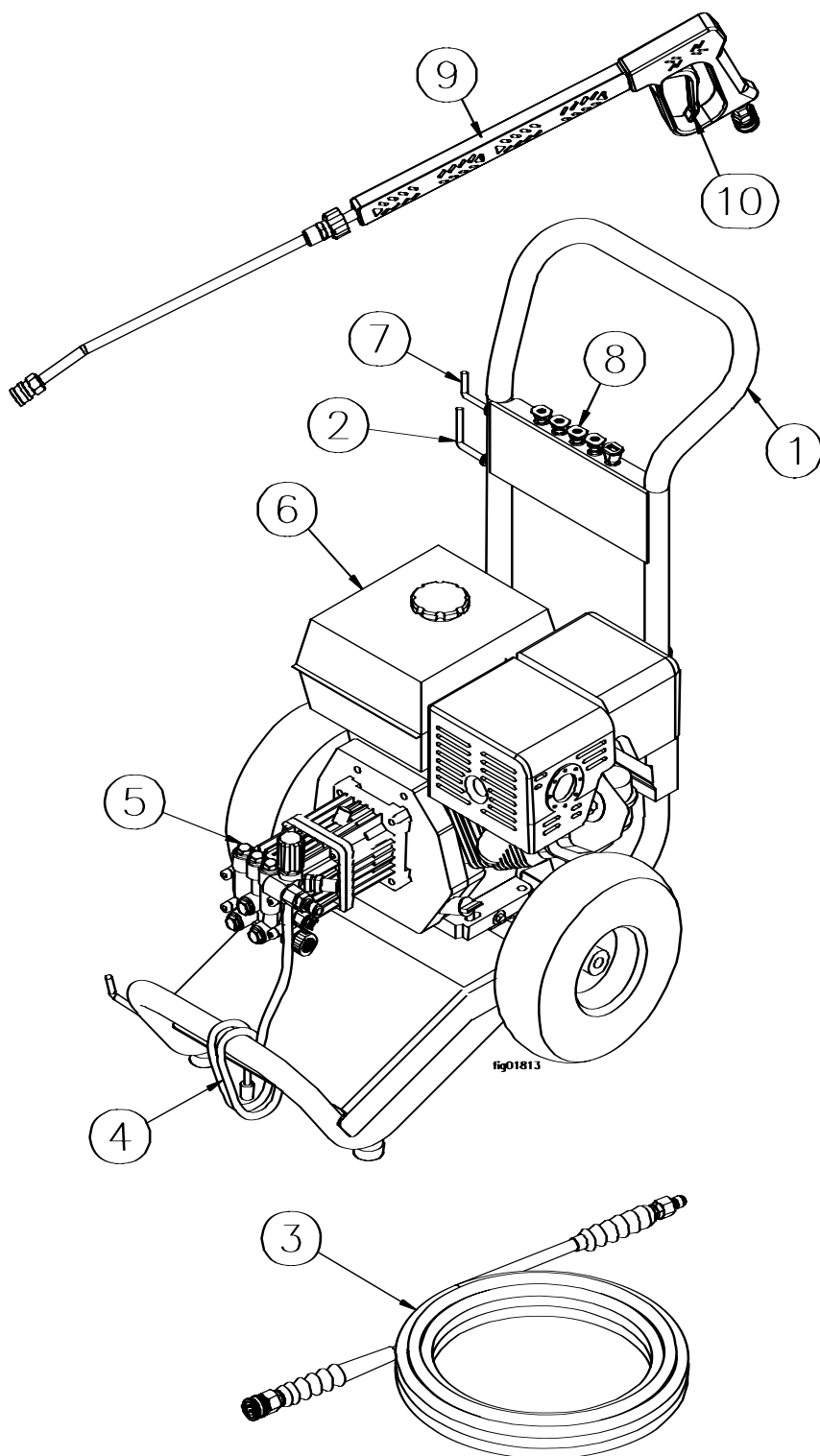
## **⚠ Assembly Instructions**

### **III.) Handle Assembly**

- 1.) Attach handle to base with two carriage bolts and t-handle knobs.
- 2.) Spin a flange nut backwards onto the gun hook. (see hook detail)
- 3.) Mount the hose hook onto the handle and gun hook onto base as shown.
- 4.) Insert grommets into the holes on the handle nameplate.
- 5.) Press nozzles into grommets according to the colors indicated on the handle decal.



# Machine Component Identification

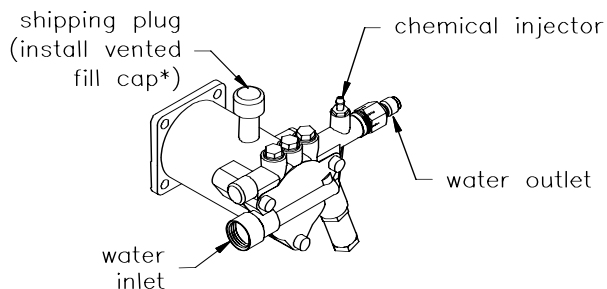


- 1.) **Handle.** Designed for easy cart movement.
- 2.) **Hose Hook.** Store hose on hook. (Position depends on model, see Assembly Instructions section.)
- 3.) **Pressure Hose.** Attach quick couplers to gun and water outlet.
- 4.) **Chemical Hose.** Submerge in cleaning solution.
- 5.) **Water Pump.** Inspect for loose/broken parts prior to each use.
- 6.) **Engine.** Honda engine provides years of reliable use.
- 7.) **Gun Hook.** Store gun on hook.
- 8.) **Nozzles.** Change nozzles for different spray patterns
- 9.) **Spray Gun.** Always use two hands for safe operation.
- 10.) **Trigger.** Actuate to allow pressurized water to flow out of spray gun.

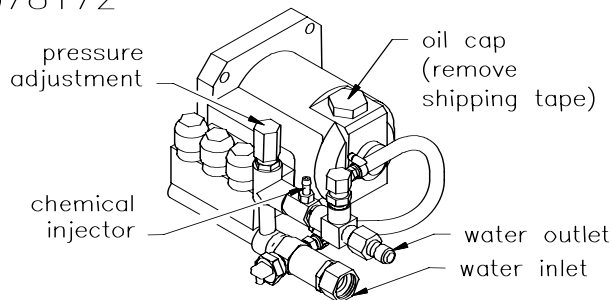
\*Note: Components on models vary slightly

# Pump Oil Cap and Pump Component Identification

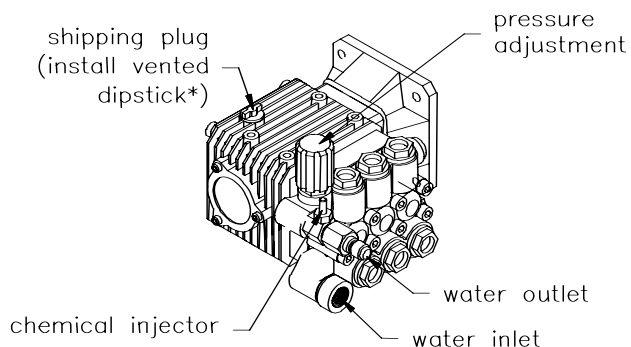
1577543



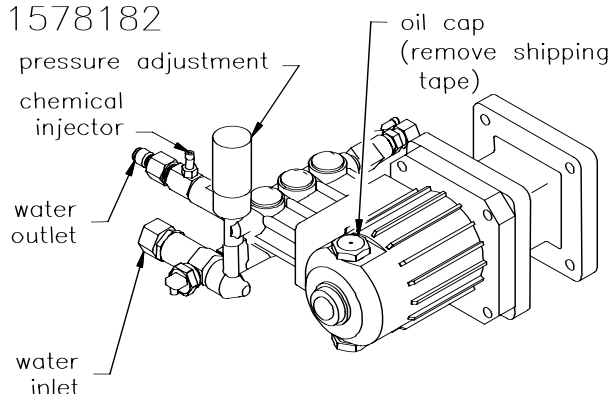
1578172



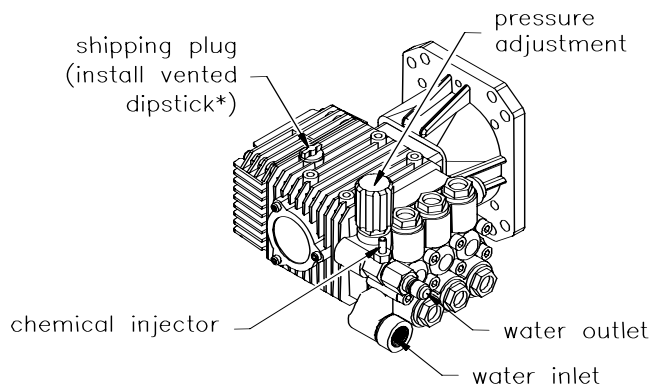
1578173



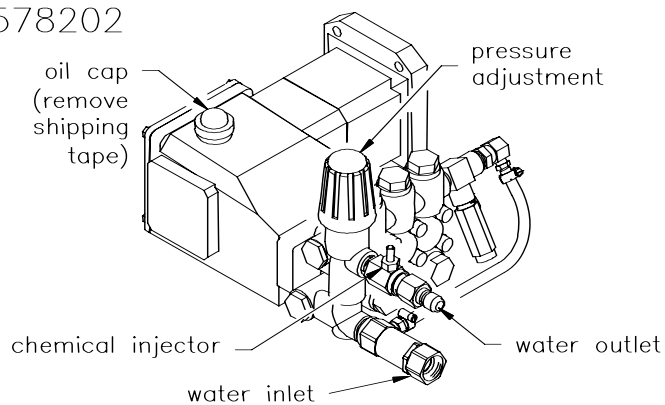
1578182



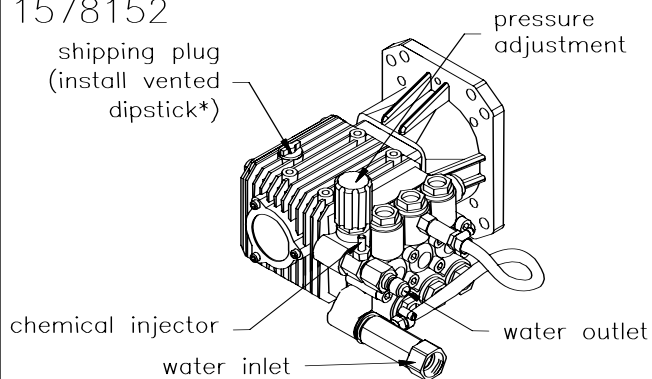
1578203



1578202



1578152



1578112, 1577544

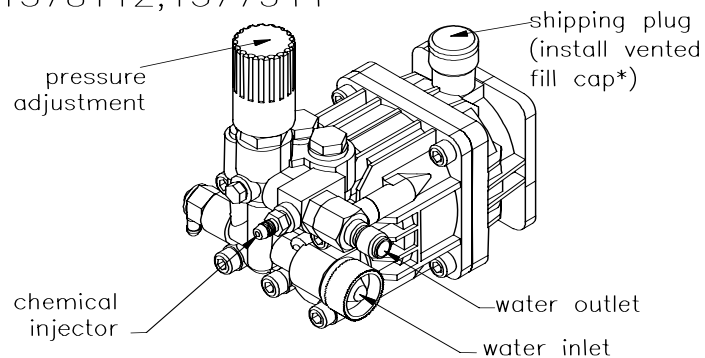


FIG03098

\*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
1577543	100 seconds
1577544	100 seconds
1578112	100 seconds
1578203	72 seconds
1578152	72 seconds
1578172	100 seconds
1578182	84 seconds
1578202	72 seconds
1578173	100 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.

## **⚠ 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.

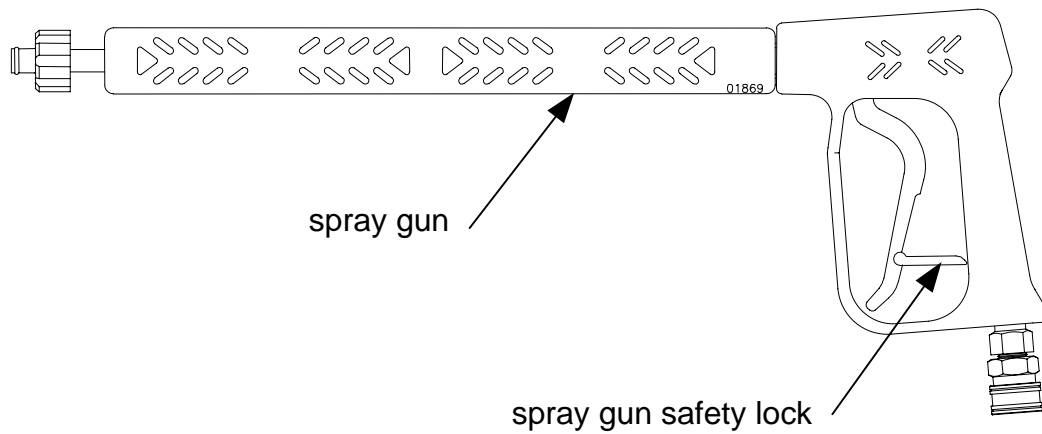
-Stop engine and bleed pressures before leaving unit unattended.

fig01863

# ⚠ Operation Instructions

## Spray Gun Safety Lock

When not spraying, use the spray gun safety lock to prevent accidental high pressure discharge.

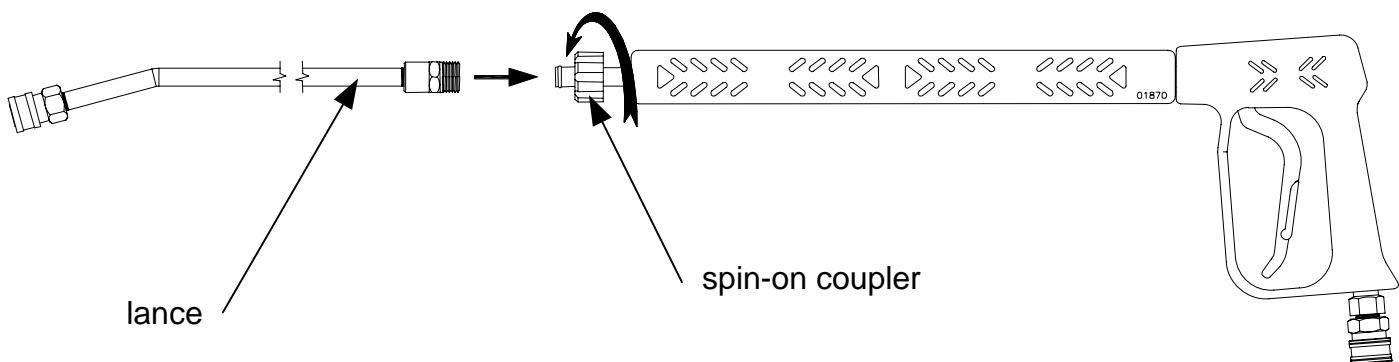


\* Note: Depending on model, gun may appear differently.

## Attaching the Lance

Tighten spin-on coupler hand tight.

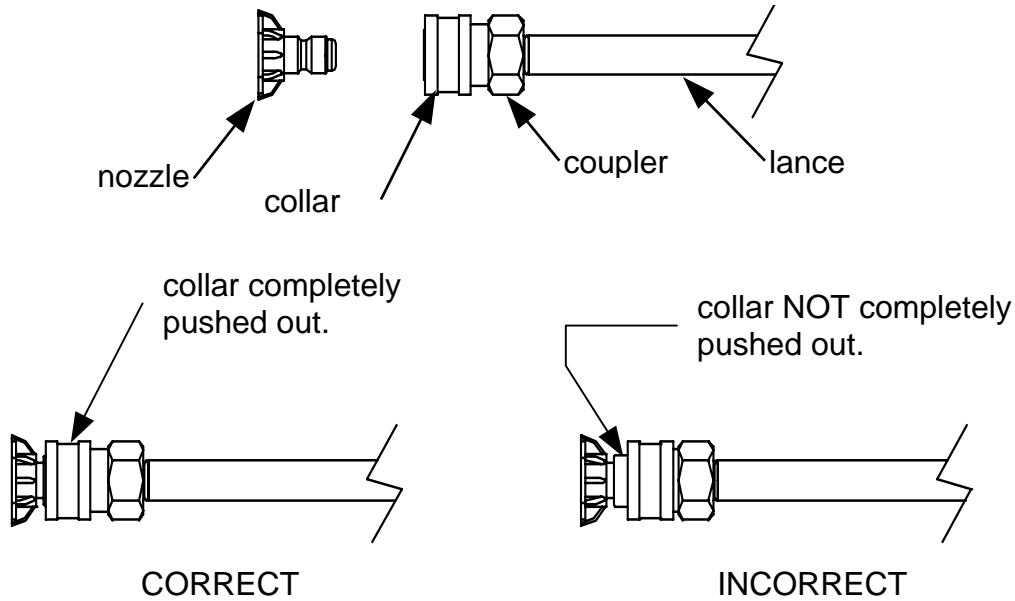
Note: The o-rings make the seal so there is no need to tighten with a wrench.



## **⚠ Operation Instructions**

### **Installing Nozzles**

To install a nozzle pull back the collar and push the nozzle into the coupler. Once the connection is made, pull on the nozzle to make sure it is secure.



## **⚠ WARNING**

### **Flying objects.**

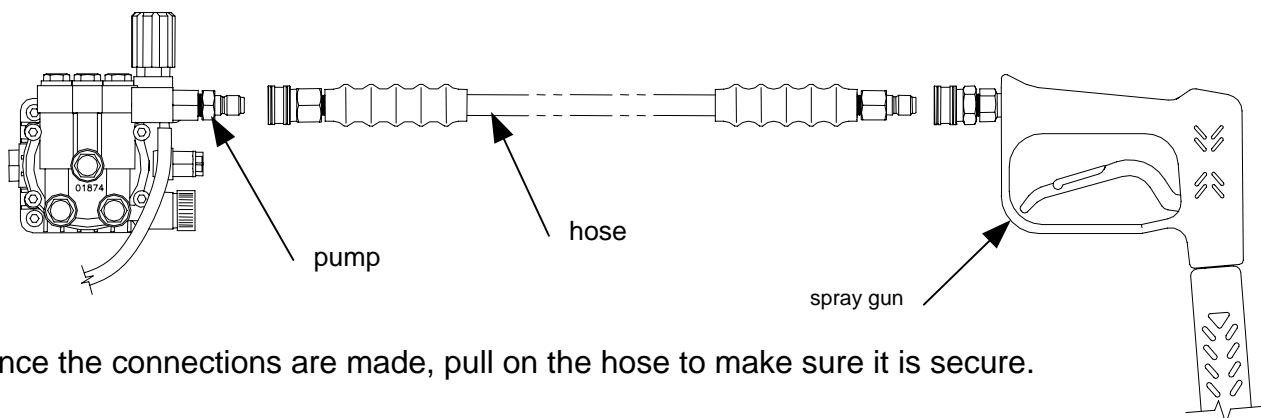
Make sure nozzle is secure before squeezing trigger. If nozzle is not secure it will become a projectile. Serious injury can occur.

fig01864

### **Attach Quick Connect Couplers**

-To install the hose onto the pump, pull back the collar and push the hose into the coupler on the pump.

-To install the hose onto the spray gun, pull back the collar on the spray gun and push the hose into the coupler on the spray gun.

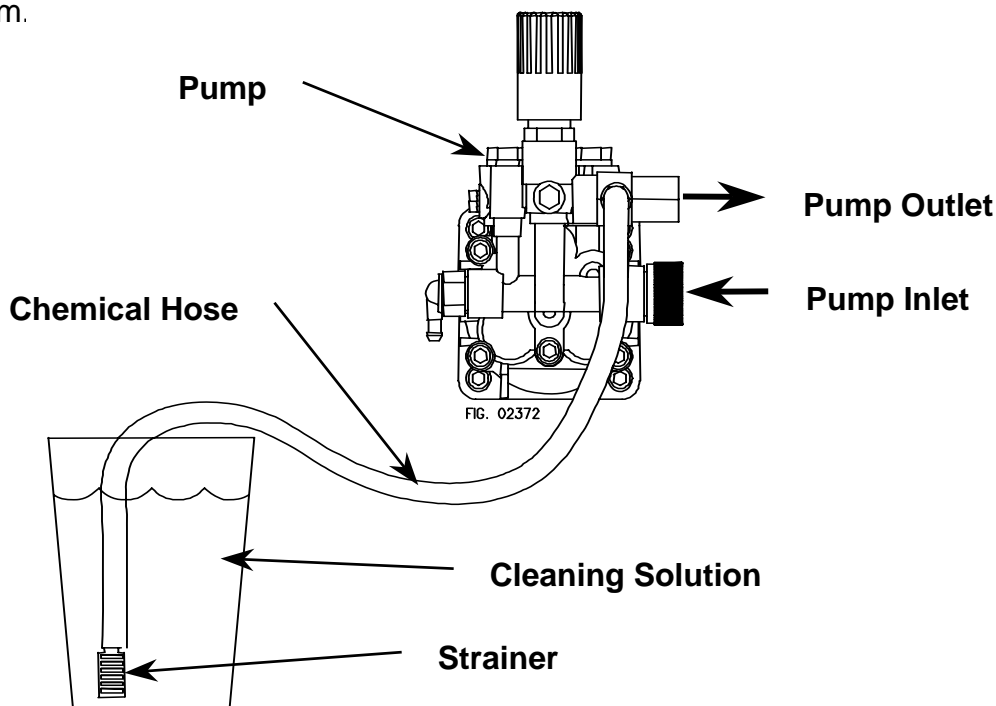


Once the connections are made, pull on the hose to make sure it is secure.

## **⚠ 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. (See Pump Component Identification section for chemical injector location.)
- 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.

fig01846



## **⚠ Maintenance and Storage**

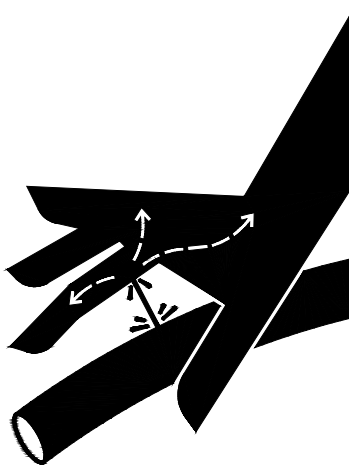
### **Maintenance Mode**

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".

fig01454

## ⚠ Maintenance and Storage

### Pump Oil Change

- 1) Place a suitable container below the pump to catch the used oil.

**VRX:** Remove the bolts that connect the pump to the engine. Remove fill cap and rotate pump upside down.

**All other pumps:** Remove drain plug.

- 2) Allow the used oil to drain completely.

**VRX:** Rotate pump to the upright position, and reinstall mounting bolts.

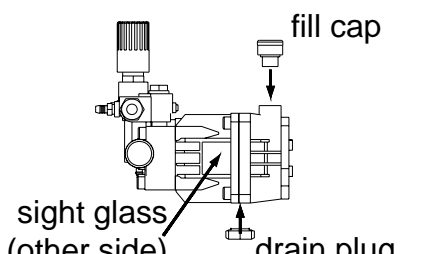
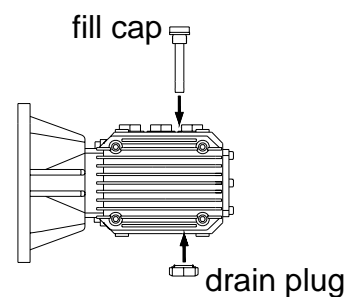
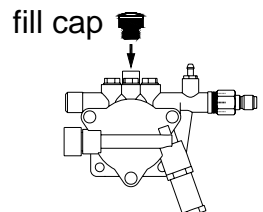
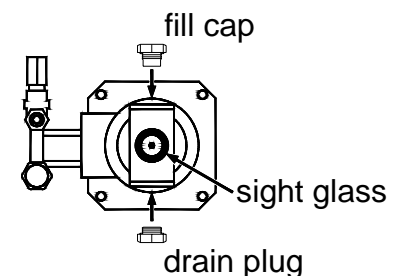
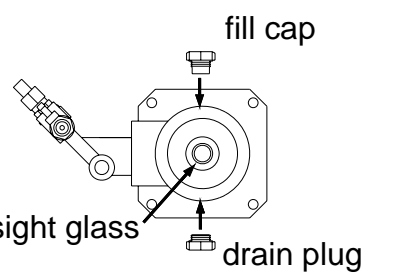
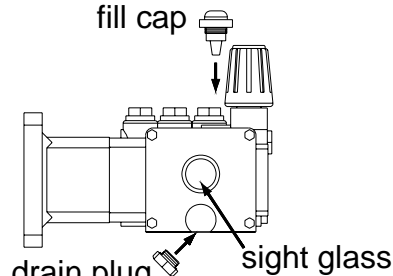
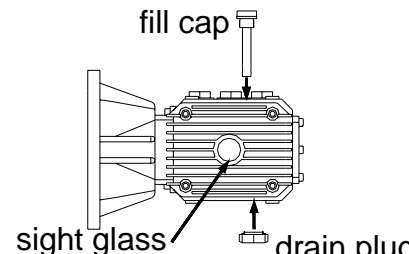
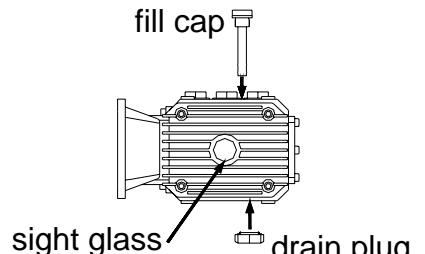
**All other pumps:** Reinstall drain plug.

- 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 you 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 add oil to the pump (see capacities below). For Comet and NorthStar pumps: Use Universal Tractor Transmission Oil (part# COCP2101) or Mobil1 15W50 synthetic oil. For Cat pumps: Use SAE 30 non-detergent oil or Cat pump oil item # 22158.

**VRX:** Add specified capacity.

**All other pumps:** Fill to middle of sight glass.

<p><b>Comet BXD 2530 Pump</b></p>  <p><b>Oil capacity: 4.3 oz. (.13L)</b></p>	<p><b>Comet AWD4040 Pump</b></p>  <p><b>Oil capacity: 10 oz. (.29L)</b></p>	<p><b>Comet VRX 2528G Pump</b></p>  <p><b>Oil capacity: 3.4 oz. (.10 L)</b></p>
<p><b>Cat 3DNX25GSI Pump</b></p>  <p><b>Oil capacity: 8.5 oz. (.25L)</b></p>	<p><b>Cat 3SPX30G1I Pump</b></p>  <p><b>Oil capacity: 10.2 oz. (.30L)</b></p>	<p><b>Cat 66DX35G1I Pump</b></p>  <p><b>Oil capacity: 18 oz. (.53L)</b></p>
<p><b>NorthStar NSZW3540 Pump</b></p>  <p><b>Oil capacity: 10.3 oz. (.30L)</b></p>	<p><b>NorthStar NSLW2530 Pump</b></p>  <p><b>Oil capacity: 11 oz. (.32L)</b></p>	<p style="text-align: right;">FIG03070</p>

## **⚠ Maintenance and Storage**

### **Long Term Storage**

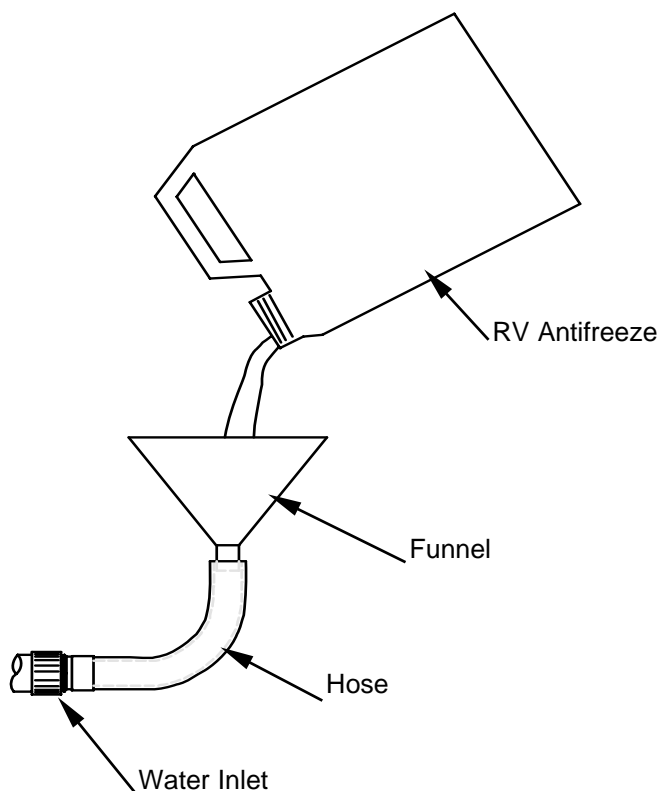
Follow the engine owner's manual for storing the engine.

### **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.



## 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

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***

# Specifications

## 1578112

PSI (bar)	3000 (207)
GPM (l/min)	2.5 (9.4)
Max Water Temp	140°F (60°C)
Noise Level	78 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	97 lb (44kg)

## 1578173

PSI (bar)	3000 (207)
GPM (l/min)	2.5 (9.4)
Max Water Temp	140°F (60°C)
Noise Level	78 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	98 lb (44.5 kg)

## 1578152

PSI (bar)	4000 (275)
GPM (l/min)	3.5 (13.2)
Max Water Temp	140°F (60°C)
Noise Level	82 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	140 lb (63.5 kg)

## 1577543

PSI (bar)	2800 (193)
GPM (l/min)	2.5 (9.4)
Max Water Temp	140°F (60°C)
Noise Level	75 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	77 lbs (35 kg)

## 1578203

PSI (bar)	4000 (275)
GPM (l/min)	3.5 (13.2)
Max Water Temp	140°F (60°C)
Noise Level	82 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	141 lbs (64 kg)

## 1578172

PSI (bar)	3000 (207)
GPM (l/min)	2.5 (9.4)
Max Water Temp	140°F (60°C)
Noise Level	78 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	96 lb (44kg)

## 1578182

PSI (bar)	3300 (227)
GPM (l/min)	3.0 (11.3)
Max Water Temp	140°F (60°C)
Noise Level	82 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	123 lb (55.8 kg)

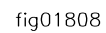
## 1578202

PSI (bar)	4000 (275)
GPM (l/min)	3.5 (13.2)
Max Water Temp	140°F (60°C)
Noise Level	82 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	147 lb (66.7 kg)

## 1577544

PSI (bar)	3000 (207)
GPM (l/min)	2.5 (9.4)
Max Water Temp	140°F (60°C)
Noise Level	82 dB
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	83 lbs (37.6 kg)

Item Numbers:  
1578112, 1578172,  
1578173, 1578182,  
1578152, 1578202,  
1577543, 1577544,  
1578203  
Revision G



22

## Parts Exploded View

REF#	PART#	DESCRIPTION	QTY	MODEL
1	38509	Gun Hook	1	all
2	779826	Decal	1	all
3	35198	Grommet	5	all
4	780223	Handle	1	all
5	779761	Hose hook	1	all
6	38578	Knob	2	all
7	779924	Base	1	all
8	2278	Wheel	2	all
9	305200	Wheel Retainer	2	all
10	38525	50' Pressure Hose	1	1578112, 8172, 8173, 8182, 8182, 8202, 8203
	38524	25' Pressure Hose		1577543, 7544
11	777915	Hose Quick Couple Nipple	1	all
12	777914	Hose Quick Coupler	1	all
13	313107	Spray Gun Quick Coupler	1	all
14	779168	Spray Gun Handle	1	1578112, 8172, 8173, 8182, 8182, 8202, 8203
15	22622	Lance w/ Quick Connect	1	1578112, 8172, 8173 8182, 8182, 8202, 8203
16	779165	Spray Gun	1	1578112, 8172, 8173, 8182, 8182, 8202, 8203
	38527			1577543, 7544
17	779166	Lance	1	all
18	777904	Nozzle Quick Coupler	1	all
19	38530	Nozzle 2 Pack #3.0	1	1577543, 7544
	38531	Nozzle 5 Pack #3.0		1578112, 8172, 8173
	38532	Nozzle 5 Pack #3.5		1578182,8202, 8203
	778946	0° Nozzle, #4		1578152
	778739	15° Nozzle, #4		
	778948	25° Nozzle, #4		
	778947	40° Nozzle, #4		
	778949	Soap Nozzle, #4		
20	2212	Chemical Strainer	1	all
21	777165	Braided Chemical Hose	3 ft	all
22	2215	Rubber Foot	2	all
25	60590	Honda GX 160 Engine	1	1578112,8172,8173
	39115	Honda GX 270 Engine		1578182
	601091	Honda GX 390 Engine		1578152,8202,8203
	60599	Honda GC 160 Engine		1577543
	38522	Honda GC 190 Engine		1577544
26	779828	Pump Assembly	1	1578112 & 1577544
	A1578172			1578172
	781210			1578173
	A1578182			1578182
	781211			1578152
	A1578202			1578202
	781209			1578203
	779827			1577543

# Pump Exploded View

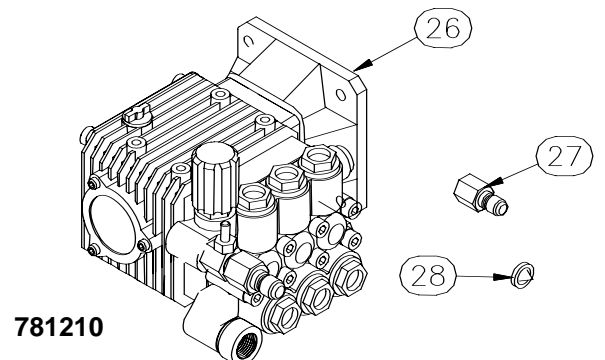
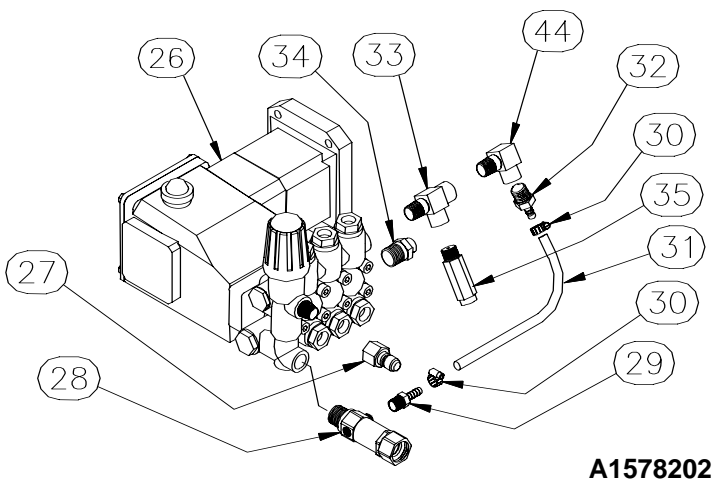
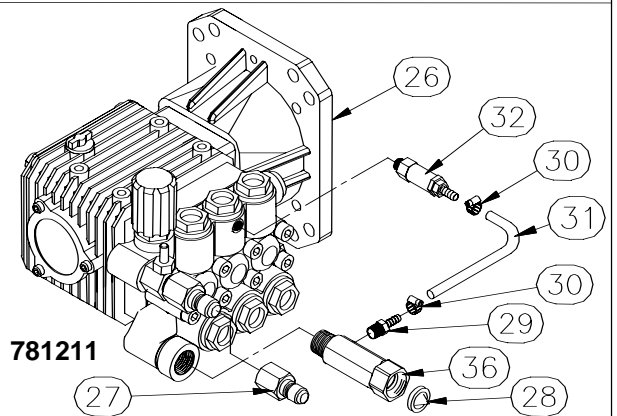
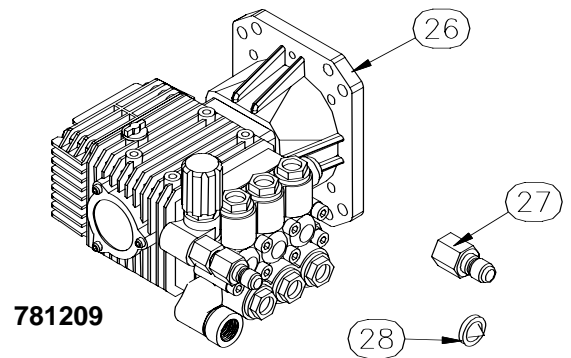
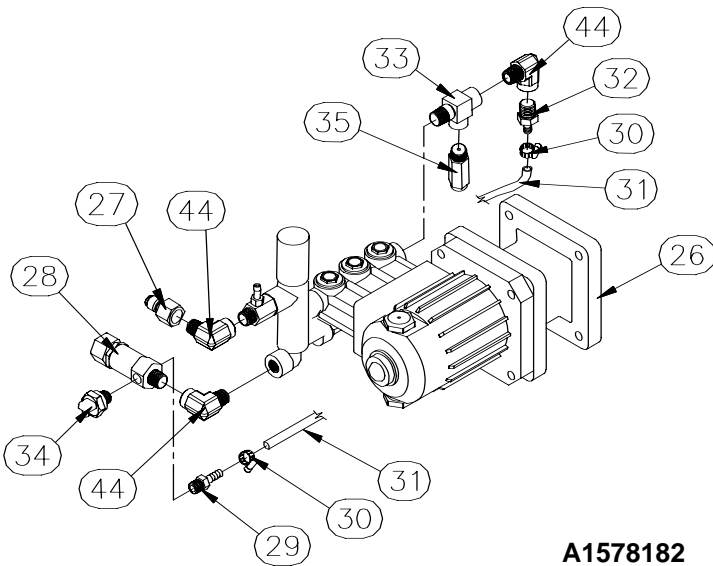
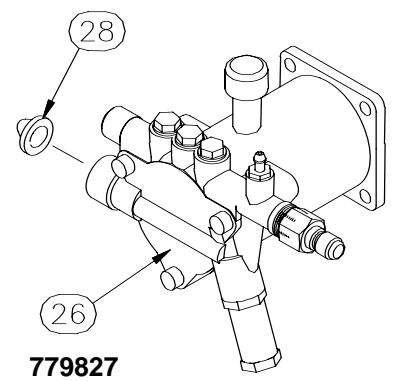
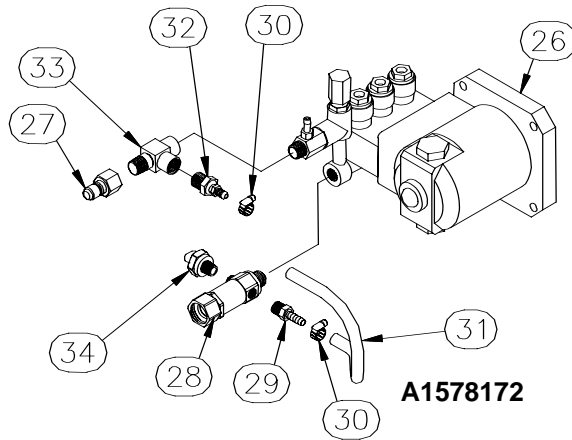
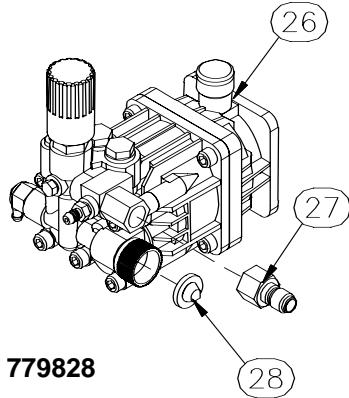


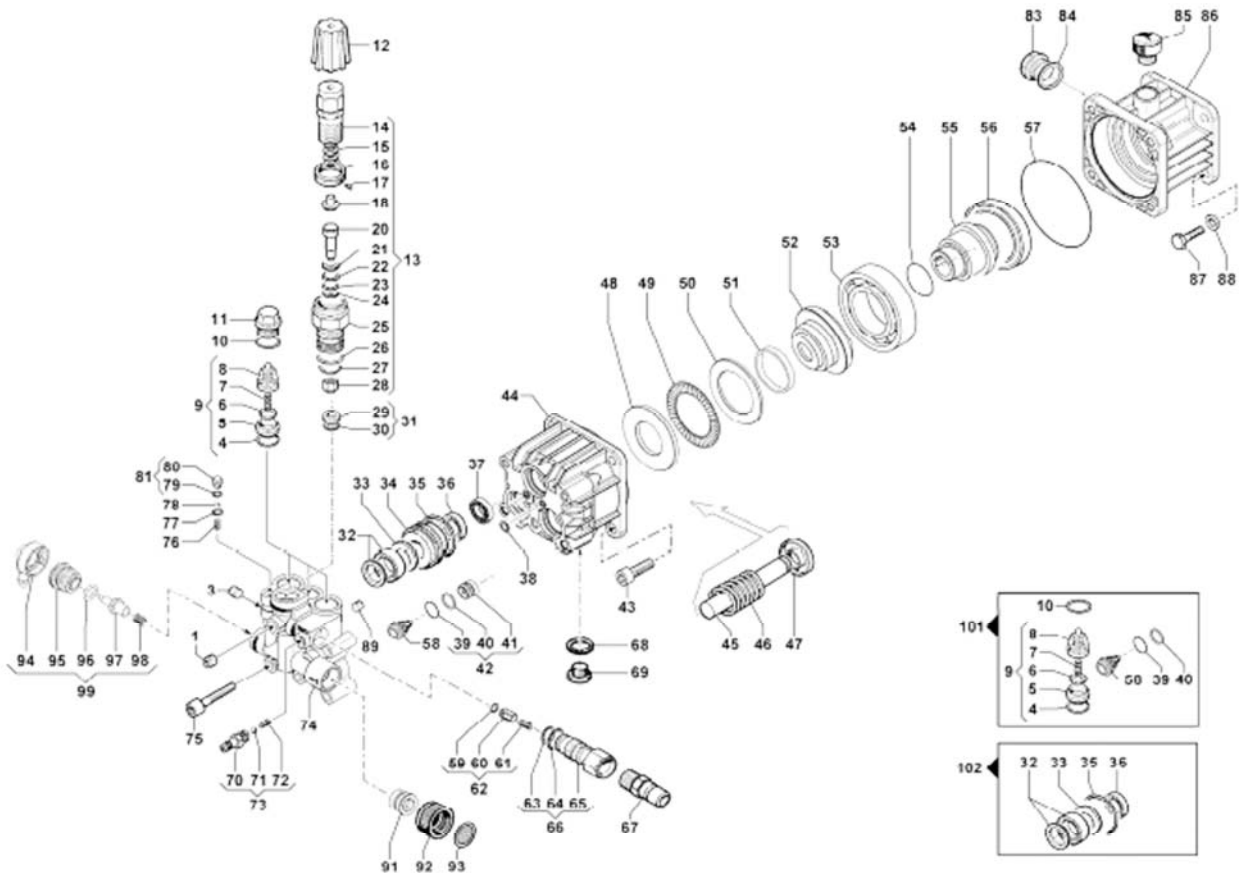
FIG03099



## Pump Exploded View

REF#	PART#	DESCRIPTION	QTY	MODEL
26	779828	Comet BXD 2530G Pump	1	1578112 1577544
	38518	Cat 3DNX Pump		1578172
	781209	NorthStar NSZW Pump		1578203
	777654	Cat 3SPX Pump		1578182
	781211	Comet AWD Pump		1578152
	38520	Cat 66DX Pump		1578202
	779827	Comet VRX 2528G Pump		1577543
	781210	NorthStar NSLW Pump		1578173
27	777915	Quick Connect Outlet Plug	1	All
28	4027	Inlet Filter Washer	1	1578112, 8152, 8173, 8203, 7543
	38596	3/8" Inlet Filter		1578172,8182
	35169	1/2" Inlet Filter		1578202
29	777340	1/4" x 1/4" Hose Barb Fitting	1	1578172,8112, 8202, 8152
30	777834	1/4" Hose Clamp	2	1578172,8182, 8202, 8152
31	777165	1/4" PVC Hose	12"	1578172,8182, 8202
			10"	1578152
32	38584	Easy Start Valve	1	1578172,8182, 8202
	CO06080032		1	1578152
33	777347	3/8" Street Tee	1	1578172,8182, 8202
34	35918	Thermal Valve	1	1578172,8182
	777836			1578202
35	22393	Pop Off Valve	1	1578182, 8202
36	30483	Inlet Fitting	1	1578152
44	777410	3/8 Street elbow	3	1578182
			1	1578202

# Comet BXD 2530G Pump Breakdown

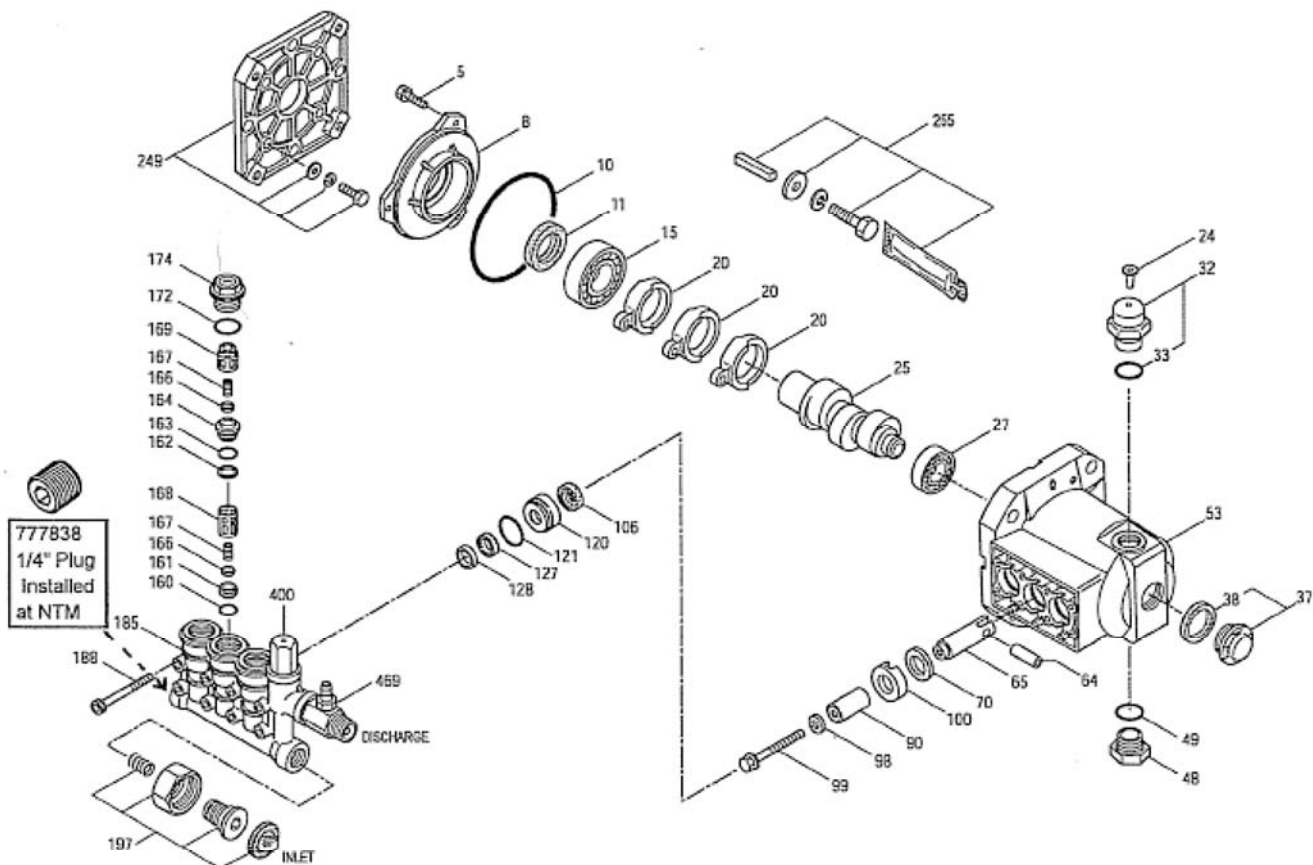


1	3202 0018	Tappo	Plug	G1/8"CONIC	1
3	3202 0018	Tappo	Plug	G1/8"CONIC	1
4	1210 0049	Guarnizione OR	O-Ring	Ø1,78x12,42	6
5	3009 0129	Sede Valvola	Valve Seat		6
6	3604 0028	Valvola Aspir./Mand.	Suct./Del. Valve		6
7	1802 0227	Molla Valv. Asp./Mand.	Suct./Del. Valve Spring		6
8	1205 0037	Gabbia Valv. Asp./Mand.	Suct./Del. Valve Cage		6
9	1220 0058	Gruppo Valv. Asp/Mand	Suct/Del Valve Ass.y kit		3
10	1210 0151	Guarnizione OR	O-Ring	Ø1,78x17,17	3
11	3202 0236	Tappo	Plug		3
12	1817 0064	Manopola	Knob		1
13	1215 0393	Valvola Regolazione	Regulation Valve ass.y	220 Bar	1
14	0204 0073	Boccola	Bushing		1
15	1802 0280	Molla	Spring		1
16	1227 0051	Ghiera	Ring Nut		1
17	3622 0049	Vite senza Testa Es. Inc.	Stop Adjustable Nut		1
18	0009 0367	Distanziale Molla	Spring Spacer		1
20	2409 0148	Asta Valvola	Rod		1
21	0009 0365	Anello	Ring		1
22	1210 0613	Guarnizione OR	O-Ring		1
23	1210 0614	Guarnizione OR	O-Ring		1
24	0009 0366	Anello	Ring		1
25	0204 0071	Boccola	Bushing		1
26	1210 0615	Guarnizione OR	O-Ring		1
27	1210 0616	Guarnizione OR	O-Ring		1
28	3002 0673	Supporto/Sfera	Support/Ball		1
29	3009 0164	Sede Valvola Regol.	Valve Seat		1
30	1210 0603	Guarnizione OR	O-Ring	Ø1,78x8,73	1
31	3009 0163	Kit Sede Valvola Regol.	Valve Seat Kit		1
32	1241 0059	Granizione Tenuta + Anello	Packing + Ring	Ø14	3
33	0009 0274	Anello anti-estrusione	Anti-extr Ring		3

# Comet BXD 2530G Pump Breakdown

34	0009 0309	Anello Portaguarnizione	Packing Retainer		3
35	1210 0071	Guarnizione OR	O-Ring	Ø1,78X 20,35	3
36	1241 0057	Guarnizione Bassa Pressione	Low Pressure Packing	ØU14x22x4	3
37	0019 0123	Anello Tenuta Olio	Oil Seal	14X22X5/7	3
38	1210 0146	Guarnizione OR	O-Ring	Ø1,78x2,9	2
39	1210 0093	Guarnizione OR	O-Ring	Ø1,78X 14	3
40	0009 0224	Anello	Ring		3
41	3202 0295	Tappo valvola aspirazione	Suction Valve Plug		3
42	3202 0294	Kit Tappo valvola asp.	Suction Valve Plug Kit		3
43	3609 0005	Vite	Screw	M8X20	4
44	0403 0179	Carter Pompa	Pump Crankcase		1
45	2409 0141	Pistone	Piston	Ø14 Ceramica	3
46	1802 0276	Molla	Spring		3
47	0009 0267	Anello	Ring		3
48	2816 0089	Ralla Pistone	Piston Washer		1
49	0437 0079	Cuscinetto a Rullini	Needle Bearing		1
50	2816 0091	Ralla Cuscinetto	Thrust Bearing		1
51	0009 0362	Anello	Ring		1
52	0001 0579	Albero Eccentrico	Eccentric Shaft	9°	1
53	0438 0103	Cuscinetto a Sfere	Ball Bearing	40X80X18	1
54	1210 0461	Guarnizione OR	O-Ring	Ø2,0X 32	1
55	0031 0014	Albero	Hollow Shaft	3/4"	1
56	0019 0034	Anello Tenuta Olio	Oil Seal	40X55X7	1
57	1210 0561	Guarnizione OR	O-Ring	Ø3,0X 85	1
58	1220 0058	Gruppo Valv. Asp/Mand	Suct/Del Valve Ass.y kit		3
59	1210 0460	Guarnizione OR	O-Ring	Ø 2,4x4,3	1
60	2409 0086	Pistone Non Ritorno	Check Valve		1
61	1802 0197	Molla pistone Non Ritorno	Check Valve Spring		1
62	2409 0091	Kit Pistone Non Ritorno	Check Valve Kit		1
63	1210 0049	Guarnizione OR	O-Ring	Ø1,78X 12,42	1
64	1210 0040	Guarnizione OR	O-Ring	Ø1,78X 15,6	1
65	3410 0329	Elettore Detergente	Injector Body	EI Ø1,8 3/8" NPT F	1
66	3410 0348	Kit Elettore Detergente	Injector Body Kit	K EI Ø1,8 3/8" NPT F	1
67	2803 0437	Raccordo Mandata	Outlet Coupling	Male NPT	1
68	1209 0117	Guarnizione	Gasket	13x20x2	1
69	3200 0102	Tappo Scarico Olio	Oil Discharge Cap	1/4 GAS	1
70	2803 0424	Raccordo Detergente	Chemical Coupling		1
71	3003 0026	Sfera	Ball		1
72	1802 0180	Molla	Spring		1
73	2803 0435	Kit Raccordo Detergente	Chemical Coupling Kit		1
74	3218 0358	Testata Pompa	Pump Manifold	Brass	1
75	3609 0014	Vite	Screw	M8X 55	5
76	1802 0220	Molla Easy-Start	Easy-Start Spring		1
77	1210 0463	Guarnizione OR	O-Ring	Ø2,0X 6	1
78	3003 0033	Sfera	Ball	9/32"	1
79	1210 0227	Guarnizione OR	O-Ring	Ø1,78X5,29	1
80	3200 0103	Tappo Easy-Start	Easy-Start Plug		1
81	3200 0104	Kit Tappo Easy-Start	Easy-Start Plug Kit		1
83	3201 0025	Tappo Livello Olio	Oil Viewer	G1/2	1
84	1210 0048	Guarnizione OR	O-Ring	Ø2,62x20,42	1
85	3200 0122	Tappo Olio	Oil Cap		1
86	3002 0657	Supporto	Support		1
87	3607 0119	Vite Testa Esagono	Exagonal Screw	5/16" 24 x 1"	4
88	2811 0004	Rondella	Washer	Ø8,4x14x1,6	4
89	3622 0045	Tappo	Cap	M6x8 Conic	1
91	2803 0395	Raccordo Speciale	Special Coupling	G1/2	1
92	1223 0114	Galletto	Wing Nut	Garden Hose 3/4	1
93	1002 0158	Filtro Acqua	Water Filter		1
94	2801 0083	Coperchio Valvola Termica	Thermal Valve Cap		1
95	0424 0386	Corpo Valvola Termica	Thermal Valve Body		1
96	1210 0475	Guarnizione OR	O-Ring	Ø2,62x9,19	1
97	3230 0031	Elemento Termostatico	Thermal Feeler		1
98	1802 0217	Molla	Spring		1
99	1215 0328	Valvola Termica	Thermal Valve	G3/8	1
101	5025 0027	Kit Valvola Asp/Mandata	Complete Valve Kit		1
102	5019 0667	Kit Guarnizioni Pistoni	Piston Seal Kit		1

# Cat 3DNX Pump Breakdown



## PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY	ITEM	PN	MATL	DESCRIPTION	QTY
5	547161	STCP	Screw, HHC Sems (M6x14)	3	166	547098	S	Valve	6
	549360	STCP R	Screw, HHC Sems (M6x14)	3	167	46855	S	Spring	6
8	547153	AL	Cover, Bearing	1	168	543988	PVDF	Retainer, Spring, Inlet	3
10	14041	NBR	O-Ring, Bearing Cover - 70D	1	169	547441	PVDF	Retainer, Spring, Discharge	3
11	55337	NBR	Seal, Oil - 70D	1	172	142807	NBR	O-Ring, Plug - 80D	3
15	14488	STL	Bearing, Ball	1	174	547078	BB	Plug, Valve (M22x1.5)	3
20	547048	TNM	Rod, Connecting	3	185	548509	BB	Head, Manifold w/Integral Unloader Body	1
24	76045	LDPE	Plug, Oil Cap	1	188	542406	STZP	Screw, HSH (M6x60)	8
25	549446	CM	Crankshaft, 3450 RPM, 3/4", 6.8 mm	1		549357	STCP R	Screw, HSH (M6x60)	8
	548558	CM	Crankshaft, 3450 RPM, 3/4", 7.2 mm	1	197	941516	BB	Assy, GH, 3/8" NPTM	1
27	56084	STL	Bearing, Ball	1				Nut, Swivel (3/4" FGH)	1
32	547961	RTP	Cap, Oil Filler w/O-Ring	1				Fitting, (3/8" NPTM)	1
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	1				Screen, Inlet	1
37	92241		Gauge, Bubble Oil w/Gasket	1				Spring	1
38	44428	NBR	Gasket, Flat Flex, Oil Gauge - 80D	1	249	30520		Assy, Adapter Mount, Standard, GAS	1
48	44842	NY	Plug, Drain	1		46271	AL	Flange	1
49	14179	NBR	O-Ring, Drain Plug - 70D	1		44843	STZP	Screw, HH (5/16"-24x20)	4
53	548062	AL	Crankcase	1		549351	STCP R	Screw, HH (5/16"-24x20)	4
64	46229	CM	Pin, Crosshead	3		15845	STZP	Lockwasher (M8)	4
65	542402	BB	Rod, Plunger	3		126232	STCP R	Lockwasher (M8)	4
70	47215	NBR	Seal, Oil - 70D	3		12489	STZP	Washer, Flat (M8)	4
90	547091	CC	Plunger (M14x25.5)	3		126573	STCP R	Washer, Flat (M8)	4
98	46730	NBR	Washer, Seal - 90D	3	255	30516	STZP	Assy, Bolt Mount, GAS	1
99	542405	S	Retainer, Plunger (M6x35)	3		34100	STZP	Screw, HH (3/8"-16x1-3/8")	4
100	46233	NY	Retainer, Seal	3		126543	STCP R	Screw, HH (3/8"-16x1-3/8")	4
106	45188	NBR	Seal, LPS w/S-Spg	3		30980	STZP R	Washer, Flat (3/8")	4
120	548559	BB	Case, Seal	3		30921	STZP R	Lockwasher (3/8")	4
121	13976	NBR	O-Ring, Seal Case - 70D	3		6106		Lubricant, Antisilse	1
127	547082	SNG	V-Packing	3		34050	STL	Key (3/16x3/16x27 HD)	1
128	547083	PVDF	Adapter, Male	3	300	31684	NBR	Kit, Seal (Inclds: 98,106,121,127,128)	1
160	17428	NBR	O-Ring, Inlet Seat - 80D	3	310	31647	NBR	Kit, Valve	1
161	547077	S	Seat, Inlet	3				(Inclds: 160,161,162,163,164,166,167,168,169,172)	
162	48361	D	Back-up-Ring, Discharge Seat	3	400			Unloader, Integral (See Individual Parts)	1
163	43358	NBR	O-Ring, Discharge Seat - 70D	3	469	7332	BB	Injector, Chemical Fixed	1
164	547076	S	Seat, Discharge	3					

Italics are optional items. [ ] Date of latest production change. R Components comply with RoHS Directive.

See Tech Bulletins 002, 024, 036, 043, 055, 074 and 083 for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BBP=Brass/Chrome Plated CC=Ceramic CM=Chrome-moly D=Acetal

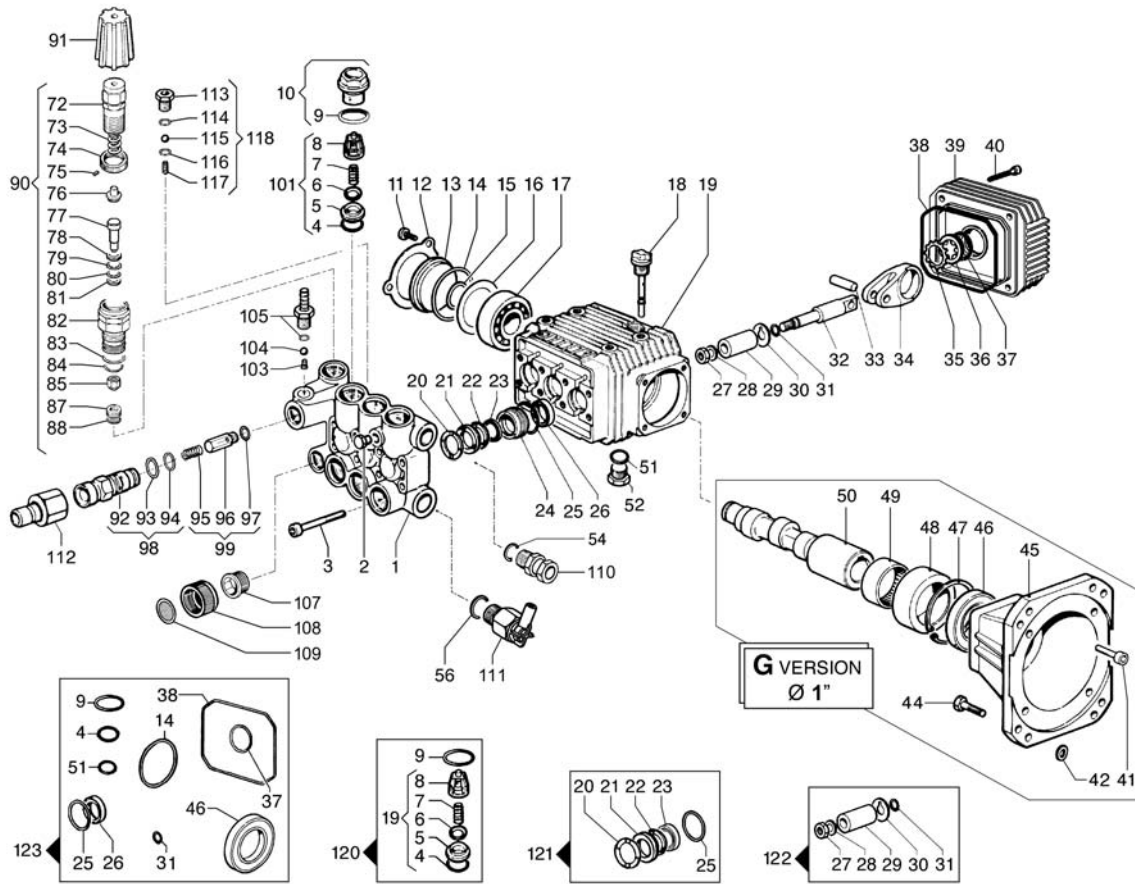
LDPE=Low Density Polyethylene NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS

SNG=Special Blend (Buna) STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated TNM=Special High Strength

NOTE: Discard Key which may come standard with most engines and use only the key included in this kit.

Center raised pilot guide on the Adapter Plate assures proper alignment of pump and engine. Before mounting pump onto engine inspect engine for recessed seal and bearing guide to permit adapter to completely seat into recess and four bosses to be flush with engine face.

# NorthStar NSZW Pump Breakdown



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

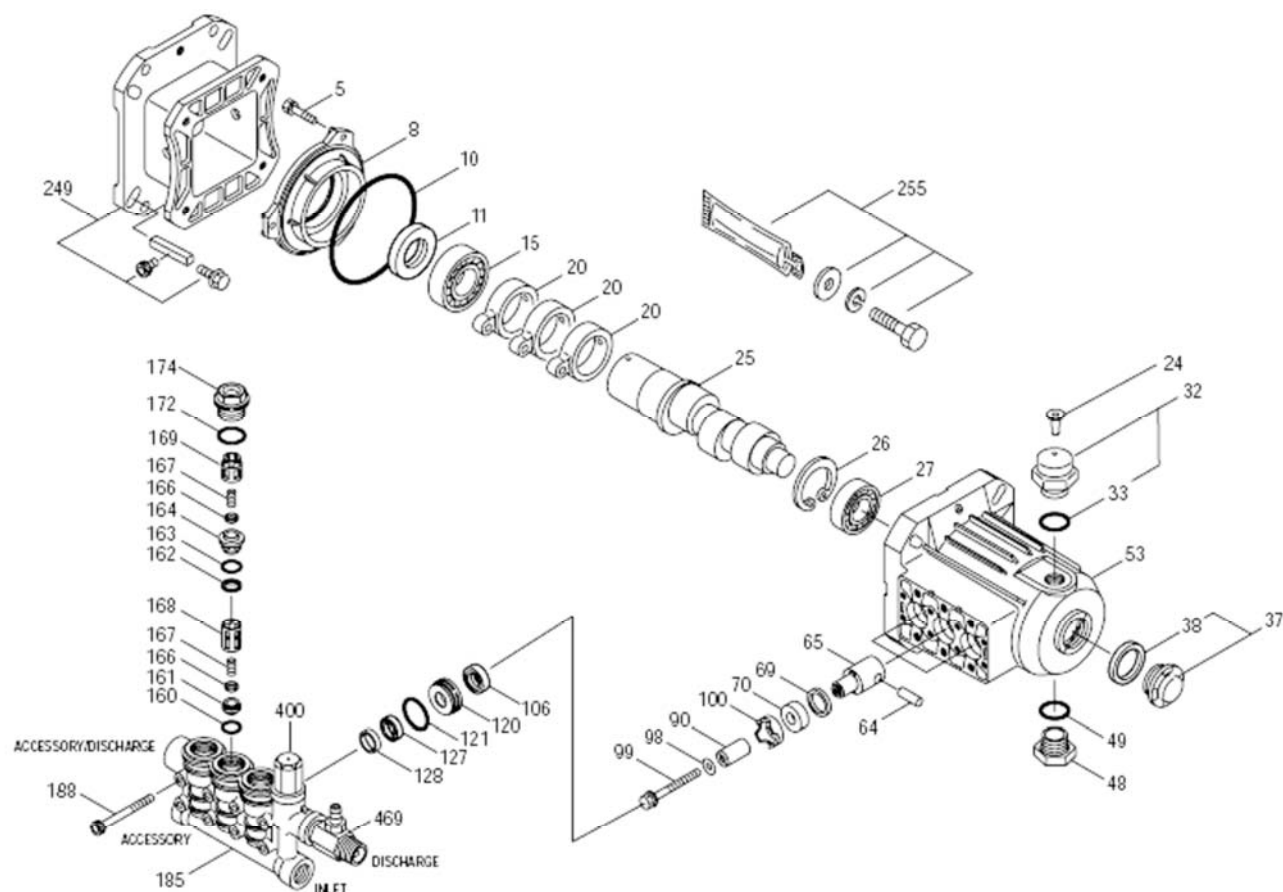
Part #	Code	Description	Qty
52	3200 0007	Cap	1
54	2811 0084	Washer	1
56	2811 0086	Washer	1
72	0204 0072	Bushing	1
73	1802 0279	Spring	1
74	1227 0051	Ring Nut	1
75	3622 0049	Stop Adjustable Nut	1
76	0009 0367	Spring Spacer	1
77	2409 0148	Rod	1
78	0009 0365	Ring	1
79	1210 0613	O-Ring	1
80	1210 0614	O-Ring	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

## NorthStar NSZW Pump Breakdown

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

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 3SPX Pump Breakdown



## PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY	ITEM	P/N	MATL	DESCRIPTION	QTY
5	547161	STCP	Screw, HHC Sems (M6x14)	3	163	43358	NBR	O-Ring, Discharge Seat - 70D	3
	549380	STCP R	Screw, HHC Sems (M8x14)	3	164	547076	S	Seat, Discharge	3
8	547084	AL	Cover, Bearing	1	166	547098	S	Valve	6
10	14041	NBR	O-Ring, Bearing Cover - 70D	1	167	46885	S	Spring	6
11	125361	NBR	Seal, Oil	1	168	543988	PVDF	Retainer, Spring, Inlet	3
15	547112	STL	Bearing, Ball, Inner	1	169	547441	PVDF	Retainer, Spring, Discharge	3
20	547020	TNM	Rod, Connecting Assy	3	172	142807	NBR	O-Ring, Valve Plug - 90D	3
24	76045	LDPE	Plug, Oil Cap	1	174	547078	BB	Plug, Valve (M22x1.5)	3
25	548823	FCM	Crankshaft, 3450 RPM, 1", 8.0 mm	1	186	548870	FBB	Head, Manifold w/Integral Unloader Body	1
	547148	FCM	Crankshaft, 3450 RPM, 3/4", 8.8 mm	1	188	542406	STZP	Screw, HSH (M6x60)	8
26	12385	STL	Ring, Retaining	1		548357	STCP R	Screw, HSH (M6x60)	8
27	15710	STL	Bearing, Ball, Outer	1	249	31643	—	Mount, Adapter Assy, Gas	1
32	547981	RTP	Cap, Oil Filler w/O-Ring	1		547085	AL	Flange, Adapter	1
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	1		126704	STCP R	Screw, HH Sems (M8x35)	4
37	92241	—	Gauge, Oil, Bubble w/Gasket - 80D	1		45217	STL	Key (1/4"x1/4"x2-1/2")	1
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1		87788	STZP	Screw, HSH Set (M5x8)	1
48	44842	NY	Plug, Drain	1		126791	STCP R	Screw, HSH Set (M5x8)	1
49	14179	NBR	O-Ring, Drain Plug - 70D	1	249	31657	—	Mount, Adapter Assy, Electric	1
53	547111	AL	Crankcase	1		547085	AL	Flange, Adapter	1
64	16948	CM	Pin, Crosshead	3		126764	STCP R	Screw, HH Sems (M8x35)	4
65	548872	BB	Rod, Plunger	3		547162	STL	Key (3/16"x3/16"x1-1/2")	1
69	126259	STCP R	Washer, Oil Seal	3		547164	CM	Screw, Set HSH (M4x10)	1
70	25301	NBR	Seal, Oil - 80D	3	255	30614	STZP	Mount, Bolt Assy, Electric/Gas	1
90	547091	CC	Plunger (M14x25.5)	3		30980	STZP R	Washer, Flat (3/8")	4
98	46730	NBR	Washer, Seal - 90D	3		30921	STZP R	Lockwasher (3/8")	4
99	542405	S	Retainer, Plunger (M6x35)	3		34100	STZP	Screw, HH (3/8"-16x1-3/8")	4
100	44889	PVDF	Retainer, Seal	3		126543	STCP R	Screw, HH (3/8"-16x1-3/8")	4
106	45188	NBR	Seal, LPS w/S-SPG	3		6106	—	Lubricant, Antiseize	1
120	547093	BB	Case, Seal	3	299	548485	FBB	Head, Complete (Incls: 106-188)	1
121	547103	NBR	O-Ring, Seal Case - 70D	3	300	31874	NBR	Kit, Seal (Incls: 98, 106, 121, 127, 128)	1
127	547082	SNG	V-Packing	3	310	31847	NBR	Kit, Valve	1
128	547083	PVDF	Adapter, Male	3				(Incls: 160, 181, 182, 183, 184, 188, 187, 186, 189, 172)	
160	17428	NBR	O-Ring, Inlet Seat - 80D	3	400	—	—	Unloader, Integral (See Individual Parts)	1
161	547077	S	Seat, Inlet	3	469	7332	—	Injector, Chemical Fixed	1
162	46361	D	Back-up-Ring, Discharge Seat	3					

Italics are optional items. [ ] Date of latest production change. R Components comply with RoHS Directive.

See Tech Bulletins 002, 024, 036, 043, 055, 074, 083 and 092 for additional information.

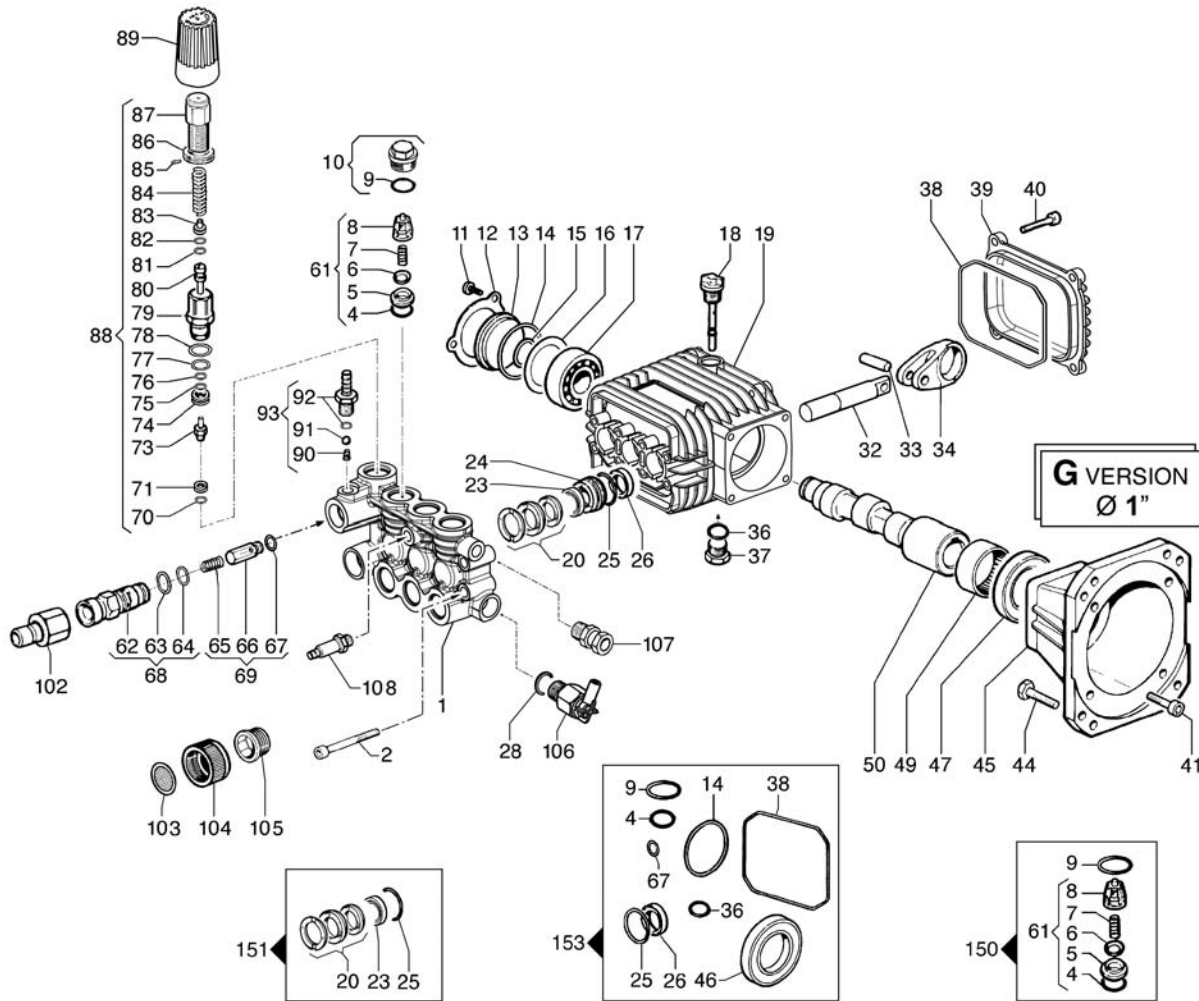
MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM=Chrome-Moly D=Acetal FBB=Forged Brass

FCM=Forged Chrome-Moly LDPE=Low Density Polyethylene BR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite

S=304SS SNG=Special Blend (Buna) STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength

NOTE: Discard Key which may come standard with most motors and engines and use only the key included in this kit.

# Comet AWD Pump Breakdown



Part #	Code	Description	Qty
1	3218 0413	Brass Manifold	1
2	3609 0099	Screw	8
4	1210 0415	O-Ring	6
5	3009 0170	Suct. /Del. Valve Seat	6
6	3604 0028	Suct. /Del. Valve	6
7	1802 0227	Spring	6
8	1205 0033	Suct. /Del. Valve Cage	6
9	1210 0151	O-Ring	6
10	3202 0311	Cap + O-Ring	6
11	3609 0088	Screw	3
12	1004 0012	Crankcase Flange	1
13	0402 0360	Transparent Cover	1
	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

Part #	Code	Description	Qty
63	1210 0040	O-Ring	1
64	1210 0049	O-Ring	1
65	1802 0197	Spring	1
66	2409 0086	Check Valve	1
67	1210 0446	O-Ring	1
68	3410 0318	Injector Body Kit	1
69	2409 0154	Check Valve Kit	1
70	1210 0403	Viton® O-Ring	1
71	3009 0122	Valve Seat	1
73	3002 0526	Unloader Ball	1
74	0009 0233	Ring	1
75	0009 0205	Ring	1
76	1210 0405	O-Ring	1
77	1210 0404	O-Ring	1
78	1210 0407	O-Ring	1
79	0204 0044	Bushing	1
80	2409 0088	Piston Rod	1
81	1210 0430	O-Ring	1

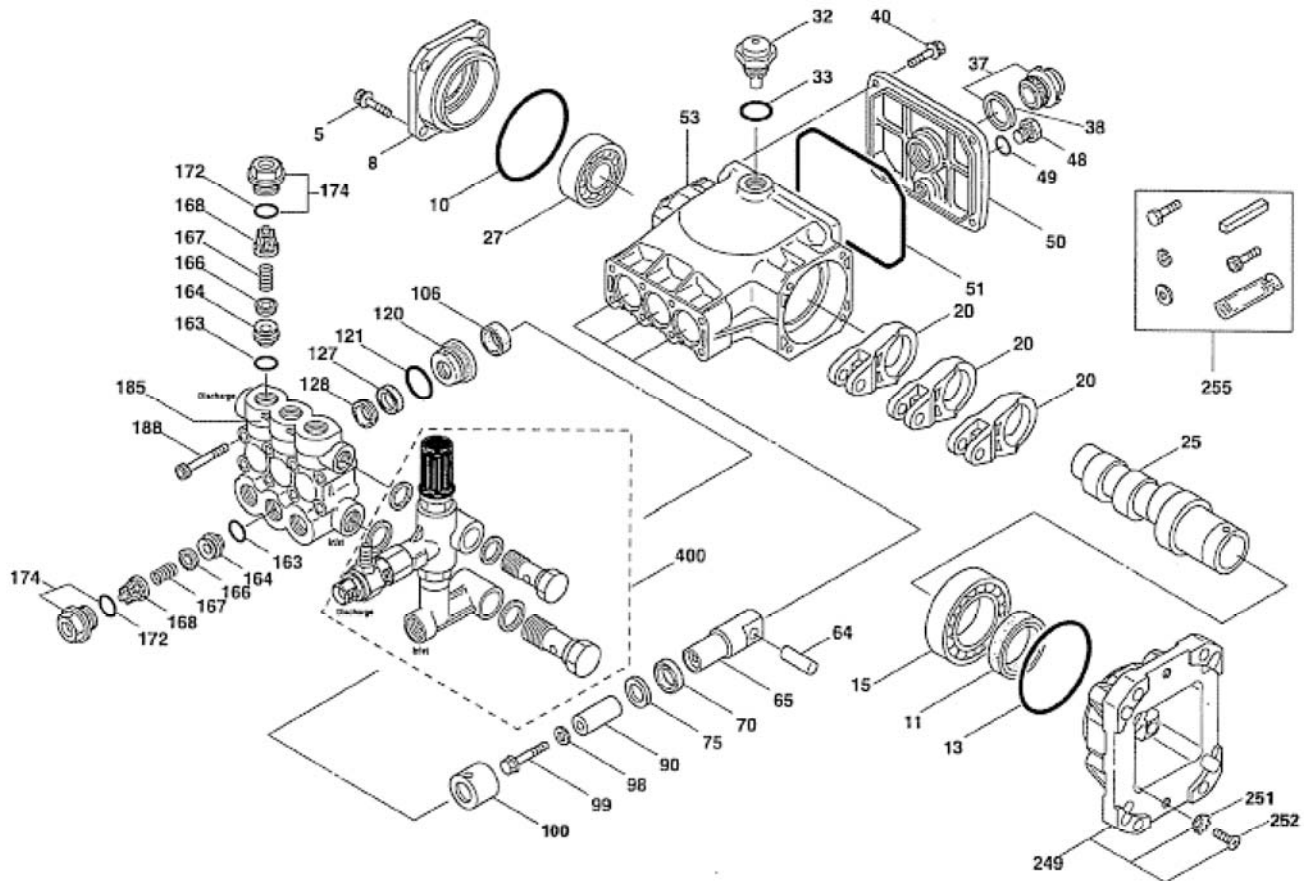


## Comet AWD Pump Breakdown

19	0403 0195	Pump Crankcase	1
20	1241 0105	Packing + Ring	3
23	1241 0057	Packing	3
24	0009 0374	Packing Retainer	3
25	1210 0333	O-Ring	3
26	0019 0103	Oil Seal	3
28	2811 0084	Washer	1
32	2409 0151	Piston	3
33	3011 0014	Gudgeon Pin	3
34	0205 0050	Con. Rod Assembly	3
36	1210 0441	O-Ring	1
37	3200 0007	Cap	1
38	1210 0561	O-Ring	1
39	0402 0357	Crankcase Cover	1
40	3609 0032	Screw	4
41	3609 0032	Screw	4
44	3607 0119	Hexagonal Screw	4
45	3016 0023	Flange	1
47	0019 0102	Oil Seal	1
49	0437 0045	Roller Bearing	1
50	0001 0645	Eccentric Shaft	1
61	1220 0167	Suct. /Del. Valve Assy kit	6
62	3410 0316	Injector Body	1

82	0009 0205	Ring	1
83	0009 0207	Spring Spacer	1
84	1802 0182	Spring (Wire Ø3, 25)	1
85	3622 0030	Stop Adjustable Nut	1
86	1227 0022	Ring Nut	1
87	0204 0046	Bushing	1
88	1215 0403	Reg. Valve Kit + Seat	1
89	1817 0064	Pressure knob	1
90	1802 0180	Detergent Spring	1
91	3003 0026	Detergent Ball	1
92	2803 0424	Detergent Coupling	1
93	2803 0435	Detergent Coupling Kit	1
102	2803 3380	Outlet Quick Coupler	1
103	1002 0158	Water Filter	1
104	1223 0108	Wing Nut	1
105	2803 0395	Special Coupling	1
106	1215 0328	Thermal Valve	1
107	1215 0443	Safety Valve	1
108	0608 0032	External Easy Start Device	1
150	5025 0030	Valve Kit	1
151	5019 0686	Water Seal Kit	1
153	5019 0687	Oil Seal Kit	1

# Cat 66DX Pump Breakdown



## PARTS LIST

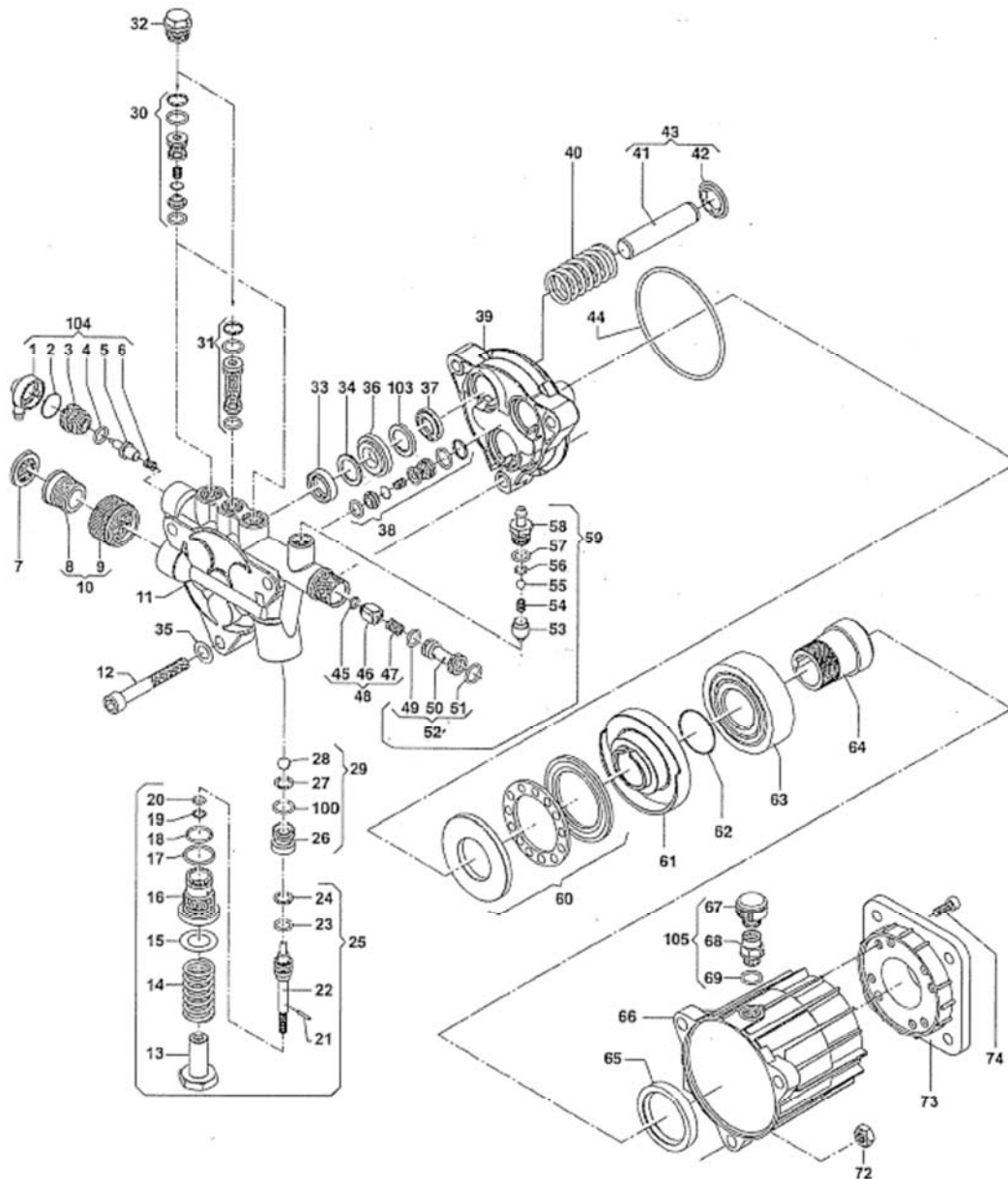
ITEM	P/N	MATL	DESCRIPTION	QTY	ITEM	P/N	MATL	DESCRIPTION	QTY
5	92519	STZP	Screw, HHC (M6x16)	4	106	45188	NBR	Seal, LPS w/S-Spg	3
	125824	STCP R	Screw, HHC (M6x16)	4	120	48759	BB	Case, Seal	3
8	48259	AL	Cover, Bearing	1	121	13980	NBR	O-Ring, Seal Case - 70D	3
10	14028	NBR	O-Ring, Bearing Cover - 70D	1	127	48758	SNG	V-Packing	3
11	125351	NBR	Seal, Oil, Crankshaft - 70D	1		49201	STG	V-Packing	3
13	14037	NBR	O-Ring, Bearing Cover - 70D	1	128	48757	NY	Adapter, Male	3
15	146421	STL	Bearing, Ball - Inner	1	163	17547	NBR	O-Ring, Seat - 85D	6
20	48843	TNM	Rod, Connecting	3	164	46790	S	Seat	6
25	48970	CM	Crankshaft (8.6 mm) 30G11	1	166	46429	S	Valve	6
	48977	CM	Crankshaft (10.0 mm) 35G11	1	167	43750	S	Spring	6
	48839	CM	Crankshaft (11.4 mm) 40G11	1	168	46583	NY	Retainer, Spring	6
27	14480	STL	Bearing, Ball - Outer	1	172	17616	NBR	O-Ring, Valve Plug - 80D	6
32	46798	—	Cap, Domed, Oil Filler	1	174	48760	BB	Plug, Valve w/O-Ring	6
33	14179	NBR	O-Ring, Filler Cap - 70D	1	185	48846	BB	Head, Manifold	1
37	92241	—	Gauge, Oil Bubble w/Gasket	1	188	87870	STZP	Screw, HSH (M8x65)	8
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1		126512	STCP R	Screw, HSH (M8x65)	8
40	92519	STZP	Screw, HHC (M6x16)	4	249	48841	AL	Flange Mount	1
	125824	STCP R	Screw, HHC (M6x16)	4	251	46123	STZP	Lockwasher, Conical (M8)	4
48	25625	STCP	Plug, Drain (1/4"x19BSP)	1		126746	STCP R	Lockwasher, Conical (M8)	4
49	23170	NBR	O-Ring, Drain Plug - 70D	1	252	46403	STZP	Screw, FH (M8x25)	4
50	48862	AL	Cover, Rear	1	255	30510	STZP	Assy, Bolt Mount	1
51	14048	NBR	O-Ring, Rear Cover - 70D	1		34100	STZP	Screw (3/8-16x1-3/8")	4
53	48830	AL	Crankcase	1		30921	STZP	Lockwasher (3/8")	4
64	46404	CM	Pin, Crosshead	3		30880	STZP	Washer, Flat (3/8")	4
65	48845	BB	Rod, Plunger	3		6106	—	Antiseize Lubricant	1
70	48911	NBR	Seal, Oil, Crankcase	3		45217	STL	Key (1/4"x1/4"x2-1/2") HD	1
75	48754	NBR	Slinger, Barrier - 70D	3		87788	STZP	Screw, Set (M5x8)	1
90	48752	CC	Plunger (M14x47)	3		126761	STCP R	Screw, Set (M5x8)	1
98	46730	NBR	Washer Seal, Plunger Retainer - 90D	3	300	34262	NBR	Kit, Seal (Incls: 98, 106, 121, 127, 128)	1
99	† 48201	SSL	Retainer, Plunger	3	310	34260	NBR	Kit, Valve (Incls: 163, 164, 166, 167, 168, 172)	2
100	48755	NY	Retainer, Seal	3	400	7800	BB	Unloader Assembly w/Fixed Injector	1

*Italics are optional items. R Components comply with RoHS Directive. † Production parts are different than replacement parts.*

See Tech Bulletins 024, 060, 074 and 083 for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM=Chrome-moly NBR=Medium Nitrile (Buna-N) NY=Nylon  
S=304SS SNG=Special Blend (Buna) SSL=316SS/Low Carbon STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength

# Comet VRX 2528G Pump Breakdown



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
13	3202 0276	Plug	1

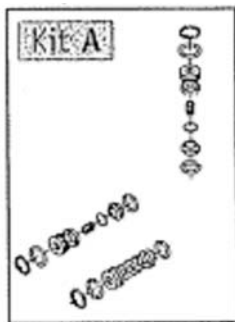
Ref #	Code	Description	Qty
39	2432 0018	Pump Crankcase	1
40	1802 0213	Piston Spring	3
41	2409 0099	Piston	3
42	0009 0267	Ring	3
43	5026 0260	Piston Kit	3
44	1210 0391	O-Ring	1
45	1210 0463	O-Ring	1
46	2409 0102	Check Valve	1
47	1802 0218	Spring	1
48	5026 0262	Check Valve Kit	1
49	1210 0465	O-Ring	1
50	0801 0066	Detergent Injector	1
51	1210 0170	O-Ring	1

## Comet VRX 2528G Pump Breakdown

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

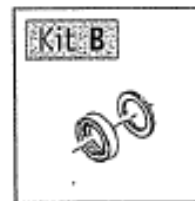
52	1410 0322	Detergent Injector Kit	1
53	0204 0051	Bushing	1
54	1802 0216	Spring	1
55	3003 0033	Ball	1
56	1210 0466	O-Ring	1
57	1210 0465	O-Ring	1
58	2800 0104	Detergent Straight Hose Tail	1
59	5026 0261	Complete Detergent Kit	1
60	0436 0020	Axial Ball Bearing	1
61	0001 0460	Thru-Eccentric Shaft	1
62	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)



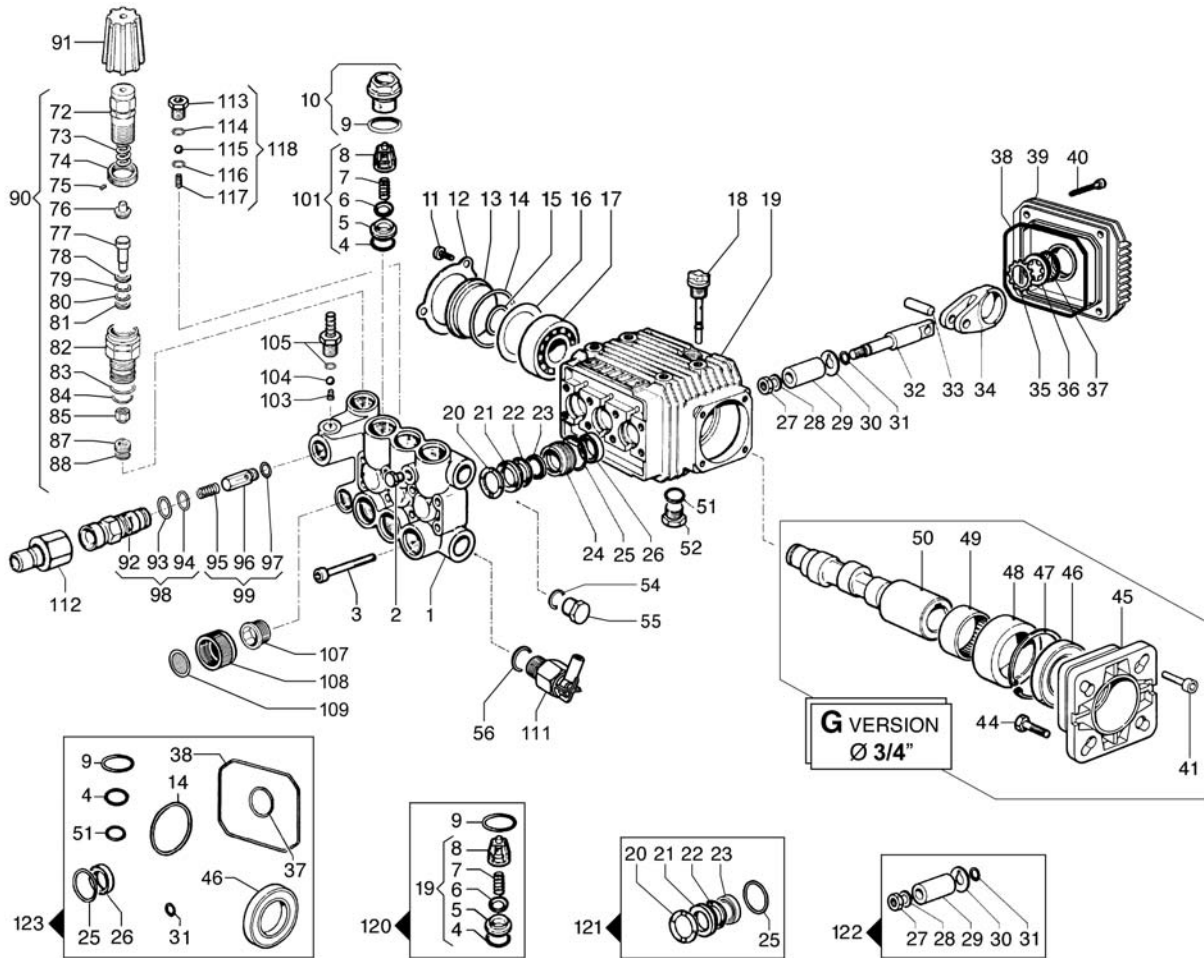
Part #	Code	Qty
30	1220 0061	2
31	1220 0062	1
38	1220 0061	3

### Piston Seal Kit (502602556)



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

# NorthStar NSLW Pump Breakdown



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

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

## NorthStar NSLW Pump Breakdown

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 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

90	1215 0403	Reg. Valve Kit + Seat	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

## 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:

Item #	Warranty Period
1577543, 1577544	2 years for noncommercial/nonrental use and a period of 90 days for commercial/rental use from the date of purchase by user
1578112, 1578172, 1578182, 1578152, 1578202	2 years from date of purchase by user
1578173, 1578203	3 years from 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 non transferable. 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 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 on a warranty claim.

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

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

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

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



Manufactured by  
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