



M1573001E.1

Item Numbers: 1573001,1573011
1573021

Owner's Manual

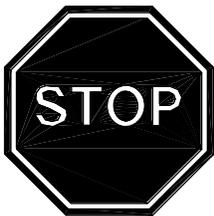
Pressure Washer: Machine that cleans dirty surfaces with high pressure water.



⚠ WARNING

Read this manual.

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



Pump is shipped with oil.

- Remove shipping tape from pump oil fill cap. (Cat Pumps)
- Remove shipping plug and install vented fill cap. (Comet Pumps)
- See pump oil cap section of this manual.

Closely inspect all components.

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

fig02342

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 Instructions

- ⚠ WARNING** - Risk of Injection or Injury to Persons - Do Not Direct Discharge Stream at Persons. - Do not use a hose if exterior damage is evident.
- Risk of explosion. - Do not spray flammable liquids. - Do not operate in a flammable environment.

- CAUTION** - Gun kicks back. Hold with both hands.
- To reduce the risk of injury, read operating instructions carefully before use.

- ⚠ WARNING** - When using this product basic precautions should always be followed, including the following:
- 1.) Read all the instructions before using the product.
 - 2.) To reduce the risk of injury, close supervision is necessary when the product is used near children. Do not allow irresponsible use by children. Always stop the product and bleed pressures before leaving unattended, disconnecting hoses or servicing the pump.
 - 3.) Know how to stop the product and bleed pressures quickly. Be thoroughly familiar with the controls.
 - 4.) Stay alert - watch what you are doing.
 - 5.) Do not operate the product when fatigued or under the influence of alcohol or drugs.
 - 6.) Keep operating area clear of all persons.
 - 7.) Do not overreach or stand on unstable support. Keep good footing and balance at all times. Wear footwear capable of maintaining a good grip on wet surfaces - Do not place the machine on soft or unstable ground.
 - 8.) Follow the maintenance instructions specified in all manuals. Do not run machine without sufficient lubrication or sufficient water to cool the pump.
 - 9.) Wear safety glasses, gloves, face protection and appropriate clothing when operating the machine.
 - 10.) Do not operate this machine with broken or missing parts. - Never alter the manufacturer's original design or deactivate any safety device on the machine.
 - 11.) Risk of exposure to dangerous chemicals. Wear protective gloves when handling and cleaning with chemicals. Follow the chemical manufacturer's directions. Understand all safety hazards and first aid for all chemicals being used. Check whether dangerous chemicals have been used and take any precautions that may have been recommended by the supplier of these chemicals when cleaning filters. Do not pump highly abrasive fluids or use with incompatible chemicals or solvents.
 - 12.) Know the pressure and temperature limits of your machine. Be sure all high pressure accessories meet or exceed your machine's limits. Do not set the pressure relief valve above the machine's limit.
 - 13.) Do not move this machine by pulling on the hose. Do not use the pump to support other items of equipment that impose unacceptable loads on the pump. Do not attempt to use this machine as a prop.
 - 14.) To reduce risk of injury, do not secure the spray gun open. Your spray gun is equipped with a built-in trigger safety latch to guard against accidental trigger release and potentially dangerous high pressure spray. Rotate the safety latch to the locked position when not spraying.
 - 15.) Do not clean this machine with its own spray. Cleaning should be done with a damp sponge with the motor OFF.
 - 16.) Always make sure all switches and controls are in the OFF position prior to plugging in the electrical cord. Do not stand in water while plugging and unplugging electrical cord.
 - 17.) This product is provided with a ground fault circuit interrupter built into the power cord plug. If replacement of the plug or cord is needed, use only identical replacement parts.

SAVE THESE INSTRUCTIONS

Grounding Instructions

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electrical shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ DANGER - Improper connection of the equipment - grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the product - if it will not fit the outlet; have a proper outlet installed by a qualified electrician. Do not use any type adapter with this product.

1. For a product rated 125 volts or less:

GROUND FAULT CIRCUIT INTERRUPTER PROTECTION

This pressure washer is provided with a ground fault circuit interrupter (GFCI) built into the plug of the power supply cord. This device provides additional protection from the risk of electric shock. Should replacement of the plug or cord become necessary, use only identical replacement parts that include GFCI protection.

2. For a product rated more than 125 volts:

GROUND FAULT CIRCUIT INTERRUPTER PROTECTION

To comply with the National Electric Code (NFPA 70) and to provide additional protection from the risk of electric shock, this pressure washer should only be connected to a receptacle that is protected by a ground fault circuit interrupter (GFCI).

Extension Cords

Use only 3-wire extension cords that have 3 prong grounding-type plugs and 3-pole cord connectors that accept the plug from the product. Use only extension cords that are intended for outdoor use. These extension cords are identified by a marking "Acceptable for use with outdoor appliances; store indoors while not in use." Use only extension cords having an electrical rating not less than the rating of the product. Do not abuse extension cord and do not yank on any cord to disconnect. Keep cord away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting the product from the extension cord.

⚠ WARNING - To reduce the risk of electrocution, keep all connections dry and off the ground. Do not touch plug with wet hands.

SAVE THESE INSTRUCTIONS

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. Plug in power cord, reset the GFCI, start motor.

SHUT-DOWN INSTRUCTIONS

1. Turn motor OFF.
2. Unplug the power cord.
3. Turn water supply OFF.
4. Squeeze trigger to relieve system pressure.
5. Remove garden hose.
6. Remove pressure hose.



▲WARNING

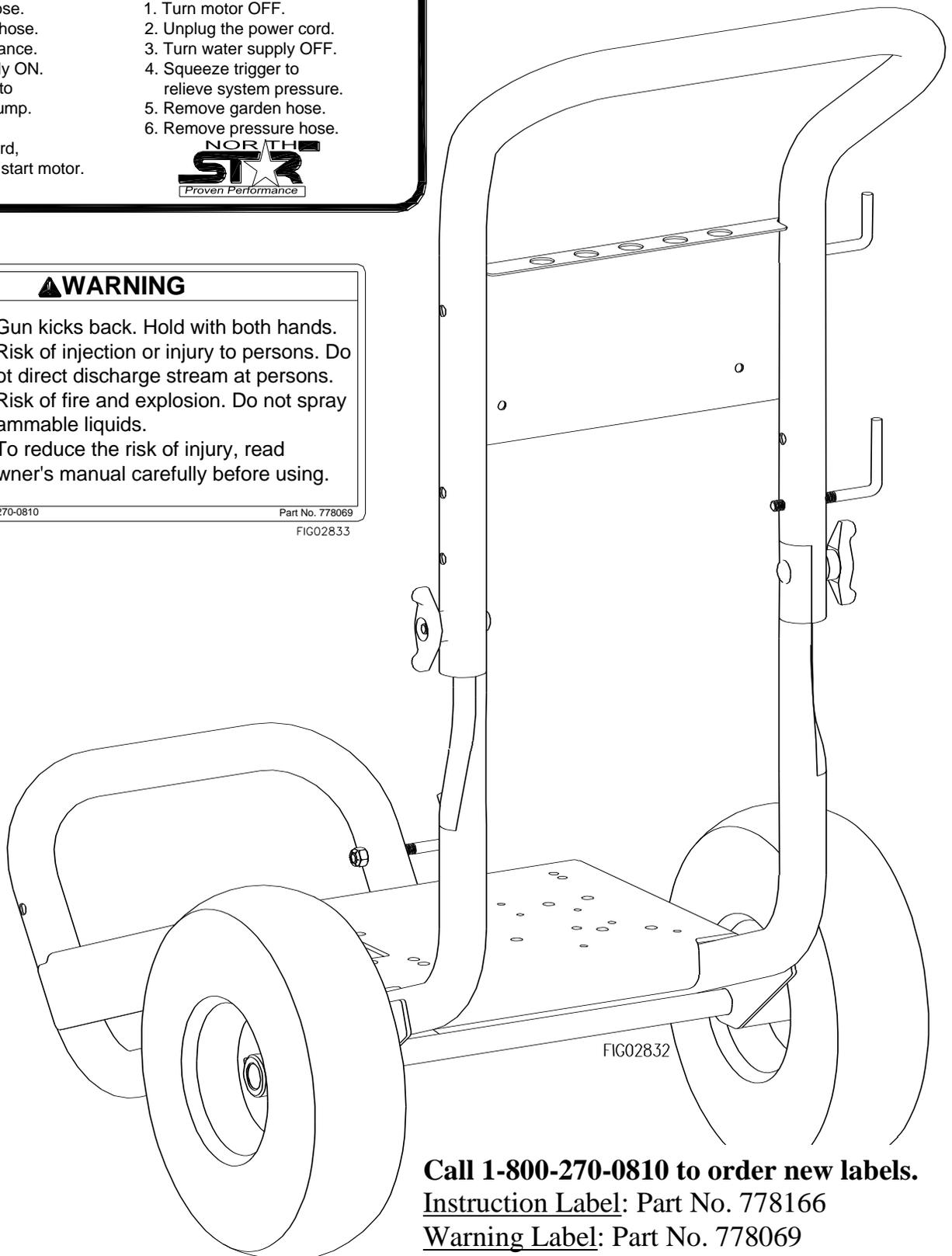


- ◆Gun kicks back. Hold with both hands.
- ◆Risk of injection or injury to persons. Do not direct discharge stream at persons.
- ◆Risk of fire and explosion. Do not spray flammable liquids.
- ◆To reduce the risk of injury, read owner's manual carefully before using.

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Part No. 778069

FIG02833



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

Instruction Label: Part No. 778166

Warning Label: Part No. 778069

Assembly Instructions

I.) Unpack

Your pressure washer is shipped in one box. Separate and identify the components found in both boxes.

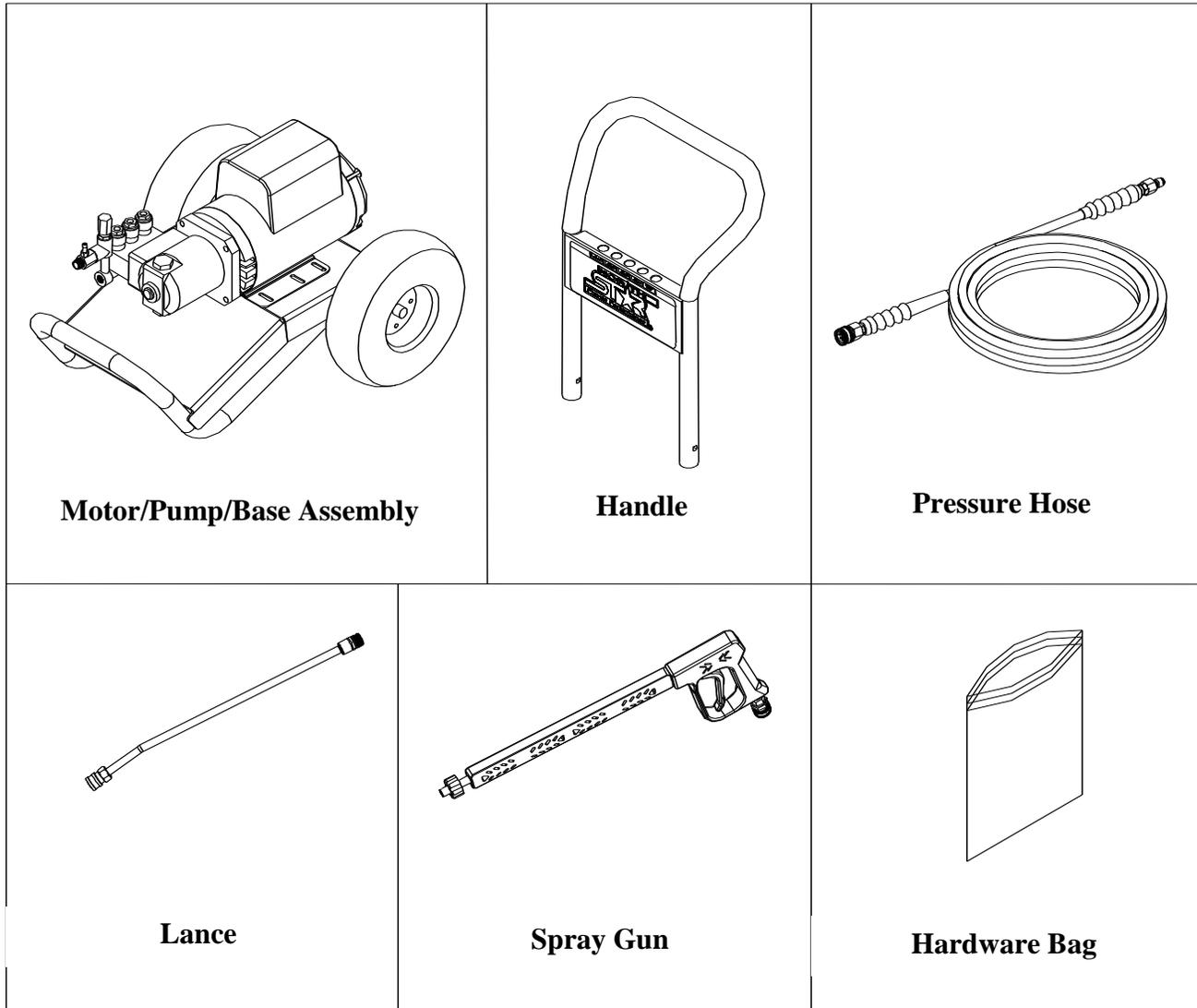
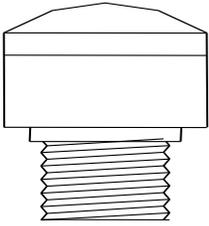


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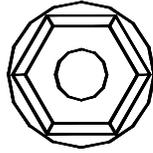
* Figures shown are for representation only. Actual components will vary by model.

Assembly Instructions

I.) Hardware Bag



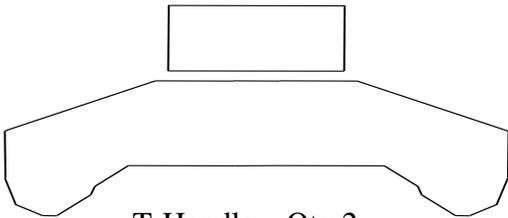
Vented fill cap
(1573001 only)



Flange Nut – Qty 2
Part # 82019



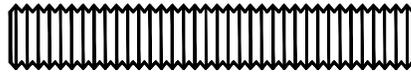
Carriage Bolt - Qty 2
Part # 82233



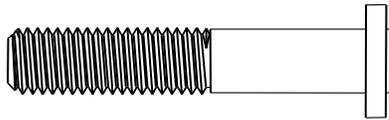
T-Handle – Qty 2
Part # 38578



Nylock Nut – Qty 4
Part # 777495



Gun Hook – Qty 1
Part # 38509



Hose Hook – Qty 2
Part # 779761

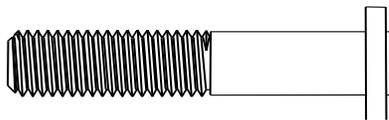
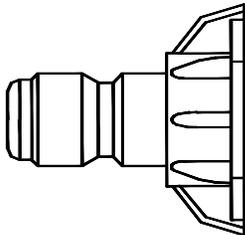
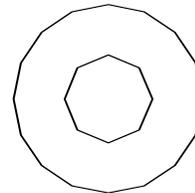


fig02301



Nozzle – Qty 2
Part # varies
by model

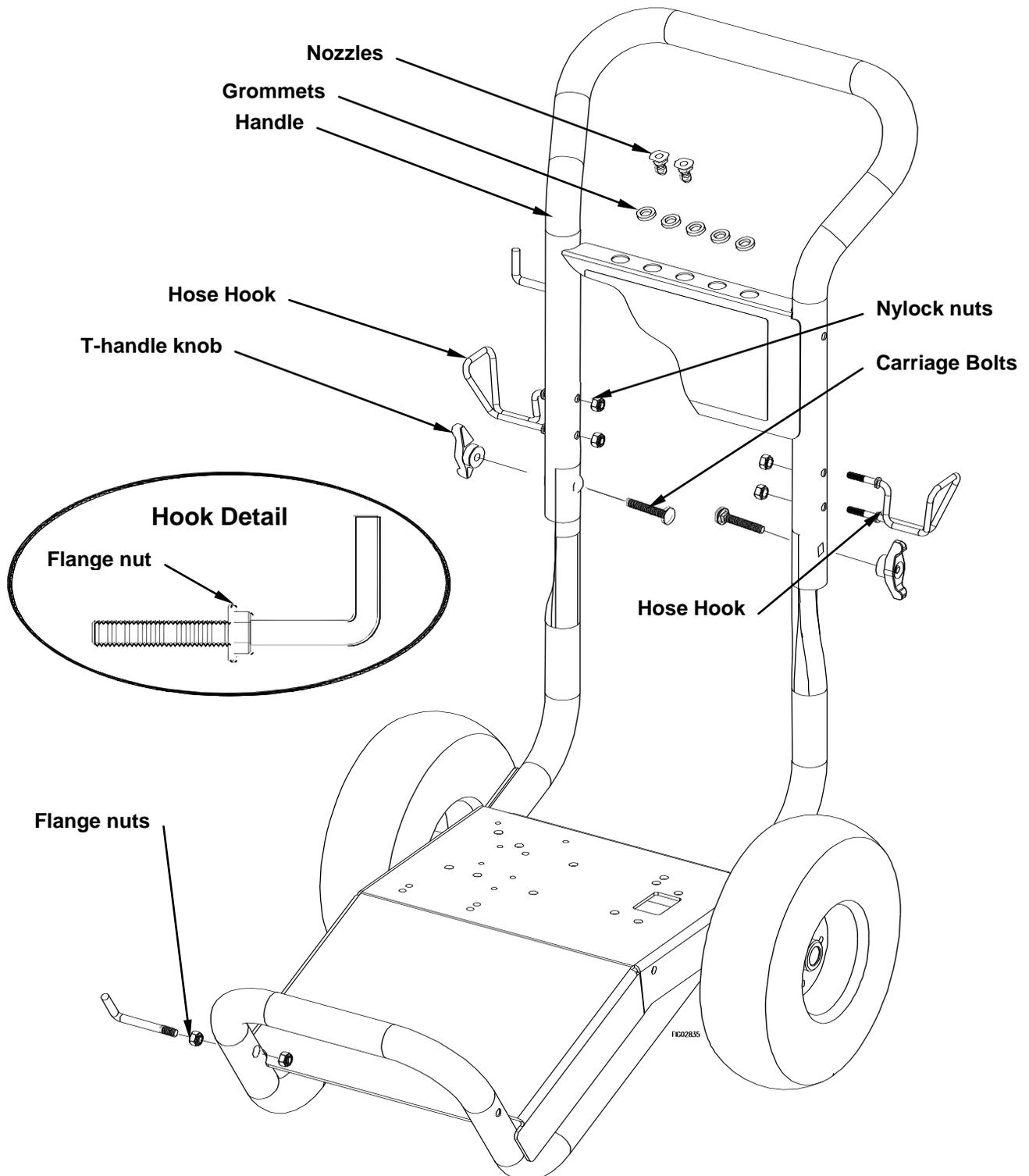


Grommet – Qty 5
Part # 35198

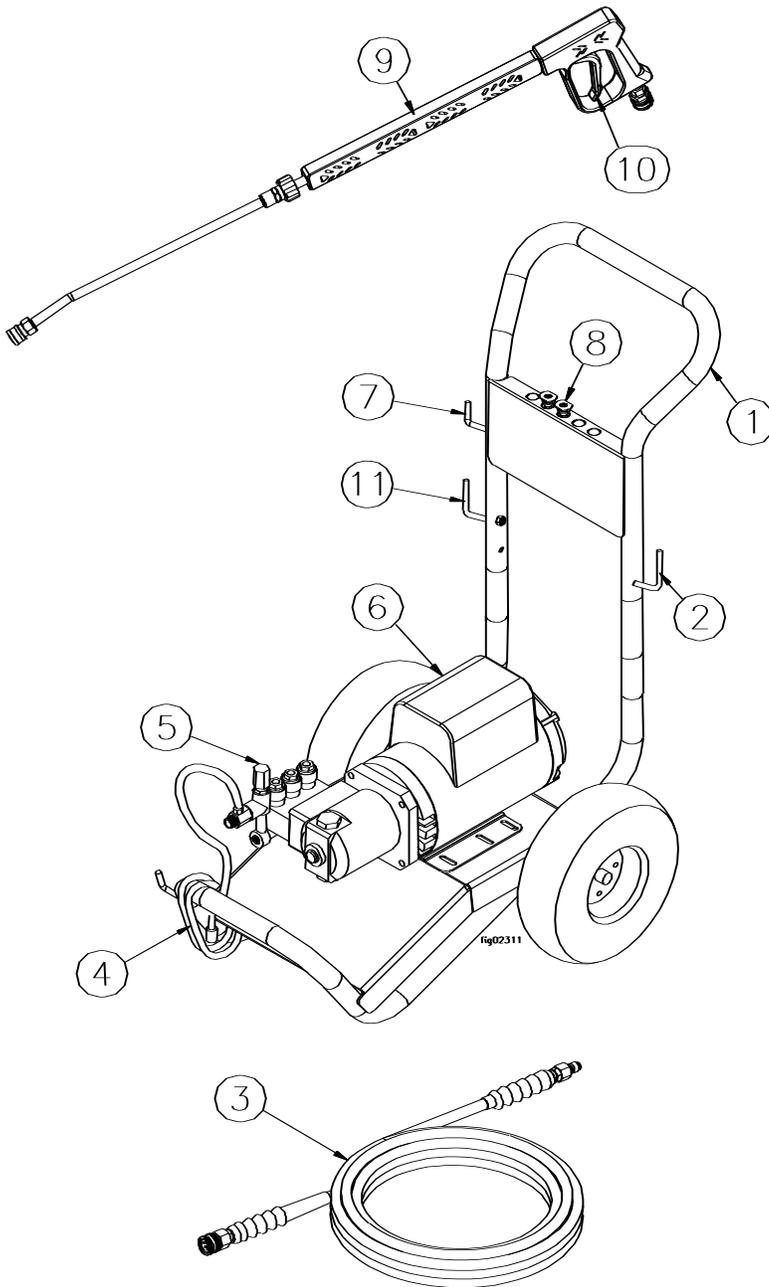
Assembly Instructions

III.) Handle Assembly

- 1.) Attach handle to base with two carriage bolts and t-handle knobs.
- 2.) Spin a flange nut backwards onto gun hook. (see hook detail)
- 3.) Mount the hose hooks onto the handle and gun hook onto the 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

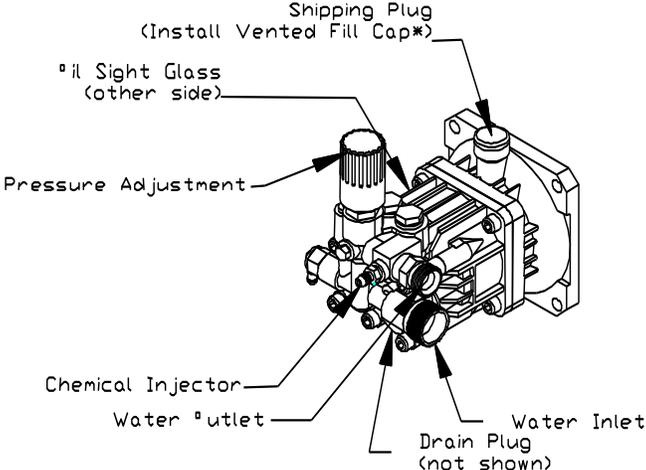


- 1.) **Handle.** Designed for easy cart movement.
- 2.) **Hose Hook.** Store hose on hook.
- 3.) **Pressure Hose.** Attach quick couplers to gun and water outlet.
- 4.) **Chemical Hose.** Submerge in cleaning solution.
- 5.) **Water Pump.** Inspect for loose/broken parts prior to each use.
- 6.) **Motor.** Leeson motor provides years of reliable use.
- 7.) **Gun Hook.** Store gun on hook.
- 8.) **Nozzles.**
- 9.) **Spray Gun.** Always use two hands for safe operation.
- 10.) **Trigger.** Actuate to allow pressurized water to flow out of spray gun.
- 11.) **Cord Hook.** Store electrical cord on hook.

* Components shown are for representation only. Actual components will vary by model.

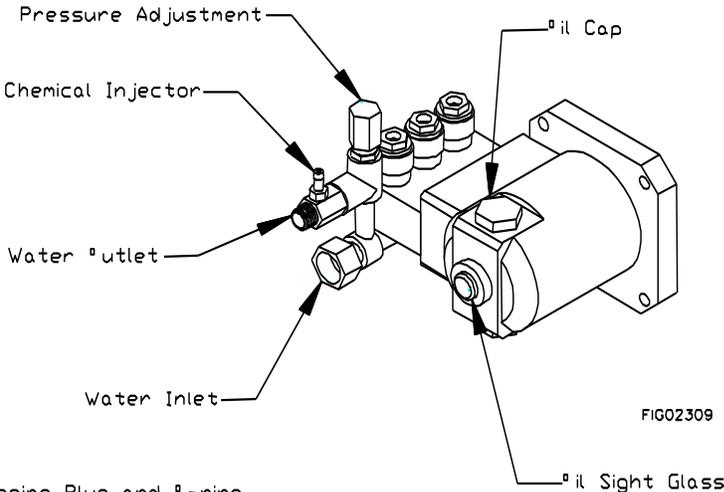
Pump Component Identification

1573001



*Note: Discard Shipping Plug and O-ring

1573011 & 1573021



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 a 5 gal. bucket
1573001	150 seconds
1573011	160 seconds
1573021	96 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).

Always use a flexible rubber hose for your water supply. Do not use rigid piping.

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. Plug in power cord
8. Reset the GFCI button on the cord
9. Start motor.

SHUT-DOWN INSTRUCTIONS

1. Turn motor OFF.
2. Unplug the power cord.
3. Turn water supply OFF.
4. Squeeze trigger to relieve system pressure.
5. Remove garden hose.
6. Remove pressure hose.

WARNING

Skin puncture hazard.

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

-If skin injection happens, seek IMMEDIATE surgical treatment.

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

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

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

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

-Stop engine and bleed pressures before leaving unit unattended.

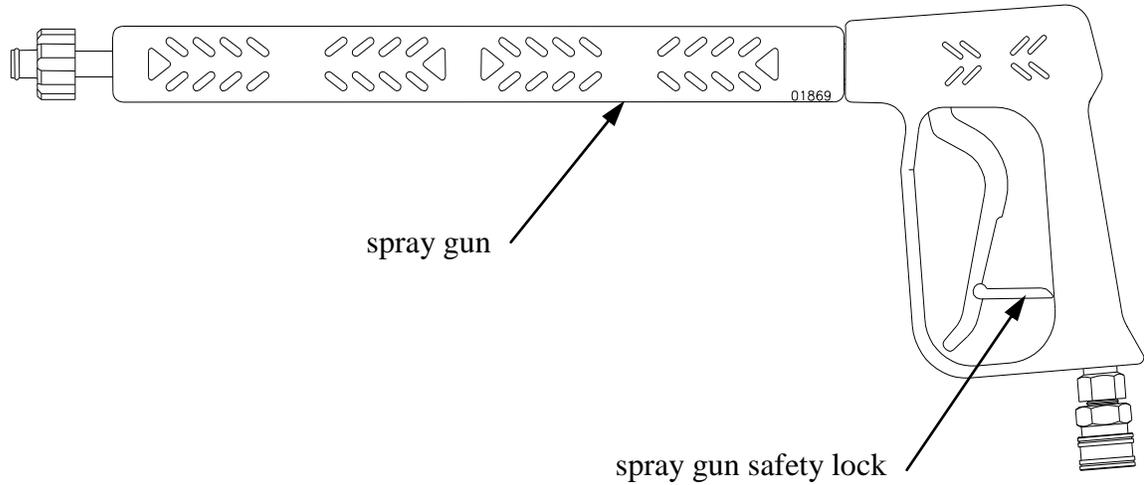


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Operation Instructions

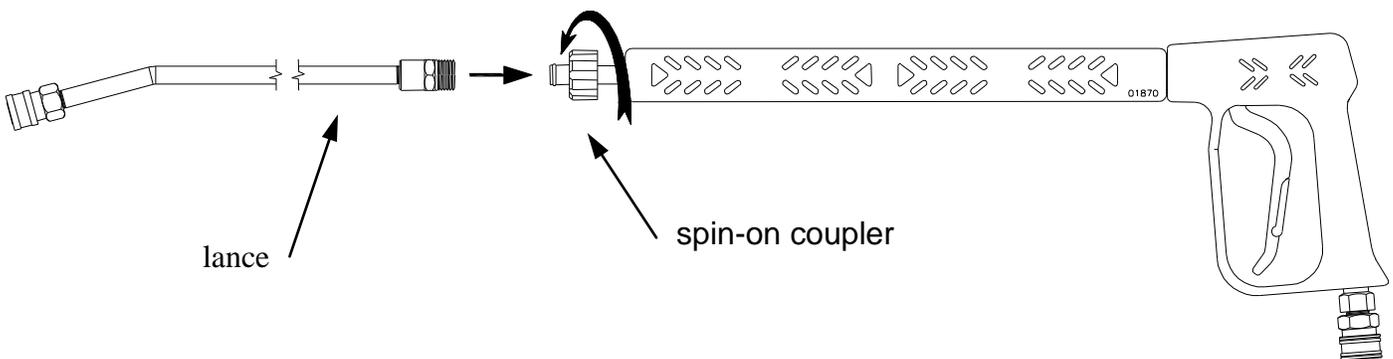
Spray Gun Safety Lock

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



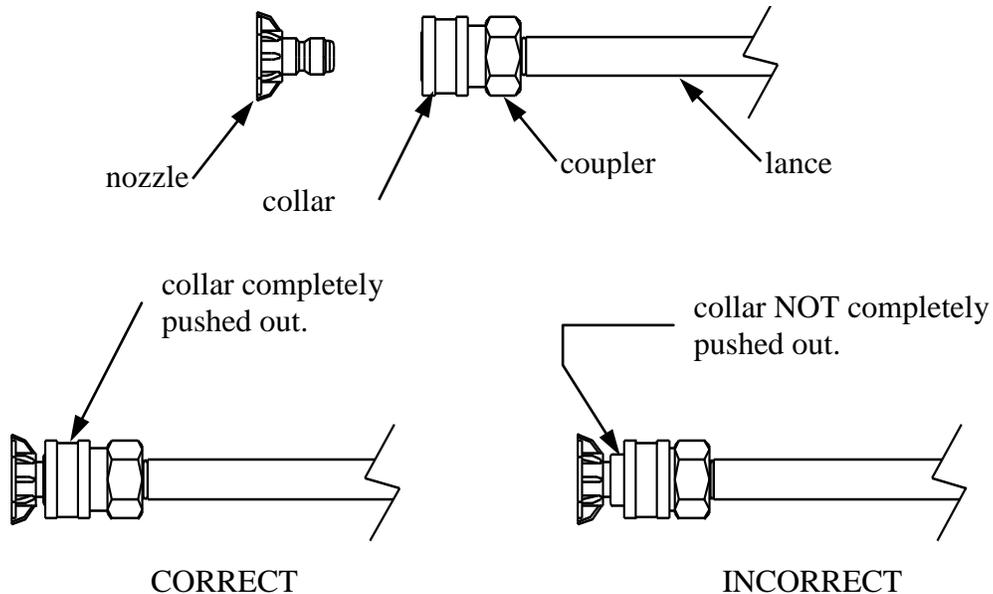
Tighten spin-on coupler hand tight.

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

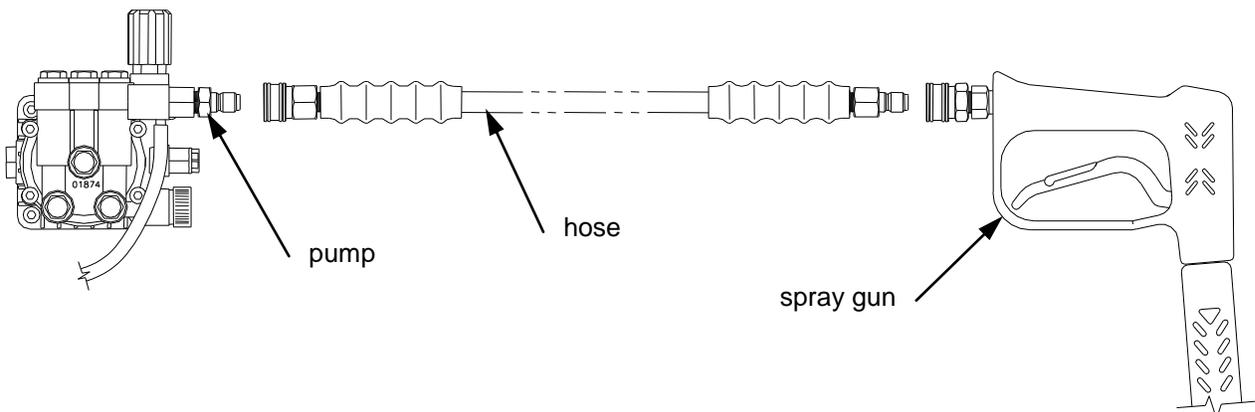
Flying objects.

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.

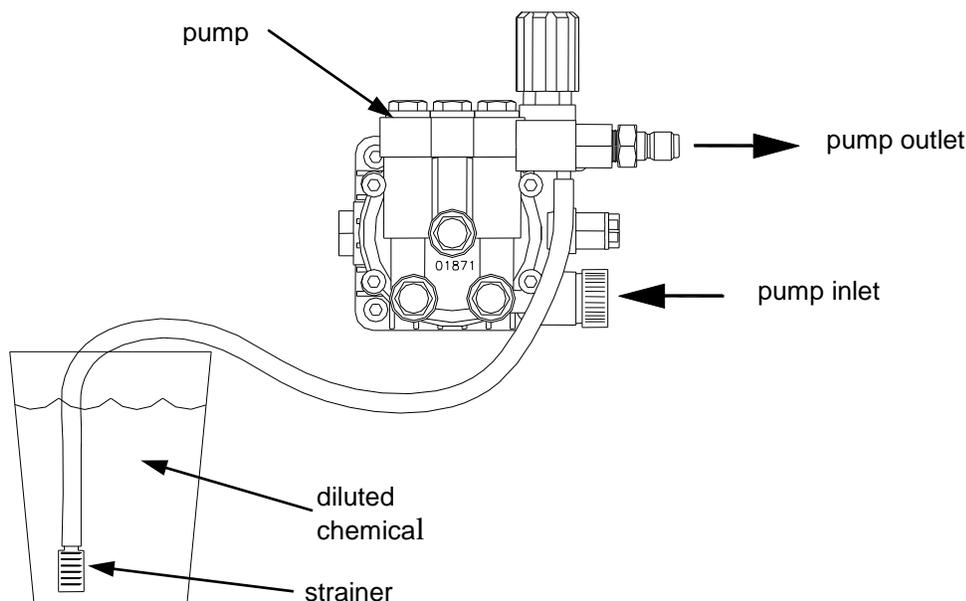


Once the connections are made, pull on the hose to make sure it is secure.

Operation Instructions

Applying Chemicals

- 1.) Install the black nozzle when applying 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 high pressure (green or yellow) 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

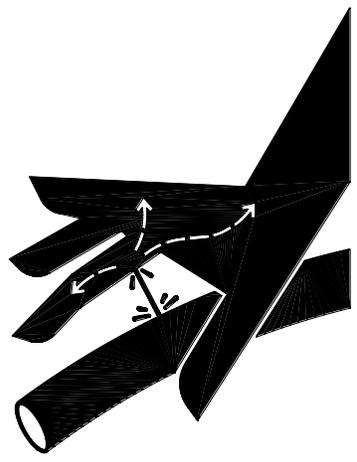
Maintenance Mode

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

- 1.) Turn off motor and unplug cord.
- 2.) Turn off water supply.
- 3.) Squeeze trigger to relieve system pressure.

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.
Pump Oil	After 1 st 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, 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 pumps use Universal Tractor Transmission Oil or Mobil 1 15W50 synthetic oil. For Cat pumps use SAE30 non-detergent oil or Cat Pump Oil Item# 22158.

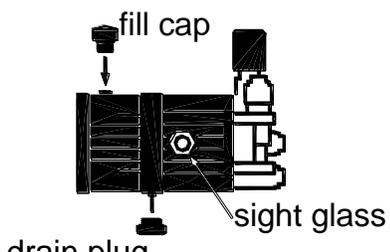
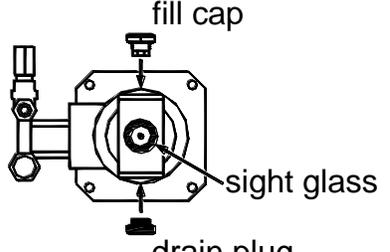
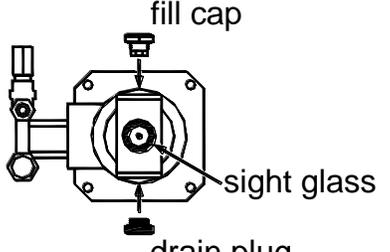
Comet BXD 1617E Pump  Oil capacity: 4.3oz. (.13L)	Cat 3DNX25GSI Pump  Oil capacity: 8.5 oz. (.25L)	Cat 2DX15ES Pump  Oil capacity: 8.5 oz. (.25L)
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FIG01854

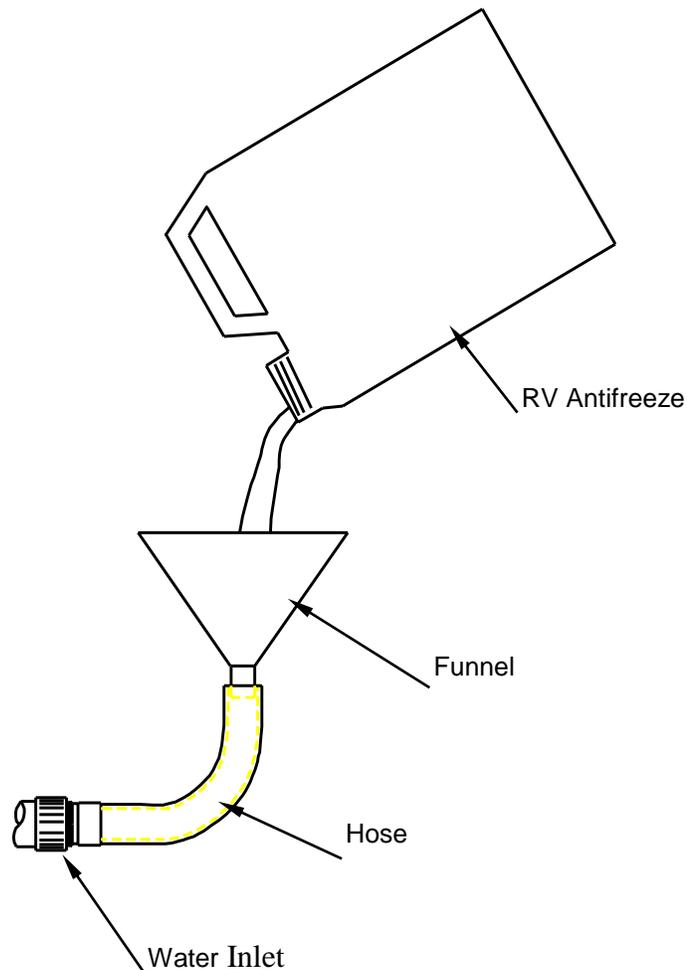
Maintenance and Storage

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.) Make sure the motor start switch is OFF.
- 3.) Attach the garden hose with funnel to the pump inlet (see illustration).
- 4.) Pour RV antifreeze into the funnel, run motor 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

Problem	Solution
Motor 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
Cause	Solution
A- Tripped GFCI cord	Reset GFCI cord
B- Tripped motor relay	Reset motor
C- Insufficient water supply	See water supply section of this manual
D- Plugged pump inlet filter	See maintenance section of this manual
E- Wrong nozzle	Make sure high pressure nozzle is being used
F- Plugged nozzle	Remove nozzle, check for blockage
G- Worn nozzle	Replace nozzle
H- Leak in pressure hose	Replace pressure hose
I- Wrong nozzle	Make sure chemical nozzle is being used
J- Back pressure from extra long discharge hose	Try shorter hose
K- Leak in chemical siphon hose	Replace hose – use hose clamps if necessary
L- 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

1573001

PSI (bar)	1700 (117)
GPM (l/min)	1.5 (5.7)
Max Water Temp	140°F (60°C)
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	95 lb (44kg)

1573011

PSI (bar)	2000 (138)
GPM (l/min)	1.5 (5.7)
Max Water Temp	140°F (60°C)
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	115 lb (44kg)

1573021

PSI (bar)	2750 (190)
GPM (l/min)	2.5 (9.4)
Max Water Temp	140°F (60°C)
Dimensions L x W x H	34" x 21" x 38" (864mm x 534mm x 965mm)
Weight	139 lb (55kg)

Wiring Diagram

1573001

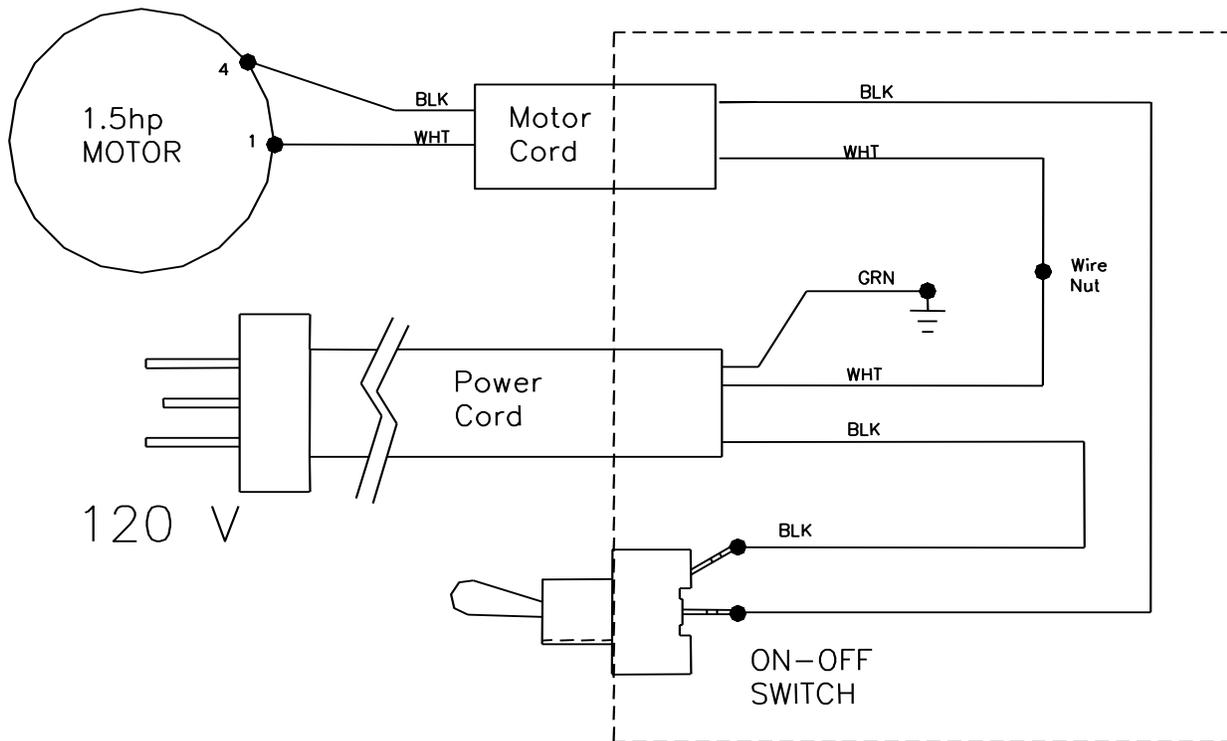
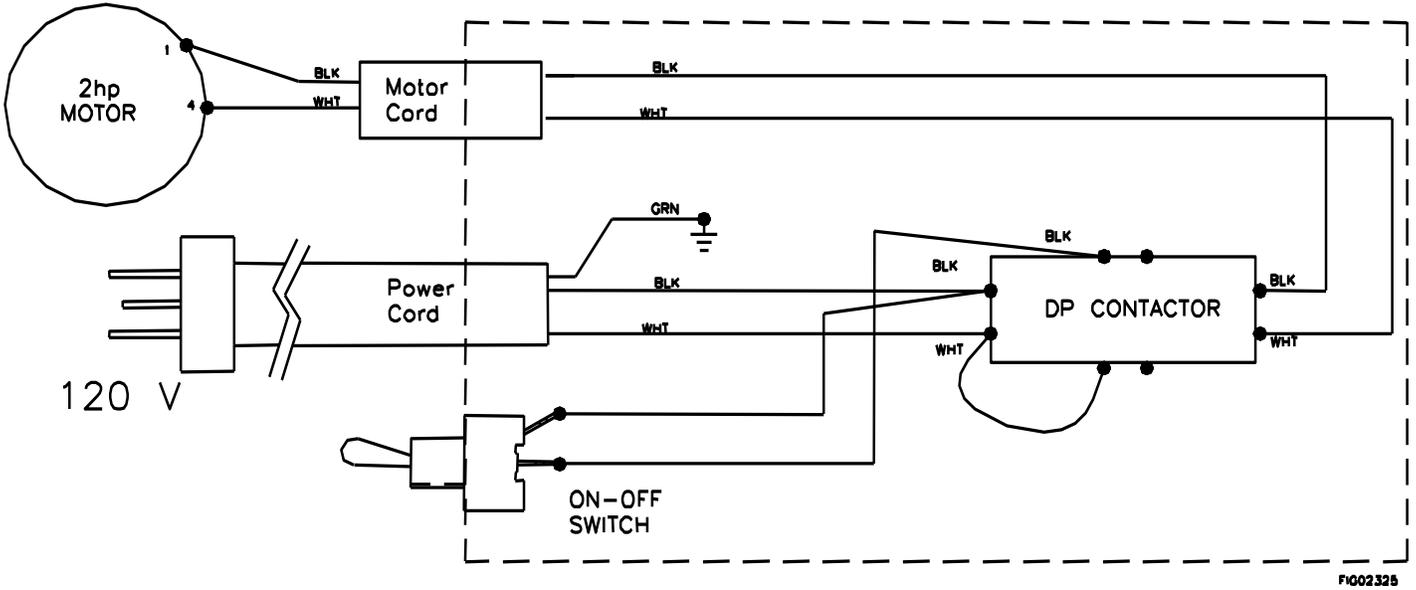


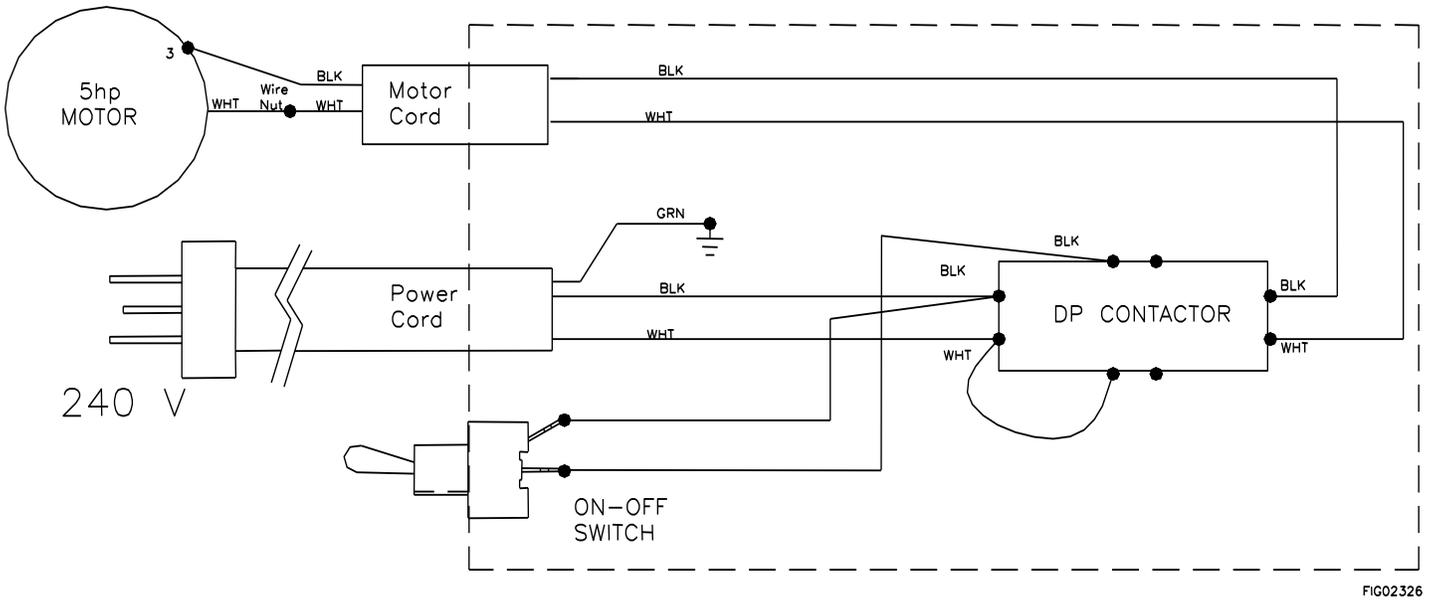
FIG02323

Wiring Diagram

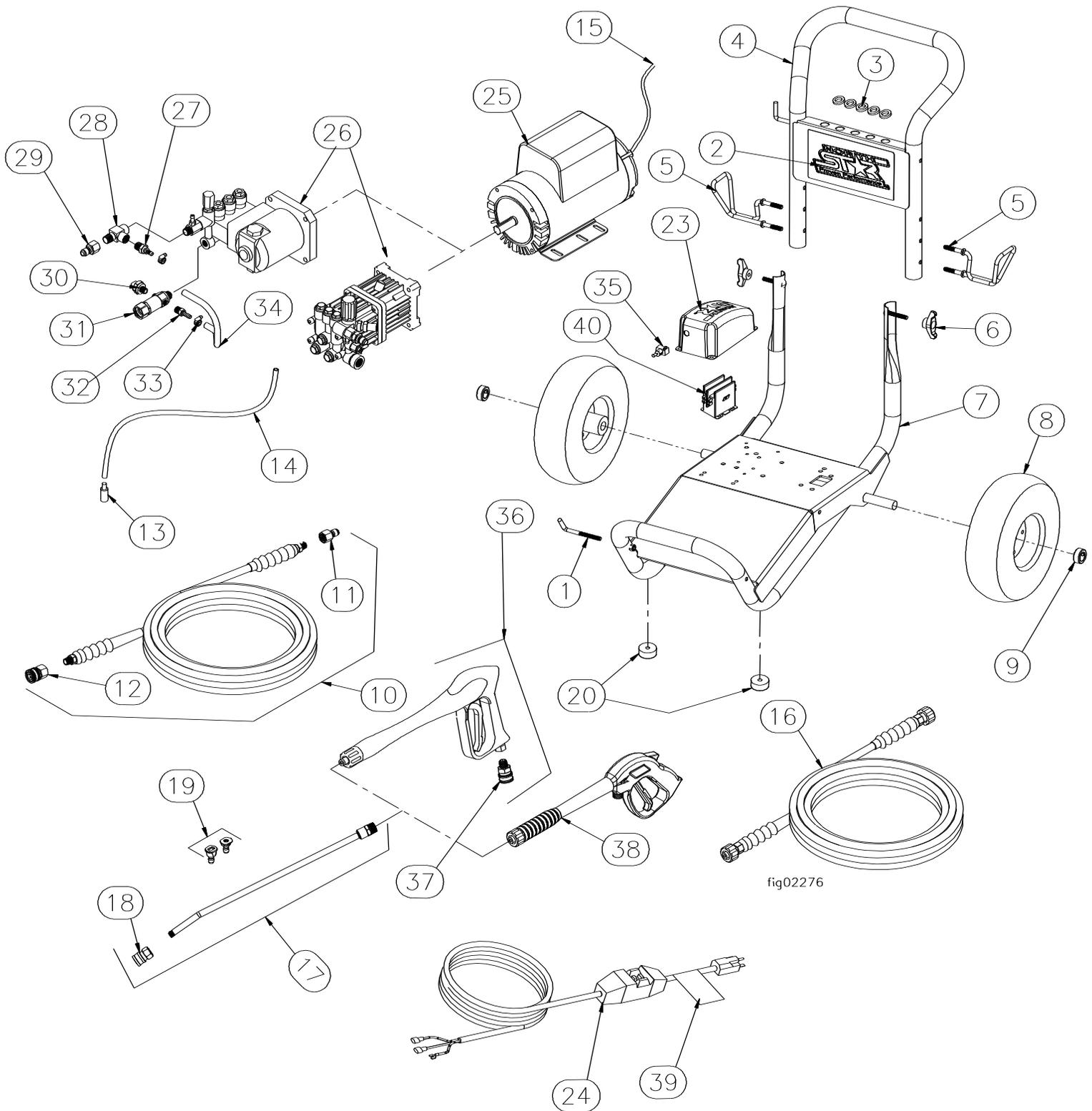
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Parts Explosion M1573001 Rev – E.1

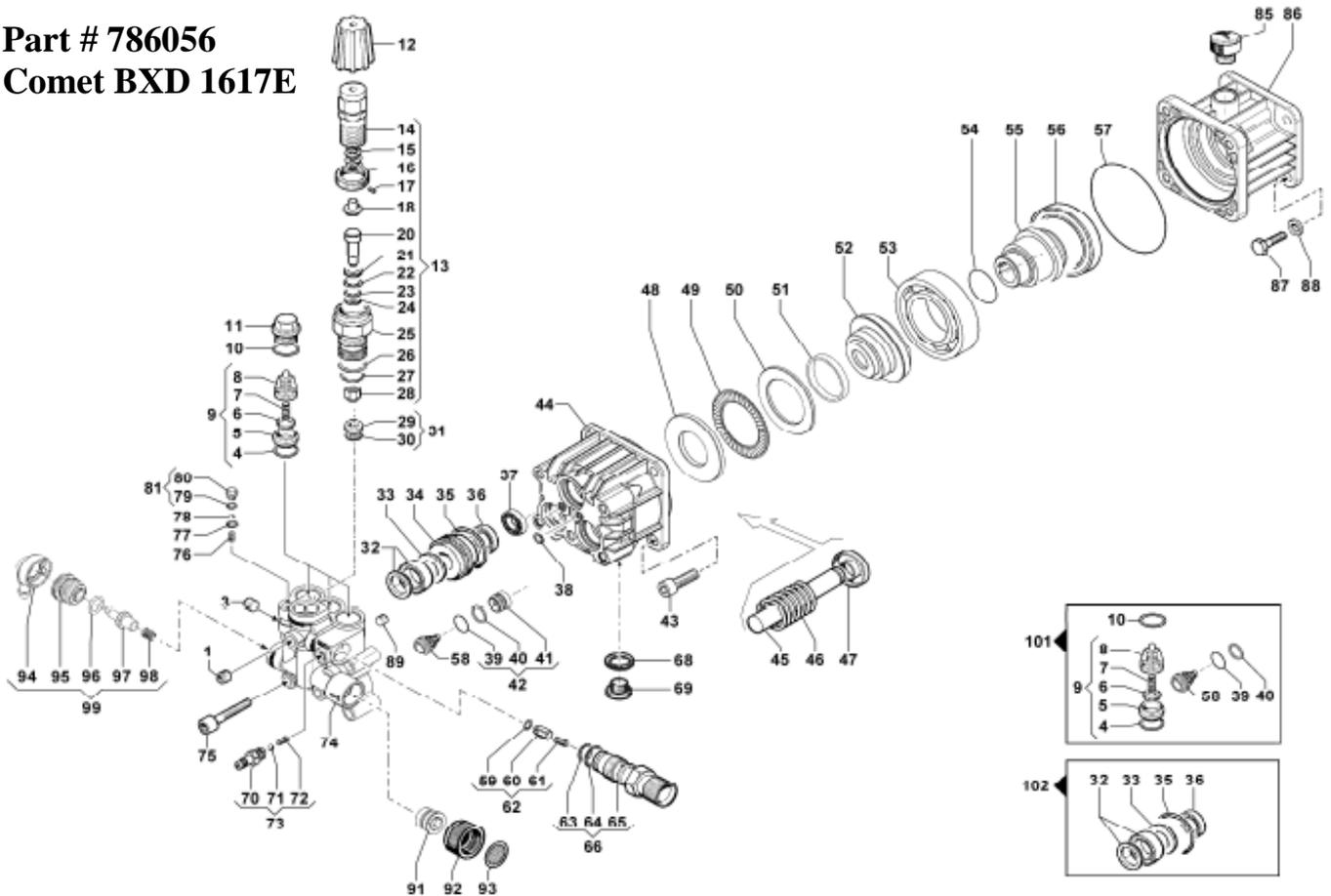


Parts Explosion M1573001 Rev – E.1

ITEM #	PART #	DESCRIPTION	QTY	MODELS
1	38509	Threaded Gun Hook	1	All
2	779826	NorthStar Decal	1	All
3	35198	7/16 ID Grommet	5	All
4	780223	Handle	1	All
5	779761	Hose/Cord Hook	2	All
6	38578	T-Handle Knob	2	All
7	779924	Base	1	All
8	2278	Tire Wheel Assembly	2	All
9	305200	Wheel Retainer	2	All
10	38524	5/16 x 25' Gray Hose	1	1573011,1573021
11	777915	3/8" Quick Connect Nipple	1	1573011,1573021
12	777914	3/8" Quick Connect Coupler	1	1573011,1573021
13	2212	Chemical Strainer	1	All
14	777165	1/4" Braided Chemical Hose	3 ft	All
15	778146	Motor Cord, 14-2 AWG SJTW	1	1573001
	778147	Motor Cord, 12-2 AWG SJTW	1	1573011,1573021
16	780841	1/4 x 25' Black Hose	1	1573001
17	779166	18.5" Lance	1	All
18	777904	1/4" Quick Connect	1	All
19	778150	Nozzle 2 pack #2.0	1	1573001,1573011
	38530	Nozzle 2 pack #3.0	1	1573021
20	2215	Bumpers	2	All
23	779564	Electric Control Box Cover	1	All
24	778140	GFCI Cord, 120V/15A	1	1573001
	778141	GFCI Cord 120V/ 20A	1	1573011
	778142	GFCI Cord, 240V/30A	1	1573021
25	777616	Motor, 1.5 HP Leeson	1	1573001
	777617	Motor, 2.0 HP Leeson	1	1573011
	778670	Motor, 5.0 HP Leeson	1	1573021
26	786056	Pump, Comet BXD 1617E	1	1573001
	778154	Pump, Cat 2DX	1	1573011
	38518	Pump, Cat 3DNX	1	1573021
27	38584	3/8' NPT Easy Start Valve	1	1573021
28	777347	6MP-6FP-6FP Tee Forged	1	1573021
29	777915	QC 3/8" Female Nipple	1	1573011,1573021
30	35918	Thermal Protector	1	1573011,1573021
31	38596	Inlet Filter	1	1573011,1573021
32	777340	1/4 MPT x 1/4 Hose Barb	1	1573021
33	777834	Hose Clamp - 1/4"	2	1573021
34	777165	1/4" Braided Bypass Hose	1 ft	1573021
35	777855	Toggle Switch	1	All
	5260	On-Off Plate	1	All
36	38527	Gun, Consumer, QC	1	1573011,1573021
37	313107	3/8" Male NPT Coupler	1	1573011,1573021
38	38526	Gun, 2700 PSI, 22mm	1	1573001
39	778070	Cord Warning	1	All
40	778151	DP Contactor 120V/25A	1	1573011
	778152	DP Contactor 230V/30A	1	1573021

Pump Exploded Views – Rev E.1

Part # 786056
Comet BXD 1617E



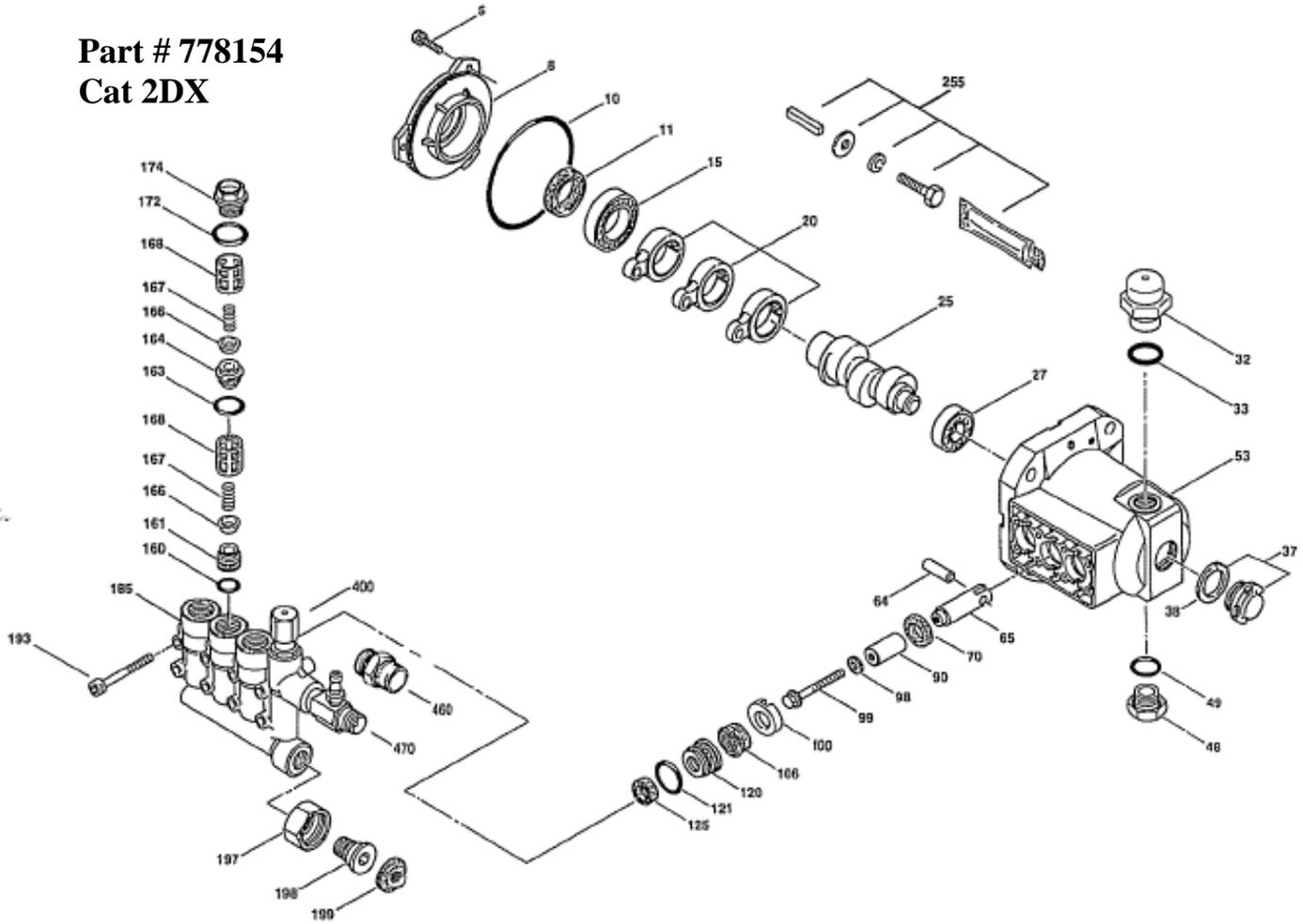
1	3202 0018	Tappo	Plug	G1/8"CONIC	1
3	3202 0018	Tappo	Plug	G1/8"CONIC	1
4	1210 0049	Guarnizione OR	O-Ring	Ø1,78x12,42	6
5	3009 0129	Sede Valvola	Valve Seat		6
6	3604 0028	Valvola Aspir./Mand.	Suct./Del. Valve		6
7	1902 0227	Molla Valv. Asp./Mand.	Suct./Del. Valve Spring		6
8	1205 0037	Gabbia Valv. Asp./Mand.	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	1917 0064	Manopola	Knob		1
13	1215 0391	Valvola Regolazione	Regulation Valve ass.y	130 Bar	1
14	0204 0073	Boccola	Bushing		1
15	1902 0282	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 0099	Granizione Tenuta	Water Packing	Ø14	3
33	0009 0262	Anello anti-estrusione	Anti-extr Ring		3
34	0009 0309	Anello Portaguarnizione	Packing Retainer		3

Pump Exploded Views – Rev E.1

35	1210 0071	Guarnizione OR	O-Ring	Ø1,78X 20,35	3
36	1241 0057	Guarnizione Bassa Pressione	Low Pressure Packing	ØU1 4x22x4	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 0581	Albero Eccentrico	Eccentric Shaft	4° 30'	1
53	0438 0103	Cuscinetto a Sfere	Ball Bearing	40X80X18	1
54	1210 0461	Guarnizione OR	O-Ring	Ø2,0X 32	1
55	0031 0017	Albero	Hollow Shaft	5/8"	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 0311	Elettore Detergente	Injector Body	EI Ø1,8 M22x1,5	1
66	3410 0319	Kit Elettore Detergente	Injector Body Kit	K EI Ø1,8 M22x1,5	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 0228	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	Ø1,78X5,28	1
80	3200 0103	Tappo Easy-Start	Easy-Start Plug		1
81	3200 0104	Kit Tappo Easy-Start	Easy-Start Plug Kit		1
85	3200 0122	Tappo Olio	Oil Cap		1
86	3002 0624	Supporto	Support		1
87	3607 0168	Vite Testa Esagono	Exagonal Screw	3/8" - 16 UNC 1"	4
88	2811 0002	Rondella	Washer	Ø10,5x20x2	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 0671	Kit Guarnizioni Pistoni	Piston Seal Kit		1

Pump Exploded Views – Rev E.1

Part # 778154
Cat 2DX



PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY	ITEM	P/N	MATL	DESCRIPTION	QTY
5	547161	STZP	Screw, HH (M6x14)	3	163	19285	NBR	O-Ring, Seat - 70D	3
8	547153	AL	Cover, Bearing	1	164	545178	S	Seat, Discharge	3
10	14041	NBR	O-Ring, Bearing Cover - 70D	1	166	46764	S	Valve	6
11	55337	NBR	Seal, Oil - 70D	1	167	46865	S	Spring	6
15	14488	STL	Bearing, Ball	1	160	13965	NBR	O-Ring, Inlet Valve Seat - 70D	3
20	547048	TNM	Rod, Connecting	3	161	545177	S	Seat, Inlet	3
25	545144	CM	Crankshaft, 3450 RPM, 5/8", 3.0 mm	1	168	543988	PVDF	Retainer, Spring	6
27	13832	STL	Bearing, Ball	1	172	142807	NBR	O-Ring, Plug - 90D	3
32	547961	RTP	Cap, Oil Filler [01/04]	1	174	46759	BB	Plug, Valve (M20x1.5)	3
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	1	185	542973	BS	Head, Manifold w/Modular Unloader Body	1
37	92241		Gauge, Bubble Oil w/Gasket	1	193	542406	STZP	Screw, HSH (M6x60)	8
38	44428	NBR	Gasket, Flat Flex, Oil Gauge - 80D	1	197	—	NBR	Nut, Swivel (3/4" FGHIIF)	1
48	44842	NY	Plug, Drain	1	198	—	BB	Fitting, (3/8" NPT)	1
49	14179	NBR	O-Ring, Drain Plug - 70D	1	199	46489	—	Screen, Inlet	1
53	542407	AL	Crankcase	1	255	30516	STZP	Assy, Bolt Mount, ELECTRIC	1
64	46229	CM	Pin, Crosshead	3	34100	STZP	Screw, HH (3/8"-16UNCx1-3/8")	4	
65	542402	BBCP	Rod, Plunger	3	30980	STZP	Washer, Flat (3/8")	4	
70	47215	NBR	Seal, Oil - 70D	3	30921	STZP	Lockwasher (3/8")	4	
90	542403	CC	Plunger (M16x27)	3	6106	—		Lubricant, Antiseize	1
98	46730	NBR	Washer, Seal - 90D	3	34050	STL	Key (3/16x3/16x27 HD)	1	
99	542405	S	Retainer, Plunger (M6x35)	3	300	33053	NBR	Kit, Seal (Incls: 98,106,121,125)	1
100	46233	NY	Retainer, Seal	3	310	33057	NBR	Kit, Valve (Incls: 160,161,163,164,166,167,168,172)	1
106	48222	NBR	Seal, LPS w/S-Spg - 85D	3	400	—		Unloader, Modular (See Indiv. Parts)	1
120	46436	BB	Case, Seal	3	460	107681	BB	Fitting, Discharge (3/8" NPTM)	1
121	13976	NBR	O-Ring, Seal Case - 70D	3	470	—		Injector, Chemical (See Indiv. Parts)	1
125	46240	NBR	Seal, HPS w/S	3					

Italics are optional items. See Tech Bulletins 002, 024, 036, 043, 055, 074, 083, 086 and 094 for additional information. [] Date of latest production change.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CM=Chrome-moly NBR=Medium Nitrile (Buna-N)

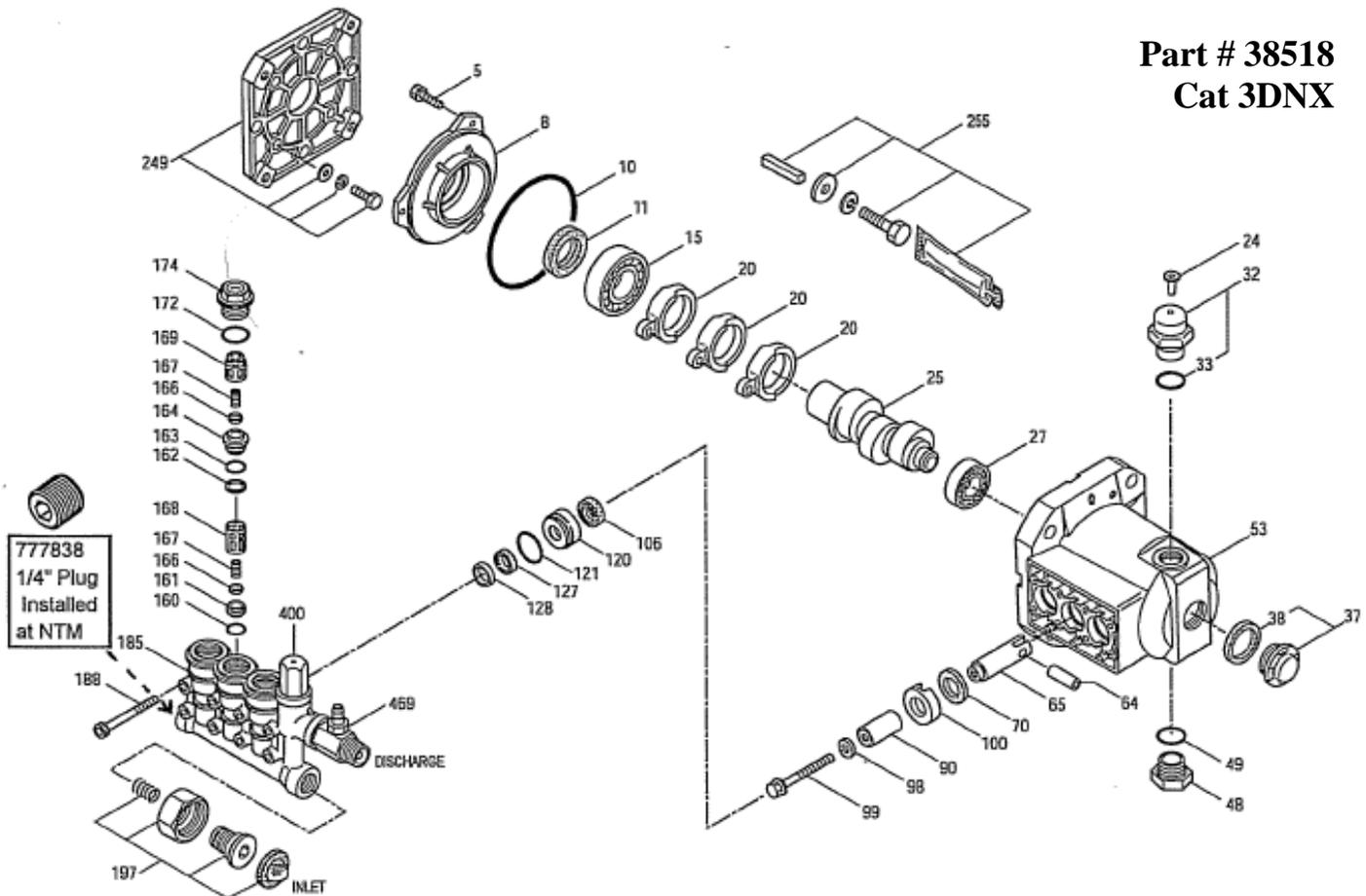
NY=Nylon PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength

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

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.

Pump Exploded Views – Rev E.1

Part # 38518
Cat 3DNX



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	46865	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 - 90D	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	549062	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	BBCP	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 (M6)	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		6108		Lubricant, Antiselze	1
127	547082	SNG	V-Packings	3		34050	STL	Key (3/16x3/16x27 HD)	1
128	547083	PVDF	Adapter, Male	3	300	31684	NBR	Kit, Seal (Incls: 98,106,121,127,128)	1
160	17428	NBR	O-Ring, Inlet Seat - 80D	3	310	31647	NBR	Kit, Valve (Incls: 160,161,162,163,164,166,167,168,169,172)	1
161	547077	S	Seat, Inlet	3				Unloader, Integral (See Individual Parts)	1
162	48361	D	Back-up-Ring, Discharge Seat	3	400			Injector, Chemical Fixed	1
163	43358	NBR	O-Ring, Discharge Seat - 70D	3	469	7332	BB		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 BBCP=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.

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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
1573001	1 year from date of purchase by user
1573011, 1573021	2 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
Northern Tool + Equipment Co.,
2800 SouthCross Drive West
P.O. Box 1499 Burnsville, MN 55337-0499