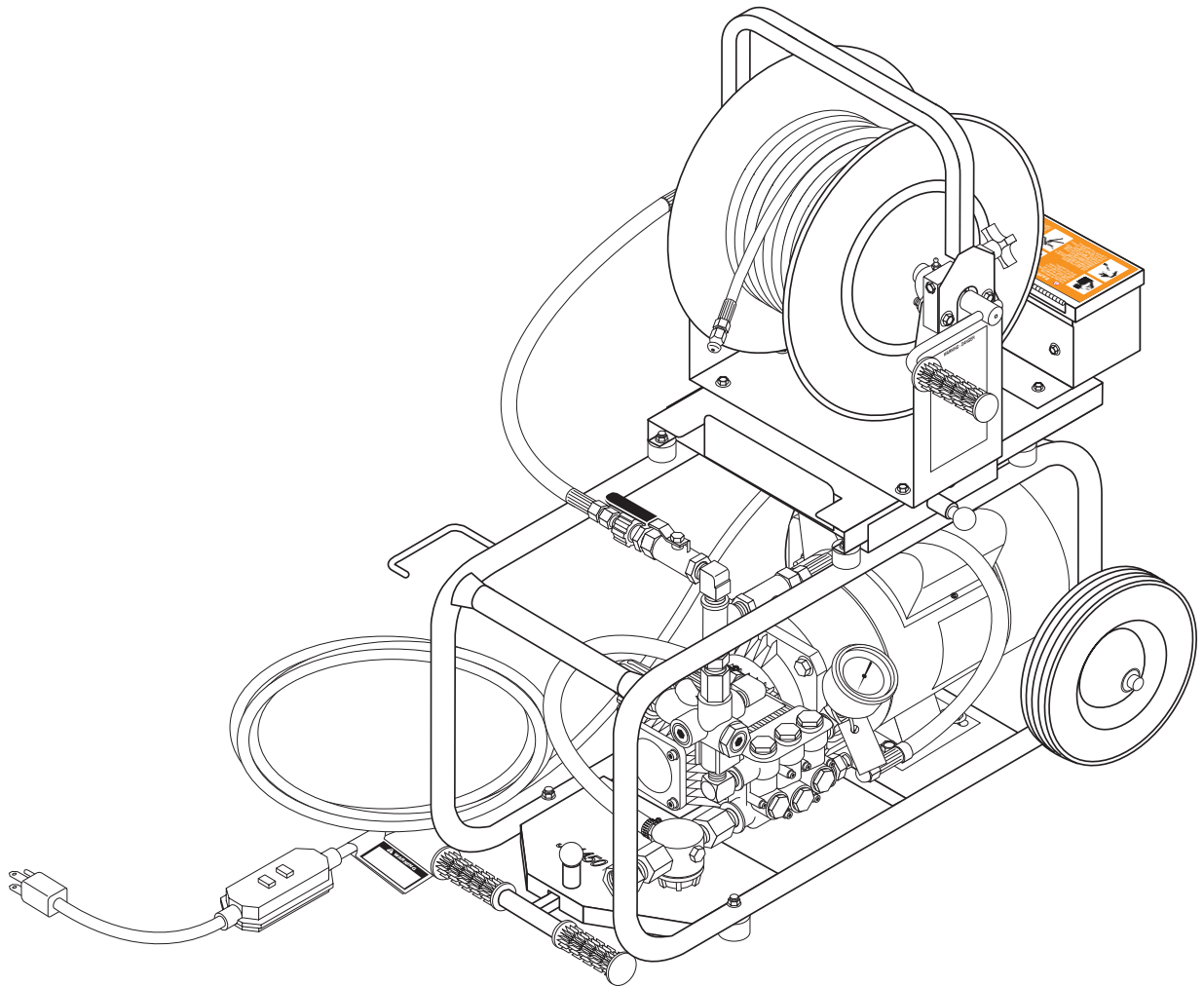


General's JET SET™

OPERATOR'S MANUAL

J-1450



General Wire Spring Co. ■ USA ■ 1-412-771-6300 or 1-800-245-6200

Any alteration to equipment without prior written approval of the manufacturer will cancel any warranty or liability extended to the purchaser by manufacturer. For approval or assistance contact General Wire Spring Co.

8.914-323.0 / 97-6116

CONTENTS

Introduction & Machine Safety Information..... 3

Assembly 4

Pre-Operation Check..... 4

Set-up Procedures..... 4, 7-8

Component Identification & Use, Drain Cleaning 5

Component Identification & Use, Drain Cleaning through Roof Vent..... 6

Operating Instructions 8-9

Maintenance 9

Exploded View, J-1450 10

Exploded View, Parts List J-1450 11

Pump Exploded View..... 12

Pump Exploded View Parts List..... 13

HR-200W Handy Reel with Foot Pedal 14

Hose and Spray Gun Assembly..... 15

Troubleshooting 16-17

Warranty 18

Model Number _____

Serial Number _____

Date of Purchase _____

The model and serial numbers will be found on a decal attached to the machine. You should record both serial number and date of purchase and keep in a safe place for future reference.

INTRODUCTION

Thank you for purchasing a General's Jet Set™.

This manual covers the operation and maintenance of model J-1450. All information in this manual is based on the latest product information available at the time of printing.

General Wire Spring Co. reserves the right to make changes at any time without incurring any obligation.

Owner/User Responsibility:

The owner and/or user must have an understanding of the manufacturer's operating instructions and warnings before using this General's Jet Set. Warning information should be emphasized and understood. If the operator is not fluent in English, the manufacturer's instructions and warnings shall be read to and discussed with the operator in the operator's native language by the purchaser/owner, making sure that the operator comprehends its contents.

Owner and/or user must study and maintain for future reference the manufacturers' instructions.

This manual should be considered a permanent part of the machine and should remain with it if machine is resold.

When ordering parts, please specify model and serial number.

MACHINE SAFETY



CAUTION: To reduce the risk of injury, read operating instructions carefully before using.

1. Read the owner's manual thoroughly. Failure to follow instructions could cause malfunction of the unit and result in death, serious bodily injury and/or property damage.
2. All installations must comply with local codes. Contact your electrician, plumber, utility company or the selling distributor for specific details. To comply with the National Electrical code (NFPA 70) and provide additional protection from risk of electric shock, the machines are equipped with a UL approved ground fault circuit interrupter (GFCI) power cord.



WARNING: Flammable liquids can create fumes which can ignite causing property damage or severe injury.

WARNING: Risk of explosion -- do not spray flammable liquids.

3. Risk of explosion - do not spray flammable liquids or operate in an area where flammable or explosive materials are used or stored.



WARNING: Keep water spray away from electric wiring or fatal electric shock may result.

4. To protect the operator from electrical shock, the machine must be electrically grounded. It is the responsibility of the owner to connect this machine to a UL grounded receptacle of proper voltage and amperage ratings. Do not spray water on or near electrical components. Do not touch machine with wet hands or while standing in water. Always disconnect power before servicing.

5. Grip cleaning wand or hose securely with both hands before starting the cleaner. Failure to do this could result in injury from a whipping wand or hose.



WARNING: High pressure stream of fluid that this equipment can produce can pierce skin and its underlying tissues, leading to serious injury and possible amputation.

6. High pressure developed by these machines will cause personal injury or equipment damage. Use caution when operating.

Do not direct discharge stream at people or severe injury or death will result.

7. Never make adjustments on machine while in operation.



WARNING: High pressure spray can cause paint chips or other particles to become airborne and fly at high speeds.

8. Eye safety devices, foot protection and protective clothing must be worn when using this equipment.
9. Do not operate with the valve in the off position for extensive periods of time as this may cause damage to the pump.
10. The best insurance against an accident is precaution and knowledge of the machine.
11. General Wire Spring Co. will not be liable for any changes made to our standard machines or any components not purchased from General Wire Spring Co.
12. Be certain all fittings are secured before using Jet Set™.
13. Never run pump dry.
14. Inlet water supply must be cold and clean fresh water.
15. Do not allow children to operate the General's Jet Set™ at any time.
16. Protect from freezing.

17. When the machine is working, do not cover or place in a closed space where ventilation is insufficient.

ASSEMBLY

Upon arrival, inspect the shipping crate for damages. Un- crate and examine all parts. Note any damage to machine or components for claims against freight carrier.

Jets have antifreeze in the pump to protect it from freezing conditions during shipment and storage. If machine will be stored and operated in a cold climate, follow Freeze Protection instructions on page 9.

PRE-OPERATION CHECK

- Pump oil (SAE 30W non-detergent oil)
- Cold clean fresh water supply (6 gpm • 5/8" (15.875mm) • 20 psi)
- Hose, nozzle
- Water filter (intact, non-restrictive)

SET-UP PROCEDURES

These machines are meant to be used at or near the working area and under operator supervision. If machine must be located out of sight of operator, special controls may be required for proper machine operation and operator safety.

Locate the equipment on a solid level area with slopes for drainage. Avoid areas where water can be sprayed at machine.

Before using the jet, make sure there are no impurities in the incoming water supply. Turn the water source on for at least 15 seconds, to remove any possible debris in the water before connecting hose to water inlet swivel.

The inlet screen located inside the filter should be cleaned before each use. To clean the inlet screen, unscrew cap beneath the filter, remove the screen and rinse thoroughly with water. Then replace screen.

Connect one end of a garden hose (not included) to the water faucet — water supply not to exceed 100 psi (6.9 Bar) and the other end to the water inlet of the jet machine. (See component identification drawings on next pages.) Use heavy duty 3/4" hose of no more than 50 ft. (15m) in length. If run without an adequate water supply, the pump will cavitate. Cavitation causes the pump to vibrate, causing damage to the pump. **Note:** Lack of water supply can lead to seal damage, causing a loss of pressure and will void the warranty to the pump.

Maximum temperature from the water source should not exceed 140°F (60°C). Using water hotter than 140°F (60°C) can cause damage to the pump and void the warranty. If jet is being used to clear ice blockages, see instructions on page 8.

Remove oil plug on top of pump and replace with dipstick supplied.

Hose Selection Guide

Select the proper hose diameter for the line to be cleaned. When using new hose, run water through it to clean it out before attaching the nozzle.

Hose Size (ID)*	Pipe Size	Typical Applications
3/8" or 5/16" (9.925mm to 7.938mm)	4" to 8" (102mm to 203mm)	Floor drains, septic lines, long runs
1/4" (6.350mm)	2" to 4" (51mm to 102mm)	Kitchen sinks, laundry drains, clean outs
1/8" (3.175mm) <small>* Inside Diameter</small>	1-1/2" to 2" (38mm to 51mm)	Small lines, bathroom sinks, tight bends

When selecting hose size, consider that pressure is lost as the water travels down the length of the hose. As the length increases, the pressure decreases. In addition, the smaller the diameter of the hose, the greater the loss of pressure per foot will be. As an example, at 2 GPM (.13L/sec) a 1/4" (6.350 mm) hose will lose 180 lbs. (12.4 bar) of pressure over 100 ft. (30.5m) of hose, yet a 3/8" (9.925mm) hose will only lose 25 lbs. (1.7 bar) of pressure over the same length and at the same flow rate. At 4 GPM, a 3/8" hose will lose 90 lbs. (6.2 bar) of pressure over a 100 ft. (30.5m) length. The gauge reflects pressure from the pump only, not pressure at the end of the hose. It is important to select the largest possible hose size in order to have as much pressure as possible at the end of the hose.

Hoses of the same diameter may be coupled together using the CC-1 coupling, but it is not recommended for use in lines smaller than 8" (203mm) in diameter. The long length of the hose connectors and coupling together can get caught in bends in the line.

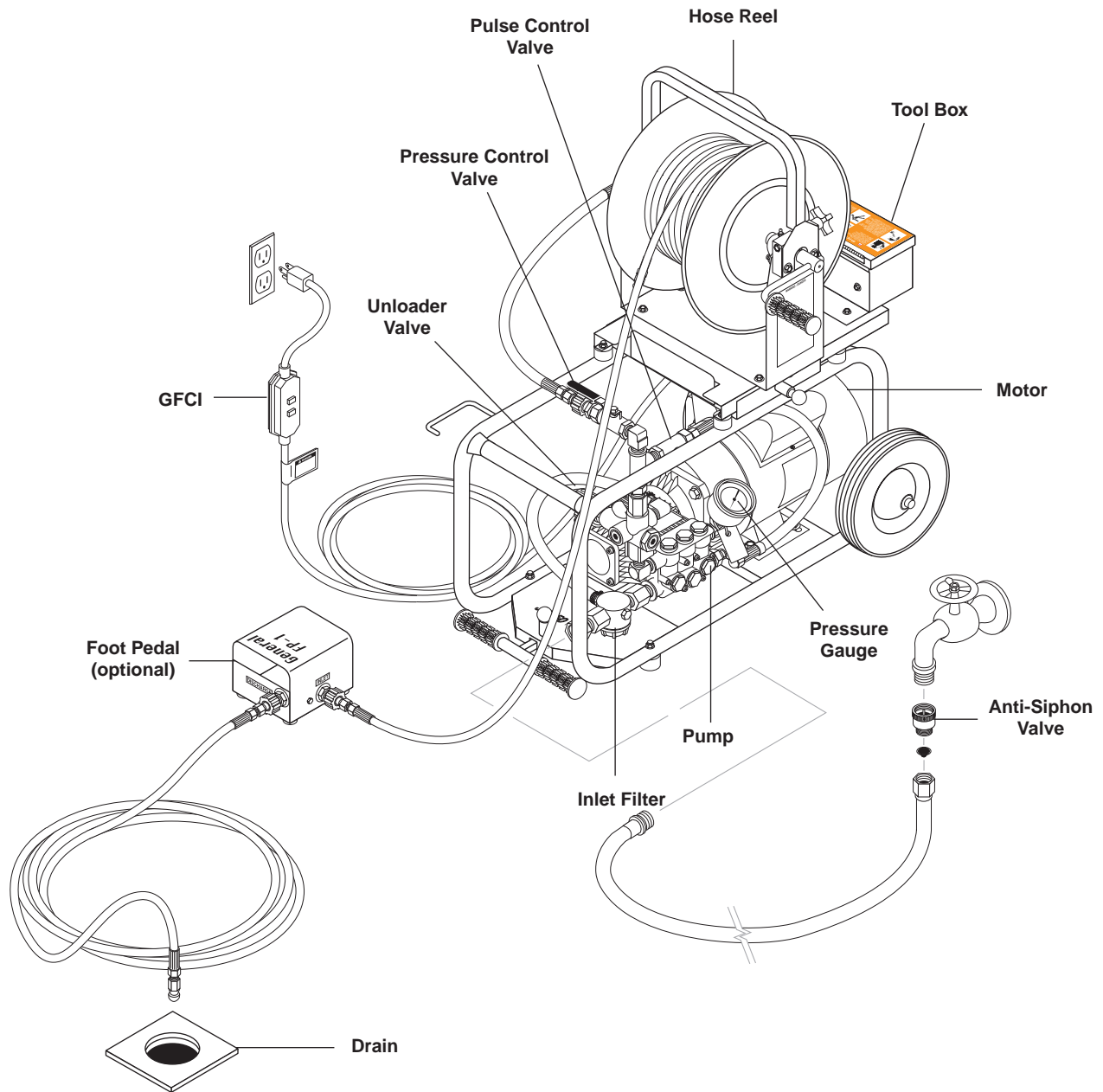
Coupling two different size hoses can be done through the spray wand trigger or foot pedal.

It is not advisable to have two different hose sizes coupled in a drain line. There is a tremendous loss of pressure when combined, aside from the difficulty of getting around bends.

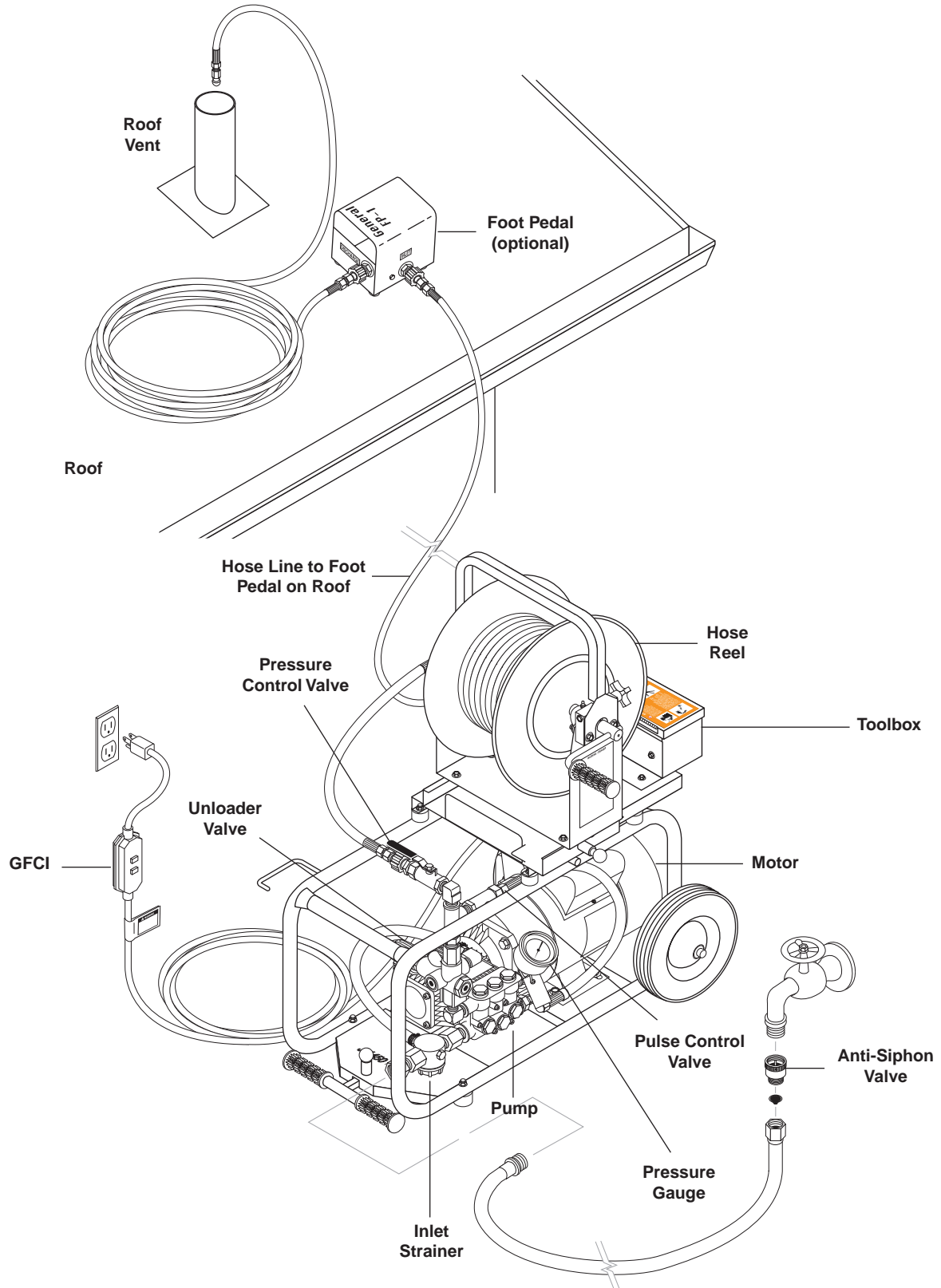
The 3/8" (9.925 mm) and 1/4" (6.350 mm) hoses may be attached to the fitting in the core of the hose reel using the swivel at one end of the hose. The 3/8" hose may also be attached directly to the accessory outlet by using a twist connect. The 1/4" and 1/8" (3.175mm) hoses may be connected directly to the accessory outlet if an adapter fitting (AD-1 or AD-2) is used between the hose and quick connect. Adapters may be ordered separately.

Often, the 1/8" hose is used in conjunction with the spray wand trigger to give the operator finger tip control. Remove the spray wand from the trigger and attach the 1/8" hose using the AD-3 adapter.

COMPONENT IDENTIFICATION AND USE DRAIN CLEANING



COMPONENT IDENTIFICATION AND USE DRAIN CLEANING THROUGH ROOF VENT



A foot pedal FP-1 valve is available that can be used as a safety shut-off valve for all hose sizes. See foot pedal section for installation and operating instructions.

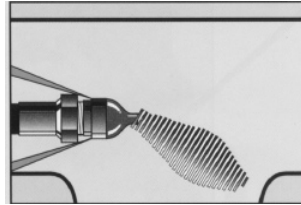
Nozzles

A number of types of nozzles are available for drain cleaning. Each has a different spray pattern. Some nozzles may have a hole in the front to cut through the stoppage. All will have holes in the back to drive the hose down the line and clean the walls of the pipe. A tight spray pattern (15°) has more driving power for long runs, a wide spray pattern (40°) does a better job of cutting the grease off the walls of the pipe. A combination of nozzles may be required to clear a line. Always turn off the machine and shut off valve before changing nozzles.

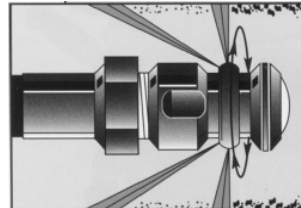
Make sure the nozzle you are using matches the pump size. A 3000 psi (207 bar) pump requires a different nozzle orifice than a 1500 psi (104 bar) pump. Mismatching nozzles with pump size will either cause too little pressure which may not clear the drain, or too much pressure which may damage the machine.

Check nozzles before and after each use for clogged holes which can cause pressure to increase to dangerously high levels and damage the pump. A clogged hole can be cleared by simply using the NCT Nozzle Cleaning Tool.

Use the nozzle selection guide to determine what nozzle you will need for various applications. Example: If a nozzle is stamped #22, it is a JN-22, 15° rear jets, 2 GPM (.13L/Sec) @ 1500 PSI (104 Bar) with a forward cutting jet.



Downhead nozzle takes hose down Tee's and around difficult corners.

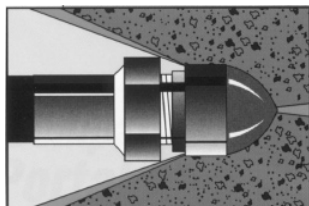


Rotary nozzle scours walls of pipe crystal clear

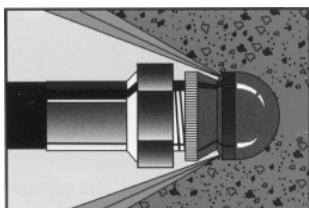
NOZZLE SELECTION GUIDE

	1/8"	1/4"	3/8"
15° No Forward Jet	1	11	21
15° w/Forward Jet	2	12	22
30° No Forward Jet	3	-	-
40° No Forward Jet	-	14	24
Spring Leader (JNSL)	1	2	3
Rotary Nozzle	-	2	-

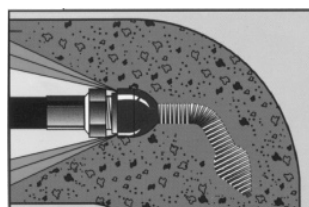
* Rotary Nozzles can be adapted to 1/8" and 3/8" hose using AD-3 or AD-4 adapters



Powerful penetrating nozzle cuts through grease and ice.



Wide spray flushing nozzle cleans inside of pipe thoroughly.



Spring leader nozzle gets hose around tight bends and P-traps

Spring leader nozzles and down head nozzles are special nozzles to help aid hose travel through the pipe when there are a lot of curves and bends.

Rotary Nozzles

Rotary nozzles are useful as a finishing tool. After the line has been cleared, you may switch to the rotary nozzle to more thoroughly clean the walls of the pipe. Use these nozzles only in a predominantly straight run since they are longer than regular nozzles and may get caught in tight bends.

Pre-Operation Checklist

- ___ Be sure you understand all safety precautions and have been trained to use the machine.
- ___ Wear goggles or a face shield to protect your eyes from spray or from any product of the spray.
- ___ Wear gloves, rubber boots and other protective clothing as required.
- ___ Be sure you understand all safety precautions for the detergent use.
- ___ Check the labels of any substance you will spray. If the label recommends any antidote or treatment, be ready to use it.

- ___ Check that all lines and hoses are clear.
- ___ Check that the machine is connected to an adequate water supply and that the water supply is on.
- ___ Check that traffic has not made the hose weak, worn or damaged. Check the hose for pinching or kinking.
- ___ Replace any damaged hose.
- ___ Tighten all fluid connections securely.

OPERATING INSTRUCTIONS

- Check all hoses for wear and damage. Tighten all connections securely.
- Check oil level of pump.
- To begin, turn the water faucet on fully and purge air from system.
- Insert end of the jet hose 2 to 3 feet into the drain line. Then turn the valve on.

Warning: Never point the end of the jet hose at a person while operating.

Start-Up

1. Make sure that the ball valve is turned on and the water is flowing.
2. Plug in GFCI power cord to proper receptacle and voltage.
3. Hold on to hose firmly to prevent hose from whipping around.
4. Turn motor switch on.

Vibra-Pulse

Pulsation makes the hose vibrate, helping the jet go longer distances and around tight bends easier.

The pulse control valve is located on the front of the pump. Simply turn the valve on to engage the pulse.

The pulse causes a pressure drop when it's engaged. The pulse is most effective in a 1/8" hose. You'll note less vibration with a 1/4" hose and almost none with a 3/8" hose. However the pulse is still effective, causing the water to burst from the nozzle hundreds of times per second.

If you are still having difficulty getting a hose around a tight bend, switch to a smaller diameter hose.

Turn the pulse off before turning machine off.

Shut Down Instructions

After drain cleaning or spray washing is completed, run clear water through the system. Always leave ball valve in open position when turning off motor. Turn off water supply and drain as much water from pump as possible. Remove water supply hose from inlet. If you are in a cold climate, see Freeze Protection.

Handy-Reel

Position the reel at the drain site. Connect the jet machine to the inlet on the reel. Select and attach a nozzle to the hose on the reel. Put the hose 2 to 3 ft. into the drain line. Open the ball valve on the reel. Follow the start up procedures.

Foot Pedal (Optional)

The foot pedal is used with any jet manufactured by General (see pages 5,6). It interrupts the flow of water between the pump and the nozzle while leaving both hands free to guide the hose. The pump will continue to run in by-pass mode. Do not leave pump in by-pass for more than a few minutes or the pump can be damaged. (See Regulating Pressure Unloader).

The foot pedal may be hooked up either at the machine or remotely at the drain site. To use the foot pedal at the machine, remove the hose going to the swivel on the hose reel and attach it to the inlet side of the foot pedal. Then, connect the accessory hose (6AHW) between the outlet of the pedal and the swivel on the hose reel. Some jet models may need the added length of the accessory hose on the inlet side of the pedal.

For remote hookup, pull the hose from the hose reel to the drain site. Attach the hose to the inlet of the pedal. The pedal is designed for 3/8" hose fittings. If using a 1/4" hose, use the AD-1 as well. Then attach the smaller hose (1/8" or 1/4") to the outlet side of the pedal. Use the smaller hose to clear the drain line.

Ice Blockages

High pressure water can be used to clear an ice blockage. A 3000 PSI (207 Bar) gas jet can clear a 4" (102mm) line at an approximate rate of one foot per minute. The smaller electric jet will take twice as long. Ambient air temperature will effect these times. Use a 15° nozzle with a forward jet. DO NOT allow the incoming water supply to exceed 140°F (60°C) or it could cause damage to the pump. Remember to follow the cold weather precautions found in the freeze protection section.

Spray Wand (Optional)

Follow the same procedures listed previously for safety, set-up, operation and maintenance. To operate the spray wand, connect the high pressure hose and trigger to the machine. Turn on the water supply, then squeeze the trigger to purge air from the system. Continue to squeeze trigger as you start the machine.

Use caution when pressure washing. Wear goggles and rubber gloves and boots. Analyze angle of spray and anticipate angle of back splash. Do not point spray at anyone including yourself. Do not put your hand in front of water spray. It can penetrate the skin and cause a need for amputation. It is best to start at a 45° angle at a 7 to 10 ft. (2 to 3m) distance from object to be cleaned. Direct spray at close range can be powerful enough to cause damage.

NOTE: Typical industry standard stipulates you hold the high pressure spray nozzle approximately 6-8" from the surface to be cleaned. When cleaning with a detergent, apply from bottom up with an even left to right movement. Rinse from top down with a similar motion. This will help reduce potential streaking. Always apply soap to a dry surface. This will enhance penetration and detergent cling and reduce dilution of detergent with an already wet surface.

If you have the dual-lance wand (optional with the J-1450) you may draw detergents through the spray wand in conjunction with the detergent injector mounted on the machine. First set up the detergent injector system (see Detergent Injector).

Then simply turn the knob on the wand counterclockwise so that water is flowing through the wide spray nozzle. To spray water only, turn the knob to the clockwise position so that the water flows through the narrow spray nozzle.

The spray wand option with the other jets may also be used to spray detergent. To do so, simply turn the nozzle on the end of the wand counterclockwise. As the spray widens, more of the detergent will be drawn through the wand. Turn the nozzle clockwise to reduce the detergent flow and narrow the water spray pattern and return to high pressure.

Detergent Injector (Optional)

The detergent injector is an option with the J-1450 and can be attached to the free end of the ball valve. Do not attach detergent injector to the inlet side of the pump. Detergents can damage pump.

To use the detergent injector, attach one end of siphon hose to the injector and put the filter end in the detergent solution. Be sure the end of the hose is at the bottom of the container or bucket. Some models have adjustable valves to control the amount of detergent drawn through the hose.

Remember: Do not use corrosive material. See warning previously listed.

Regulating Pressure Unloader

The machine is equipped with a regulating pressure unloader to prevent pressure overload in the event that the nozzle is plugged or the ball valve or trigger is shut off. When the machine is in the by-pass mode, the pump will continue to run. However running in by-pass mode for extended periods will cause damage to the pump; no more than 5 minutes with the J-1450 pump. Excessive temperatures will damage the pump and void the warranty.

The machine also comes with thermal overload protection. When water temperature in pump increases to 140°F (60°C), the thermal relief valve will release hot water and allow cool water to enter pump from fresh water supply.

To adjust unloader, loosen lock nut and turn the knob clockwise to increase pressure and counterclockwise to decrease pressure. **Caution:** Do not overtighten unloader. Tighten lock nut after adjustments are made.

Freeze Protection

To protect your machine from severe damage caused by water freezing inside the components, it is important to winterize it whenever it is subjected to freezing temperatures.

The best way to protect the system is to keep it out of the cold. Barring that, the next best way is to flush the system with anti-freeze. To do so, simply attach a short garden hose (not to exceed four feet) to inlet on the pump and put other end into the anti-freeze container. Be sure to remove the nozzle from the hose. Turn the machine on to draw anti-freeze into the system. When anti-freeze flows out of the end of the hose, turn the machine off. Connect high pressure hose and trigger and follow above procedure. Cycle trigger on/off so that the anti-freeze will flow into unloader and injector section of machine.

When preparing to operate equipment the next time, remove the anti-freeze. To do so, reconnect water source, turn pump on and direct flow of anti-freeze back into container. Be careful not to dilute anti-freeze with incoming water supply. Anti-freeze, if kept relatively undiluted can be used again and again.

Hoses can also be protected from freezing by using compressed air to clear them of residual water. Remember to remove nozzle from jet hose and hold trigger of spray wand in open position.

MAINTENANCE

Regular inspection is the key to preventing breakdowns and prolonging the life of the equipment. Follow this simple procedure religiously.

DAILY

Check that the water supply is adequate.

Check that the nozzle on the spray wand is not clogged or worn out.

Check that the PUMP OIL LEVEL is within operating range on dipstick or sight glass.

Check the INLET FILTER.

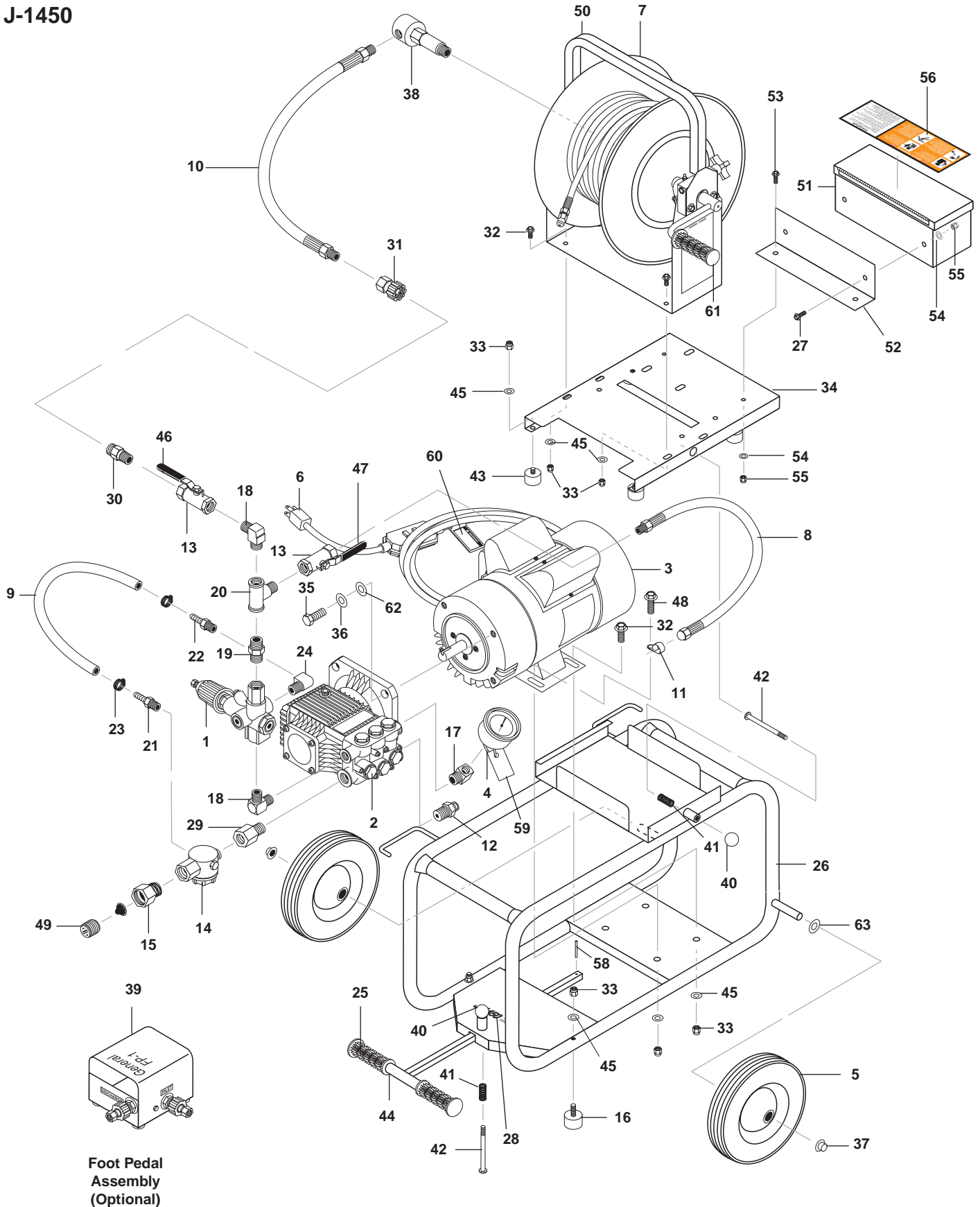
WEEKLY

Check the PRESSURE HOSE for wear and damage. Damaged hose can be repaired at a local service dealer or by your equipment dealer.

Pump Crankcase Oil Change: Service after the 1st month or after 20 hours. Then service every year or 500 hours. Use SAE 30W Non-Detergent Motor Oil to full mark on dipstick or to dot on sight glass.

EXPLODED VIEW

J-1450



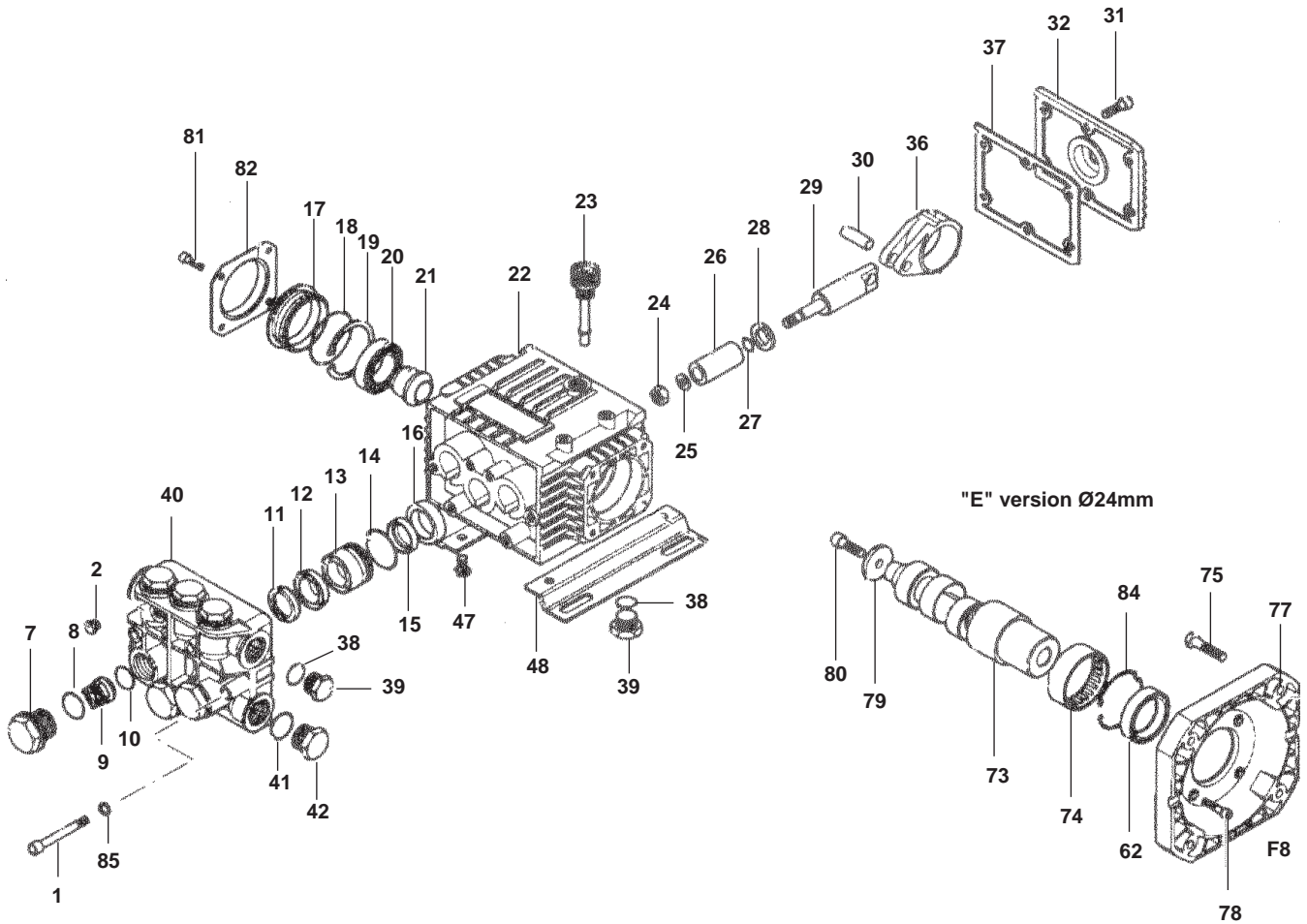
EXPLODED VIEW PARTS LIST

J-1450

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	5-3210	Unloader, AL605, 7.8 GPM @1500 PSI	1	29	2-1100	Adapter, 1/2" x 1/2" Pipe	1
2	5-2248	Pump, AR XTA2G15EBA-F8, Elect 1725 RPM	1	30	2-2115	Plug, QDISC. 3/8" M x 22MM	1
3	5-1004M	Motor, 1.5 HP 1 PH 1725 RPM, Magnetek TEFC	1	31	2-2113	Coupler, 3/8" Female Screw-Type 7640	1
4	4-05001	Gauge, Pressure, Panel Mount, 0-2000 PSI	1	32	90-19713	Screw, 5/16" x 3/4" Whiz	7
5	4-03051	Wheel & Tire, 8" x 5" Rim, Pneumatic	2	33	90-2001	Nut, ESNA, 5/16"	14
6	6-010621	GFCI, 125V, 15A, w/37', 12-3 Cord 1		34	95-07103106	Bracket, Hose Reel Mnt	1
7	4-02751016	Hose Reel, 13" General Wire	1	35	90-1017	Bolt, 3/8" x 1" NC HH	4
8	4-02157725	Hose, Pulsation, 24"	1	36	90-4009	Washer, 3/8" , Lock, Split Ring	4
9	4-02110000	Hose, 1/2" Push-on (15.5")	1	37	90-200421	Cap, 1/2" Axle	2
10	4-02037819	Hose, 3/8" x 19", 1 Wire, 3/8" MPT x 3/8" MPTS	1	38	4-027510281	Swivel, 3/8" x 3/8"	1
11	2-9016	Clip, Round, 0.56 I.D.	1	39	26-FP-1	Foot Pedal (optional)	1
12	2-30082	Pump Protector, 1/2" 140 Deg.	1	40	90-50047	Knob, Black Plastic	2
13	2-30026	Valve, 3/8" Ball, Brass, Gen. Wire 2		41	90-5024	Spring, 0.31 OD x 1.00 Steel	2
14	2-1923	Strainer, 1/2" Inline	1	42	90-10005	Screw 1/4" x 1-5/8" SHDR	2
15	2-10942	Swivel, 1/2" MP x 3/4" GHF w/Strainer	1	43	2-01022	Bumper, Rubber 1" w/Bolt	4
	2-30062	▲ Valve, Anti-Siphon, Watts 8B11		44	95-07103101	Handle	1
16	2-01015	Bumper, Rubber 1" w/Bolt, 5/16" x 1-1/4"	2	45	90-4001	Washer, 5/16"	14
17	2-00272	Elbow, 3/8" MPT x 1/4" FPT, Steel	1	46	2-01215	Cover, Handle, General	1
18	2-00270	Elbow, 3/8" Male, Pipe	2	47	2-01216	Cover, Handle, Vibra-Pulse	1
19	2-0006	Nipple, 3/8" Hex Steel	1	48	90-19716	Bolt, Whiz, 5/16" x 1"	1
20	2-0042	Tee, 3/8" Branch Male	1	49	2-01442	Plug, Plastic, 1"	1
21	2-008802	Hose Barb, 1/2" Barb x 1/4" MNPT Steel	1	50	95-07103105	Hose Reel Guard	1
22	2-008801	Hose Barb, 1/2" Barb x 3/8" MNPT, Steel	1	51	95-07103208	Tool Box, Orange	1
23	2-9002	Clamp, Screw #6	2		95-07103808R	Tool Box, Red	1
24	2-1023	Elbow, 3/8" Street	1	52	95-07103107	Bracket, Tool Box	1
25	2-011021	Grip, 7/8" Handle, Gen Wire		53	90-19710	Screw, 1/4" x 3/4", Whiz Loc	2
26	95-07103100	Assy, Frame, General, Orange	1	54	90-4000	Washer, 1/4", Flat	4
	95-07103100R	Assy, Frame, General, Red	1	55	90-2000	Nut, 1/4", ESNA	4
27	90-19711	Screw, 1/4" x 1/2, HH, NC, Whiz Loc	2	56	11-0112	Label, Warning/Danger	1
28	11-1007	Label, J-1450 w/Vibra Pulse	1	57	8.914-323.0	▲ Manual, General Jet Set, J-1450	1
				58	90-500341	Pin, Roll, 3/16 x 3/4, Steel	1
				59	11-3104	Tag, Water Temp to Pump	1
				60	10-08018	Label, Warning, Service Cord	1
				61	9.802-069.0	Grip, 1" Handle	1
				62	90-4002	Washer, 3/8" Flat	4
				63	90-4005	Washer, 3/8" Flat, Sae	2

▲ Not Shown

PUMP MODEL NO. AR XTA2G15EBA-F8
JET SET MODEL J-1450 PART #5-2248



PUMP MODEL NO. AR XTA2G15EBA-F8 JET SET MODEL J-1450 PART #5-2248

ITEM	PART NO.	DESCRIPTION	QTY
1	83-680570	Head Bolt TCEI M6x60 Brass	6
2	83-620301	Tap Plug 1/8" G (optional)	1
7	83-1260160	Valve Cap	6
8	83-960160	O-Ring Ø17.86x2.62	6
9	83-1269050	Complete Valve	6
10	83-880830	O-Ring Ø15.54x2.62	6
11	83-1260140	Support Ring Ø15	3
12	83-1260130	Packaging Gasket Ø15	3
13	83-1260151	Piston Guide Ø15	3
14	83-1260420	O-Ring Ø26.70x1.78	3
15	83-1260440	Packaging Seal Gasket Ø15	3
16	83-1260460	Piston Oil Seal 15x24x5	3
17	83-1320320	Shaft Side Plug	1
18	83-1320360	O-Ring Ø47.35x1.78	1
19	83-1260790	Circlip Ø ₁ 52	1
20	83-1320370	Bearing 25x52x15 6205	1
21	83-1320330	Bushing	1
22	83-1320010	Pump Body	1
23	83-880130	Dip Stick	1
24	83-1260110	Screw M8	3
25	83-1260100	Copper Washer 8x13x0.5	3
26	83-1260120	Piston Ø15	3
27	83-480480	O-Ring Ø4.48x1.78	3
28	83-1260091	Disc Separator	3
29	83-1260070	Piston Guide	3
30	83-1260080	Piston Pin Ø _E 7x24	3
31	83-1260760	Screw TCEI M5x20	6
32	83-1321030	Rear Cover, Low	1

ITEM	PART NO.	DESCRIPTION	QTY
36	83-1320140	Con Rod, Bronze	3
37	83-1260040	Rear Gasket Cover	1
38	83-740290	O-Ring Ø14 x 178	3
39	83-880530	Oil Drain Tap Bolt 3/8" G	2
40	83-1320020	Pump Head-Without Hole, 18mm Brass	1
41	83-180101	O-Ring Ø17.5 x 2	1
42	83-820360	Head Tap Bolt 1/2"G	1
81	83-1321780	Bolt TCEI M6x12	4
82	83-1321420	Side Cover	1

Crankcase Oil Capacity, 14 oz.

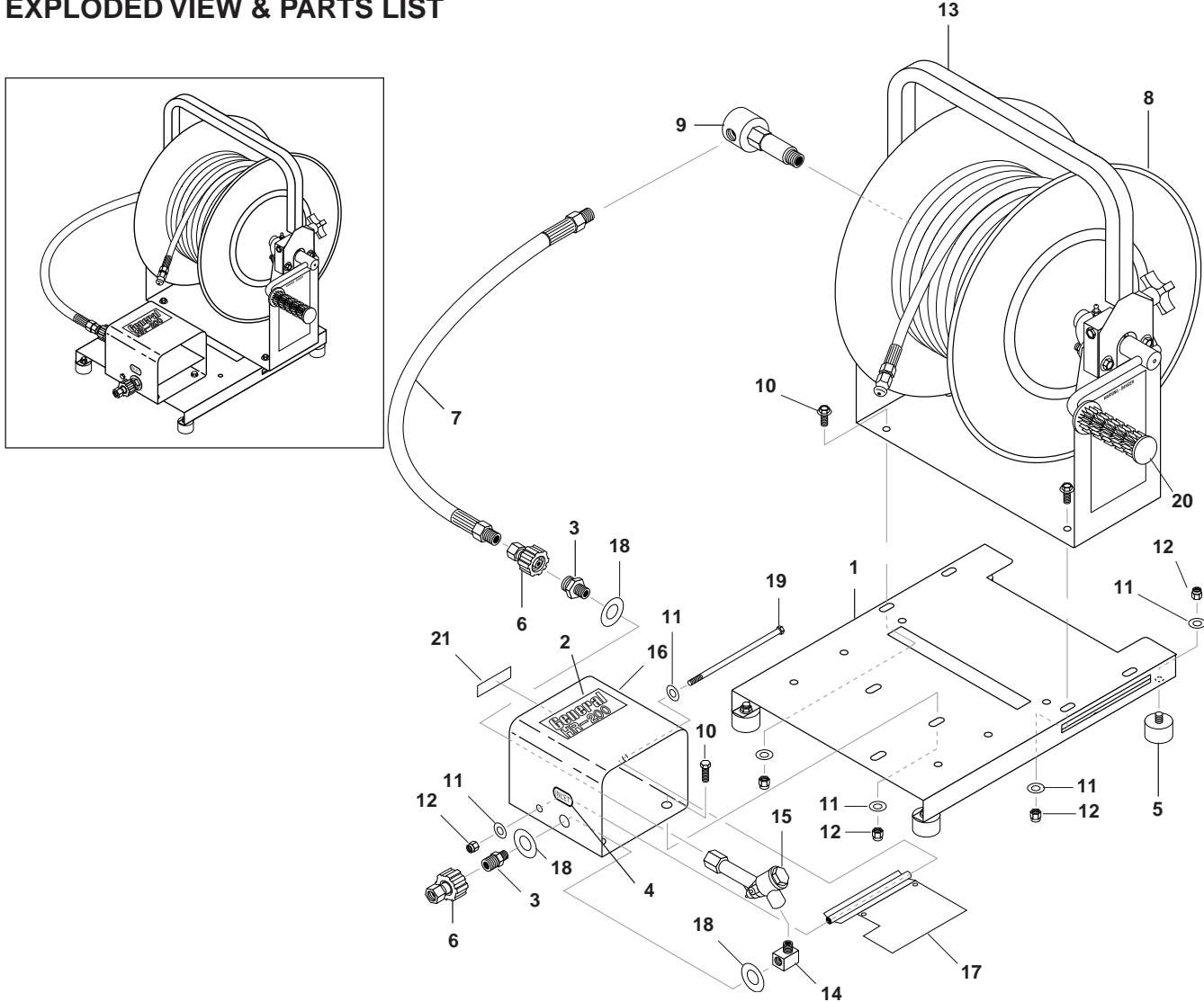
E VERSION:

ITEM	PART NO.	DESCRIPTION	QTY
62	83-480671	Seal Ring 40x52x7	1
73	83-1321110	Shaft 2 GPM Ø5/8"	1
74	83-1321190	Ring Bearing HK 4516	1
75	83-650610	Bolt, 3/8" 16 UNCx1"	4
77	83-1320060	Type F8 Flange, Nema C	1
78	83-1200430	Bolt/Flange-Motor TCEI M6x16	4
79	83-780230	Washer Ø ₁ 6.5x28x4	1
80	83-780060	Bolt TCEI M6x25	1
84	83-1321080	Snap Ring	1

NOTE: Center inlet check valve is removed to create pulsation.

KIT 83-1860 OIL SEALS (E Ver)		KIT 83-1864 VALVES		KIT 83-1866 WATER SEALS	
Pos.	Qty.	Pos.	Qty.	Pos.	Qty.
16	3	9	6	11	3
18	1	10	6	12	3
37	1			14	3
62	1			15	3

OPTIONAL HR-200W HANDY-REEL WITH FOOT PEDAL EXPLODED VIEW & PARTS LIST

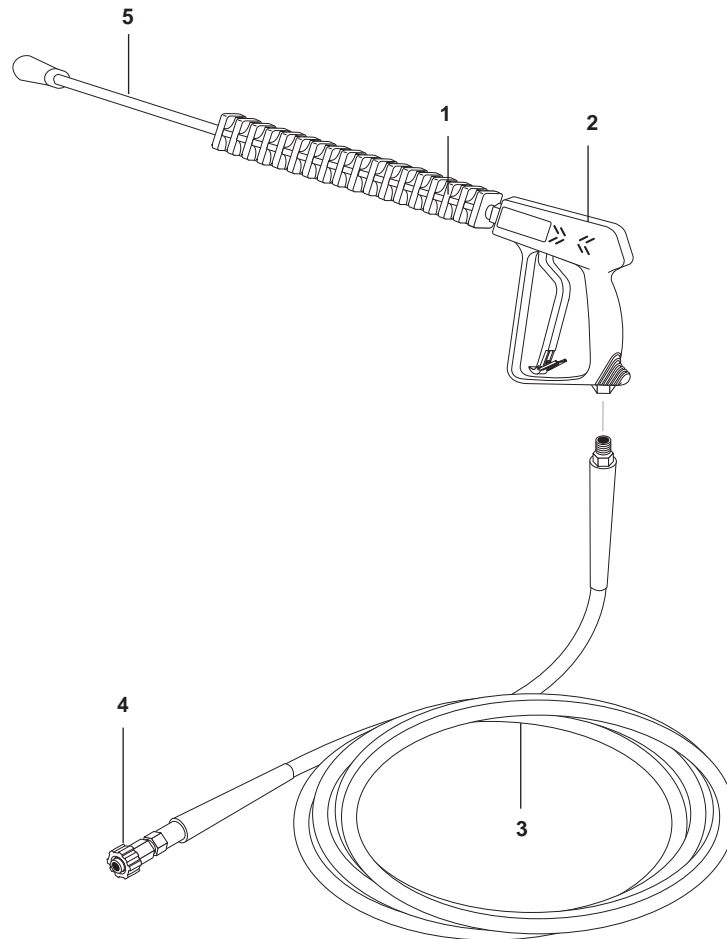


ITEM	PART NO.	DESCRIPTION	QTY
1	95-07103106	Bracket, Hose Reel Mount	1
2	11-20200	Label, HR-200	1
3	2-2116	Nipple, 1/4" x M22, Twist	2
4	11-1019	Label, Inlet	1
5	2-01022	Foot, Rubber	4
6	2-2113	Coupler, 3/8" Female Screw Type 7640	2
7	4-02037817	Hose, 3/8" x 17.5", 1 Wire, 3/8" MNPT(SLD) x 3/8" MNPT(SWL)	1
8	4-02751016	Hose Reel, 13" General Wire	1
9	4-027510281	Swivel, 3/8" x 3/8"	1
10	90-19713	Screw, 5/16" x 3/4" Whiz Loc	7
11	90-4001	Washer, 5/16"	13
12	90-2001	Nut, 5/16" ESNA	12
13	95-07103105	Hose Reel Guard	1

ITEM	PART NO.	DESCRIPTION	QTY
14	2-1022	Elbow, 1/4" Street	1
15	83-21008	Valve Assy, Complete	1
16	95-07103180	Cover, Welded Assy. Foot Valve	1
17	95-07103181	Plate, Fott Valve Assy	1
18	90-3096	Washer, 1/2" Flat	3
19	90-10124	Bolt, 5/16" x 6-1/2" HH, NC	1
20	2-01101	Grip, 1" Handle, Waffle	1
21	11-1010	Label, Discharge	1

HOSE AND SPRAY GUN ASSEMBLY (OPTIONAL)

J-1450 SWA-1500



ITEM	PART NO.	DESCRIPTION	QTY
1	4-011148	Lance, 18" Molded Grip AL-3929.11	1
2	4-01246	Spray Gun, Shut-Off AP1000	1
3	8.739-030.0	Hose, 3/8" x 25', 1 Wire, TS, Legacy, 50 x SW	1
4	2-2113	Coupler, 3/8" Female Screw Type 7640	1
5	4-2005	Nozzle Holder, Adjustable AL-TR9-4701.12	1
	4-01402515	▲ Nozzle Only, SA 1/4", MEG 1502.5	1
		▲ Not Shown	

TROUBLESHOOTING

These troubleshooting procedures cover pump malfunctions, delivery problems and charge system malfunction.

Warning: Before attempting any repairs or maintenance, make sure machine is shut off.

PROBLEM	POSSIBLE CAUSE	REPAIR
LOW PRESSURE	Worn or oversized nozzle	Replace worn nozzle. Check nozzle size.
	Clogged water and/or detergent inlet strainer	Clean or replace strainers.
	Worn or damaged piston cups	Replace piston cups.
	Worn or damaged inlet or discharge valve	Replace worn valve poppets or valve springs.
	Dirt or foreign particles in valve assembly	Remove any dirt particles.
	Air leak in inlet plumbing	Locate air leak. Re-seal connection or replace damaged port.
ROUGH OPERATION WITH LOSS OF PRESSURE	Restricted inlet plumbing or air leak in inlet plumbing	Repair clogged inlet fittings. Check supply hose and ensure adequate water supply.
	Damaged piston, cup or pump valve	Replace any damaged pump parts and clean out any foreign particles.
	Clogged nozzles	Clean or replace nozzles.
WATER LEAKAGE AT INTAKE MANIFOLD OR CRANKCASE	Worn manifold seals, pistons or O-rings. Or, condensation inside crankcase	Replace seals, sleeves or O-rings. Change oil at regular intervals.
	Inadequate water supply to pump creating a vacuum lock	Ensure adequate tap water supply. Clear inlet filter.
OIL LEAKS	Worn pistons and/or leaking crank seals, crankcase cover seal or drain plugs	Replace seals, sleeves or O-Rings.
EXCESSIVE WEAR	Worn or loose bearings	Replace bearings. Check bearing seals, spacers and retainers. Replace any worn parts.
SHORT PISTON CUP LIFE	Scored cylinders from pumping acids	Replace cylinders. DO NOT PUMP ACID SOLUTIONS. For acid application, ask your dealer for a Pump Saver Injector.
	Abrasive particles in fluid being pumped	Replace water and detergent strainers if damaged or missing. Install additional filter if fine abrasives are still evident.
	Operator(s) running pump without water supply	DO NOT ALLOW WASHER TO BE RUN WITHOUT PROPER WATER SUPPLY.
	Hot water in pump	Do not run in bypass for more than 5 minutes. Do not let water supply exceed 140°F (60°C).
IRREGULAR SPRAY PATTERN	Worn or partially clogged nozzle	Clean or replace nozzles.

TROUBLESHOOTING Detergent System Malfunction

PROBLEM	POSSIBLE CAUSE	REPAIR
WASHER FAILS TO DRAW DETERGENT	Detergent metering valve closed or valve clogged or defective	Open detergent metering valve, following procedure in operating instructions.
	Back pressure in hose (when using additional lengths of pressure hose)	Contact dealer for proper injector size when adding lengths of hose.
	Back pressure in pressure hose (when using dual lance wand)	Use proper size flood nozzle in dual lance wand (refer to parts breakdown).
	Suction tube not below liquid surface	Completely submerge suction tube and strainer in detergent solution.
	Clogged or damaged suction strainer	Clean or replace strainer.
DETERGENT SOLUTION TOO WEAK	Clogged detergent strainer	Clean or replace strainer.
	Air leak in detergent suction tube or inlet plumbing	Find air leak and clean or replace parts as necessary.
DETERGENT SOLUTION TOO CONCENTRATED	Original detergent too concentrated	Dilute product as necessary to achieve proper concentration.
DETERGENT IN RINSE CYCLE	Dual lance wand or adjustable nozzle holder in open position or chemical metering valve open	Close dual lance wand adjustable lance holder to achieve high pressure. Close detergent metering valve.
DILUTION OF DETERGENT CONCENTRATE DURING CYCLE	Worn or defective internal check valve	Repair or replace check valve or injector parts as necessary.
	Defective check valve in detergent tank	Replace parts as necessary.

TROUBLESHOOTING Unloader Valve Malfunction

PROBLEM	POSSIBLE CAUSE	REPAIR
UNLOADER CYCLES	Fitting leaking downstream	Tighten/replace fitting.
	Piston or valve spring broken or worn	Replace parts as necessary.
	Clogged nozzle	Clean or replace.
FLUID LEAKING FROM BODY	O-ring worn or cut	Replace part as necessary.
UNLOADER WILL NOT COME TO PRESSURE	Foreign particle in valve	Replace or clean.
	Nozzle worn or wrong size	Replace part as necessary.
	Piston or valve worn	Replace part as necessary.
EXTREME PRESSURE SPIKES	Adjusting nut turned completely into unloader	Back off adjusting nut.
	Clogged nozzle	Clean or replace

General Wire Spring Co. LIMITED ONE YEAR WARRANTY

General Wire Spring Co. products are warranted to be free of defects in material and workmanship under normal use for the periods specified below.

General Wire Spring Co. machines carry a one year limited warranty against defect or breakage except as noted below. Should any part break or fail to work properly in the year following purchase, it will be repaired or replaced at our discretion at no charge. Some parts, such as hoses and nozzles, are subject to severe wear and are replaced within a year only if a flaw in the material causes breakage. No adjustment can be made on kinked hoses, since a kink is evidence of abuse. Also, no adjustment can be made where there is considerable wear at the point of the break.

All parts replaced under warranty must be original General Wire Spring Co. replacement parts. Under no circumstances will there be a reimbursement for parts that are not original General Wire Spring Co. parts.

Damage due to negligence, rust, exposure to corrosive chemicals, abnormal usage, accidents or alteration from original design is not covered by this warranty.

Warranty Does Not Cover:

1. Certain items not manufactured by General Wire Spring Co. but used as components such as engines and motors are guaranteed by their respective manufacturer service centers.
2. Items subject to normal wear such as seals, valves, hoses, spray guns, wands, couplings, nozzles, belts, swivels, filters or any part subject to direct physical contact by the public.
3. Replacement of any fluids such as oil or chemicals, nor does it cover cleaning of any parts.
4. General Wire products are only warranted to the original purchaser, there is no continuation of warranty on used products.
5. Products damaged in transit. (A claim should be filed with the carrier in the event a product is damaged in shipment.)
6. Damage caused by the use of caustic or corrosive liquids.
7. Operating the pump under conditions that cause or contribute to cavitation.
8. Damage caused by contaminated fuel or oil.
9. Heat damage within the pumping system, whether introduced with the water supply or generated within the system.
10. Damage caused by accident, fire, flood, wind storm, freeze up or other acts of nature.
11. Damage caused by improper installation or power supply.
12. Cost of transportation to authorized service center.
13. Freight costs are the responsibility of purchaser/dealer.
14. Cost incurred for telephone communications.
15. Travel costs or mileage and/or time.
16. Failure to follow recommended maintenance or operating procedures outlined in the operators manual.
17. Loss of running time, income or any other loss due to down time.
18. Use of unauthorized/substandard accessories or attachments.

In order to obtain warranty service the original purchaser is responsible for:

1. Providing proof of purchase (original invoice or bill of sale).
2. Informing your wholesaler of the defect(s) or problem(s) and making the product available for repair. They will direct you to the nearest authorized Service Center. (Charges for pick-up or delivery, service calls and mileage are not covered under warranty.)

This warranty is made in place of all other warranties, express, statutory or implied, including those of merchantability and of fitness for purpose.

This warranty gives you specific legal rights and you may also have other rights that vary from state to state. Some states do not allow the exclusion of limitation of incidental or consequential damages, so these limitations may not apply to you.

General / **General Wire Spring Co.**
PIPE CLEANERS 1101 Thompson Avenue • McKees Rocks, PA 15136 USA
800-245-6200 or 412-771-6300 • Fax: 412-771-2771
Web Site: www.drainbrain.com