



VNG VLP

OPERATOR'S MANUAL

- VNG/VLP4-2000 ■ VNG/VLP4-3000 ■ VNG/VLP6-3000
■ VNG/VLP8-3000 ■ VNG/VLP10-2000
-



For technical assistance or the dealer nearest you
consult our web page at www.landa.com or call 360-833-1600

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Warranty

Model Number _____

Serial Number _____

Date of Purchase _____

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

INTRODUCTION & IMPORTANT SAFETY INFORMATION

Thank you for purchasing a Landa Pressure Washer.

This manual covers the operation and maintenance of the VNG/VLP4-20021A, 4-20021A/R, 4-20021B, 4-20021B/R, 4-20021C, 4-20021C/R, 4-20021F, 4-20021F/R, 4-30021A, 4-30021A/R, 4-30021B, 4-30021B/R, 4-30021C, 4-30021C/R, 4-30021F, 4-30021F/R, 6-30021B, 6-30021B/R, 6-30021C, 6-30021C/R, 6-30021F, 6-30021F/R, 4-20024A, 4-20024A/R, 4-20024B, 4-20024B/R, 4-20024C, 4-20024C/R, 4-20024F, 4-20024F/R, 4-30024A, 4-30024A/R, 4-30024B, 4-30024B/R, 4-30024C, 4-30024C/R, 4-30024F, 4-30024F/R, 6-30024B, 6-30024B/R, 6-30024C, 6-30024C/R, 6-30024F, 6-30024F/R, 8-30024B, 8-30024B/R, 8-30024C, 8-30024C/R, 8-30024F, 8-30024F/R, 10-20024B, 10-20024C, 10-20024F and 10-20024H washers. All information in this manual is based on the latest product information available at the time of printing.

Landa, Inc. 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 Landa pressure washer. 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.

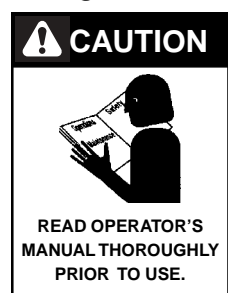
Owner and/or user must study and maintain for future reference the manufacturers' instructions.

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.

IMPORTANT SAFETY INSTRUCTIONS

WARNING: When using this machine basic precautions should always be followed, including the following:



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 machine and result in death, serious bodily

injury and/or property damage.

2. Know how to stop the machine and bleed pressures quickly. Be thoroughly familiar with the controls.
3. Stay alert — watch what you are doing.
4. All installations must comply with local codes. Contact your electrician, plumber, utility company or the selling distributor for specific details.



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

5. Risk of explosion — do not spray flammable liquids or operate in an explosive location. Operate only where open flame or torch is permitted.



WARNING: Keep water spray away from electrical wiring or fatal electric shock may result. Read warning tag on electrical cord.

6. 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.

WARNING: Spray gun kicks back. Hold with both hands.

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




WARNING: Equipment can produce a high pressure stream of fluid that can pierce skin and its underlying tissues, leading to serious injury and possible amputation.

8. High pressure developed by these machines can cause personal injury or equipment

damage. Use caution when operating. Do not direct discharge stream at people, or severe injury and/or death may result. This machine is to be used only by qualified operators.

IMPORTANT SAFETY INFORMATION

CAUTION



HOT DISCHARGE FLUID. DO NOT TOUCH OR DIRECT DISCHARGE STREAM AT PERSONS.

CAUTION: Hot discharge fluid. Do not touch or direct discharge stream at persons.

9. Never make adjustments on machine while in operation.

WARNING



USE PROTECTIVE EYEWEAR WHEN OPERATING EQUIPMENT.

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

10. Eye safety devices and foot protection must be worn when using this equipment.

WARNING



RISK OF ASPHYXIATION. USE THIS PRODUCT ONLY IN A WELL VENTILATED AREA.

WARNING: Risk of asphyxiation. Use this product in a well ventilated area.

11. When the machine is working, do not cover or place in a closed space where ventilation is insufficient.
12. Machines with shut-off spray gun should not be operated with the trigger in the off position for

extensive periods of time as this may cause damage to the pump.

13. Protect from freezing.
14. Be certain all quick coupler fittings are secured before using pressure washer.
15. Do not allow acids, caustic, or abrasive fluids to pass through the pump.
16. Inlet water must be from a cold, fresh city water supply.
17. To reduce the risk of injury, close supervision is necessary when a machine is used near children. Do not allow children to operate the pressure washer. **This machine must be attended during operation.**
18. The best insurance against an accident is precaution and knowledge of the machine.
19. Do not operate this product when fatigued or under the influence of alcohol or drugs. Keep operating area clear of all persons.

20. Do not replace LP tank while machine is running. Serious injury could result.

WARNING




RISK OF FIRE OR EXPLOSION, USE VAPOR FUEL ONLY.

WARNING: Use vapor fuel only.

21. The VLP models are designed to run on vapor propane fuel. Do not use liquid fuel. Have a qualified serviceman install and service your equipment.
22. Never expose a spark or flame where there may be unburned gas present.
23. L.P. gases are heavier than air and will spill out on the floor. Therefore always provide adequate space and ventilation around these machines. Install the machine 18" above the floor.
24. Landa will not be liable for any changes made to our standard machines, or any components not purchased from Landa.
25. Do not overreach or stand on unstable support. Keep good footing and balance at all times.
26. Follow maintenance instructions specified in manual.
27. When making repairs disconnect from electrical source and shut off gas valve.
28. Turn burner off and cool to 100°F before turning machine off.

WARNING

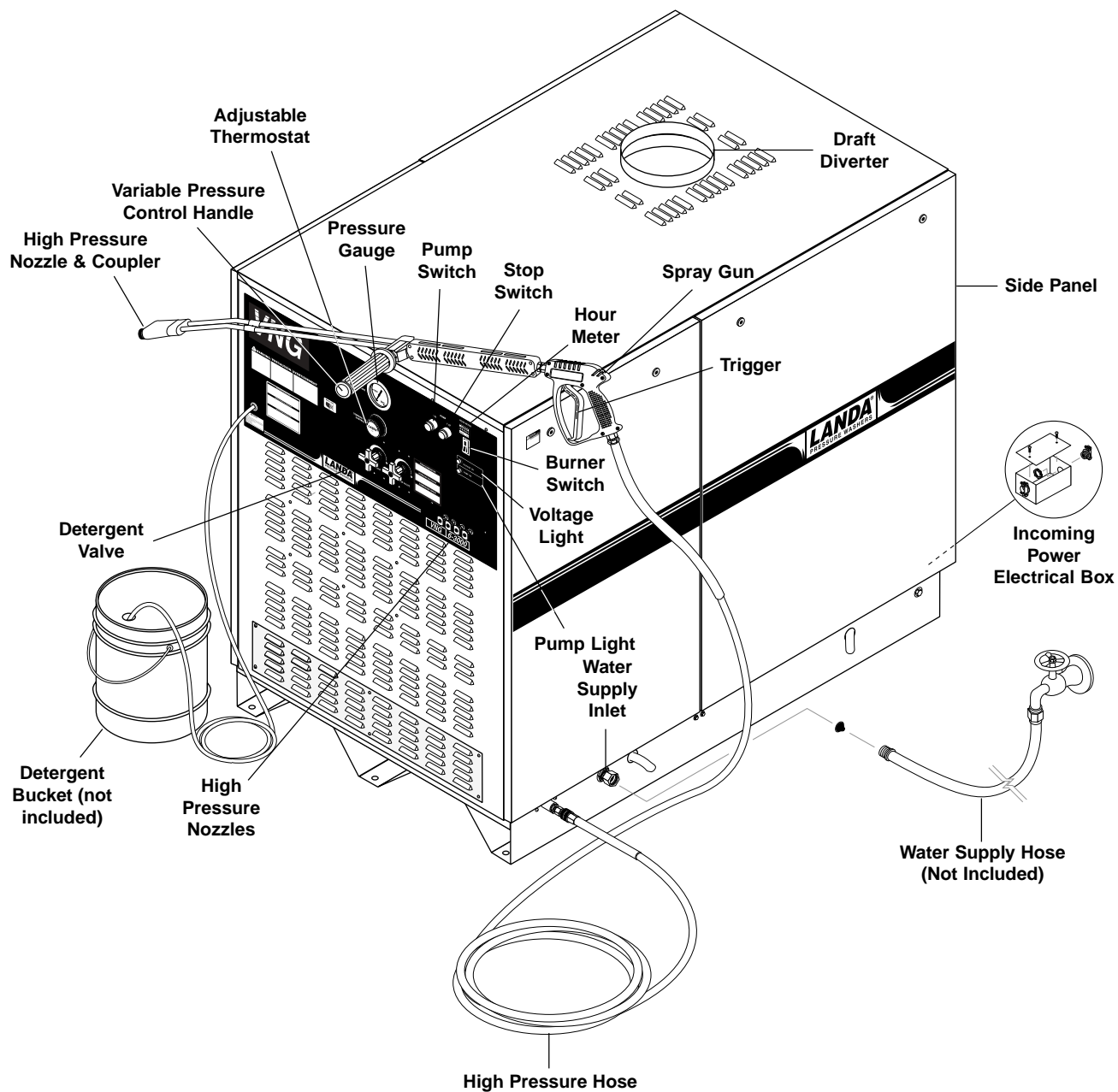


RISK OF EXPLOSION: IF GAS SMELL IS PRESENT, TURN OFF SUPPLY.

WARNING: If you smell gas, shut off the gas supply to the appliance.

29. If gas odor is present turn off motor immediately. Extinguish any open flame, and test all joints with a soap solution. If the odor persists, call your gas supplier immediately.
30. This machine must be attended during operation.
31. Not suitable for connection to Type B gas vent if the stack temperature exceeds 243° C (470° F).
32. A draft hood shall be installed if this machine is going to be permanently installed and vented to the outside of the building.

COMPONENT IDENTIFICATION



INSTALLATION

Place machine in a convenient location providing ample support, drainage and room for maintenance.

Location:

This machine is certified for indoor installation. Its location should protect the machine from damaging environmental conditions, such as wind, rain and freezing.

1. The machine should be run on a level surface where it is not readily influenced by outside sources such as strong winds, freezing temperatures, rain, etc. The machine should be located considering accessibility of the components and the refilling of detergents, adjustments and maintenance. Normal precautions should be taken by operator of machine to prevent excess moisture from reaching power machine or electrical controls.
2. It is recommended that a partition be made between wash area and machine to prevent direct spray from spray gun from coming in contact with machine. Excess moisture reaching pressure washer or electrical controls will reduce life of machine and may cause electrical shorts.
3. During installation of machine, beware of poorly ventilated locations or areas where exhaust fans may cause an insufficient supply of oxygen. Sufficient combustion can only be obtained when a sufficient supply of oxygen is available for the amount of fuel being burned. If it is necessary to install a machine in a poorly ventilated area, outside fresh air may have to be piped to burner and a fan installed to bring air into area.
4. Do not locate near any combustible material. Keep all flammable material at least 20 feet away.
Allow enough space for servicing the machine.
Local code will require certain distances from floor and walls. (Two feet away should be adequate.)

AVOID SMALL LOCATIONS OR AREAS NEAR EXHAUST FANS.

Gas Codes:

Confer with local gas company and with proper municipal officials regarding any specific code or regulations governing the installation. The installation must conform to local codes.

Electrical:

The machine, when installed, must be electrically grounded in accordance with local codes. Check for proper power supply using a volt meter; check the serial plate for the correct requirements.

Gas Piping:

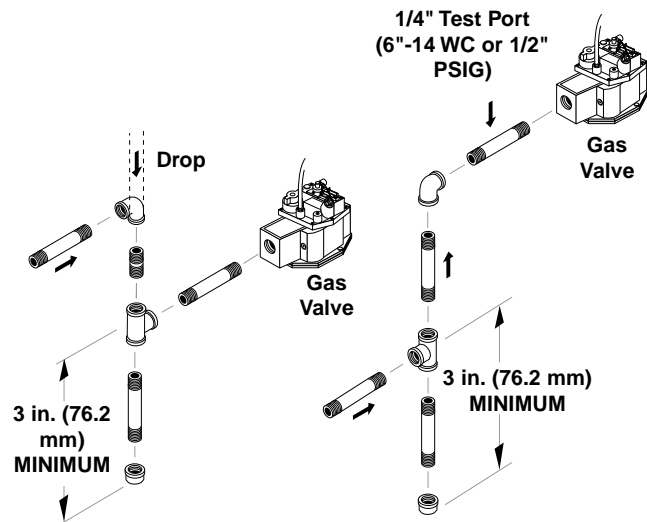
All piping must comply with local codes and ordinances of the National Fuel Gas Code. A sediment trap or drip leg must be installed in the supply line to the burner. See figure 1.

A union shall be installed in the gas line adjacent to and upstream from the control manifold and downstream from the manual main shut-off valve.

A 1/8" N.P.T. plugged tapping accessible for test gauge connection shall be installed immediately upstream of the gas supply connection for the purpose of determining the gas supply pressure to the burner, and to prevent damage to gas valve.

If a manual gas shut off valve is not in the gas supply line within six feet of the machine and in an accessible location, one shall be installed.

Figure 1: Drip Leg

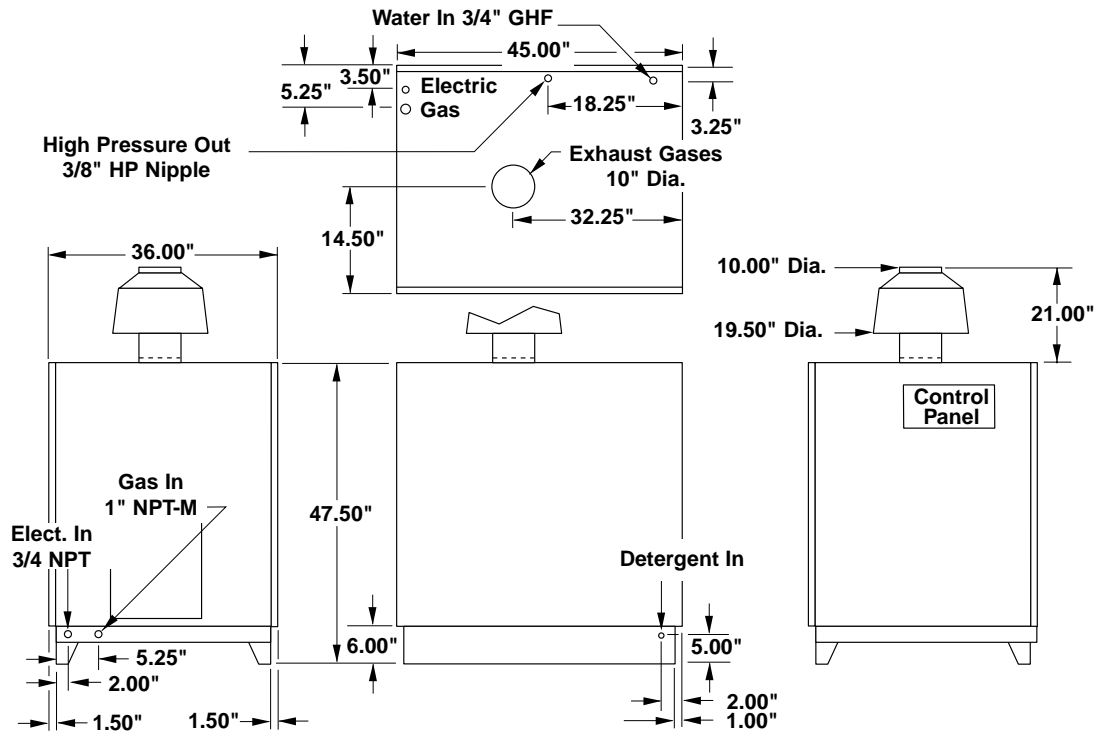


Sediment trap (drip leg) must be installed in the supply line.

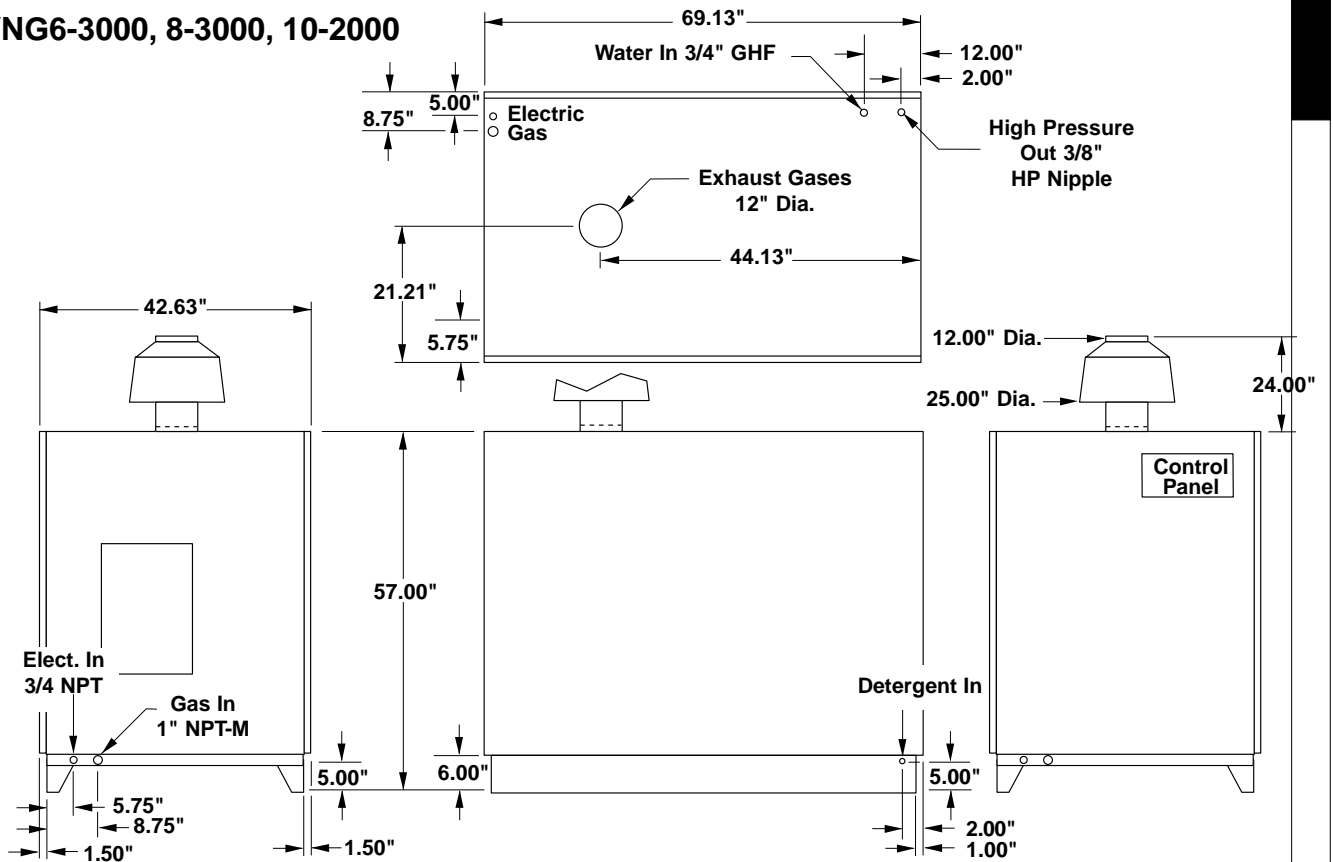
A manual shut-off valve shall be installed in the gas supply line external to the appliance. See Figure 2. The gas line should be a separate supply direct from the meter to the burner. It is recommended that new pipe be used and located so that a minimum amount of work will be required in future servicing. The piping should be installed to be durable, substantial and gas tight. It should be clear and free from cutting burrs and defects in structure of threading. Cast iron fittings or aluminum tubing should not be used for the main gas circuit. Joint compounds (pipe dope) should be used sparingly on male threads only and be approved for all gases.

INSTALLATION

VNG4-2000, 4-3000, 4-4000

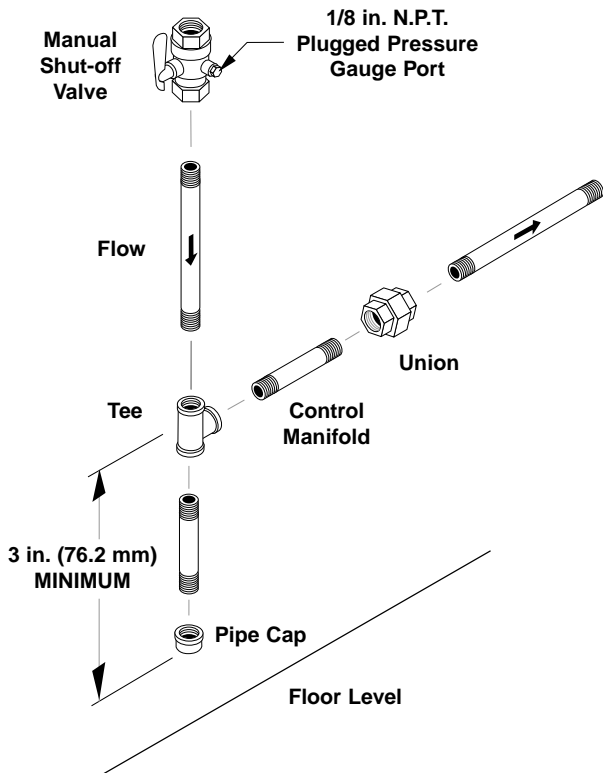


VNG6-3000, 8-3000, 10-2000



INSTALLATION

Figure 2: Union Location



Location of union and drip leg for connecting conversion burner to house piping.

Propane Gas:

The following pipe sizes should be used between the regulator and the gas valve on the burner.

Distance From Regulator	Pipe Size
0 - 50'	1" 1 PS
50' - 100'	1-1/2" 1 PS
100' - 200'	1-3/4" 1 PS

Natural Gas:

The following pipe sizes should be used between the meter and the cleaner.

Distance From Regulator	Pipe Size
0 - 50'	1-1/2" 1 PS
50' - 100'	2" 1 PS
100' - 200'	2-1/2" 1 PS

Venting:

Because this machine is installed indoors, regulations or ventilation concerns may call for a chimney or furnace pipe.

When venting the machine, if the machine is to be in an enclosed area with a stack on it, be sure the flue pipe is the same size as the stack on the machine. Poor draft will cause the machine to soot and not operate efficiently. When placing the machine for installation, keep in mind that the machine should be posi-

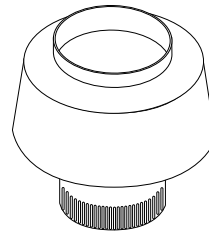
tioned in such a manner that the stack will be as straight as possible and protrude through the roof of the building at a proper location and at sufficient height to eliminate down draft. The flue pipe of a gas fired machine shall be installed with a down draft diverter.

Input - BTU Per Hour	Draft Hood & Flue Pipe Size
410,000 - 600,000	10 inch
600,000 - 750,000	12 inch

Draft Diverter:

The draft diverter (figure 3) should be installed at least one (1) foot above the heating coil. The diverter enhances the draft through the burner by severing the chimney effect created in sections of furnace pipe positioned below. It also helps prevent freezing of the coil due to wind chill factors.

Figure 3

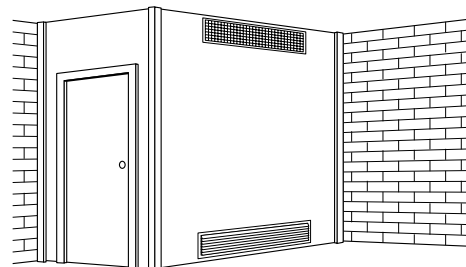


Optional

When the pressure washer is installed in a tightly closed room without ventilation openings to the outdoors or other rooms, provisions shall be made for supplying air for combustion through special openings, one near the floor line and the other near the ceiling, each to be sized on the basis of one square inch or more of free area for each 1,000 BTU input per hour. See Figure 4.

When a room is of unusually tight construction and has a ventilating fan, which may be used for exhausting air to outdoors - or has a vented fireplace - it is recommended that combustion air be supplied to the enclosed room through intakes extending to the outside of the building and terminating in downturned fittings, suitably arranged to prevent obstruction from snow or rain, and including a protecting screen not smaller than 1/4 inch mesh.

Figure 3



Ventilating Air Opening 1 sq. in. for each 1000 BTU per hour input. Illustration showing air openings necessary to supply air for combustion when heating appliance is installed in an enclosed room.

INSTALLATION

Water Source:

Water source for machine should be supplied by a 5/8" I.D. garden hose with a city water pressure of not less than 30 psi. If the water supply is inadequate, or if the garden hose is kinked, the machine will run very rough and the burner will not fire.

Water Connection:

Connect the high pressure hose by pulling the coupler collar back and then inserting it onto the discharge nipple. Secure it by pushing the collar forward.

Attach the wand into the trigger spray gun using teflon tape on the pipe threads to avoid leaks.

Inspection and Testing Gas Piping:

The building structure should not be weakened by installing the gas piping. The piping should not be supported by other piping, but should be firmly supported with gas hooks, straps, bands or hangers. Butt or lap welded pipe should not be run through or in an air duct.

Before turning gas under pressure into piping, all openings from which gas can escape should be closed. Immediately after turning on gas, the system should be checked for leaks. This can be done by watching the 1/2 cubic foot test dial and allowing 5 minutes to show any movement, or by soaping each pipe connection and watching for bubbles. If a leak is found, make the necessary repairs and repeat the above test.

Defective pipes or fittings should be replaced and not repaired. Never use a flame or fire in any form to locate gas leaks; use a soap solution.

After the piping and meter have been checked completely, purge the system of air. **DO NOT** bleed the air inside an enclosed room.

The appliance and its individual shut-off valve must be disconnected from the gas supply piping system during the pressure testing of that system at test pressure in excess of 1/2 psig or damage to the gas valve will occur.

Gas Pressure:

The ideal incoming gas pressure is 11 w.c.i. (water column inches –minimum 6 w.c.i., maximum 14 w.c.i. or 1/2 psig). The correct operating manifold pressure for natural gas is 3.5 w.c.i. The operating manifold pressure for propane gas is 11 w.c.i. The gas valve pressure regulator can be adjusted between 3 and 4 w.c.i. natural gas or 6 and 11 w.c.i. for propane.

If the desired input rating cannot be obtained within the above manifold pressure adjusting range, the next size larger or smaller burner orifice should be used.

WARNING & CHECK LIST

WARNING

1. Installation or servicing of gas appliances and controls must only be performed by qualified personnel. After installation or servicing, test manual valve, operating valves, pressure regulator, and automatic shut-off valve for proper operation.
2. Install in a suitable dry location. The machine must be located in an area properly protected from the weather.
3. Shut off gas and electricity before starting installation or service. Turn gas back on to test or operate.
4. **DO NOT** connect pressure washer before pressure testing gas piping. Damage to gas valve may result (6 - 14 w.c.i. or 1/2 psig).
5. **DO NOT** insert any object other than suitable pipe or tubing in the inlet or outlet of the gas valve. Internal damage may occur and result in a hazardous condition.
6. **DO NOT** grip gas valve body with a pipe wrench or vise. Damage may result causing gas leakage. Use inlet or outlet bosses or a special body wrench.
7. **DO NOT** short the gas valve terminals.
8. **DO NOT** allow any flame to impinge on the regulator vent tubing if supplied. It may clog and cause gas valve malfunction.
9. **DO NOT** use the gas cock to adjust the gas flow.
10. In case main burner fails to shut off, turn off gas supply.
11. Keep all combustible materials away from gas appliances. **DO NOT** allow lint or dust to collect in burner area.
12. Dials must only be operated by hand. Never use pliers, wrenches or other tools to turn dials.
13. Leak test with a soap solution after installation or service with the main burner on. Coat pipe and tubing joints, gaskets, etc. Bubbles indicate leaks.
14. If the machine is installed in an enclosed room, care should be taken to ensure that an adequate supply of air is available for combustion and ventilation (1 sq. inch per 1000 BTU).

INSTALLATION

CHECK LIST BEFORE STARTING:

	YES	NO
Has gas supply been inspected by an authorized contractor to meet local codes?	<input type="checkbox"/>	<input type="checkbox"/>
Is machine protected from downdraft and excessive wind?	<input type="checkbox"/>	<input type="checkbox"/>
Is machine shielded from moisture or water spray?	<input type="checkbox"/>	<input type="checkbox"/>
Is the voltage correct and are the circuit breaker and supply cord adequate according to specifications and serial plate notation?	<input type="checkbox"/>	<input type="checkbox"/>
Is the machine electrically grounded?	<input type="checkbox"/>	<input type="checkbox"/>
Is there ample water supply?	<input type="checkbox"/>	<input type="checkbox"/>
Have all flammable liquids or gases been removed from installation location?	<input type="checkbox"/>	<input type="checkbox"/>
Is there adequate gas supply for the BTU rating of the burner?	<input type="checkbox"/>	<input type="checkbox"/>
Is incoming gas supply pressure between 6 - 14 water column inches or 1/2 PSIG?	<input type="checkbox"/>	<input type="checkbox"/>
Has the proper gas regulator been installed for pressure and volume?	<input type="checkbox"/>	<input type="checkbox"/>
Is the machine properly vented to allow adequate air flow?	<input type="checkbox"/>	<input type="checkbox"/>
Are the propane tanks large enough, according to rating to prevent freezing?	<input type="checkbox"/>	<input type="checkbox"/>
Have gas lines been checked for gas leaks?	<input type="checkbox"/>	<input type="checkbox"/>
Have gas lines been checked with local codes?	<input type="checkbox"/>	<input type="checkbox"/>
Have all operators using this machine been instructed properly & have they read the manual?	<input type="checkbox"/>	<input type="checkbox"/>
Has the machine been installed according to operator's manual instructions?	<input type="checkbox"/>	<input type="checkbox"/>

CAUTION: If "NO" has been checked on any of the above questions, do not operate the machine.

FOR YOUR SAFETY READ BEFORE LIGHTING

WARNING

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance has an electronic ignition system. When lighting the pilot, follow these instructions exactly.
- B. BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

FOR YOUR SAFETY

"WHAT TO DO IF YOU SMELL GAS"

- Do not try to light any appliance.
 - Do not touch any electrical switch, do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to turn the gas control. Never use tools. If the knob will not push in or turn by hand, don't try to repair it; call a qualified service technician. Forced or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

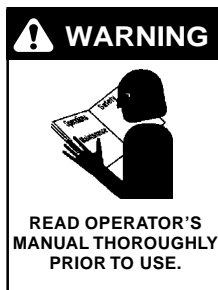
⚠ WARNING



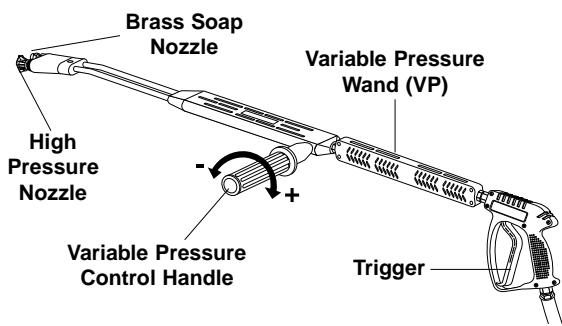
HAS ELECTRONIC SPARK IGNITION. DO NOT ATTEMPT TO LIGHT MANUALLY.

CAUTION: This machine is equipped with an electronic ignition system. Lighting of the pilot is accomplished through electronic spark ignition. Do not attempt to light the appliance manually as a burn injury or electrical shock may result.

OPERATION INSTRUCTIONS



1. **STOP!** Read operator's manual before operating this machine. Failure to read operation and warning instructions may result in personal injury or property damage.
2. Turn all switches off.
3. Review installation instructions.
4. Connect water supply hose to the inlet connector and turn water on. Check for water leaks and tighten as needed.
5. Turn on the main gas supply and turn the gas valve control knob into the "ON" position (see page 14).
6. Close the steam knob and detergent valve by turning clockwise and setting the temperature control knob between 200°- 225°F.
7. Attach the desired high pressure nozzle into the wand quick coupler by pulling the coupler collar back and inserting the nozzle. Secure nozzle by pushing the coupler collar forward.
8. Turn the pump switch on to start the machine. When spray gun is closed a time delay feature will turn the machine off.



Selection of high or low pressure is accompanied by turning the handle. **Note:** High pressure nozzle must be inserted at end of wand to obtain high pressure. To apply soap read operator's manual.

9. For hot water, push the burner switch to the ON position and pull the trigger on the spray gun. Sparking begins, the pilot gas ignites and then the ignitor/sensor will turn the main burner on. Optional remote control requires the pump switch to be turned ON before the burner and detergent switches will turn on.
10. To apply detergent, open the detergent valve counterclockwise making sure that the detergent pick up tube is in the detergent solution and not sucking air. With optional remotes, the detergent switch needs to be turned to the OFF position before turning to the ON position to activate the detergent solenoid.
11. **To Stop:** Turn the burner switch off and place the detergent pick-up tube into fresh water. Open the detergent valve and trigger spray gun allowing detergent lines to be flushed and the burner to cool. Otherwise, coil damage will result.
12. When steam is needed, remove the side panel and turn the steam knob counterclockwise. Then turn the temperature adjustment knob to 275°F.
13. After water has cooled, turn pump switch to OFF position. If the machine is going to be off for an extended period of time, put the manual valve on the gas valve into the OFF position.
14. Turn the water off. Protect from freezing.

GENERAL CLEANING TECHNIQUES

CLEANING TECHNIQUES

Pre-rinse cleaning surface with fresh water. Place detergent suction tube directly into cleaning solution and apply to surface at low pressure (for best results, limit your work area to sections approximately 6 feet square and always apply detergent from bottom to top). Allow detergent to remain on surface 1-3 minutes. Do not allow detergent to dry on surface. If surface appears to be drying, simply wet down surface with fresh water. If needed, use brush to remove stubborn dirt. Rinse at high pressure from top to bottom in an even sweeping motion keeping the spray nozzle approximately 1 foot from cleaning surface. Use overlapping strokes as you clean and rinse any surface. For best surface cleaning action spray at a slight angle.

Recommendations:

- Before cleaning any surface, an inconspicuous area should be cleaned to test spray pattern and distance for maximum cleaning results.
- If painted surfaces are peeling or chipping, use extreme caution as pressure washer may remove the loose paint from the surface.
- Keep the spray nozzle a safe distance from the surface you plan to clean. High pressure wash a small area, then check the surface for damage. If no damage is found, continue to pressure washing.

CAUTION - Never use:

- Bleach, chlorine products and other corrosive chemicals
- Liquids containing solvents (i.e., paint thinner, gasoline, oils)
- Tri-sodium phosphate products
- Ammonia products
- Acid-based products

These chemicals will harm the machine and will damage the surface being cleaned.

RINSING

It will take a few seconds for the detergent to clear. Apply safety latch to spray gun. Select and install desired high pressure nozzle. **NOTE:** You can also stop detergent from flowing by removing detergent siphon tube from bottle.

PREVENTATIVE MAINTENANCE

1. Check to see that water pump is properly lubricated.
2. Follow Winterizing Procedures to prevent freeze damage to the pump and coils.
3. Always neutralize and flush detergent from system after use.
4. If water is known to be high in mineral content, use a water softener in your water system or de-scale as needed.
5. Do not allow acidic, caustic or abrasive fluids to be pumped through the system.
6. Always use high grade quality Landa cleaning products.
7. Never run pump dry for extended periods of time. Shut off timer will be set for two minutes.
8. Periodically delime coils per instructions.

It is advisable, periodically, to visually inspect the burner. Check air inlet to make sure it is not clogged or blocked. Wipe off any oil spills and keep this equipment **clean and dry**.

The areas around the Landa washer should be kept clean and free of combustible materials, gasoline and other flammable vapors and liquids.

The flow of combustion and ventilating air to the burner must not be blocked or obstructed in any manner.

Note: Pump damage may occur if ran in bypass longer than two minutes.

MAINTENANCE AND SERVICE

Spray Nozzles

Each machine is equipped with one or more spray nozzles, depending on model. Different spray nozzles are calibrated for each machine depending on the flow and pressure of that particular model. Spray nozzles vary in bore size and angle of spray. Popular spray angles are 0°, 15°, 25°, 40°. When ordering, please specify size and angle of nozzle. Nozzle size for each machine is located on the serial plate.

Unloader Valves:

Unloader valves are preset and tested at the factory before shipping. Occasional adjustment of the unloader may be necessary to maintain correct pressure.

Winterizing Procedure:

Damage due to freezing is not covered by warranty. Adhere to the following cold weather procedures whenever the washer must be stored or operated outdoors under freezing conditions.

During winter months, when temperatures drop below 32°F, protecting your machine against freezing is necessary. Siphoning a small amount of antifreeze into the system is recommended. This is done by pouring a 50:50 mix of antifreeze and water into the float tank and then siphoning 100% antifreeze through the detergent line with the pump on. If compressed air is available, an air fitting can be screwed into the float tank strainer fitting and by injecting compressed air, all water will be blown out of the system. The use of a draft diverter will prevent the wind chill factor from freezing the coil.

Low Pressure Diagnosis

(Machines with shut-off spray gun)

Refer to the Troubleshooting Chart for low pressure. If, after referring to the chart, the trouble is found to be either the unloader or the pump, your next step is to determine which one is the problem. This can be done by eliminating the unloader from the system and attaching a 50' discharge hose directly to the pump. If high pressure is developed in this manner the pump is good, and the unloader needs to be repaired or replaced. If low pressure is still present the pump needs repairing.

CAUTION: When using this procedure to test components, keep the spray gun open at all times.

High Limit Hot Water Thermostat:

For safety, each machine is equipped with a high limit control switch. In the event the temperature of the water should exceed its operating temperature, the high limit control will turn the burner off until the water cools.

Pumps:

Use only SAE 30 weight non-detergent oil. Change oil after first 50 hours of use. Thereafter, change oil every three months or at 500 hour intervals. Oil level should be checked through use of the dipstick found on the top of the pump or by the red dot visible through the oil gauge window. Oil should be maintained at that level.

MAINTENANCE & SERVICE

HEATING COIL

Condensation from Heating Coil

When cold water is being pumped into the water heater coil, and the burner is on, condensation will form on the coil and drip down into the burner compartment, giving the appearance of a leaking coil, particularly on cold humid days.

To Check Water Heater Coil for Leaks:

With the main burner "OFF" start machine and allow it to run a few minutes. Look into the burner compartment with a drop light or flashlight. If no leaks are visible, then water dripping from coil is from condensation.

Deliming Coil:

In alkaline water areas, lime deposits can accumulate rapidly inside the coil pipes. This growth is increased by the extreme heat build up in the coil. The best preventative for liming conditions is to use high quality cleaning detergents. In areas where alkaline water is an extreme problem, periodic use of Landa Deliming Powder will remove lime and other deposits before coil becomes plugged. (See Deliming Instructions for use of Landa Deliming Powder.)

Periodic coil delimiting is recommended.

1. Fill a container with 4 gallons of water, then add 1 lb. of delimiting powder. Mix thoroughly.
2. Remove nozzle from spray gun assembly and put spray gun into container.
3. Attach a short section (3-5 ft.) of garden hose to machine to siphon solution from an elevated container or add mixture to the float tank. Turn pump switch on allowing solution to be pumped through coil and back into the container. Solution should be allowed to circulate 2-4 hours.
4. After circulating solution flush entire system with fresh water. Reinstall nozzle in spray gun.

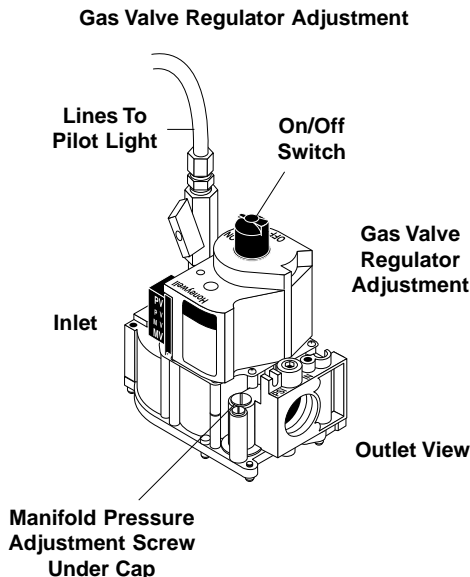
GAS VALVE REGULATOR ADJUSTMENT

Adjustment of the built-in regulator isn't normally necessary, since it is preset at the factory. However, field adjustment may be accomplished as follows:

1. Attach manometer at pressure tap port.
2. Remove regulator adjustment screw cap.
3. With a small screwdriver, rotate the adjustment screw clockwise to increase or counterclockwise to decrease gas pressure.

4. Replace regulator adjustment screw cap (see Figure 5 below).

Figure 5



Pressure Relief Valve

Each machine is equipped with a relief valve to relieve pressure in the system when higher than normal operating pressures are encountered. If operating pressure of machine is found to be normal and relief valve continues to leak, repair or replace the valve. **CAUTION:** Relief valve can become obstructed by deposits and must be unscrewed at least once per year to allow discharge.

PROPANE GAS

General Safety Precautions

Have a qualified gas service person assist in any gas burner installation or service. Few maintenance people or mechanics are knowledgeable in gas controls or related safety practices. Propane gas is heavier than air; unburned propane gas will gravitate to the floor rather than rise out of the stack. Hence, adequate floor space and good ventilation are especially important with propane systems.

Gas Pressure Requirements

All propane fired machines operate on vapor propane fuel only. They are designed to operate at a pressure of 11 w.c.i. (between 1/3 and 1/2 of one psi), and are often operated at even higher pressures when extra heat is needed.

MAINTENANCE & SERVICE

Exterior regulators are needed to control the system. Propane bottles are not included with the machine. A high pressure regulator should be installed on the propane bottle and a low pressure regulator attached to the pressure washer.

Propane Cylinder Capacity

An important consideration with propane systems is the capacity of the supply cylinder relative to the needs of the burner. The burner operates on propane as a vapor gas. As gas is used from the propane cylinder, the liquid in the cylinder boils to maintain vapor gas pressure. This boiling process cools the liquid, and in a heavy, continuous-demand situation, the liquid temperature can fall to the point at which it cannot provide vapor gas as rapidly as is needed. In this case, it may be necessary to warm the propane cylinder by directing a warm spray, not over 120°F, on the cold cylinder or by manifolding two propane bottles together to increase total vaporization capacity. It is recommended that a minimum 100 lb. vapor propane bottle be used on the machine, depending on the length of running time desired.

BURNER FEATURES

Operated Automatic Valve

This machine is equipped with an Intermittent Pilot Ignition System. This system is designed to eliminate the need for a constant burning pilot. Lighting of the pilot is accomplished through electronic spark ignition each time the burner and flow switch call for heat. The pilot is not burning when there is no call for heat. Do not attempt to light the appliance manually as a burn injury or electrical shock may result. The pilot light will remain on and the main gas valve is turned off when the spray gun is closed.

Care of Main Burner

Due to condensation from heater coils dripping down on the burners, scale build-up may occur in the burner jet orifices.

1. TO REMOVE BURNER MANIFOLD FROM WATER HEATER COIL:

Turn off the gas to the main burner by turning the knob to the "OFF" position on the gas valve and the main gas supply.

Disconnect the pilot and ignition lines from the gas valve. Disconnect union in main burner line below thermostat. Slide burner manifold out through shell opening.

2. TO CLEAN BURNER JETS:

Select proper size drill for type gas involved. Use pin vise to hold drill and ream out each jet orifice.

CAUTION: Do not ream out orifices to a larger size.

If the water heater will be exposed to freezing weather, an anti-freeze solution should be circulated through the coil by whatever means are available for the particular system the water heater is used on.

To Adjust Pressure Regulator

Adjustment of the pressure regulator is not normally necessary since it is preset at the factory. However, field adjustment may be accomplished as follows:

1. Manometer attachment may be accomplished at the pressure tap plug.
2. Remove regulator adjustment screw cap (see Figure 5, page 14).
3. With small screwdriver, rotate adjustment screw clockwise to increase, or counterclockwise to decrease pressure.
4. Replace regulator adjustment screw cap.

PREVENTATIVE MAINTENANCE

This pressure washer was produced with the best available materials and quality craftsmanship. However, you as the owner have certain responsibilities for the correct care of the equipment. Attention to regular preventative maintenance procedures will assist in preserving the performance of your equipment. Contact your Landa dealer for maintenance. Regular preventative maintenance will add many hours to the life of your pressure washer. Perform maintenance more often under severe conditions.

MAINTENANCE SCHEDULE		
Pump Oil	Inspect	Oil level daily
	Change	After first 50 hours, then every 500 hours or annually
Check and Tighten Belts		Every 3 months
Remove Burner Soot		Annually
Burner Adjustment/Cleaning		Annually
Clean Burner Nozzles		Annually
Descale Coil		Annually (More often if required)
Replace High Pressure Nozzle		Every 6 months
Replace Quick Couplers		Annually
Clean Water Screen/Filter		Weekly
Replace HP Hose		Annually (If there are any signs of wear)
Grease Motor		Every 10,000 hours

OIL CHANGE RECORD

Date Oil Changed Month/Day/Year	Estimated Operating Hours Since Last Oil Change

TROUBLESHOOTING - BURNER

PROBLEM	POSSIBLE CAUSE	SOLUTION
FLOW & BURNER SWITCH ON; NO SPARK, NO PILOT GAS	A. No main power	With power switch on, open trigger on spray gun and set your test meter to the 24 volt scale. Probe terminals 24V and 24V(GND). If you do not read 24 volts, the problem is not the ignition system. Perform normal system checks of main power, transformer, thermostat and the limit control. If you do read 24 volts at TH and GND, the problem is in the ignition system. Check for loose or defective wiring. If wiring is good, replace the ignition control unit.
	B. Faulty transformer	
	C. Faulty burner & flow switch	
	D. Faulty ignition control unit	
HAVE SPARK, NO PILOT GAS FLOW	Main gas supply turned off	Set test meter to 24 volt scale.
		1. Be sure main gas valve (gas cock or selector arm) is turned on.
		2. With gas on and system sparking, probe terminals PV and 24V(GND). If pilot gas does not flow with 24 volts at these terminals, replace gas valve.
		3. Probe terminals PV and MV/PV. If 24 volts not present, replace ignition control box.
HAVE PILOT GAS, NO SPARK	A. Defective ignitor/sensor and or its wiring	Set test meter to ohm scale.
		1. Disconnect the wire from the IGN terminal on the ignition control unit.
	B. Faulty ignition control unit	2. Touch one meter probe to the tip of the ignitor/sensor rod in the pilot. Touch the other probe to the quick connect at the other end of ignitor/sensor wire.
		3. If you have continuity from the tip of the ignitor/sensor rod to the connector and no spark, replace the ignition control unit.
		4. If you do not have continuity through wire and the ignitor/sensor, check for a loose wire connection in the wire. Repair as needed.
		5. Check to see if spark shorts to burner ring through a cut in the ignitor wire.

TROUBLESHOOTING - BURNER

PROBLEM	POSSIBLE CAUSE	SOLUTION
HAVE PILOT FLAME, MAIN BURNER WILL NOT TURN ON	Faulty main valve coil in the gas valve	Set test meter to 24 volt scale.
	Faulty ignitor/sensor and/or its wiring	With pilot flame on ignitor/sensor, probe terminals MV and MV/PV on the ignition control unit. If you read 24 volts here, but not at the gas valve, there is a loose wiring connection. Repair or replace a as needed.
	Ground wire not attached to machine chassis	If you do read 24 volts at MV and MV/PV and the pilot flame is impinging on the ignitor/sensor rod, the problems may be:
	Faulty ignition control unit	a. Faulty ignitor/sensor and/or its wiring.
		b. Faulty ignition control unit.
		Set test meter to the ohm scale. Turn burner switch off.
		Check continuity through the green ground wire and its connections.
Reconnect the ignitor/sensor wire and the ground wire.		
Turn burner switch on. With the pilot burning and the flame on the ignitor/sensor rod, the main burner should turn on. If it does not, replace the ignition control unit.		
SHORT-CYCLING OF MAIN BURNER. MAIN BURNER TURNS OFF BEFORE THE BURNER SWITCH OR FLOW SWITCH IS TURNED OFF	Draft condition pulls flame away from ignitor/sensor rod.	Check the thermostat by bypassing at terminals P1 & 1.
		Set thermostat high. With main burner on, observe the pilot flame impingement on the ignitor/sensor.
	Faulty thermostat or water temperature is too high	If pilot flame is small and draft condition pulls flame from ignitor sensor rod, the burner will turn off and then on again. a. Adjust pilot flame higher or clean pilot oriface. b. Bend ignitor/sensor rod closer to pilot flame.
		If flame impingement on the ignitor/sensor is stable and the system short-cycles, check the limit switch.
		Set test meter to 110 volt scale a. When the system cycles off, probe the switch terminals of the limit switch. b. If you read 24V accross the switch terminals the limit switch is open. Replace the limit switch.
A pilot flame set too high will also cause burner to short cycle. Pilot flame lifts over ignitor/sensor.		

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
LOW OPERATING PRESSURE	Faulty pressure gauge	Install new gauge.
	Insufficient water supply	Use larger garden hose; clean filter washer at water inlet.
	Old, worn or incorrect spray nozzle	Match nozzle number to machine and/or replace with new nozzle.
	Belt slippage	Tighten or replace; use correct belt.
	Plumbing or hose leak	Check plumbing.
	Faulty or misadjusted unloader valve (where applicable)	Adjust unloader for proper pressure. Install repair kit when needed.
	Worn packing in pump	Install new packing kit.
	Fouled or dirty inlet or discharge valves in pump	Clean inlet and discharge valves.
	Worn inlet or discharge valves	Replace with valve kit.
	Obstruction in spray nozzle	Remove obstruction.
	Leaking pressure control valve (where applicable)	Rebuild or replace as needed.
	Detergent metering valve left open sucking air, or faulty metering valve	Close and/or replace metering valve.
	Slow motor RPM	Check incoming voltage.
LOW WATER TEMPERATURE	Improper size of gas lines	See pages 7-8 for sizing of gas lines.
	Low gas pressure	Increase gas pressure to machine.
	Improper pressure regulator	Specify BTU, building gas pressure and 11 w.c.i. to machine for correct sizing of regulator.
	Low gas valve pressure	Increase gas pressure as described on page 14.
	Soot buildup on coils not allowing heat transfer	Clean coils.
	Improper burner nozzle	See exploded view parts list.

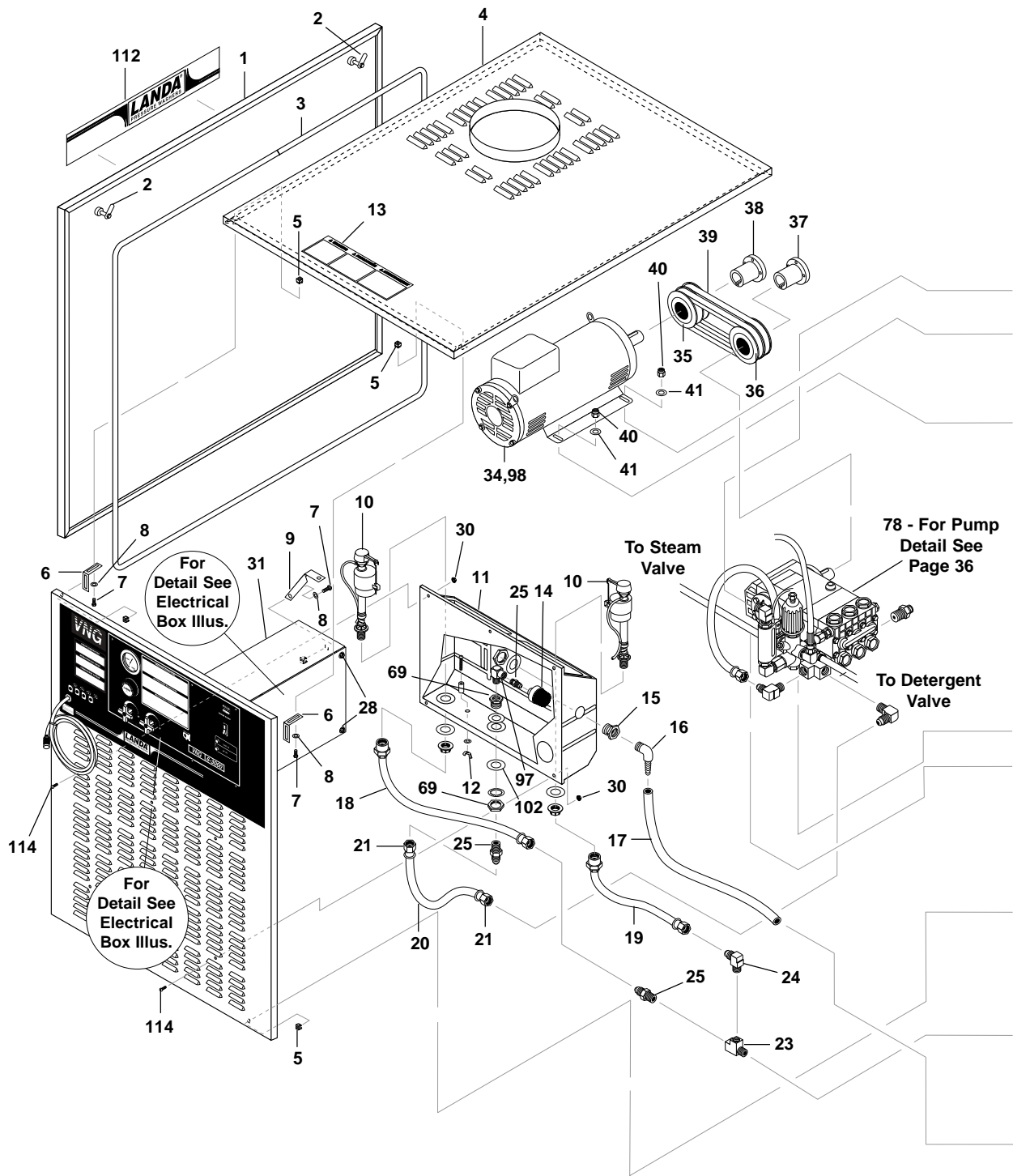
TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
WATER TEMPERATURE TOO HOT	Incoming water to machine warm or hot	Lower incoming water temperature.
	Gas pressure too high	Call local gas company.
	Detergent line sucking air	Tighten all clamps. Check detergent lines for holes.
	Defective high limit switch	Replace.
	Incorrect burner nozzle size	See exploded view parts list.
	Insufficient water supplied	Check water G.P.M. to machine.
	Restricted water flow	Check nozzle for obstruction, proper size.
DETERGENT NOT DRAWING	Air leak	Tighten all clamps. Check detergent lines for holes.
	Detergent metering valve packing not tight or packing worn	Tighten nut. Replace valve or packing.
	Filter screen on detergent suction hose plugged	Clean or replace.
	Dried up detergent plugging metering valve	Disassemble and clean thoroughly.
	High viscosity of detergent	Dilute detergent to specifications.
	Restriction behind float tank screen removed	Install restriction.
	Hole in detergent line(s)	Repair hole.
	Strainer basket plugged	Remove and clean.
	Connections on selector valve loose	Put teflon tape on all pipe connections.
	Detergent solenoid not opening (where applicable)	Check flow switch, replace detergent solenoid.
PUMP RUNNING NORMALLY BUT PRESSURE LOW ON INSTALLATION	Pump sucking air	Check water supply and possibility of air seepage.
	Valves sticking	Check and clean or replace if necessary.
	Unloader valve seat faulty	Check and replace if necessary.
	Nozzle incorrectly sized	Check and replace if necessary (see serial plate for proper size).
	Worn piston packing	Check and replace if necessary.

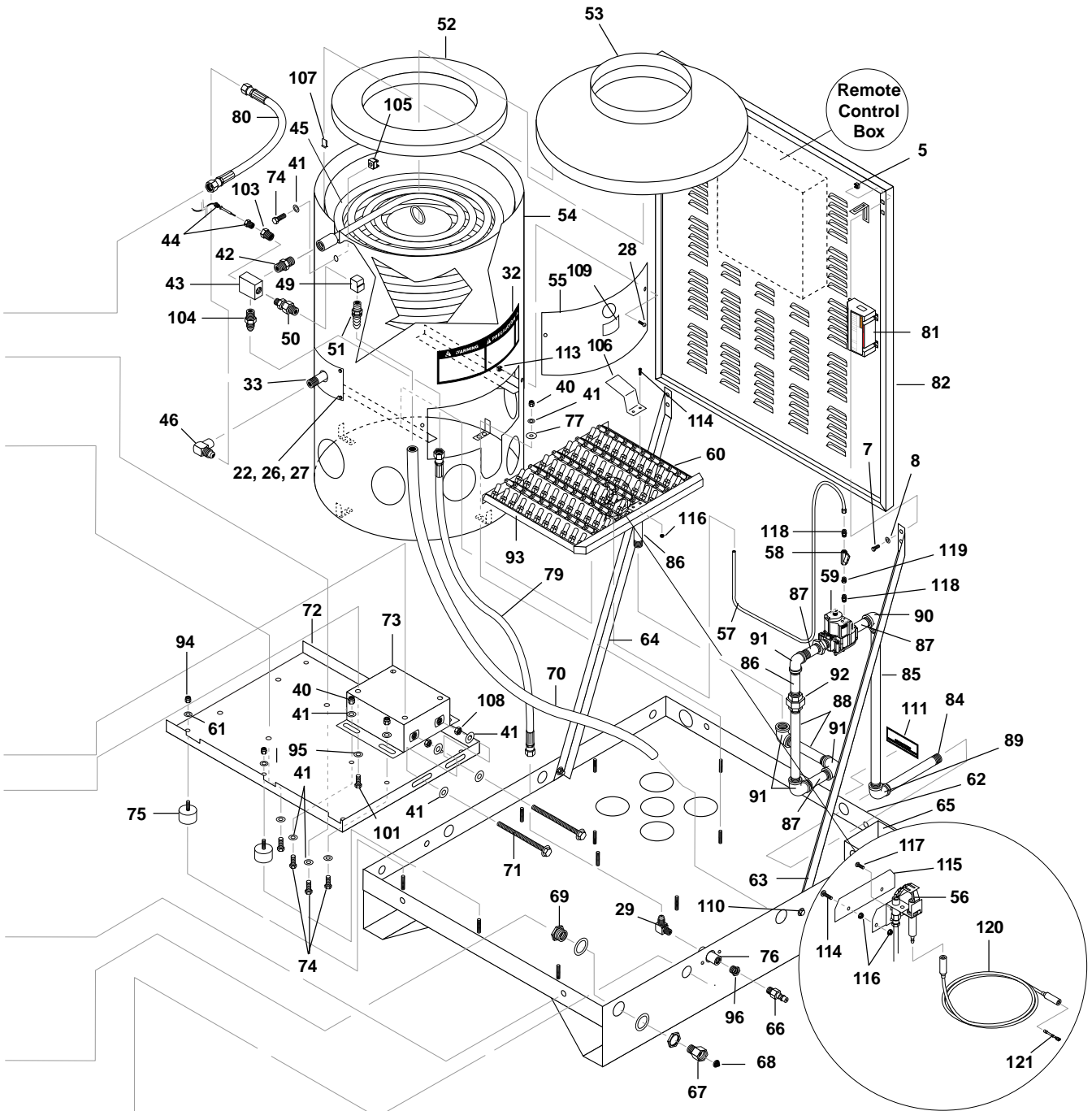
TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
FLUCTUATING PRESSURE	Valves worn	Check and replace if necessary.
	Blockage in valve	Check and replace if necessary.
	Pump sucking air	Check water supply and air seepage at joints in suction line.
	Worn piston packing	Check and replace if necessary.
PUMP NOISY	Air in suction line	Check water supply and connections on suction line.
	Broken or weak inlet or discharge valve springs	Check and replace if necessary.
	Excessive matter in valves	Check and clean if necessary.
	Worn bearings	Check and replace if necessary.
PRESENCE OF WATER IN OIL	Oil seal worn	Check and replace if necessary.
	High humidity in air	Check and change oil twice as often.
WATER DRIPPING FROM UNDER PUMP	Piston packing worn	Check and replace if necessary.
	O-ring plunger retainer worn	Check and replace if necessary.
OIL DRIPPING	Oil seal worn	Check and replace if necessary.
EXCESSIVE VIBRATION IN DELIVERY LINE	Irregular functioning of the valves	Check and replace if necessary.
RELIEF VALVE LEAKS WATER	Relief valves defective	Replace or repair.

EXPLODED VIEW - 4-2000, 4-3000



EXPLODED VIEW - 4-2000, 4-3000



4-2000, 4-3000 EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	95-07163062	Panel, Side VNG-S	2	44	4-05088	Thermostat, General 302°	1
2	90-50033	Latch, Vise Action	4	45	95-07121220	Coil, Dura 20" Dia, Sch 80	1
3	2-011041	Trim, w/Sponge	26.5 ft.	46	2-00602	Elbow, 1/2", 90°, Female, JIC	1
4	95-07163057	Panel, Top VNG-S	1	47	2-1118	Connector, 1/4" Tube x 1/4" MPT	1
5	90-2022	Nut, Cage, 1/4" x 16 Gauge	26	48	4-02021236	Hose, 1/4" x 36" Gauge	1
6	95-0763034	L-Bracket, VNG	4	49	2-1019	Elbow, 3/8" Female	1
7	90-1001	Bolt, 1/4" x 3/4" NC HH	21	50	2-3409	Disk, Rupture Assy, 7000 PSI	1
8	90-4000	Washer, 1/4" Flat SAE	21	51	2-1108	Hose Barb, 1/2" Barb x 3/8" MPT, Push-On	1
9	95-07163032	Brace, VNG Electrical Box	1	52	7-01415	Insulation, Tank Head, 20"	1
10	2-3014	Valve, Fluidmaster 400A	2	53	95-07163099	Top, Burner Wrap, 20"	1
11	2-01164	Tank, Plastic, Universal Float	1	54	95-07163094	Wrap, Outer Assy, 20"	1
12	2-0151	Plug, Float Tank	1	55	95-07163097	Cover, Burner Access, 20" Coil	1
13	10-99083	Label, Warning, Hot Water	1	56	7-702371	Pilot, Natural Gas Pilot	1
14	2-1906	Strainer, 1/2" Basket	1	57	7-0150	Tubing, Aluminum	29"
15	2-010058	Bulkhead, 3/4" Polypro	1	58	2-3006	Valve, 1/4" Jomar, T-91LP, Ball	1
16	2-0100379	Adapter, 3/4" x 3/4" MT x Insert, 90°	1	59	7-700021	Valve, Gas VR8304	1
17	4-02120000	Hose, 3/4" Push-on	2.5 ft.		7-702320	▲ LPG Regulator Kit (LP Gas Valve Conversion Kit)	1
18	4-02100030	Inlet Hose, 30", Water Supply	1	60	95-031610/54	Burner Assy, Square, Small/#54	1
19	4-02100013	Inlet Hose, 13", Water Supply	1		95-031610/65	Burner Assy Square, Small/#65 (LP Option)	1
20	4-02110000	Hose, 1/2" Push-on	1.5 ft.		90-10130	▲ U-Bolt, 5/16" x 1" Pipe	2
21	2-1105	Swivel, 1/2" JIC Fem, Push-on	2	61	90-4001	Washer, 5/16" Flat, SAE	6
22	90-2999	Screw, Tek, #10 x 1/2"	4	62	95-07163052	Base, VNG, Small	1
23	2-1042	Tee, 1/2" Street	1	63	95-07163066	Brace, Left Side, VNG-S	1
24	2-1062	Elbow, 1/2" JIC x 1/2" Pipe 90°	1	64	95-07163064	Brace, Right Side VNG-S	1
25	2-1053	Nipple, 1/2" JIC x 1/2"	3	65	6-04110	Box, Junction 3 Hole, 3/4"	1
26	7-0144	Gasket, Burner Plate	1		6-0102	▲ Cord, Service 8/3 (4-3A,G)	6 ft.
27	95-07121113	Plate, Insulation Retainer	1		6-0108	▲ Cord, Service 10/3 (4-2A,G)	6 ft.
28	90-19942	Screw, 10/32" x 3/4" HEX	6		6-0109	▲ Cord, Service 10/4 (4-3B, C, H)	6 ft.
29	2-0054	Elbow, 1/2" JIC x 1/2" 90°	1		6-0105	▲ Cord, Service, 12/4 (4-2B, C, F, H; 4-3F)	6 ft.
30	90-017	Nut, 10/32" KEPS	6		11-1042	▲ Label, Ground	1
31	95-07163028	Box, Electrical, VNG	1	65	90-30021	▲ Screw, #14 x 3/4", Tek	2
32	10-99077	Label, Pilot Light Warning	1		6-0517	▲ Strain Relief, 3/4"	1
33	2-00091	Nipple, 1/2" x 3" Galv. Pipe	1		6-0411	▲ Cover, 2" x 4", Metal	1
34		Motor, See Specifications Pages	1	66	2-2007	Nipple, 3/4" x 3/8", NPT ST Male	1
35		Pulley, Motor, See Specifications Pages	1	67	2-10942	Swivel, 1/2" MP x 3/4" GHF	1
36		Pulley, Pump, See Specifications Pages	1	68	2-1902	Strainer, Inlet, Garden Hose	1
37		Bushing, Pump, See Spec's Pages	1	69	2-11041	Connector, 1/2", Anchor	1
38		Bushing, Motor, See Spec's Pages	1	70	4-02110000	Hose, 1/2", Push-On	4 ft.
39		Belt, See Specifications Pages	1	71	90-1025	Bolt, 3/8" x 5-1/2" NC HH Tap	2
40	90-2002	Nut, 3/8" ESNA	12				
41	90-4002	Washer, 3/8" Flat, SAE	32				
42	2-0008	Nipple, 1/2" Hex, Steel	1				
43	95-07101226	Block, Discharge, Brass 1/2" x 1/2"	1				

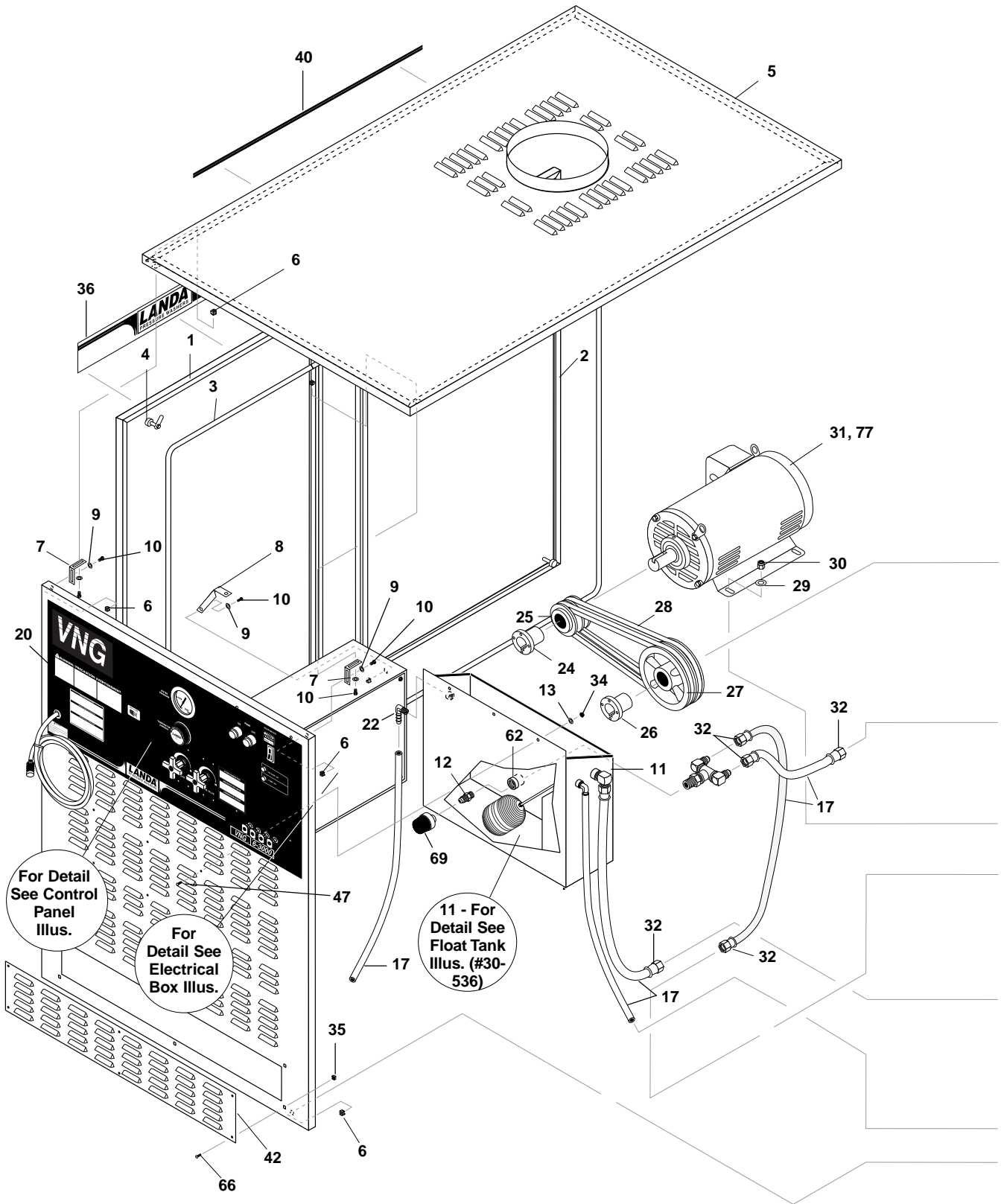
4-2000, 4-3000 EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
72	95-071210136	Platform, Motor 3/16"	1
73	95-07121112	Rail, Pump, General Combo	1
74	90-1016	Bolt, 3/8" x 1" NC HH	16
75	2-01011	Isolator, 5/16" Fem x Fem	6
76	95-07163036	Discharge Assy	1
	90-1998	Screw, 1/4" x 3/4"	2
	90-2000	Nut, 1/4" ESNA	2
77	90-4007	Washer, 5/16" Fender	4
78		Pump, See Specifications Pages	1
79	4-02047740	Hose, 3/8" x 40", 2 Wire	1
80	4-02047725	Hose, 3/8" x 25", 2 Wire	1
81	7-701510	Ignition, Electronic Control	1
	90-1991	▲ Screw, 10/32" x 1/2"	4
	90-017	▲ Nut, 10/32" Keps	4
82	95-07163060	Panel, Burner End	1
83	6-03901	Box, Metal, Junction, 12" x 12" x 4" Remote	1
84	2-00132	Nipple, 1" x 6" Black Pipe	1
85	95-07163077	Pipe, 1" NPT x 18" Black	1
86	2-00162	Nipple, 3/4" x 3" Black Pipe	2
87	2-00163	Nipple, 3/4" x 2" Pipe	3
88	2-00164	Nipple, 3/4" x 6" Black, Pipe	2
89	2-00291	Elbow, 1" Black Pipe, 90°	1
90	2-00295	Elbow, 1" x 3/4" Reducing, 90°	1
91	2-00293	Elbow, 3/4" Black, 90°	4
92	2-0087	Union, 3/4" Black Pipe	1
93	7-7030	Jet Orifice, NG #54	46
	7-7022	Jet Orifice, LP #69 (See Chart page 41)	46
94	90-2001	Nut, 5/16" ESNA	6
95	1-96710600	Washer	4
96	2-00681	Bushing, 1/2" x 3/8" Steel	1
97	2-1024	Elbow, 1/2" Street, Brass	1

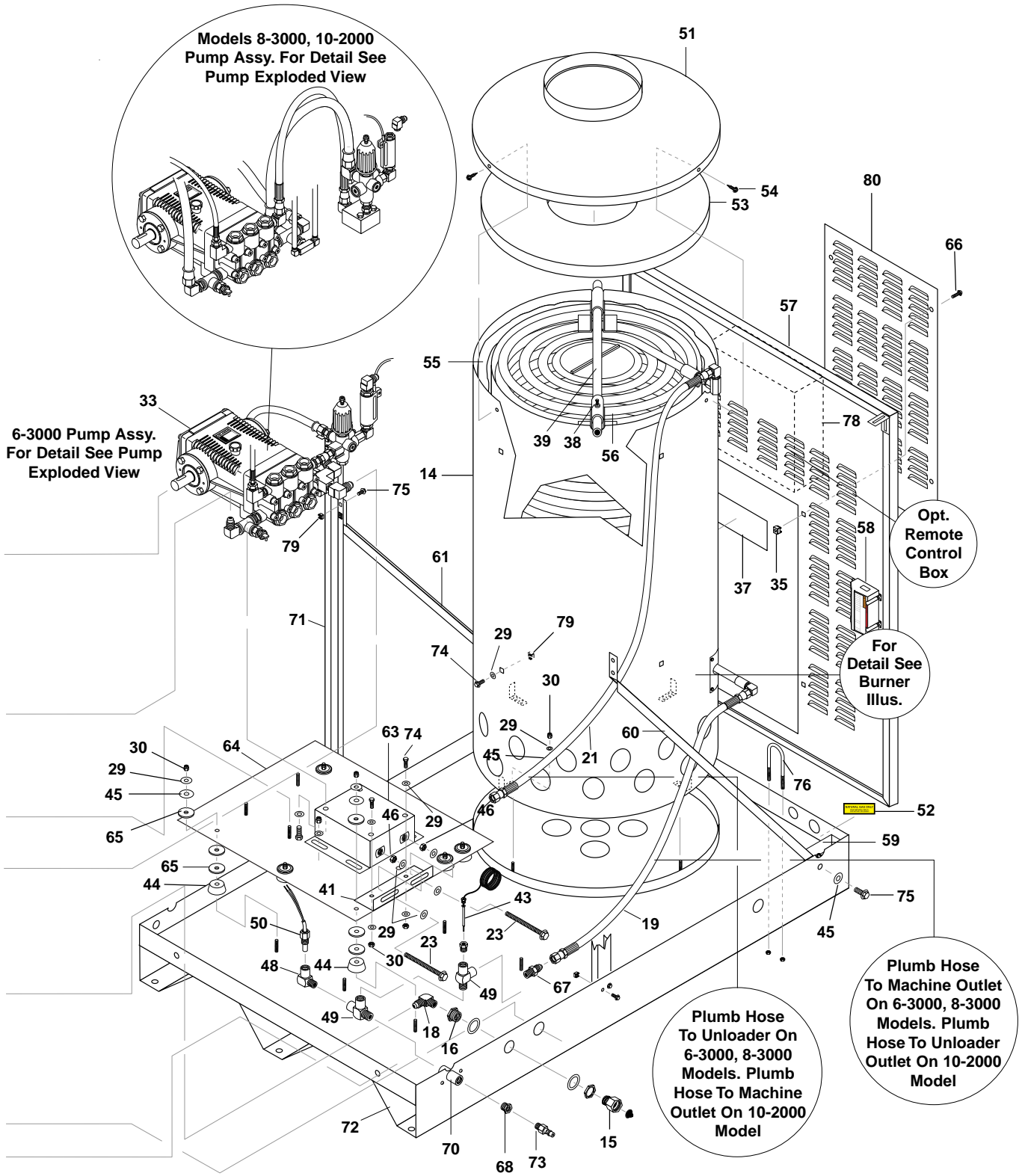
ITEM	PART NO.	DESCRIPTION	QTY
98	6-0102	▲ Cord, Service, SO, 8/3 Coleman (4-3A, G)	4.25 ft.
	6-0108	▲ Cord, Service, SEO, 10/3, Coleman (4-2A, G)	4.25 ft.
	6-0109	▲ Cord, Service, SO, 10/4 Coleman (4-3B, C, H)	4.25 ft.
	6-0105	▲ Cord, Service, SEO, 12/4 Coleman (4-2B,C,F,H;4-3F)	4.25 ft.
	6-0517	Strain Relief, 3/4" (4-2)	1
	6-05171	Strain Relief, 1" (4-3)	1
99	90-199940	Screw, 10/32" x 1/4" Hex	2
100	2-001359	Bushing, 1" x 3/4"	1
101	1-99364400	Bolt, Pump Mounting	4
102	2-4017	Washer, 1-3/16" x 2-1/4"	1
103	2-00742	Adapter, 1/2" x 1/2" Pipe STL	1
104	2-0052	Nipple, 1/2" JIC x 1/2" Pipe	1
105	90-2020	Nut, 3/8" x 12 Gauge, Cage	8
106	95-07163085	Splash Guard, Pilot Light	1
107	90-50045	Clips, Retaining	4
108	90-2007	Nut, 3/8" Hex, NC	2
109	10-99032	Label, Pilot Light	1
110	90-1996	Screw, 3/8" x 3/4" HH NC, Whiz 2	
111	10-02023	Label, Liquid Propane	1
	10-02024	Label, Natural Gas	1
112	10-99028	Label, VNG Landa Stripe	2
113	90-2018	Nut, 10/32 x 16 Gauge, Cage	2
114	90-1991	Screw, 10/32" x 1/2" Black	6
115	95-07166000	Bracket, Pilot Access	1
116	90-017	Nut, 10/32" Keps	6
117	90-19942	Screw, 10/32" x 3/4" Hex	2
118	2-1117	Connector, 1/4" Tube x 1/8" MPT	1
119	2-1072	Bushing, 1/4" x 1/8" Bushing	1
120	6-01352	Cable, Ignition, 48"	1
121	7-701511	Connector, Transition	1

▲ Not Shown

EXPLODED VIEW - 6-3000, 8-3000, 10-2000



EXPLODED VIEW - 6-3000, 8-3000, 10-2000



6-3000, 8-3000, 10-2000 EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	95-07163020	Panel, Side, Small, VNG-L	2
2	95-07163018	Panel, Side, Large, VNG-L	2
3	2-011041	Trim, 1/16", w/Sponge	55 ft.
4	90-50033	Latch, Vise Action	8
5	95-07163010	Panel, Top, VNG-L	1
6	90-2022	Nut, Cage, 1/4" x 16 Gauge	26
7	95-07163034	L-Bracket, VNG	8
8	95-07163032	Brace, VNG, Electrical Box	1
9	90-4000	Washer, 1/4", Flat, SAE	22
10	90-1001	Bolt, 1/4" x 3/4"	22
11	30-536	Float Tank Assy	1
12	2-1053	Nipple, 1/2" JIC x 1/2" Pipe	1
13	90-40002	Washer, 1/4" Black	3
14	95-07163087	Module, Wrap, Outer, Large	1
15	2-10942	Swivel, 1/2" MP x 3/4" GHF	1
16	2-11041	Connector, 1/2" Anchor	1
17	4-02120000	Hose, 3/4" Push-On	15.75 ft.
18	2-10630	Elbow, 3/4" JIC x 1/2", 90°	1
19	4-02067754	Hose, 1/2" x 54", 2 Wire Pressure Loop (6-3, 8-3)	1
	4-02047732	Hose, 1/2" x 36", 2 Wire, Pressure Loop (10-2)	1
20	10-99083	Label, Warning, Hot Water	1
21	4-02067754	Hose, 1/2" x 54", 2 Wire Pressure Loop (6-3, 8-3)	1
	4-02067754	Hose, 1/2" x 70", 2 Wire Pressure Loop (10-2)	1
22	2-0100379	Adapter, 3/4" x 3/4" MT Insert, 90°	2
23	90-1025	Bolt, 3/8" x 5-1/2" NC HH	2
24		Motor Bushing, See Specifications Pages	1
25		Motor Pulley, See Specifications Pages	1
26		Bushing, See Specifications Pages	1
27		Pump Pulley, See Specifications Pages	1
28		Pump Belt, See Specifications Pages	3
29	90-4002	Washer, 3/8" Flat (6-3) (8-3, 10-2)	35 37
30	90-2002	Nut, 3/8" ESNA, NC (6-3) (8-3, 10-2)	21 23
31		Motor, See Specifications Pages	1
32	2-11050	Swivel, 3/4" Female, Push-On	6
33		Pump, See Specifications Pages	1
34	90-017	Nut, 10/32" Keps	3
35	90-2018	Nut, Cage, 10/32" x 16 Gauge	12
36	10-99027	Label, VNG Stripe	2
37	10-99077	Label, Pilot Warning Light	1

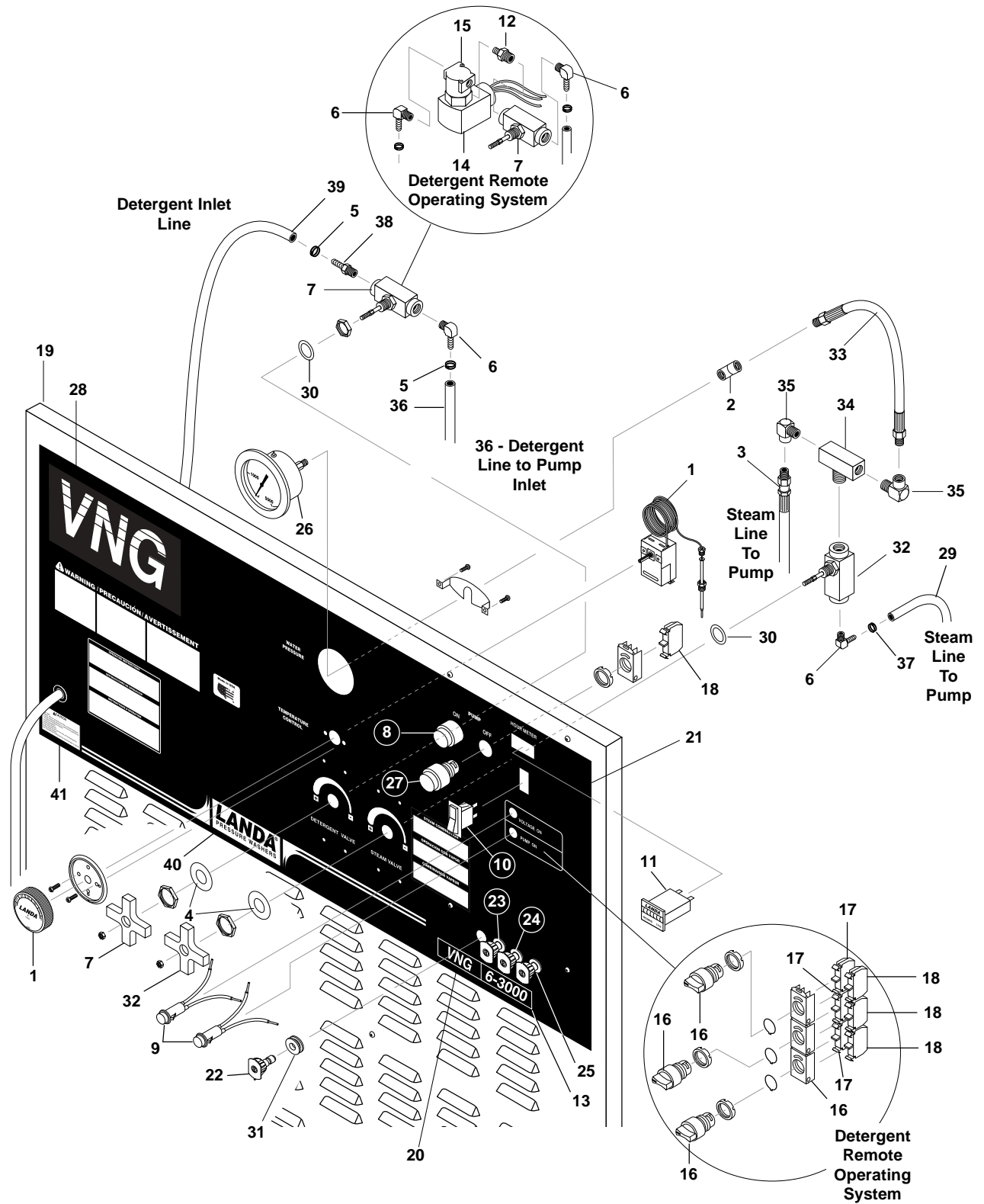
ITEM	PART NO.	DESCRIPTION	QTY
38	95-03161010	Bolt, 3/8" x 1-1/4" NC, Black	1
39	95-07121225	Crosshanger, 1", SCH 80	1
40	10-99028	VNG, Landa Stripe	2
41	95-07141112	Retainer, Pump Take-Up	1
42	95-07163013	Panel, Pully Access	1
43	4-05088	Thermostat, Adjustable, 302°F	1
44	2-01041	Pad, Foot, Soft Rubber	7
45	90-4007	Washer, 3/8" x 1-1/2" Fender	13
46	90-2007	Nut, 3/8" Hex, NC	2
47	90-1999	Screw, 10/32" x 3/4" BH SOC	3
48	2-0032	Elbow, 1/2" Street	1
49	2-0046	Tee, 1/2" Street	2
50	4-05091	Switch, Snap, 275° Hi-Limit	1
51	95-071630751	Top, Burner Wrap, 30" ENG/VNG Large	1
52	10-02024	Label, Natural Gas	1
	10-02023	Label, Liquid Propane	1
53	7-014834	Insulation, Tank Head 30"	1
54	90-300210	Screw, Tek #14 x 1"	3
55	7-014844	Insulation Blanket, Die-Cut	1
56	95-07121224	Coil, 25" Dia. VNG-L	1
57	95-07163014	Panel, Burner End, VNG-L	1
58	7-701510	Ignition, Control Electric	1
	90-1991	▲ Screw, 10/32" x 1/2"	4
	90-017	▲ Screw, 10/32" Keps	4
59	6-041100	Box Junction (6-3B, H; 8-3B, H; 10-2B, H)	1
	6-04110	Box, Junction, 3 Hole (6-3C, F; 8-3C, F; 10-2C, F)	1
	6-0517	▲ Strain Relief, 3/4" (6-3C, F; 8-3C, F; 10-2C, F)	1
	6-05171	▲ Strain Relief, 1" (6-3B, H; 8-3C, F; 10-2B, H)	1
	90-30021	▲ Screw, #14 x 3/4" Tex	2
	11-1042	▲ Label, Ground	1
	6-0109	▲ Cord, Service, 10/4 (6-3C; 8-3C; 10-2C)	8.5 ft.
59	6-0411	▲ Cover, 2" x 4", Metal	1
	6-01033	▲ Cord, Service, SO, 4/4 (8-3B, H; 10-2B, H)	8.5 ft.
	6-01031	▲ Cord, Service, SO, 6/4 (6-3B, H)	8.5 ft.
	6-0105	▲ Cord, Service, SEO, 12/4 Coleman (6-3F; 8-3F; 10-2F)	8.5 ft.
60	95-07163026	Brace, Right Side, VNG-L	1
61	95-07163024	Brace, Left Side, VNG-L	1
62	2-1081	Bushing, 3/4" x 1/2" Pipe	1

6-3000, 8-3000, 10-2000 EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
63	95-07121112	Rail, Pump (6-3)	1
	95-071211129	Rail, Pump (8-3,10-2)	1
64	95-07163042	Power Platform, VNG-L	1
65	2-0108	Bumper Pad, Engine	21
66	90-1991	Screw, 10/32" x 1/2"	12
67	2-0052	Nipple, 1/2" JIC x 1/2" Pipe	1
68	2-00681	Bushing, 1/2" x 3/8", Steel	1
69	2-1906	Strainer, 1/2" Basket	1
70	95-07163036	Coupling, Discharge, VHG	1
	90-1998	▲ Screw, 1/4" x 3/4"	2
	90-2000	▲ Nut, 1/4" ESNA	2
71	95-07163022	Vertical Brace, VNG-L	2
72	95-07163000	Base, VNG-L	1
73	2-2007	Nipple, 3/8" x 3/8" NPT ST, Male	1
74	90-1016	Bolt, 3/8" x 1", NC HH	10
75	90-1996	Screw, 3/8" x 3/4", 12 Gauge	14
76	90-10130	U-Bolt, 5/16" x 1" Pipe	1
77	6-0109	▲ Cord, Service, SO , 10/4, (6-3C; 8-3C; 10-2C)	8.25 ft.
	6-01033	▲ Cord, Service, SO, 4/4, (8-3B, H; 10-2B, H)	8.25 ft.
	6-01031	▲ Cord, Service, SO, 6/4, (6-3B,H)	8.25 ft.
	6-0105	▲ Cord, Service, SEO, 12/4, (6-3F; 8-3F; 10-2F)	8.25 ft.
	6-05171	▲ Strain Relief, 1"	1
78	6-03901	Box, Metal, 12" x 12" x 4" (Optional)	1
79	90-2020	Nut, 3/8" x 12 Gauge, Cage	22
80	95-07163016	Cover, Burner Access	1

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CONTROL PANEL ASSEMBLY



CONTROL PANEL PARTS LIST

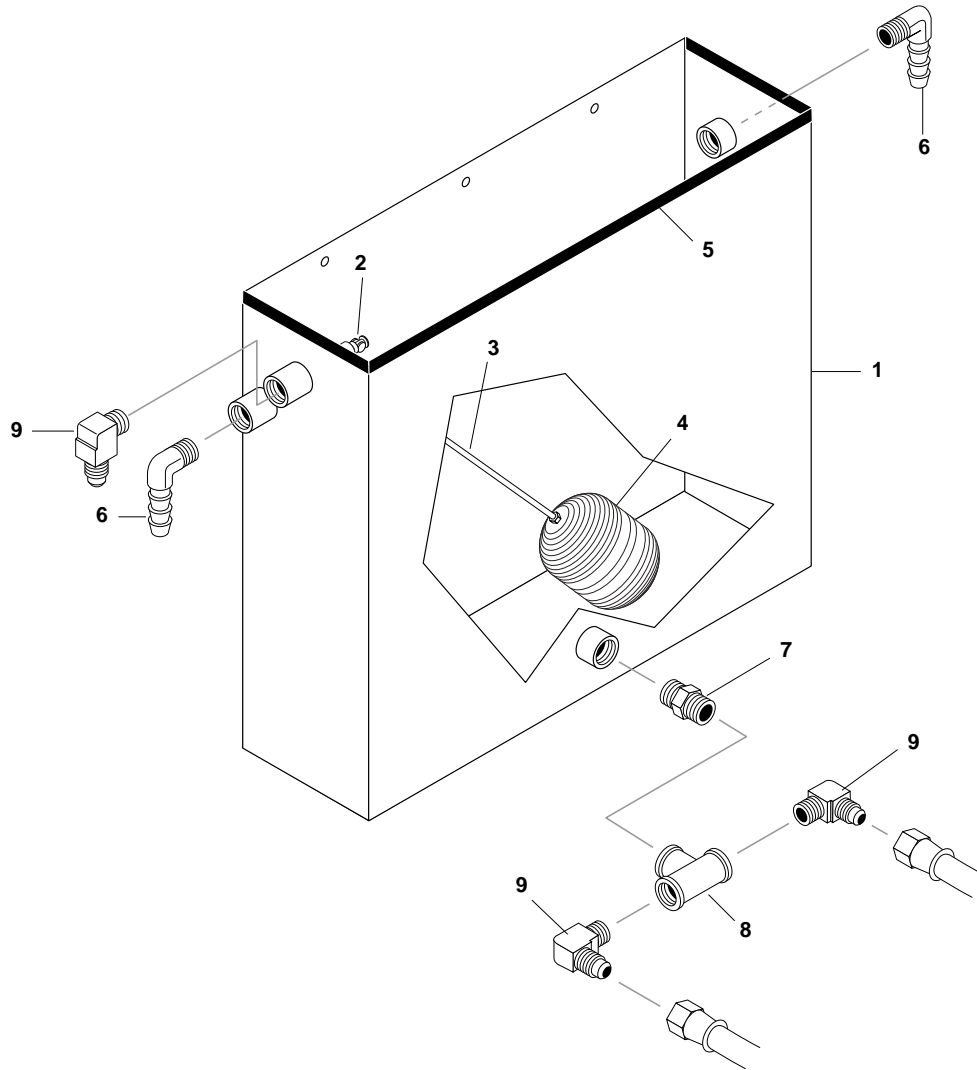
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	4-05088	Thermostat, General, 302°	1	22	4-12805500	Nozzle, 0005.5 Red (4-2A,B,C, G,H)	1
2	2-0026	Elbow, 1/4" Female Pipe	1		4-12805000	Nozzle, .0005 Red (4-2F)	1
3	4-02021236	Hose, 1/4" x 36", 2 Wire Ga. (S)	1		4-12806500	Nozzle, 0006.5 Red (6-30021)	1
4	90-4005	Washer, 5/8" Flat	2		4-12807000	Nozzle, 0007 Red (6-30024)	1
5	2-9040	Clamp, Hose, UNI .46 - .54	2		4-12809000	Nozzle, 0009 Red (8-3)	1
6	2-1089	Hose Barb, 1/4" Barb, 90°	3		4-12815000S	Nozzle, 0015 Red (10-2)	1
7	2-3015	Valve, Control Metering	1	23	4-12805515	Nozzle, 15055 Yellow (4-2A, B, C, G, H)	1
8	6-2021	Switch Green, Push Button	1		4-12805015	Nozzle, 1505 Yellow (4-2F)	1
	6-2023	Switch, 2 Position CH, Auto Start Option	1		4-01404015	Nozzle, 1504 Yellow (4-3F)	1
9	6-020530	Light, Indicator, Green, 125V	2		4-12804515	Nozzle, 1504.5 Yellow (4-3)	1
10	6-020251	Switch, Curvette (Burner)	1		4-12806515	Nozzle, 1506.5 Yellow (6-30021)	1
11	4-050822	Meter, Hour, 115V	1		4-12807015	Nozzle, 1502 Yellow (6-30024)	1
12	2-1003	Nipple, 1/4" Hex	1		4-12819015	Nozzle, 1509 Yellow (8-3)	1
13	10-204200	Label, 4-2000	1		4-12815015S	Nozzle, 1515 Yellow (10-2)	1
	10-204300	Label, 4-3000	1	24	4-12805525	Nozzle, 2505.5 Green (4-2A, B,C,G,H)	1
	10-206300	Label, 6-3000	1		4-12805025	Nozzle, 2505 Green (4-2F)	1
	10-208300	Label, 8-3000	1		4-01404025	Nozzle, 2504 Green (4-3F)	1
	10-2102000	Label, 10-2000	1		4-12804525	Nozzle, 2504.5 Green (4-3)	1
14	6-140160	Solenoid Coil, 120V (Remote)	1		4-12806525	Nozzle, 2506.5 Green(6-30021)	1
15	6-1401590	Valve, Det. Less Coil (Remote)	1		4-12807025	Nozzle, 2507 Green (6-30024)	1
16	6-2020	Switch, Selec CH (Remote)	3		4-12819025	Nozzle, 2509 Green (8-3)	1
17	6-2001	Block, Con. CH N/O Auto Start (Remote w/Auto Start)	1		4-12815025S	Nozzle, 2515 Green (10-2)	1
		Time Delay	4	25	4-12805540	Nozzle, 4005.5 White (4-2A, B, C, G, H)	1
		(Remote w/Time Delay)	1		4-12805040	Nozzle, 4005 White, (4-2F)	1
			3		4-01404040	Nozzle, 4004 White (4-3F)	1
18	6-2000	Block, Con. CH N/C Time Delay (Remote w/Auto Start)	2		4-12804540	Nozzle, 4004.5 White (4-3)	1
		(Remote w/Time Delay)	2		4-12806540	Nozzle, 4006.5 White (6-30021)	1
			3		4-12807040	Nozzle, 4007 White (6-30024)	1
19	95-07163058	Panel, Control, VNG Small	1		4-12819040	Nozzle, 4009 White (8-3)	1
	95-07163012	Panel, Control, VNG Large	1		4-12815040S	Nozzle, 4015 White (10-2)	1
20	10-020VNG	Label, VNG Lexan	1	26	4-05035	Gauge, 0-5000 PSI (4-3, 4-2, 6-3, 8-3, 10-2)	1
	10-020VLP	Label, VLP Lexan	1	27	6-2022	Switch, Red, Push Button	1
21	10-99035	Label, VNG Control Panel	1	28	10-99016	Label, VNG Logo	1
	10-99015	Label, VNG Control Panel (Auto Start Option)	1	29	4-02100000	Hose, 1/4", Push-On, (Small)	36"
	10-99031	Label, VNG Control Panel (Remote Option)	1			(Large)	40"
22	4-01404000	Nozzle, 0004 Red (4-3F)	1	30	90-40073	Washer, 5/8" Star	2
	4-12804500	Nozzle, 0004.5 Red (4-3)	1	31	2-0103	Grommet, Rubber, Nozzle	4
				32	2-30151	Valve, Metering Steam	1
				33	4-02021216	Hose, 1/4" x 16", 2 Wire Gauge	1
				34	2-00340	Tee, 1/4" Branch Male, Steel	1
				35	2-0030	Elbow, 1/4" Street	2

CONTROL PANEL PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
36	4-02090000	Tube, Braided Vinyl (Small) (Large)	36" 41"
37	2-9000	Clamp, Screw	1
38	2-1085	Hose Barb, 1/4" Barb x 1/4	1
39	4-02080000	Tube, 1/4" x 1/2", Clear Vinyl	10 ft.
	2-1905	▲ Strainer, 1/4" Brass	1
40	10-99079	Label, Landa Stripe	1
41	9.800-049.0	Label, Manuf. Cleaning Solution1	

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VNGL FLOAT TANK (#30-536) EXPLODED VIEW

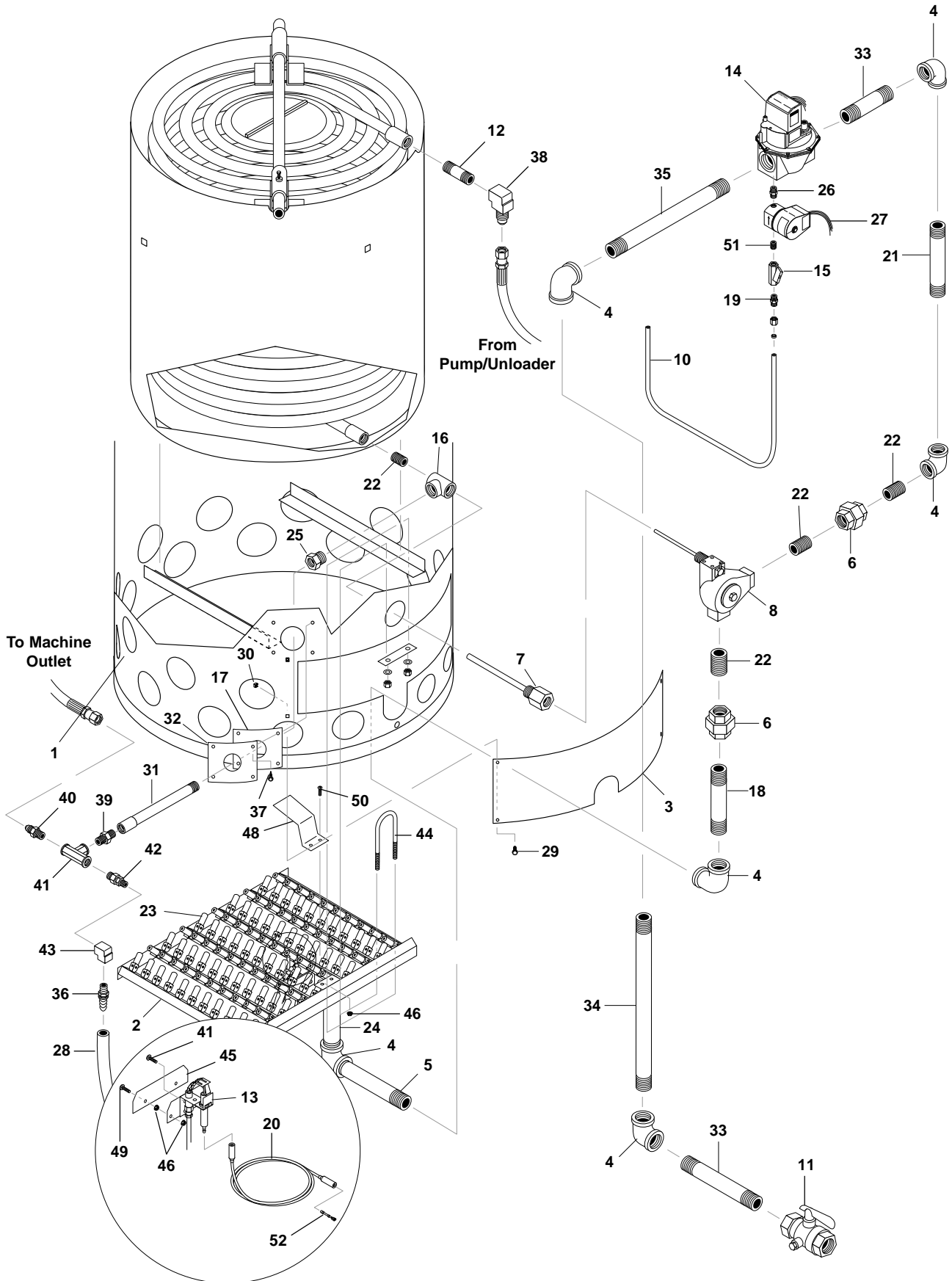


VNGL FLOAT TANK (#30-536) PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	95-07163021	Assembly, Float Tank, S.S.	1	7	2-1009	Nipple, 3/4" Hex, Brass	1
2	2-30110	Valve, Float, 3/4" Brass	1	8	2-1033	Tee, 3/4" Female Pipe	1
3	2-1112	Stem, 10" Float	1	9	2-10620	Elbow, 3/4" SAE x 3/4", 90°, Brass	3
4	2-0102	Ball, Float, Black Plastic	1	10	2-1081	▲ Bushing, 3/4" x 1/2" Pipe	1
5	2-01104	Trim, 750 B2 x 1/16" Black	3.25 ft.	11	2-1906	▲ Strainer, 1/2" Basket	1
6	2-0100379	Adapter, 3/4" x 3/4" MT x Insert 90°	2	12	2-1053	▲ Nipple, 1/2" JIC x 1/2" Pipe	1

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VNG 6-300, 8-3000 BURNER ASSEMBLY

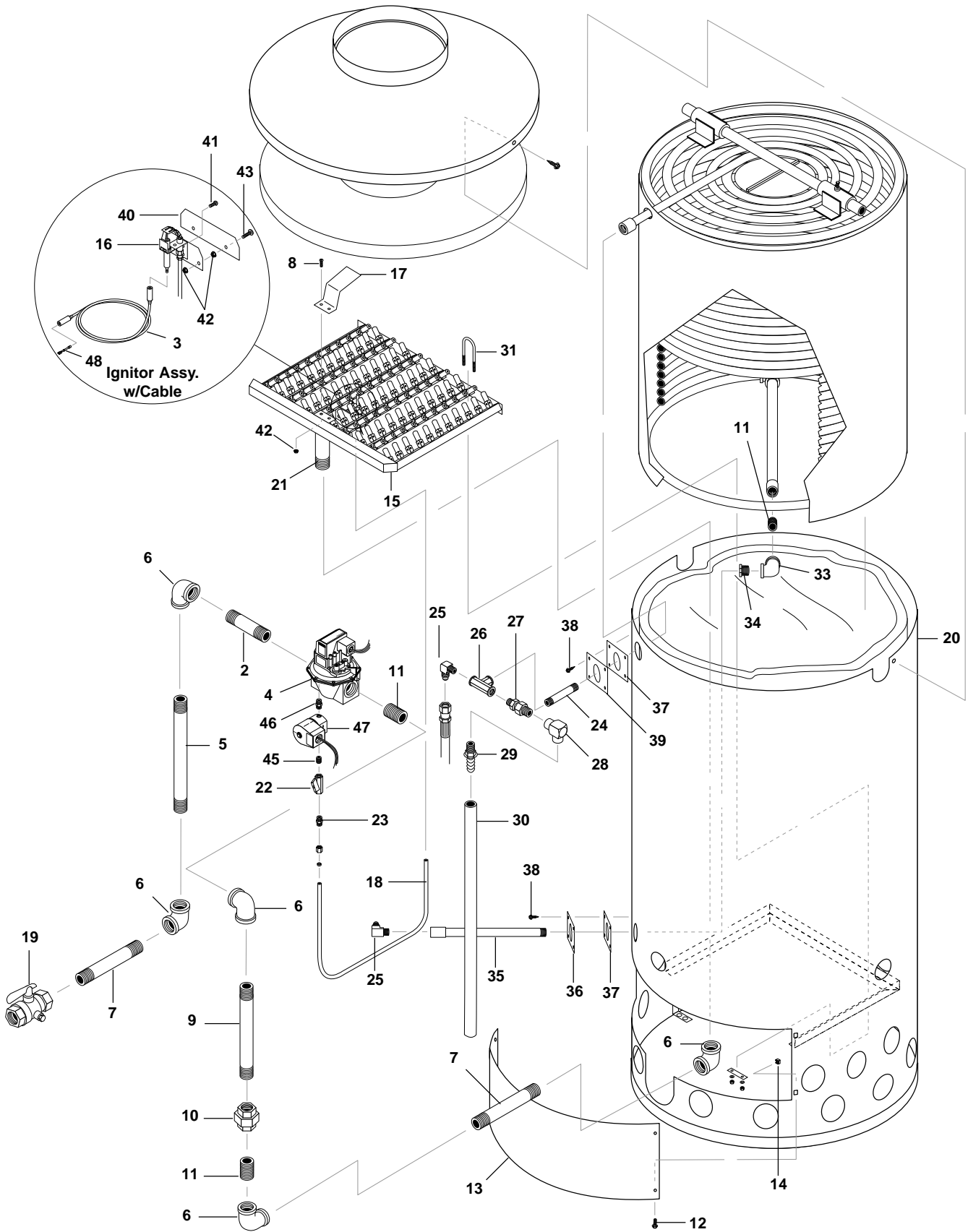


VNG 6-300, 8-3000 BURNER PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	95-07163087	Module, Wrap, Outer, Large Coil	1	22	2-00172	Nipple, 1" Close, 3500 PSI	3
2	95-031610/54L	Burner Ring, W/Jets 54"	1	23	7-7021	Jet Orifice, #54 NG	96
	95-031610/65L	Burner Ring, W/Jets 65" (LP Option)	1	24	2-001312	Nipple, 1" x 5" Black Pipe	1
3	95-07163084	Door, Burner, Large	1	25	2-00136230	Bushing, 1" x 1/2" 3M F/S	1
4	2-00291	Elbow, 1", Black Pipe, 90°	6	26	2-1055	Nipple, 1/4" Pipe x 1/8" Pipe	1
5	2-00132	Nipple, 1" x 6", Black Pipe	1	27	2-990581	Solenoid, Pilot	1
6	2-0086	Union, 1", Black Pipe	2	28	4-02110000	Hose, 1/2" Push-On	3.33 ft.
7	7-70261	Well, Pressure, Modulating Thermostat	1	29	90-19711	Bolt, 1/4" x 1/2" Whiz Loc	4
8	7-7026	Modulating Thermostat KimRay	1	30	90-20231	Nut, Cage, 1/4" x 12 Gauge	4
9	2-00293	Elbow, 3/4", Black, 90°	2	31	95-07163658	Extension, Outlet	1
10	7-0150	Tubing, Aluminum, 600 RL, 1/4" Dead Soft	40"	32	95-07121113	Plate, Insulation Retainer	1
11	7-7012	Valve, Gas Shut-Off, 1" MPT	1	33	2-00139	Nipple, 1" x 8" Black Pipe	2
12	2-00091	Nipple, 1/2" x 3", Galvanized	1	34	95-07163077	Nipple, 1" x 18" Black Pipe	1
13	7-702371	Pilot, Ignitor	1	35	2-00132	Nipple, 1" x 6" Black Pipe	1
14	7-70003	Valve, Gas V8943B1010/B (NG)	1	36	2-1108	Hose Barb, 1/2" Barb x 3/8" MPT, Push-On	1
	7-700022	Valve, Gas, V8943C1018 (LP)	1	37	90-2999	Screw, #10 x 1/2" Tek Hex	4
15	2-3006	Valve, Ball, 1/4" Female x 1/4" Female	1	38	2-00602	Elbow, 1/2" JIC x 1/2" Female	1
16	2-0014900	Tee, Black Steel, 3000 PSI	1	39	2-0008	Nipple, 1/2" Hex Steel	1
17	7-0114	Gasket, Burner Plate	1	40	2-0052	Nipple, 1/2" JIC, 1/2" Pipe	1
18	2-00134	Nipple, 1" x 4" Black Pipe	1	41	2-0036	Tee, 1/2" Female Steel Pipe	1
19	2-1118	Connector, 1/4" Tube x 1/4" MPT	2	42	2-3409	Rupture Disk Assy, 7000 PSI	1
20	6-01352	Cable, Ignitor, 48"	1	43	2-1019	Elbow, 3/8" Female, Brass	1
21	2-001312	Nipple, 1" x 5", Black Pipe	1	44	90-10131	U-Bolt, 5/16" x 3", Pipe	2
				45	90-07166000	Bracket, Pilot Access	1
				46	90-017	Nut, 10/32" Keps	6
				47	90-19942	Screw, 10/32" x 3/4" Hex	2
				48	95-07163085	Splash Guard, Pilot Light	1
				49	90-1991	Screw, 10/32" x 1/2" Black	4
				50	90-199940	Screw, 10/32" x 1/4" Hex	2
				51	2-1002	Nipple, 1/4" Close	1
				52	7-7015011	Connector, Transition	1

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VNG-L 10-2000 BURNER ASSEMBLY

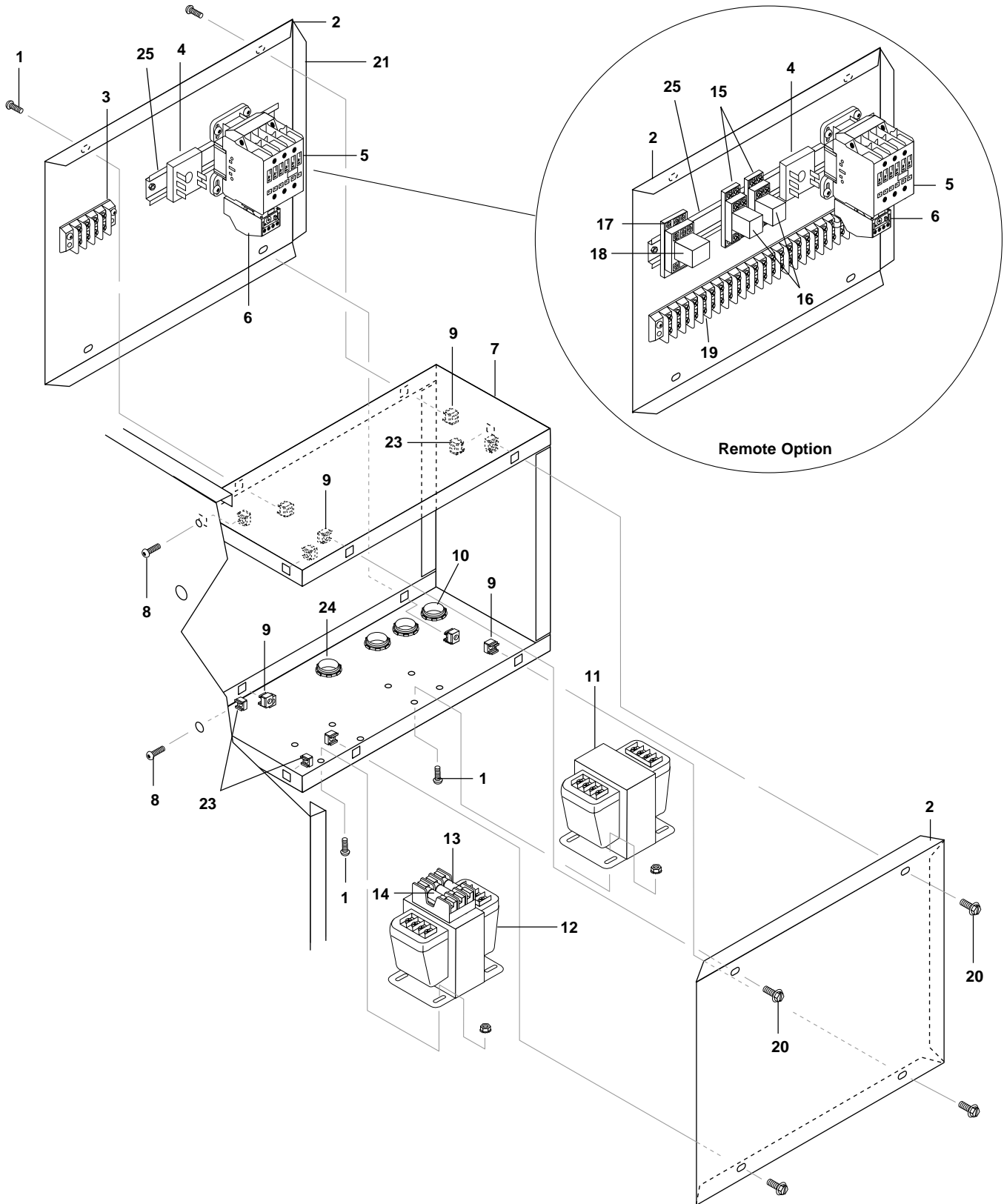


VNG-L 10-2000 BURNER PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	2-00295	Elbow, 1" x 3/4" Reducing, Blk	2	25	2-0054	Elbow, 1/2" JIC x 1/2", 90°	2
2	2-001312	Nipple, 1" x 5", Black Pipe	1	26	2-0036	Tee, 1/2" Female Steel Pipe	1
3	6-01352	Cable, Ignitor, 48"	1	27	2-3409	Rupture Disk Assy, 7000psi	1
4	7-70003	Valve, Gas, V8943B1010/B (NG)	1	28	2-1019	Elbow, 3/8" Female, Brass	1
	7-700022	Valve, Gas, V8943C1018 (LP)	1	29	2-1108	Hose Barb, 1/2" Barb x 3/8" MPT	1
5	95-07163077	Pipe, 1" NPT x 18" Blk Sch.40	1	30	4-02110000	Hose, 1/2" Push-On	4.25 ft.
6	2-00291	Elbow, 1", Black Pipe, 90°	5	31	90-10131	U-Bolt, 3/16" x 3" Pipe	2
7	2-00139	Nipple, 1" x 8" Black Pipe	2	32	95-07163025	▲ Plate Cover, NC, LM w/o Hole	2
8	90-199940	Screw, 10/32" x 1/4"	2	33	2-00306	Elbow, 1/2" Black Pipe	1
9	2-001315	Pipe, 1" NPT x 11", Black Pipe, Sch. 40	1	34	2-00136230	Bushing, 1" x 1/2" 3M F/S	1
10	2-0086	Union, 1", Black Pipe	1	35	95-07163658	Extension, Outlet	1
11	2-00172	Nipple, 1", Close, 3500 PSI	2	36	95-07121113	Plate, Insulation Retainer	1
12	90-19711	Screw, 1/4" x 1/2" HH NC, Whiz Loc	4	37	7-0144	Gasket, Burner Plate	2
13	95-07163084	Door, Burner, Large	1	38	90-2999	Screw, #10 x 1/2" Tek, Hex Head	16
14	90-20231	Nut, Cage, 1/4" x 12 Gauge	4	39	95-07163023	Plate, Cover, NG, LM w/Hole	1
15	95-031610/54L	LRG SQ. Burner Ring, #54	1	40	90-07166000	Bracket, Pilot Access	1
	95-031610/65L	Burner Ring, W/Jets 65" (LP Option)	1	41	90-19942	Screw, 10/32" x 3/4" Hex	2
16	7-702371	Pilot, Ignitor	1	42	90-017	Nut, 10/32" Keps	6
17	95-07163085	Splash Guard, Pilot Light	1	43	90-1991	Screw, 10/32" x 1/2" Black	2
18	7-0150	Tubing, 1/4" Aluminum	40"	44	7-7022	Jet, Orifice #69 Drill out to LP	99
19	7-7012	Valve, Gas, Shut-Off, 1" MPT	1		7-2030	Jet, Orifice #54 NG	1
20	95-07163087	Wrap, Outer, 30" Large Coil	1		7-2022	Jet, Orifice #69 LP (See Chart Page 51)	1
21	2-00134	Pipe, 1" x 4" Black Pipe	1	45	2-1002	Nipple, 1/4" Close	1
22	2-3006	Valve, 1/4" Jomar T-91LP Ball	1	46	2-1055	Nipple, 1/4" Pipe x 1/8" Pipe	1
23	2-1118	Connector Tube, 1/4" x 1/4" MPT	2	47	2-990581	Solenoid, Pilot	1
24	2-00091	Nipple, 1/2" x 3" Galvanized	1	48	7-701511	Connector, Transition	1

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VNG ELECTRICAL BOX - AUTO START



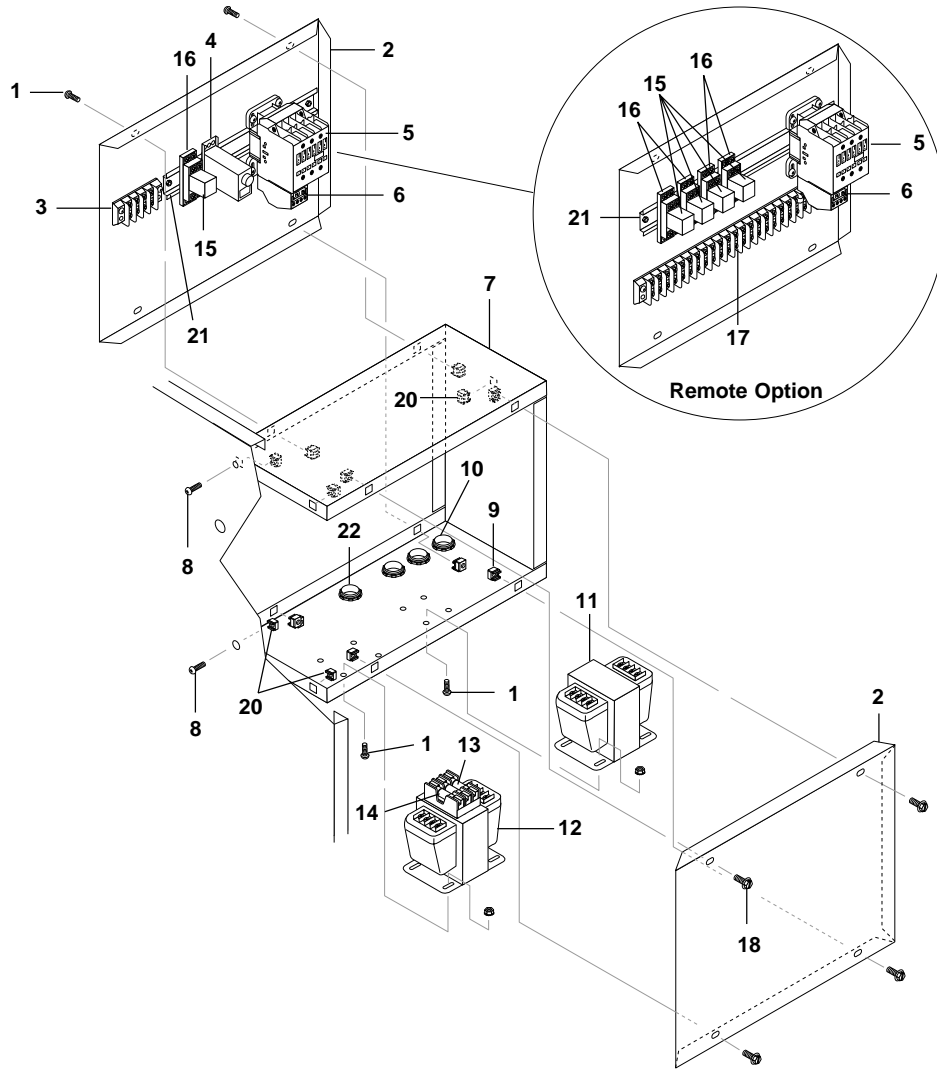
VNG ELECTRICAL BOX - AUTO START PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	90-1991	Screw, 10/32" x 1/2" BHSOC	15
2	95-07163030	Panel, Electrical Box, Side	2
3	6-0504	Block, Terminal, 4 Pole	1
	90-16	▲ Screw, 8/32" x 3/4"	2
	90-200490	▲ Nut, 8/32" Keps	2
4	6-036880	Timer, Solid State 120V, 5-60 Min. Lockout	1
5	Contactor, See Specifications Pages		1
6	Overload Relay, See Spec's Pages		1
7	95-07163028	Box, Electrical VNG	1
8	90-1998	Screw, 1/4" x 3/4" BH SOC	4
9	90-2018	Nut, Cage 10/32" x 16 Gauge	8
10	6-0517	Strain Relief, 3/4" (4-2;4-3;6-3C,F; 8-3C, F; 10-2C, F)	3
		Remote Option (6-3B, H;8-3B, H; 10-2B, H)	1
	6-05171	Strain Relief, 1" (6-3B, H;8-3B, H; 10-2B, H)	2
11	Transformer, See Specifications Pages		1

ITEM	PART NO.	DESCRIPTION	QTY
12	Transformer, See Specifications Pages		1
13	Primary Fuse, See Specifications Pages		2
14	Secondary Fuse, See Spec's Pages		1
15	6-03541	Base, Relay IDEC (Remote Option)	2
16	6-03621	Relay, 120V, IDEC (Remote Option)	2
17	6-035210	Relay, Socket Idec, Remote	1
18	6-036210	Relay, Latch, 2 Idec, Remote	1
19	6-05041	Block, Terminal, 16 Pole, Remote	1
20	90-19942	Screw, 10/32" x 3/4" Hex	4
21	90-1994	▲ Screw, 10/32" x 1-1/4"	1
	90-017	▲ Nut, Keps, 10/32"	14
22	90-1999	▲ Screw, 10/32" x 3/4"	1
23	90-2022	Nut, Cage, 1/4" x 16 Gauge	5
24	6-0517	Strain Relief, 3/4" (Remote Option)	1
25	6-021595	Din Rail (Option)	7" 12"

▲ Not Shown

VNG ELECTRICAL BOX - TIME DELAY

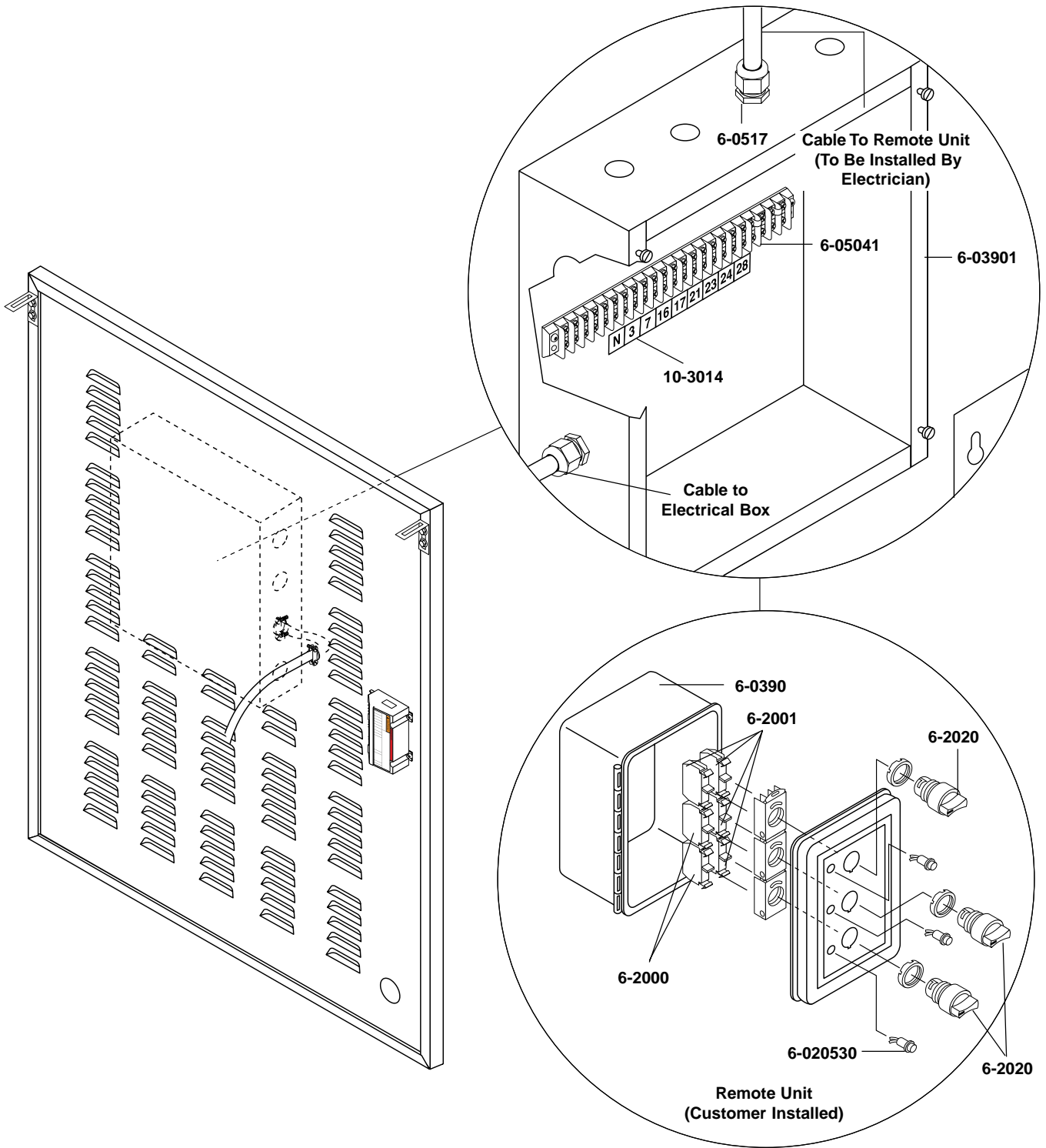


VNG ELECTRICAL BOX - TIME DELAY PARTS LIST

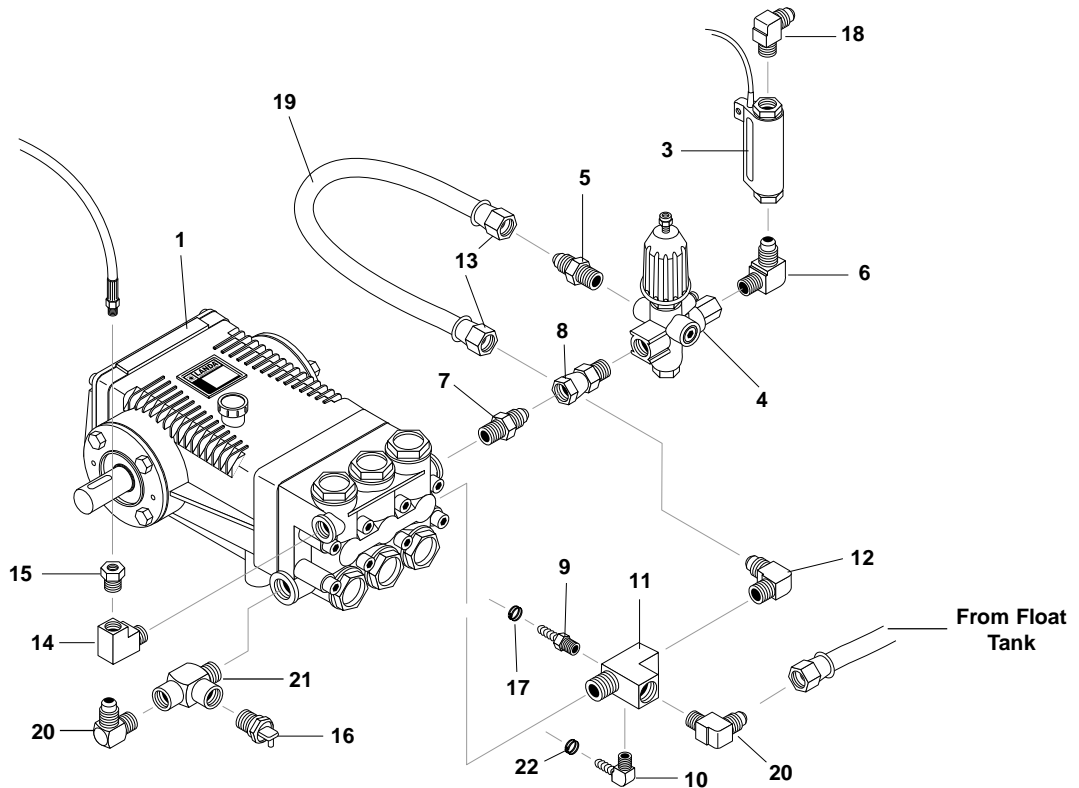
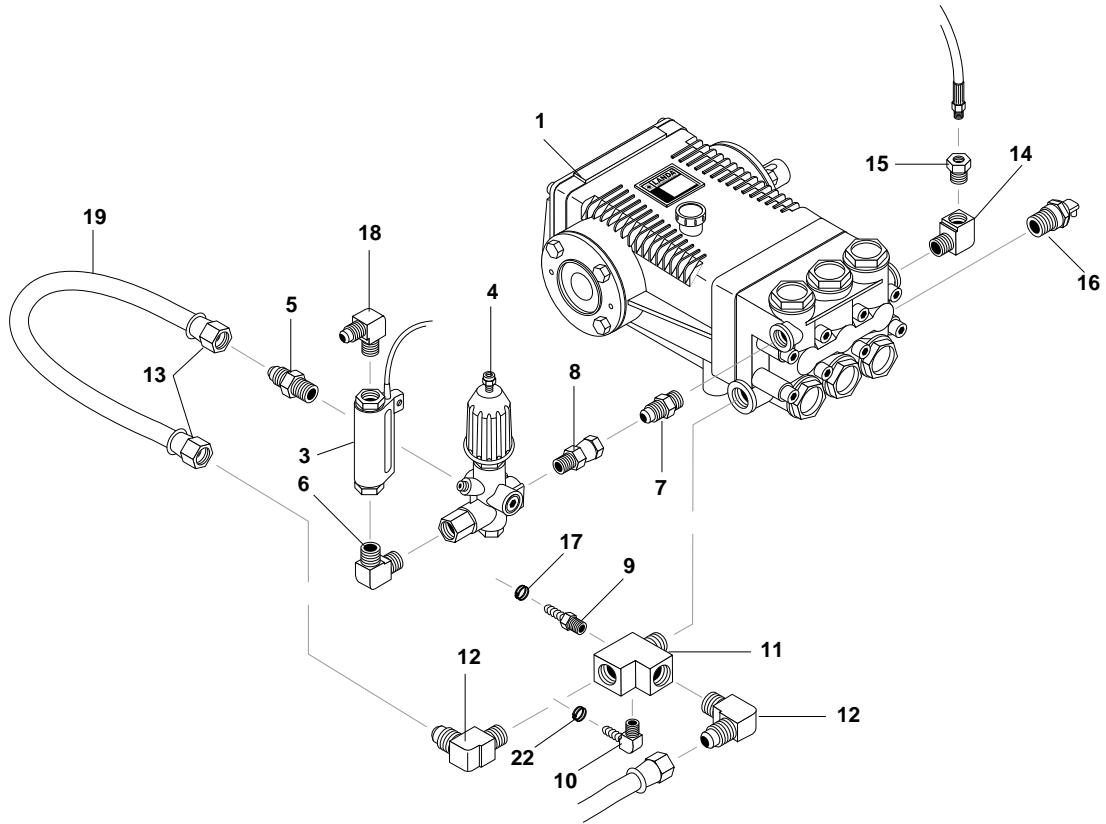
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	90-1991	Screw 10/32" x 1/2" BHSOC	15	13	Primary Fuse, See Specifications Pages		2
2	95-07163030	Panel, Electrical Box, Side	2	14	Secondary Fuse, See Spec's Pages		1
3	6-0504	Block, Terminal, 4 Pole	1	15	6-03541	Base, Relay IDEC	1
	90-16	▲ Screw, 8/32" x 3/4" BHSOC	2			Remote Option	4
	90-20049	▲ Nut, 8/32" ESNA	2	16	6-03621	Relay, 120V, IDEC	1
4	6-03700	Timer, Multi Function 24V - 120/240V	1			Remote Option	4
5		Contactors, See Specifications Pages	1	17	6-05041	Block, Terminal, 16 Pole, Remote Option	1
6		Overload Relay, See Spec's Pages	1	18	90-19942	Screw, 10/32" x 3/4" Hex	4
7	95-07163028	Box, Electrical VNG	1	19	90-1999	▲ Screw, 10/32" x 3/4"	1
8	90-1998	Screw, 1/4" x 3/4" BH SOC	4		90-017	▲ Nut, Keps, 10/32"	14
9	90-2018	Nut, Cage, 10/32" x 16 Gauge	8	20	90-2022	Nut, Cage, 1/4" x 16 Gauge	5
10	6-0517	Strain Relief, 3/4" Remote Option	3 1	21	6-021595	Din Rail (Option)	7" 12"
11		Transformer, See Specifications Pages	1	22	6-0517	Strain Relief, 3/4" (Remote Option)	1
12		Transformer, See Specifications Pages	1				

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VNG REMOTE ELECTRICAL BOX - ALL MODELS



VNG 4-2000, 4-3000, 6-3000 PUMP ASSEMBLY

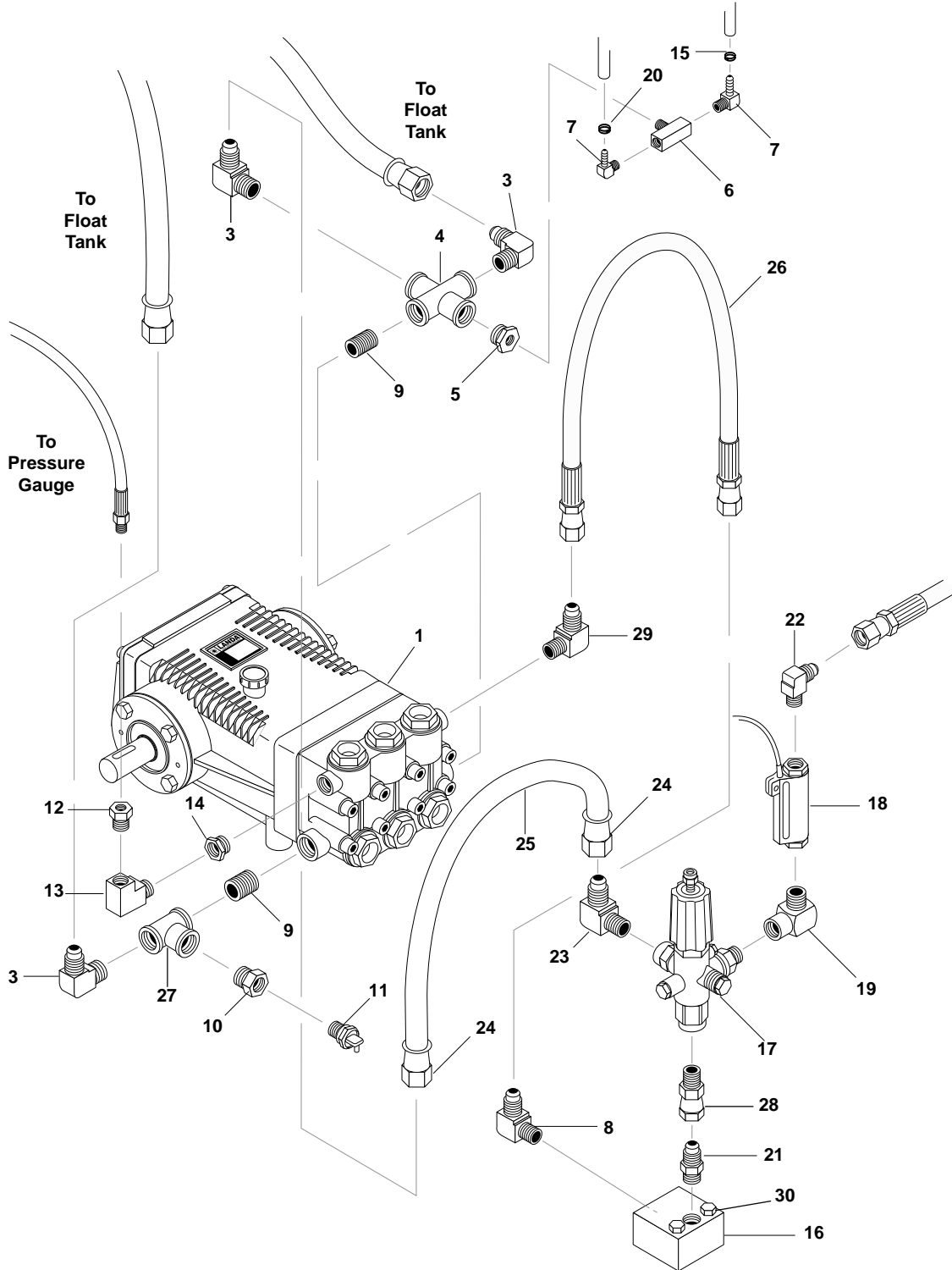


VNG 4-2000, 4-3000, 6-3000 PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1		Pump, See Parts Specifications Pages	
2	95-07121112	▲ Rail, Pump	1
3	6-021730	Switch, Flow MV60, Yellow	1
4	5-3208	Unloader, AL-VRT607, 7.8GPM	1
	5-3027	Unloader, PA 8 GPM@3650, w/Switch (Auto Start)	1
5	2-1052	Nipple, 1/2" JIC x 3/8" Pipe	1
6	2-00270	Elbow, 3/8", Male Pipe	1
7	2-0051	Nipple, 1/2" JIC x 3/8" Pipe	1
	2-0079	Swivel, 1/2" JIC Fem, 3/8" Male (Auto Start Option)	1
8	2-0079	Swivel, 1/2" JIC Fem, 3/8" Male	1
	2-00510	Nipple, 1/2" JIC, 3/8" Female (Auto Start Option)	1
9	2-1084	Hose Barb, 1/4" Barb x 1/8" Male Pipe	1
10	2-1088	Hose Barb, 1/4" x 1/8" 90°	1
11	2-10422	Tee, 1/2" Street w/2 Holes	1
12	2-1062	Elbow, 1/2" JIC x 1/2", 90° (6-3) (4-2, 4-3)	1 2
13	2-1105	Swivel, 1/2" JIC Female	2
14	2-0031	Elbow, 3/8" Street	1
15	2-00682	Bushing, 3/8" x 1/4", Galv.	1
16	2-30082	Pump Protector, 1/2" PTP	1
17	2-9040	Clamp, Hose, UNI .46 - .54	1
18	2-0053	Elbow, 1/2" JIC x 3/8" Male	1
19	4-02110000	Hose, 1/2", Push On	1.25"
20	2-10630	Elbow, 3/4" JIC x 1/2" (6-3)	2
21	2-1042	Tees, 1/2" Street (6-3)	1
22	2-9000	Clamp, Screw, #4	1

▲ Not Shown

VNG 8-3000, 10-2000 PUMP ASSEMBLY



VNG 4-2000, 4-3000, 6-3000 PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	5-1743	Pump, Landa LX8030/L (8-3)	1	17	5-3324	Unloader, VBXL 13 GPM, 3000 PSI (8-3, 10-2)	1
	5-1748	Pump, Landa LX1025/L (10-2)	1		5-3027	Unloader, PA 8 GPM@3650 PSI VB8 w/Switch (8-3 Auto Start Option)	1
2	95-071211129	▲ Rail, Pump Combo	1	18	6-021730	Switch, Flow, MV60, Yellow	1
3	2-10620	Elbow, 3/4" SAE x 3/4", 90°, Brass	3	19	2-00271	Elbow, 3/8" x 1/2" Steel, Street	1
4	2-1036	Cross, 3/4" Female Pipe	1		2-00270	Elbow, 3/8" Male Pipe (Auto Start Option)	1
5	2-1079	Bushing, 3/4" x 1/4" Pipe	1	20	2-9000	Clamp, Screw, #4	1
6	2-1037	Tee, 1/4" Branch, Male	1	21	2-0052	Nipple, 1/2" x 1/2" JIC (8-3, 10-2)	1
7	2-1089	Hose Barb, 1/4" Barb x 1/4" Pipe, 90°	2		2-0079	Swivel, 1/2" JIC Fem x 3/8" Male (8-3 Auto Start Option)	1
8	2-0053	Elbow, 1/2" JIC x 3/8" MPT (Auto Start Option)1	1	22	2-0053	Elbow, 1/2" JIC, 3/8", 90°	1
	2-0054	Elbow, 1/2" JIC, 1/2" 90°	1	23	2-10630	Elbow, 3/4" JIC x 1/2", 90° (8-3, 10-2)	1
9	2-1008	Nipple, 3/4" Close	2		2-10622	Elbow, 3/4" JIC x 3/8" MPT, 90° (8-3 Auto Start Option)	1
10	2-1081	Bushing, 3/4" x 1/2" Pipe	1	24	2-11050	Swivel, 3/4" SAE Female, Push-On	2
11	2-30082	Pump Protector, 1/2" PTP	1	25	4-02120000	Hose, 3/4" Push-On	2 ft.
12	2-00682	Bushing, 3/8" x 1/4", Galv.	1	26	4-02067728	Hose, 1/2" x 28", 2 Wire	1
13	2-0031	Elbow, 3/8" Street	1	27	2-1033	Tee, 3/4" Female, Brass	1
14	2-00681	Bushing, 1/2" x 3/8"	1	28	2-00510	Nipple, 1/2" JIC x 3/8" Fem (8-3 Auto Start Option)	1
15	2-9040	Clamp, Hose, UNI .46 - .54	1		2-0080	Swivel, 1/2" x 1/2" JIC Male (8-3, 10-2)	1
16	95-07101216/B	Block, Unloader, 3/8" x 3/8" (8-3 Auto Start Option)	1	29	2-0054	Elbow, 1/2" JIC x 1/2", 90°	1
	95-07101215/B	Block, Unloader, 1/2" x 1/2" (8-3, 10-2)	1	30	90-1020	Bolt, 3/8" x 2" NC HH	2
					90-4002	▲ Washer, 3/8" Flat	2
					90-2002	▲ Nut, 3/8" ESNA	2

▲ Not Shown

BASIC FACTS

BASED ON 60° F	PROPANE	BUTANE
Formula	C3H8	C4H10
Vaporization Point (°F)	-43.7	31.1
Specific Gravity (Vapor)	1.522	2.006
Specific Gravity (Liquid)	0.508	0.584
Lbs. Per Gallon (Liquid)	4.23	4.87
B.T.U. Per Cubic Foot (Vapor)	2.563	3.39
B.T.U. Per Lb. (Vapor)	21.663	21/3-9
B.T.U. Per Gallon (Liquid)	91.74	1-3/93
Cubic Feet Per Lb. (Liquid)	8.607	7/53
Cubic Feet Per Gallon (Liquid)	3.45	31/9
Octane Number	125	1
Molecular Weight	44.09	58.12
To calculate running cost:		
1 cubic Ft./1,000 B.T.U.		
100 cubic Ft./Therm		
Therm/Hour		
50¢ Therm		

Example: Using natural gas

400,000 BTU Machine

400 cubic feet

4 Therms/hour

$4 \times .50 = \$2.00/\text{hour to run}$

PRESSURE EQUIVALENTS

Simply stated, pressure is the force exerted by a gas or liquid attempting to escape from a container. It is useful to know how strong this "attempt to escape" is. Pressure can be measured with a manometer or with a pressure gauge. At the lower levels, it is expressed in "water column inches" i.e. 1 w.c.i. Higher pressures are expressed in terms of the force exerted against a square inch of area. For example, 125 lbs. per square inch (125 psi).

1 Water Column Inch	=	50 Oz./Sq. In.	11 Water Column Inches	=	6.35 Oz./Sq. In.
11 Water Column Inches	=	4 Lb./Sq. In.	1 Lb./Sq. In.	=	27.71 Water Column Inches
1 Lb./Sq. In.	=	2.04" Mercury	1" Mercury	=	.39 Lb./Sq. In.
1 Std. Atmosphere	=	14.73 Lbs./Sq. In.			

BURNER SPECIFICATIONS

MODEL	BURNER ASSEMBLY	JET SIZE	GAS VALVE	PILOT ORIFICE CONVERSION
VNG4-2000	X-46	#54	3/4" VB8304	No
VNG4-3000	X-46	#54	3/4" VB8304	No
VNG6-3000	X-98	#54	1" V8943B	No
VNG8-3000	X-98	#54	1" V8943B	No
VNG10-2000	X-98	#54	1" V8943B	No
VLP4-2000	X-46	#65	3/4" V8943B-393691 LP Kit	No
VLP4-3000	X-46	#65	3/4" V8943B-393691 LP Kit	No
VLP6-3000	X-98	#65	1" V8943C	No
VLP8-3000	X-98	#65	1" V8943C	No
VLP10-2000	X-98	#65	1" V8943C	No

SPECIFICATIONS

PARTS SPECIFICATIONS: LANDA PUMP

Machine	Pump		Pulley			Bushing				Pulley			
Model	Model	Part #	Pulley	Part #	Bushing	Part #	Size	Voltage/PH	Hertz	Part #	Pulley	Part #	Bushing
4-20024A	LT5030	5-1728	2AK84H	5-40208401	25mm	5-512025	6 HP	230V/1PH	60	5-10401	2AK41H	5-40204101	1-1/8"
4-20024B	LT5030	5-1728	2AK84H	5-40208401	25mm	5-512025	6 HP	230V/3PH	60	5-1011	2AK41H	5-40204101	1-1/8"
4-20024C	LT5030	5-1728	2AK84H	5-40208401	25mm	5-512025	6 HP	460V/3PH	60	5-1011	2AK41H	5-40204101	1-1/8"
4-20024F	LT5030	5-1728	2AK84H	5-40208401	25mm	5-512025	5 HP	575V/3PH	60	5-1027	2AK34H	5-40203401	1-1/8"
4-20024G	LT5030	5-1728	2AK84H	5-40208401	25mm	5-512025	6 HP	208V/1PH	60	5-10402	2AK41H	5-40204101	1-1/8"
4-20024H	LT5030	5-1728	2AK84H	5-40208401	25mm	5-512025	6 HP	208V/3PH	60	5-10111	2AK41H	5-40204101	1-1/8"
4-30024A	LT5030	5-1728	2BK80H	5-40508001	25mm	5-512025	8 HP	230V/1PH	60	5-1082	2BK34H	5-40503401	1-3/8"
4-30024B	LT5030	5-1728	2BK80H	5-40508001	25mm	5-512025	8 HP	230V/3PH	60	5-1083	2BK34H	5-40503401	1-3/8"
4-30024C	LT5030	5-1728	2BK80H	5-40508001	25mm	5-512025	8 HP	460V/3PH	60	5-1083	2BK34H	5-40503401	1-3/8"
4-30024F	LT5030	5-1728	2BK90H	5-40509001	25mm	5-512025	7 1/2 HP	575V/3PH	60	5-10146	2BK36H	5-40503601	1-3/8"
4-30024G	LT5030	5-1728	2BK80H	5-40508001	25mm	5-512025	8 HP	208V/1PH	60	5-1080	2BK34H	5-40503401	1-3/8"
4-30024H	LT5030	5-1728	2BK80H	5-40508001	25mm	5-512025	8 HP	208V/3PH	60	5-1081	2BK34H	5-40503401	1-3/8"
6-30024B	LT6035/L	5-1733	3BK70H	5-41007001	25mm	5-512025	15 HP	230V/3PH	60	5-1025	3TB56	5-407056	P1x1-5/8"
6-30024C	LT6035/L	5-1733	3BK70H	5-41007001	25mm	5-512025	15 HP	460V/3PH	60	5-1025	3TB56	5-407056	P1x1-5/8"
6-30024F	LT6035/L	5-1733	3BK70H	5-41007001	25mm	5-512025	15 HP	575V/3PH	60	5-1024	3TB56	5-407056	P1x1-5/8"
6-30024H	LT6035/L	5-1733	3BK70H	5-41007001	25mm	5-512025	15 HP	208V/3PH	60	5-10251	3TB56	5-407056	P1x1-5/8"
8-30024B	LX8030	5-1743	3BK80	5-41008001	25mm	5-512025	20HP	230V/3PH	60	5-1030	3TB60	5-407060	P1x1-5/8"
8-30024C	LX8030	5-1743	3BK80	5-41008001	25mm	5-512025	20HP	230V/3PH	60	5-1030	3TB60	5-407060	P1x1-5/8"
8-30024F	LX8030	5-1743	3BK80	5-41008001	25mm	5-512025	20HP	230V/3PH	60	5-1031	3TB60	5-407060	P1x1-5/8"
8-30024H	LX8030	5-1743	3BK80	5-41008001	25mm	5-512025	20HP	230V/3PH	60	5-10311	3TB60	5-407060	P1x1-5/8"
10-20024B	LX1025	5-1748	3BK70	5-41007001	25mm	5-512025	20HP	230V/3PH	60	5-1030	3TB60	5-407060	P1x1-5/8"
10-20024C	LX1025	5-1748	3BK70	5-41007001	25mm	5-512025	20HP	460V/3PH	60	5-1030	3TB60	5-407060	P1x1-5/8"
10-20024F	LX1025	5-1748	3BK70	5-41007001	25mm	5-512025	20HP	575V/3PH	60	5-1031	3TB60	5-407060	P1x1-5/8"
10-20024H	LX1025	5-1748	3BK70	5-41007001	25mm	5-512025	20HP	208V/3PH	60	5-10311	3TB60	5-407060	P1x1-5/8"

SPECIFICATIONS

PARTS SPECIFICATIONS: LANDA PUMP (CON'T)

Model (Con't)	Bushing Part #	Belt Size/Qty	Belt Part #	Motor Contact	Motor Overload	Stepdown Transformer	Primary Fuse	Primary Fuse Part #	Secondary Fuse	Secondary Fuse Part #	Stepdown Transformer
4-2A	5-511113	AX37 (2)	5-602037	6-4018	N/A	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2B	5-511113	AX37 (2)	5-602037	6-4010	6-5011	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2C	5-511113	AX37 (2)	5-602037	6-4004	6-5009	6-60111/120V	1/2 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2F	5-511113	AX35 (2)	5-602035	6-4000	6-5007	6-60131/120v	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
4-2G	5-511113	AX37 (2)	5-602037	6-4018	N/A	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2H	5-511113	AX37 (2)	5-602037	6-4013	6-5011	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3A	5-511138	BX34 (2)	5-604034	6-4021	6-5015	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3B	5-511138	BX34 (2)	5-604034	6-4013	6-5012	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3C	5-511138	BX34 (2)	5-604034	6-4007	6-5010	6-60111/120V	1/2 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3F	5-511138	BX36 (2)	5-604036	6-4000	6-5009	6-60131/120V	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
4-3G	5-511138	BX34 (2)	5-604034	6-4021	6-5015	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3H	5-511138	BX34 (2)	5-604034	6-4018	6-5014	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
6-3B	5-522158	BX50 (3)	5-604050	6-4018	6-5015	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
6-3C	5-522158	BX50 (3)	5-604050	6-4010	6-5012	6-60111/120V	1/2 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
6-3F	5-522158	BX50 (3)	5-604050	6-4007	6-5011	6-60131/120V	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
6-3H	5-522158	BX50 (3)	5-604050	6-4021	6-5016	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
8-3B	5-522158	BX54 (3)	5-604054	6-4021	6-5016	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
8-3C	5-522158	BX54 (3)	5-604054	6-4013	6-5013	6-60111/120V	1/2 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
8-3F	5-522158	BX54 (3)	5-604054	6-4010	6-5012	6-60131/120V	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
8-3H	5-522158	BX54 (3)	5-604054	6-4021	5-5018	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
10-2B	5-522158	BX52 (3)	5-604052	6-4021	6-5016	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
10-2C	5-522158	BX52 (3)	5-604052	6-4013	6-5013	6-60111/120V	1/2 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
10-2F	5-522158	BX52 (3)	5-604052	6-4010	6-5012	6-60131/120V	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
10-2H	5-522158	BX52 (3)	5-604052	6-4021	5-5018	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V

SPECIFICATIONS

PARTS SPECIFICATIONS: GENERAL PUMP

Machine Model	Pump Model	Pump Part #	Pulley Part #	Bushing Part #	Bushing Size	Pulley Part #	Bushing Part #	Size	Voltage/PH	Hertz	Pulley Part #	Pulley Part #	Bushing
4-20021A	T-1011	5-2304	2AK84H	5-40208401	24mm	5-512024	6 HP	230V/1PH	60	5-10401	2AK51H	5-40205101	1-1/8"
4-20021B	T-1011	5-2304	2AK84H	5-40208401	24mm	5-512024	6 HP	230V/3PH	60	5-1011	2AK51H	5-40205101	1-1/8"
4-20021C	T-1011	5-2304	2AK84H	5-40208401	24mm	5-512024	6 HP	460V/3PH	60	5-1011	2AK51H	5-40205101	1-1/8"
4-20021F	T-1011	5-2304	2AK84H	5-40208401	24mm	5-512024	5 HP	575V/3PH	60	5-1027	2AK51H	5-40205101	1-1/8"
4-20021G	T-1011	5-2304	2AK84H	5-40208401	24mm	5-512024	5 HP	208V/1PH	60	5-10402	2AK51H	5-40205101	1-1/8"
4-20021H	T-1011	5-2304	2AK84H	5-40208401	24mm	5-512024	6 HP	208V/3PH	60	5-10111	2AK51H	5-40205101	1-1/8"
4-30021A	TS-2021	5-2307	2BK80H	5-40508001	24mm	5-512024	8 HP	230V/1PH	60	5-1082	2BK50H	5-40505001	1-3/8"
4-30021B	TS-2021	5-2307	2BK80H	5-40508001	24mm	5-512024	8 HP	230V/3PH	60	5-1083	2BK50H	5-40505001	1-3/8"
4-30021C	TS-2021	5-2307	2BK80H	5-40508001	24mm	5-512024	8 HP	460V/3PH	60	5-1083	2BK50H	5-40505001	1-3/8"
4-30021F	TS-2021	5-2307	2BK80H	5-40508001	24mm	5-512024	7 1/2 HP	575V/3PH	60	5-10146	2BK45H	5-40504001	1-3/8"
4-30021G	TS-2021	5-2307	2BK80H	5-40508001	24mm	5-512024	8 HP	208V/1PH	60	5-1080	2BK50H	5-40505001	1-3/8"
4-30021H	TS-2021	5-2307	2BK80H	5-40508001	24mm	5-512024	8 HP	208V/3PH	60	5-1081	2BK50H	5-40505001	1-3/8"
6-30021B	TS-2021/L	5-2306	3BK80	5-41008001	24mm	5-512024	15 HP	230V/3PH	60	5-1025	3TB62	5-407062	P1x1-5/8"
6-30021C	TS-2021/L	5-2306	3BK80	5-41008001	24mm	5-512024	15 HP	460V/3PH	60	5-1025	3TB62	5-407062	P1x1-5/8"
6-30021F	TS-2021/L	5-2306	3BK80	5-41008001	24mm	5-512024	15 HP	575V/3PH	60	5-1024	3TB62	5-407062	P1x1-5/8"
6-30021H	TS-2021/L	5-2306	3BK80	5-41008001	24mm	5-512024	15 HP	208V/3PH	60	5-10251	3TB62	5-407062	P1x1-5/8"

SPECIFICATIONS

PARTS SPECIFICATIONS: GENERAL PUMP (CON'T)

Model (Con't)	Bushing Part #	Belt Size/Qty	Belt Part #	Motor Contactor	Motor Overload	Stepdown Transformer	Primary Fuse	Primary Fuse Part #	Secondary Fuse	Secondary Fuse Part #	Stepdown Transformer
4-2A	5-511113	AX37 (2)	5-602037	6-4018	N/A	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2B	5-511113	AX37 (2)	5-602037	6-4010	6-5011	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2C	5-511113	AX37 (2)	5-602037	6-4004	6-5009	6-60111/120V	1 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2F	5-511113	AX37 (2)	5-602037	6-4000	6-5007	6-60131/120V	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
4-2G	5-511113	AX37 (2)	5-602037	6-4018	N/A	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-2H	5-511113	AX37 (2)	5-602037	6-4013	6-5011	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3A	5-511138	BX36 (2)	5-604036	6-4021	6-5015	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3B	5-511138	BX36 (2)	5-604036	6-4013	6-5012	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3C	5-511138	BX36 (2)	5-604036	6-4007	6-5010	6-60111/120V	1/2 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3F	5-511138	BX36 (2)	5-604036	6-4000	6-5009	6-60131/120V	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
4-3G	5-511138	BX36 (2)	5-604036	6-4021	6-5015	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
4-3H	5-511138	BX36 (2)	5-604036	6-4018	6-5014	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
6-3B	5-522158	BX54 (3)	5-604054	6-4018	6-5015	6-60111/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V
6-3C	5-522158	BX54 (3)	5-604054	6-4010	6-5012	6-60111/120V	1/2 Amp	6-02295 (2)	8/10 Amp	6-0229810	6-60121/24V
6-3F	5-522158	BX54 (3)	5-604054	6-4007	6-5011	6-60131/120V	1/2 Amp	6-02295 (2)	1/2 Amp	6-022970	6-60121/24V
6-3H	5-522158	BX54 (3)	5-604054	6-4021	6-5016	6-60151/120V	1 Amp	6-02294 (2)	8/10 Amp	6-0229810	6-60121/24V



**LANDA LIMITED NEW PRODUCT WARRANTY
PRESSURE WASHERS**

WHAT THIS WARRANTY COVERS

All LANDA pressure washers are warranted by LANDA to the original purchaser to be free from defects in materials and workmanship under normal use, for the periods specified below. This Limited Warranty is subject to the exclusions shown below, is calculated from the date of the original purchase, and applies to the original components only. Any parts replaced under this warranty will assume the remainder of the part's warranty period.

FIVE YEAR PARTS AND ONE YEAR LABOR WARRANTY:

Components manufactured by LANDA, such as frames, handles, top and bottom wraps, float tanks, fuel tanks, belt guards, and heating coils. Internal components on the oil-end of LANDA pumps have a 7 year warranty.

ONE YEAR PARTS AND ONE YEAR LABOR WARRANTY:

All other components, excluding normal wear items as described below, will be warranted for one year on parts and labor. Parts and labor warranty on these parts will be for one year regardless of the duration of the original component manufacturer's part warranty.

WARRANTY PROVIDED BY OTHER MANUFACTURERS:

Motors, generators, and engines, which are warranted by their respective manufacturers, are serviced through these manufacturers' local authorized service centers. LANDA is not authorized and has no responsibility to provide warranty service for such components.

WHAT THIS WARRANTY DOES NOT COVER

This warranty does not cover the following items:

1. Normal wear items, such as nozzles, spray guns, discharge hoses, wands, quick couplers, seals, filters, gaskets, O-rings, packings, pistons, pump valve assemblies, strainers, belts, brushes, rupture disks, fuses, pump protectors.
2. Damage or malfunctions resulting from accidents, abuse, modifications, alterations, incorrect installation, improper servicing, failure to follow manufacturer's maintenance instructions, or use of the equipment beyond its stated usage specifications as contained in the operator's manual.
3. Damage due to freezing, chemical deterioration, scale build up, rust, corrosion, or thermal expansion.
4. Damage to components from fluctuations in electrical or water supply.
5. Normal maintenance service, including adjustments, fuel system cleaning, and clearing of obstructions.
6. Transportation to service center, field labor charges, or freight damage.

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE

While not required for warranty service, we request that you register your LANDA pressure washer by returning the completed registration card. In order to obtain warranty service on items warranted by LANDA, you must return the product to your Authorized LANDA Dealer, freight prepaid, with proof of purchase, within the applicable warranty period. If the product is permanently installed, you must notify your Authorized LANDA Dealer of the defect. Your Authorized LANDA Dealer will file a claim with Landa, who must subsequently verify the defect. In most cases, the part must be returned to LANDA freight prepaid with the claim. For warranty service on components warranted by other manufacturer's, your Authorized LANDA Dealer can help you obtain warranty service through these manufacturers' local authorized service centers.

LIMITATION OF LIABILITY

LANDA'S liability for special, incidental, or consequential damages is expressly disclaimed. In no event shall LANDA'S liability exceed the purchase price of the product in question. LANDA makes every effort to ensure that all illustrations and specifications are correct, however, these do not imply a warranty that the product is merchantable or fit for a particular purpose, or that the product will actually conform to the illustrations and specifications. Our obligation under this warranty is expressly limited at our option to the replacement or repair at a service facility or factory designated by us, of such part or parts as inspection shall disclose to have been defective. **THE WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY.** LANDA does not authorize any other party, including authorized LANDA Dealers, to make any representation or promise on behalf of LANDA, or to modify the terms, conditions, or limitations in any way. It is the buyer's responsibility to ensure that the installation and use of LANDA products conforms to local codes. While LANDA attempts to assure that its products meet national codes, it cannot be responsible for how the customer chooses to use or install the product. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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