## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Important Safety Information</td>
<td>4-5</td>
</tr>
<tr>
<td>Installation Guide VHGL 3-4-5 GPM</td>
<td>6</td>
</tr>
<tr>
<td>Installation Guide VHGL 6-8 GPM</td>
<td>7</td>
</tr>
<tr>
<td>Installation</td>
<td>8-11</td>
</tr>
<tr>
<td>Start-up</td>
<td>11</td>
</tr>
<tr>
<td>Check List Before Starting</td>
<td>12</td>
</tr>
<tr>
<td>Component Identification VHGL 3-4-5 GPM</td>
<td>13</td>
</tr>
<tr>
<td>Component Identification VHGL 6-8 GPM</td>
<td>14</td>
</tr>
<tr>
<td>Operating Instructions</td>
<td>15</td>
</tr>
<tr>
<td>Preventative Maintenance</td>
<td>15-16</td>
</tr>
<tr>
<td>General Washing Techniques</td>
<td>16</td>
</tr>
<tr>
<td>Maintenance &amp; Service</td>
<td>16-17</td>
</tr>
<tr>
<td>Heating Coils</td>
<td>17-18</td>
</tr>
<tr>
<td>Propane Gas</td>
<td>17-18</td>
</tr>
<tr>
<td>Burner Features</td>
<td>18</td>
</tr>
<tr>
<td>Burner Troubleshooting</td>
<td>18-19</td>
</tr>
<tr>
<td>Exploded View VHGL 3-4-5 GPM, Left Side</td>
<td>20</td>
</tr>
<tr>
<td>Exploded View VHGL 3-4-5 GPM, Right Side</td>
<td>21</td>
</tr>
<tr>
<td>Exploded View VHGL 3-4-5, Parts List</td>
<td>22-23</td>
</tr>
<tr>
<td>Burner Assembly VHGL 3-4-5, Exploded View</td>
<td>24</td>
</tr>
<tr>
<td>Burner Assembly VHGL 3-4-5, Exploded View &amp; Parts List</td>
<td>25</td>
</tr>
<tr>
<td>Exploded View VHGL 6-8 GPM, Left Side</td>
<td>26</td>
</tr>
<tr>
<td>Exploded View VHGL 6-8 GPM, Right Side</td>
<td>27</td>
</tr>
<tr>
<td>Exploded View VHGL 3-4-5, Parts List</td>
<td>28</td>
</tr>
<tr>
<td>VHGL 6-8 GPM Pump Assemblies and Parts List</td>
<td>29</td>
</tr>
<tr>
<td>Burner Assembly VHGL 6-8, Exploded View</td>
<td>30</td>
</tr>
<tr>
<td>Burner Assembly VHGL 6-8, Exploded View &amp; Parts List</td>
<td>31</td>
</tr>
<tr>
<td>Float Tank VHGL 3-4-5, Exploded View &amp; Parts List</td>
<td>32</td>
</tr>
<tr>
<td>Float Tank VHGL 6-8, Exploded View &amp; Parts List</td>
<td>33</td>
</tr>
<tr>
<td>Control Panel VHGL 3-4-5 Exploded View &amp; Parts List</td>
<td>34</td>
</tr>
<tr>
<td>Control Panel VHGL 6-8 Exploded View &amp; Parts List</td>
<td>35</td>
</tr>
<tr>
<td>VHGL 3-4-5 Electrical Box</td>
<td>36</td>
</tr>
<tr>
<td>VHGL 6-8 Electrical Box</td>
<td>37</td>
</tr>
<tr>
<td>VHGL 3-4-5-6-8 Electrical Box, Parts List</td>
<td>38</td>
</tr>
<tr>
<td>Electrical Box Assembly</td>
<td>39-40</td>
</tr>
<tr>
<td>Electrical Box Assembly, Parts List</td>
<td>41</td>
</tr>
<tr>
<td>Hose &amp; Spray Gun Assembly</td>
<td>42</td>
</tr>
</tbody>
</table>
CONTENTS

Burner Specifications ................................................................. 43
Pump Specifications ................................................................. 44-45
Basic Facts ................................................................................. 46
Pressure Equivalents ............................................................... 46
Preventative Maintenance Schedule ....................................... 47
Oil Change Record ................................................................. 47
Troubleshooting ......................................................................... 48-49
Warranty .................................................................................. 50

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

Thank you for purchasing a Landa Pressure Washer.


Landa, Inc. reserves the right to make changes at any time without incurring any obligation.

The VHG Series was designed for maximum use of 4 hours per day, 5 days per week.

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 INFORMATION

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

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. All installations must comply with local codes. Contact your electrician, plumber, utility company or the selling distributor for specific details.

To comply with the National Electrical code (NFPA 70) and provide additional protection from risk of electric shock, this pressure washer is equipped with a UL approved ground fault circuit interrupter (GFCI) power cord for machines rated 250V 30 amp or less, single phase.

3. Know how to stop the machine and bleed pressures quickly. Be thoroughly familiar with the controls.

4. Stay alert. Watch what you are doing.

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 anyone or at any part of the body, or severe injury or death will result. This machine is to be used only by qualified operators.

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

9. Never make adjustments on machine while in operation.

**WARNING: Use only vapor fuel.**

21. This equipment is designed to run on vapor fuel. Do not use liquid fuel. Have a qualified serviceman install and service your equipment.

22. Never expose a spark or flame where unburned gas may be present.

23. Never attempt to light pilot unless pilot manual valve has been shut off for 5 minutes.

24. A conversion kit, as supplied by the manufacturer, shall be used to convert natural gas to propane.

25. 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 machine 18" above the floor.

26. Landa will not be liable for any changes made to our standard machines, or any components not purchased from Landa.

27. Do not overreach or stand on unstable support. Keep good footing and balance at all times.


29. When making repairs disconnect from electrical source and shut off gas valve.

30. Turn burner off and cool to 100° F before turning machine off.

31. If gas odor is present extinguish any open flame and test all joints with a soap solution. If odor persists, call your gas supplier immediately.

32. Not suitable for connection to Type B gas vent if the stack temperature exceeds 243° C (470° F).

33. A draft hood shall be installed if this machine is going to be permanently installed and vented to the outside of the building.

WARNING: Risk of asphyxiation. Use this product only 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 spray guns 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 cold and clean fresh water.

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.
INSTALLATION GUIDE
VHG-L 3-4-5 GPM

Exhaust Out 10" Dia.
19.50" Dia.
10" Dia.

Optional Draft Diverter

Burner Ring
18.5"

Control Panel

High Pressure Out 3/8" QC Nipple

Gas In 1.00" NPT-M

Water In 3/4" GHF

45.75"

40.00"

54.00"

20.50"

24.00"

21.00"

21.50"
INSTALLATION GUIDE
VHG-L 6-8 GPM

Exhaust Out
10" Dia.
Optional Draft
Diverter

Control Panel

Electrical
Power In

Gas In 1.00"
NPT-M

Water In
3/4" GHF

High Pressure
Out 3/8" QC
Nipple

61.885"

45.25"

34.728"

30.875"

51.50"

66.12"

61.885"
INSTALLATION

Place machine in a convenient location providing ample support, drainage and room for maintenance (see page 5).

Location:
The 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 for the replacing of components and the refilling of detergents, adjustments and maintenance. Normal precautions should be taken by the operator of the machine to prevent excess moisture from reaching the power unit or electrical controls.

2. It is recommended that a partition be made between the wash area and the machine to prevent direct spray from the spray gun from coming in contact with the machine. Excess moisture reaching the power unit or electrical controls will reduce the machine’s life and may cause electrical shorts.

3. During installation of the 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 there is a sufficient supply of oxygen 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 the burner and a fan installed to bring the air into the 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).

**WARNING: Avoid small areas or 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 to local codes. Check for proper power supply using a volt meter; check the serial plate for the correct requirements.

Install a gas union in the gas line adjacent to and upstream from the control manifold and downstream from the manual main shut-off valve. A 1/8” NPT 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: Union Location**
Union Connection

The following pipe and stack sizes are just recommendations. Always consult a local plumber and venting contractor for local codes and regulations during installation.

The following tables show maximum capacity for final stage pipe in thousands of BTU/HR of commercial propane.

From first stage regulator (at tank) to second stage regulator.

The chart below is based on incoming gas pressure of 10 PSI and a pressure drop of 1 PSI. Numbers are for straight schedule 40 pipe; fittings further reduce capacity.

<table>
<thead>
<tr>
<th>Length of Pipe (ft.)</th>
<th>Iron Pipe Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>10</td>
<td>3339</td>
</tr>
<tr>
<td>20</td>
<td>2295</td>
</tr>
<tr>
<td>30</td>
<td>1843</td>
</tr>
<tr>
<td>40</td>
<td>1577</td>
</tr>
<tr>
<td>50</td>
<td>1398</td>
</tr>
<tr>
<td>60</td>
<td>1267</td>
</tr>
<tr>
<td>70</td>
<td>1165</td>
</tr>
<tr>
<td>80</td>
<td>1084</td>
</tr>
<tr>
<td>90</td>
<td>1017</td>
</tr>
<tr>
<td>100</td>
<td>961</td>
</tr>
<tr>
<td>150</td>
<td>772</td>
</tr>
<tr>
<td>200</td>
<td>660</td>
</tr>
<tr>
<td>250</td>
<td>585</td>
</tr>
<tr>
<td>300</td>
<td>530</td>
</tr>
<tr>
<td>350</td>
<td>488</td>
</tr>
<tr>
<td>400</td>
<td>454</td>
</tr>
<tr>
<td>450</td>
<td>426</td>
</tr>
<tr>
<td>500</td>
<td>402</td>
</tr>
</tbody>
</table>

From second stage regulator to machine:

The following chart is based on incoming gas pressure of 11 w.c.i. and a pressure drop of 5 w.c.i. Numbers are for straight schedule 40 pipe; fittings further reduce capacity.

<table>
<thead>
<tr>
<th>Length of Pipe (ft.)</th>
<th>Iron Pipe Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>10</td>
<td>291</td>
</tr>
<tr>
<td>20</td>
<td>200</td>
</tr>
<tr>
<td>30</td>
<td>161</td>
</tr>
<tr>
<td>40</td>
<td>137</td>
</tr>
<tr>
<td>50</td>
<td>122</td>
</tr>
<tr>
<td>60</td>
<td>110</td>
</tr>
<tr>
<td>70</td>
<td>102</td>
</tr>
<tr>
<td>80</td>
<td>94</td>
</tr>
<tr>
<td>90</td>
<td>87</td>
</tr>
<tr>
<td>100</td>
<td>84</td>
</tr>
</tbody>
</table>

The chart below is based on gas pressure in the range of 0-.5 PSI, specific gravity of .6 and a pressure loss of .5 w.c.i. Numbers are for straight schedule 40 pipe; fittings further reduce capacity.

<table>
<thead>
<tr>
<th>Length of Pipe (ft.)</th>
<th>Iron Pipe Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>10</td>
<td>360</td>
</tr>
<tr>
<td>20</td>
<td>250</td>
</tr>
<tr>
<td>30</td>
<td>200</td>
</tr>
<tr>
<td>40</td>
<td>170</td>
</tr>
<tr>
<td>50</td>
<td>151</td>
</tr>
<tr>
<td>60</td>
<td>138</td>
</tr>
<tr>
<td>70</td>
<td>125</td>
</tr>
<tr>
<td>80</td>
<td>118</td>
</tr>
<tr>
<td>90</td>
<td>110</td>
</tr>
<tr>
<td>100</td>
<td>103</td>
</tr>
<tr>
<td>150</td>
<td>84</td>
</tr>
<tr>
<td>200</td>
<td>72</td>
</tr>
</tbody>
</table>
Venting:
If the machine is used 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 chimney on it, be sure the chimney 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, position the stack to be as straight as possible and to protrude through the roof of the building at a proper location and at sufficient height to eliminate down-draft. The chimney of a gas fired machine shall be installed with a down-draft diverter located about 3 ft. above machine.

<table>
<thead>
<tr>
<th>Input - BTU Per Hour</th>
<th>Draft Hood &amp; Flue Pipe Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>250,000 - 320,000</td>
<td>8 inch</td>
</tr>
<tr>
<td>320,000 - 410,000</td>
<td>9 inch</td>
</tr>
<tr>
<td>410,000 - 600,000</td>
<td>10 inch</td>
</tr>
<tr>
<td>600,000 - 750,000</td>
<td>12 inch</td>
</tr>
</tbody>
</table>

NOTE: If the flue pipe exceeds 10 ft. in length, or contains more than two elbows, use next size larger pipe and draft hood or the burner will not ignite. No movable flue pipe damper should be used on any installation.

Draft Diverter:
The draft diverter shall be installed 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.

When the heating appliance 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 3).

Figure 3: Ventilation

When a room is of unusually tight construction and has a kitchen and/or bathroom ventilating fan, which may be used for exhausting air 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 down-turned fittings. These should be suitably arranged to prevent obstruction from snow or rain, and include a protecting screen not smaller than 1/4 inch mesh.

Water Source:
The water source for the 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 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 or clothes chute.

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 for 5 minutes for 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.

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

Gas Pressure:
The ideal incoming gas pressure is 11 w.c.i (water column inches). Minimum is 9 w.c.i., maximum is 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 10 w.c.i. By adjusting the gas valve pressure regulator between 3 and 4 w.c.i. a side range can be achieved for natural gas.

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

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 back on to test or operate.
4. DO NOT connect appliances before pressure testing the gas piping. Damage to gas valve may result. (9" - 14" W.C.P 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 gas flow.
10. If 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.
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).
Check List Before Starting:

**CAUTION!** If “NO” has been checked on any of the following sixteen questions, do not operate this machine.

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

---

**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 a pilot which must be lighted by hand. 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 supplier, call the fire department.

C. Use only your hand to push in or turn the gas control knob. 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.
COMPONENT IDENTIFICATION

VHGL 3-4-5 GPM

- Water Supply Hose (not included)
- Detergent Bucket (not included)
- Water Inlet Located at Rear of Machine
- Water Supply Hose
- Detergent Line
- Detergent Valve
- Access Panel
- Pump/Burner Switches
- Hose Reel (Optional)
- Optional Hose Reel Assy
- Hot Water Discharge Nipple
- High Pressure Nozzle
- Spray Wand
- Wand Quick Coupler
- High Pressure Hose
- Spray Gun
- Trigger
- Hose Reel (Optional)
COMPONENT IDENTIFICATION

VHGL 6-8 GPM
OPERATING INSTRUCTIONS

1. 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 the water supply hose to the inlet connector and turn the water on. Check for water leaks and tighten as needed.
5. Have an electrician connect power supply into junction box according to information shown on the serial plate.
6. Turn on the main gas supply.
7. Partially depress and turn control knob to the “OFF” position (see figure 5).
8. Wait five minutes to allow gas, which may have accumulated in the main burner compartment, to escape.
9. Turn gas cock dial to “PILOT” position.
10. Depress the control knob all the way and hold it in. After five (5) seconds, depress the red ignitor until you hear a loud click. Repeat 3 or 4 times if necessary until pilot is lit. If pilot does not remain lit, repeat the operation allowing a longer period of time before releasing the gas valve knob. After the pilot lights, continue to hold the control knob down for about one (1) minute before releasing.

**NOTE:** Sufficient time must be allowed for a proper size pilot flame to heat the thermocouple and hold the safety magnet in a locked-up position. Also, time must be allowed for air to escape from the lines during the first operation.

11. Release dial and turn to full ON.
12. Attach the desired high pressure nozzle into the wand quick coupler by pulling the coupler collar back and then inserting the nozzle and securing it by pushing the coupler collar forward.
13. Push ON switch, or turn to pump position and pull the trigger on the spray gun allowing cold water to flow.
14. To activate the gas control valve for hot water, push the burner switch to the ON position and pull the trigger on the spray gun.
15. To apply detergent, open the detergent valve counter clockwise making sure that the detergent pick up tube is in the detergent solution and not sucking air.

16. **To Stop:** Turn the burner switch OFF and place the detergent pick up tube into fresh water. Open the detergent valve and spray gun allowing detergent lines to be flushed and the burner to cool. Otherwise coil damage will result.
17. After water has cooled, push or turn pump switch to OFF position. If the machine is going to be off for an extended period of time, put the gas cock dial on the gas valve into the “OFF” position.
18. Turn water off. Prevent from freezing.

PREVENTATIVE MAINTENANCE

1. Check to see that the 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 descale as needed.
5. Do not allow acidic, caustic or abrasive fluids to be pumped through system.
6. Always use high grade quality Landa cleaning products.
7. Never run pump dry for extended periods of time. If equipped with time delay, set shutdown timer for 1-2 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.

GENERAL WASHING TECHNIQUES

If dirt comes off relatively easy and no grease and oil are present, cleaning with cold water will normally suffice. However, when grease and oil are present, hot water will greatly speed up the process.

Clean with the spray nozzle a foot or so from the surface being cleaned. For more difficult cleaning, move the nozzle in closer.
NOTE: Do not allow unit to run in by-pass for more than 2-minutes or pump damage may occur.

If the machine is equipped with a shut-off spray gun and various nozzle patterns, use the wide patterns for easy soil removal jobs and the narrow patterns on the more difficult jobs or for tight areas such as cracks and holes.

In most cases, faster results and better detergent economy is obtained by applying the detergent and letting it “set” for a few minutes, prior to rinsing. This enables the detergent to do its soil penetrating and loosening work.

Most cleaning work terminates with a high pressure rinse as part of the normal cleaning procedure. In some cases, however, the last operation may be application of a detergent (a sanitizer, for example). After such work, run the machine for 20-30 seconds to clear pump and lines.

MAINTENANCE AND SERVICE

Spray Nozzles:
Each machine is equipped with one or more spray nozzles, depending on the 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 relieve pressure in the line when a spray gun is closed. Unloader valves are preset and tested at the factory before shipping. Occasional adjustment of the unloader may be necessary to maintain correct pressure. For valve adjustment contact your nearest Landa dealer or call Landa technical support.

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.

It is necessary to protect your machine against freezing when temperatures drop below 32° F. 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 spray gun)
Refer to Troubleshooting Chart for low pressure. If the trouble is found to be either the unloader or the pump, your next step is to determine which is the problem. This can be done by eliminating the unloader from the system and attaching the 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, then 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 SAE30 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.

HEATING COILS

To Check Water Heater Coil for Leaks:
With the main burners “OFF” start the pumping unit and allow it to run for a few minutes. Check into the burner compartment with a drop light or flashlight. If no leaks are visible, then water dripping from coils is condensation from the flue gases when the burners are on.

Condensation from Heating Coil:
When cold water is being pumped into the water heater coils, and the burners are on, condensation will form on the coils and drip down into the burner compartment, giving the appearance of a leaking coil, particularly on cold humid days.

Deliming Coils:
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 prevention 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 (part #9-028008) will remove lime and other deposits before coil becomes plugged. (See the following instructions for use of Landa Deliming Powder.)
Periodic flushing of coils is recommended.

1. Fill a container with 4 gallons of water, then add 1 lb. of deliming powder. Mix thoroughly.
2. Remove nozzle from spray gun assembly and put spray gun into container. Secure the trigger on the spray gun into the open position.
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 coils 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 wand assembly to spray gun.

**Gas Valve Regulator Adjustment:**

(See Fig. 4)

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 small screwdriver, rotate adjustment screw clockwise to increase or counterclockwise to decrease gas pressure.
4. Replace regulator adjustment screw cap.

**Figure 4: Gas Valve Adjustment**

**Pilot Burner Adjustment:**

1. Remove pilot adjustment cap. (See Figure 4.)
2. Adjust pilot key to provide properly sized flame.
3. Replace pilot adjustment cap.

**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. Unusually high pressures are caused by an object plugging the spray nozzle. This problem is easily remedied by removing the obstruction. If operating pressure of machine is found to be normal and relief valve continues to leak, repair or replace the valve.

**CAUTION:** Open this valve annually to prevent obstruction.

**PROPANE GAS** *(Vapor Fuel Only)*

**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 gas vapor 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. 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 gas; as gas is used from the propane cylinder, the liquid in the cylinder boils to maintain 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 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°, on the cold cylinder, or by manifolding two propane bottles together to increase total vaporization capacity. It is recommended that a minimum 100 lb. 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 a thermopile self-powered combination gas control. This system is designed as a constant burning pilot. Lighting of the pilot is accomplished by manually lighting the pilot. A thermostat and flow switch control the main solenoid valve.

Care of Main Burner:
Due to condensation from heater coils dripping down on the burners, a scale buildup may occur in the burner jet orifices.

1. TO REMOVE BURNER MANIFOLD FROM WATER HEATER COIL:
   Turn off the gas at the main burner by turning the knob to the “OFF” position on the gas valve and main gas supply. Disconnect the pilot and ignition lines from the gas valve. Disconnect union in main burner line. (Remove the nuts from the U-bolts, item 20 on page 22). Slide burner manifold out through shell opening.

2. TO CLEAN BURNER JETS:
   Select proper size drill for type of gas involved. Use vise to hold drill and ream out each jet orifice.

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

BURNER TROUBLESHOOTING

Millivolt System Check:
This machine has a thermopile self-powered combination gas control. Before checking the millivolt system, the following operations should be performed and observations made:

1. Inspect system for proper wiring.
2. The switch leads and all wire connections should be cleaned and tightened to eliminate all unnecessary resistance.
3. Clean and/or adjust pilot for maximum flame impingement on the thermopile.
4. If pilot will not remain lit when gas cock dial is released, check automatic pilot (Step D).

The millivolt system and individual components may be checked with a DC millivolt meter having a 0-1000 MV range. Conduct each check as shown in the chart below by connecting the meter test leads to terminals as indicated. All readings are closed circuit.

Figure 6

<table>
<thead>
<tr>
<th>Check Test</th>
<th>To Test</th>
<th>Connect Meter Leads To Terminals</th>
<th>Switch Flow &amp; Burner Contacts</th>
<th>Meter Reading Should Be</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Complete System</td>
<td>2 &amp; 3</td>
<td>Closed</td>
<td>100 MV or More</td>
</tr>
<tr>
<td>B</td>
<td>Thermopile Output</td>
<td>1 &amp; 2</td>
<td>Open</td>
<td>Greater than 250</td>
</tr>
<tr>
<td>C</td>
<td>System Resistance</td>
<td>1 &amp; 3</td>
<td>Closed</td>
<td>Less than 35</td>
</tr>
<tr>
<td>D</td>
<td>Auto/Pilot Dropout</td>
<td>1 &amp; 2</td>
<td>Open</td>
<td>Between 120 - 30 MV</td>
</tr>
</tbody>
</table>
A. Complete Millivolt System Check

(“A” Reading = Switch contacts CLOSED - Gas Cock Dial “ON” - Main burner should come ON).

1. If the reading is more than 100 millivolts and the automatic valve still does not come on, replace the automatic valve operator.

2. If the closed circuit reading (“A” Reading) is less than 100 millivolts, determine cause for low reading - proceed as follows:

B. Thermopile Output Reading Check

(“B” Reading = Switch contacts OPEN - Main burner OFF).

If the minimum 250 millivolt reading is not obtainable, readjust pilot for maximum millivolt output. If millivolt reading is still below minimum specified, replace thermopile.

C. System Resistance Check

(“C” Reading = Switch contacts CLOSED - Gas Cock “ON” - Main burner should be ON)

If the “C” Reading is more than that specified for the system being checked, this indicates the resistance in the system is excessive and must be reduced. To correct:

a. Clean and tighten switch leads and connections.

b. Shorten switch lead wires and/or replace with heavier gauge wire.

c. Cycle switch rapidly to clean contacts.

D. Automatic Pilot Dropout Check

1. Hold gas cock dial depressed in pilot position until maximum output is observed. Then extinguish pilot and observe meter.

2. Dropout of automatic pilot magnet (sound should be audible) should occur between 120 millivolts and 30 millivolts. If dropout occurs outside these limits, change the automatic pilot magnet assembly.
VHG-L 3-4-5 GPM
EXPLODED VIEW - LEFT SIDE
VHG-L 3-4-5 GPM
EXPLODED VIEW - RIGHT SIDE
## VHG-L 3-4-5 GPM

### EXPLODED VIEW PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6-0102</td>
<td>▲ Cord, Service, SO 8/3, Coleman (4-3A)</td>
<td>4.25 ft.</td>
</tr>
<tr>
<td></td>
<td>6-0104</td>
<td>▲ Cord, Service, 12/3, (3-11D)</td>
<td>4.25 ft.</td>
</tr>
<tr>
<td></td>
<td>6-0105</td>
<td>▲ Cord, Service, SEO 12/4, Coleman (4-22B/C/N, 5-3C)</td>
<td>4.25 ft.</td>
</tr>
<tr>
<td></td>
<td>6-0107</td>
<td>▲ Service Cord, 8/4 (5-3B)</td>
<td>4.25 ft.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Pulley, Pump, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Pulley, Motor, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Bushing, Pump, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Bushing, Motor, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Belt, Pump/Motor, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Pump, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2-0051</td>
<td>Nipple, 1/2&quot; JIC, 3/8&quot; Pipe</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2-0079</td>
<td>Swivel, 1/2&quot; JIC Fem., 3/8&quot; Male</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2-1052</td>
<td>Nipple, 1/2&quot; JIC x 3/8&quot; Pipe</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>5-3208</td>
<td>Unloader, AL607, 7.8GPM @ 4200 PSI</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>2-0053</td>
<td>Elbow, 1/2&quot; JIC, 3/8&quot;, 90°</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>6-021730</td>
<td>Switch, Flow MV 60, Yellow</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>2-00270</td>
<td>Elbow, 3/8&quot;, Male, Pipe</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>2-1042</td>
<td>Tee, 1/2&quot; Street</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>2-1902</td>
<td>Strainer, Inlet, Garden Hose</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>2-1062</td>
<td>Elbow, 1/2&quot; JIC x 1/2&quot;, 90°</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>2-1084</td>
<td>Hose Barb, 1/4&quot; Barb x 1/8&quot; ML Pipe</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>2-01011</td>
<td>Isolator, 5/16&quot; THRD, Fem x Fem, 1&quot; x 1&quot;</td>
<td>6</td>
</tr>
<tr>
<td>19A</td>
<td>90-10331</td>
<td>Stud, 5/16&quot; - 18 x 1&quot; B7 TFL Zinc</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>90-1006</td>
<td>Bolt, 5/16&quot; x 3/4&quot; NC HH (3-11D)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>90-1016</td>
<td>Bolt, 3/8&quot; x 1&quot;, NC HH (3-11D, 4-2A)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>90-1007</td>
<td>Bolt, 5/16&quot; x 1&quot; NC (4-2A)</td>
<td>4</td>
</tr>
</tbody>
</table>
### VHG-L 3-4-5 GPM

**EXPLODED VIEW PARTS LIST**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>95-07121220</td>
<td>Coil, Dura, 20&quot; Dia., As of 4/99, SCH 80, VNG Small</td>
<td>1</td>
</tr>
<tr>
<td>49</td>
<td>7-014300</td>
<td>Insulation, Blanket</td>
<td>11.5 ft.</td>
</tr>
<tr>
<td>50</td>
<td>95-07163152</td>
<td>Wrap, Outer SM, 20&quot; Coil, Assy, LRG VHG</td>
<td>1</td>
</tr>
<tr>
<td>51</td>
<td>95-07163150</td>
<td>Panel Side, LRG, VHG LRG (rear panels optional)</td>
<td>2</td>
</tr>
<tr>
<td>52</td>
<td>95-07163151</td>
<td>Panel Side, SM, VHG LRG</td>
<td>2</td>
</tr>
<tr>
<td>53</td>
<td>95-07163156</td>
<td>Panel, Back/Side, VHG LRG</td>
<td>1</td>
</tr>
<tr>
<td>54</td>
<td>95-07163158</td>
<td>Base, Assembly, VHG LRG</td>
<td>1</td>
</tr>
<tr>
<td>55</td>
<td>95-07400221</td>
<td>Brace, Base, 45°, WB-120</td>
<td>1</td>
</tr>
<tr>
<td>56</td>
<td>95-07163175</td>
<td>Panel, Access, VHG Large (Yellow)</td>
<td>1</td>
</tr>
<tr>
<td>57</td>
<td>95-071631751</td>
<td>Panel, Access, VHG Large, SS (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>58</td>
<td>95-07163179</td>
<td>Cover, Top, VHG, Yellow</td>
<td>1</td>
</tr>
<tr>
<td>59</td>
<td>95-071631791</td>
<td>Cover, Top, VHG SS (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>60</td>
<td>95-07163153</td>
<td>Box, Electrical, Large, VHG LRG</td>
<td>1</td>
</tr>
<tr>
<td>61</td>
<td>95-07121112</td>
<td>Rail, Pump or Generator Combo (PHW/SKID)</td>
<td>1</td>
</tr>
<tr>
<td>62</td>
<td>95-071210136</td>
<td>Platform, Motor 3/16&quot;, PHW/VNG</td>
<td>1</td>
</tr>
<tr>
<td>63</td>
<td>2-1105</td>
<td>Swivel, 1/2&quot; JIC Fem, Push-On</td>
<td>4</td>
</tr>
<tr>
<td>64</td>
<td>4-02047740</td>
<td>Hose, 3/8&quot; x 40&quot; 2 Wire</td>
<td>1</td>
</tr>
<tr>
<td>65</td>
<td>4-02100013</td>
<td>Inlet Hose, 13&quot;</td>
<td>1</td>
</tr>
<tr>
<td>66</td>
<td>4-02100008</td>
<td>Inlet Hose, 8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>67</td>
<td>2-0100379</td>
<td>Adapter, 3/4&quot; x 3/4&quot; MT, 90°</td>
<td>1</td>
</tr>
<tr>
<td>68</td>
<td>4-02110000</td>
<td>Hose, 1/2&quot;, Push-On, per 1.25 ft.</td>
<td>6</td>
</tr>
<tr>
<td>69</td>
<td>90-40006</td>
<td>Washer, 1/4&quot; Retainer</td>
<td>1</td>
</tr>
<tr>
<td>70</td>
<td>95-07162007</td>
<td>Hose Connection Bracket, PHW/PHWS/OHW</td>
<td>1</td>
</tr>
<tr>
<td>71</td>
<td>10-07994</td>
<td>Label, Warning, VHG Large</td>
<td>1</td>
</tr>
<tr>
<td>72</td>
<td>2-1053</td>
<td>Nipple, 1/2&quot; JIC x 1/2&quot; Pipe</td>
<td>1</td>
</tr>
<tr>
<td>73</td>
<td>2-10942</td>
<td>Swivel, 1/2&quot; MP x 3/4&quot; GHF w/Strainer</td>
<td>1</td>
</tr>
<tr>
<td>74</td>
<td>2-10421</td>
<td>Tee, 1/2&quot; w/1/8&quot; Hole, Street</td>
<td>1</td>
</tr>
<tr>
<td>75</td>
<td>90-4007</td>
<td>Washer, 3/8&quot; x 1-1/2&quot;, Fender, SAE</td>
<td>3</td>
</tr>
<tr>
<td>76</td>
<td>2-00681</td>
<td>Bushing, 1/2&quot; x 3/8&quot; Steel</td>
<td>1</td>
</tr>
<tr>
<td>77</td>
<td>2-1062</td>
<td>Elbow, 1/2&quot; JIC x 1/2&quot;, 90°</td>
<td>1</td>
</tr>
<tr>
<td>78</td>
<td>95-07163177</td>
<td>Cover, Side, VHG Large, Yellow</td>
<td>1</td>
</tr>
<tr>
<td>79</td>
<td>90-4002</td>
<td>Washer, 3/8&quot;</td>
<td>4</td>
</tr>
<tr>
<td>80</td>
<td>6-0102</td>
<td>▲ Cord, Service, SO, 8/3, Power Coleman (4-3A)</td>
<td>7.5 ft.</td>
</tr>
<tr>
<td>81</td>
<td>6-0104</td>
<td>▲ Cord, Service, 12/3 (3-11D)</td>
<td>7.5 ft.</td>
</tr>
<tr>
<td>82</td>
<td>6-0108</td>
<td>▲ Cord, Service, SEO, 10/3, Power, Coleman (4-2A,4-22A)</td>
<td>7.5 ft.</td>
</tr>
<tr>
<td>83</td>
<td>6-0109</td>
<td>▲ Cord, Service, SEO, 10/4, Power, Coleman (4-22B,C,N; 5-3C)</td>
<td>7.5 ft.</td>
</tr>
<tr>
<td>84</td>
<td>6-0105</td>
<td>▲ Cord Service, SEO, 12/4 Power, Coleman (4-22B,C,N; 5-3C)</td>
<td>7.5 ft.</td>
</tr>
<tr>
<td>85</td>
<td>6-0121</td>
<td>Cord, Service 8/4 (5-3B)</td>
<td>7.5 ft.</td>
</tr>
<tr>
<td>86</td>
<td>95-07163162</td>
<td>Panel, Side, VHG Large</td>
<td>1</td>
</tr>
<tr>
<td>87</td>
<td>95-07162007</td>
<td>Panel Side, LRG, VHG LRG (rear panels optional)</td>
<td>2</td>
</tr>
<tr>
<td>88</td>
<td>2-10530</td>
<td>Elbow, 3/4&quot; JIC x 1/2&quot;, 90° (5-3B/C)</td>
<td>1</td>
</tr>
<tr>
<td>89</td>
<td>95-071631771</td>
<td>Cover, Side, VHG Large, SS (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>90</td>
<td>8-01021</td>
<td>Cord, Service 8/4 (5-3B)</td>
<td>7.5 ft.</td>
</tr>
<tr>
<td>91</td>
<td>10-08021</td>
<td>Label, Disconnect Power</td>
<td>1</td>
</tr>
<tr>
<td>92</td>
<td>2-30082</td>
<td>Pump Protector, 1/2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>93</td>
<td>84-0217470</td>
<td>Switch, Reed Replacement, MV 60</td>
<td>1</td>
</tr>
<tr>
<td>94</td>
<td>2-9040</td>
<td>Clamp, Hose, UNI .46 - .54</td>
<td>1</td>
</tr>
<tr>
<td>95</td>
<td>86-00575</td>
<td>Elbow, 3/8&quot; STL, Steel, 45°</td>
<td>1</td>
</tr>
</tbody>
</table>

▲ Not Shown
VHG-L BURNER ASSEMBLY 3-4-5 GPM
EXPLODED VIEW
## VHG-L BURNER ASSEMBLY 3-4-5 GPM

### PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7-7021</td>
<td>Jet Orifice, #54 Natural Gas</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>7-7022</td>
<td>Jet Orifice #69 LP</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>95-031610/54</td>
<td>Small SQ. Burner Ring/#54, VHG Large 4-5</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>7-70162</td>
<td>Ignitor, Piezo #1244-42</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>7-7036</td>
<td>Thermopile, VNG</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>7-70237</td>
<td>Pilot, Natural Gas Electronic (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>95-07163085</td>
<td>Splash Guard, Pilot Light</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2-001359</td>
<td>Bushing, 1&quot; x 3/4&quot; Blk Steel Hex</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>2-00164</td>
<td>Nipple, 3/4&quot; x 6&quot;, Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2-1116</td>
<td>Elbow, 1/4&quot; Tube x 1/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2-1072</td>
<td>Bushing, 1/4&quot; x 1/8&quot; Pipe</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>2-1014</td>
<td>Coupling, 1/4&quot; Hex</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>2-0087</td>
<td>Union, 3/4&quot;, Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>2-00167</td>
<td>Nipple, 3/4&quot; x 7&quot;, Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>2-00293</td>
<td>Elbow, 3/4&quot;, Black, 90°</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>7-7000HC</td>
<td>Valve, Gas, 7000 MVRHC</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>7-70002</td>
<td>Valve, Gas, 7000 DERHC (Optional) Electronic</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>2-3006</td>
<td>Valve, Ball, 1/4&quot; Fem x 1/4&quot; Fem</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>2-01413</td>
<td>Snap Bushing, 5/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>7-015</td>
<td>Tubing, Aluminum</td>
<td>36&quot;</td>
</tr>
<tr>
<td>19</td>
<td>95-07163159</td>
<td>Strap, Burner, VHG LRG 4-5GPM</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>95-07163259</td>
<td>Strap, Burner, VHG Large 6-8</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>90-10130</td>
<td>U-Bolt, 5/16&quot; x 1&quot; Pipe</td>
<td>5</td>
</tr>
<tr>
<td>21</td>
<td>90-2001</td>
<td>Nut, 5/16&quot; ESNA, NC</td>
<td>4</td>
</tr>
<tr>
<td>22</td>
<td>2-1118</td>
<td>Connector, 1/4&quot; Tube x 1/4&quot; MPT</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>90-4001</td>
<td>Washer, 5/16&quot; Flat, SAE</td>
<td>4</td>
</tr>
<tr>
<td>24</td>
<td>90-199940</td>
<td>Screw, 10/32&quot; x 1/4&quot; Hex</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>2-001681</td>
<td>Nipple, 3/4&quot; x 9&quot;, Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>2-1022</td>
<td>Elbow, 1/4&quot; Street</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>2-1002</td>
<td>Nipple, 1/4&quot; Close</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>2-001680</td>
<td>Nipple, 3/4&quot; x 8&quot; Black Pipe</td>
<td>1</td>
</tr>
</tbody>
</table>
VHG-L 6-8 GPM
EXPLODED VIEW - RIGHT SIDE
### VHG-L 6-8 GPM

#### EXPLODED VIEW PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95-071630751</td>
<td>Top, Burner Wrap, 30 VNG</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>7-014834</td>
<td>Insulation, Tank Head, 30&quot;</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>95-07121224</td>
<td>Coil Assy., Modulating, VNG-LM</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>7-014844</td>
<td>▲ Insul. Blanket, 33&quot; x 89&quot; x 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>95-07163251</td>
<td>Cover, Side Bottom, VHG 6-8</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>95-07163258</td>
<td>Assy., Base, VHG 6-8</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>95-07163282</td>
<td>Support, Control, Panel, 6-8</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>95-07163256</td>
<td>Panel, Back, VHG Large 6-8</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>95-07163262</td>
<td>Panel, Side, VHG Large 6-8</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>4-02120000</td>
<td>Hose, 3/4&quot; Push-On</td>
<td>3 ft</td>
</tr>
<tr>
<td>10</td>
<td>4-02110000</td>
<td>Hose, 1/2&quot; Push-On</td>
<td>3.33 ft</td>
</tr>
<tr>
<td>11</td>
<td>2-1108</td>
<td>Hose Barb, 1/2&quot; Barb x 3/8&quot; MPT, Push-On</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>7-70162</td>
<td>Ignitor, Piezo</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>2-3409</td>
<td>Disk, Rupture Assy, 7000 PSI</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>2-00091</td>
<td>Nipple, 1/2&quot; x 3&quot; Galvanized</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>2-2007</td>
<td>Nipple, 3/8&quot; x 3/8&quot; NPT ST Male</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>2-1019</td>
<td>Elbow, 3/8&quot; Female</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>95-07101226</td>
<td>Block, Discharge, Brass</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>4-0509</td>
<td>Switch, Snap, 225 DR Hi Limit</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>90-1995</td>
<td>Screw, 1/4&quot; x 3/4&quot; BH SOC</td>
<td>34</td>
</tr>
<tr>
<td>20</td>
<td>95-07162007</td>
<td>Bracket, PHW Hose Connection</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>2-10942</td>
<td>Swivel, 1/2&quot; MP x 3/4&quot; GHF w/Strainer</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>2-01040</td>
<td>Grommet, 2-5/16&quot;, Rubber</td>
<td>2</td>
</tr>
<tr>
<td>23</td>
<td>4-02120000</td>
<td>Hose, 3/4&quot; Push-On</td>
<td>2 ft</td>
</tr>
<tr>
<td>24</td>
<td>2-10630</td>
<td>Elbow, 3/4&quot; JIC x 1/2&quot;, 90°</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>90-1996</td>
<td>Screw, 3/8&quot; x 3/4&quot; HH NC, Whiz</td>
<td>29</td>
</tr>
<tr>
<td>26</td>
<td>90-2020</td>
<td>Nut, Cage 3/8&quot; x 12 Gauge</td>
<td>37</td>
</tr>
<tr>
<td>27</td>
<td>90-1016</td>
<td>Bolt, 3/8&quot; x 1&quot; NC HH</td>
<td>8</td>
</tr>
<tr>
<td>28</td>
<td>90-4002</td>
<td>Washer, 3/8&quot; SAE</td>
<td>8</td>
</tr>
<tr>
<td>29</td>
<td>90-2499</td>
<td>Screw, #10 x 1/2&quot; Tek, Hex Head</td>
<td>12</td>
</tr>
<tr>
<td>30</td>
<td>95-07121225</td>
<td>Cross Hanger, 1&quot; SCH 80</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>95-07163175</td>
<td>Panel, Access, VHG Large</td>
<td>1</td>
</tr>
<tr>
<td>32</td>
<td>95-07163277</td>
<td>Cover, Side, VHG Large 6-8</td>
<td>1</td>
</tr>
<tr>
<td>33</td>
<td>95-07163279</td>
<td>Cover, Top, VHG Large 6-8</td>
<td>1</td>
</tr>
<tr>
<td>34</td>
<td>6-0411</td>
<td>Cover, 2&quot; x 4&quot;, Waterproof</td>
<td>1</td>
</tr>
</tbody>
</table>

#### ITEM PART NO. DESCRIPTION QTY

| 35   | 90-1016           | Bolt, 3/8" x 1" NC                                   | 16  |
| 36   | 6-01031           | ▲ Service Cord, 6/4 (6-3000B,H)                      | 5 ft|
| 37   | 90-2002           | Nut, 3/8" ESNA, NC                                   | 16  |
| 38   | 4-02120000        | Hose, 3/4" Push-On                                   | 3 ft|
| 39   | 2-01041           | Pad, Soft Rubber, 50 Duro                            | 9   |
| 40   | 95-07163276       | Cover, Access                                        | 1   |
| 41   | 95-07163254       | Panel, Control Assy.                                 | 1   |
| 42   | See Parts Specs Pages 46, 47    |                                                     |     |
| 43   | See Parts Specs Pages 46, 47    |                                                     |     |
| 44   | See Parts Specs Pages 46, 47    |                                                     |     |
| 45   | See Parts Specs Pages 46, 47    |                                                     |     |
| 46   | See Parts Specs Pages 46, 47    |                                                     |     |
| 47   | 90-1025           | Bolt, 3/8" x 5-1/2"                                  | 2   |
| 48   | 2-0108            | Bumper Pad, Engine                                   | 9   |
| 49   | See Parts Specs Pages 46, 47    |                                                     |     |
| 50   | 90-4002           | Washer, 3/8" SAE, Flat                               | 18  |
| 51   | 90-4007           | Washer, 3/8" x 1-1/2" Fender, SAE                    | 9   |
| 52   | 2-11050           | Swivel, 3/4" SAE Female                              | 6   |
| 53   | 2-0046            | Tee, 1/2" Street                                     | 1   |
| 54   | 2-2007            | Nut, 3/8" Hex                                       | 2   |
| 55   | 95-07141112       | Bracket, Pump Take-Up                                | 1   |
| 56   | 10-07994          | Label, Warning                                       | 1   |
| 57   | 10-02028          | Label, Warn Exposed Pulleys                          | 1   |
| 58   | 10-09004          | Label, Hot Water Outlet                              | 1   |
| 59   | 10-02025A         | Label, Hot/Caliente                                  | 1   |
| 60   | See Parts Specs Pages 46, 47    |                                                     |     |
| 61   | 4-02120000        | Hose, Push-On                                        | 12" |
| 62   | 10-03014          | Label, Landa                                         | 1   |
| 63   | 90-1043           | Screw, Thumb, 1/4"-.20 x 1/2"                        | 2   |
| 64   | 90-40006          | Washer, 1/4" Retainer                                | 2   |
| 65   | 95-07290025       | Reflector, Pilot Light                               | 1   |
| 66   | 6-04100           | Box, Junction, 3 Hose                                | 1   |
| 67   | 4-02067736        | Hose, 3/8" x 36", 2 Wire Pressure Loop               | 1   |

▲ Not Shown
VHG-L 6-8 GPM PUMP ASSEMBLIES
EXPLODED VIEW AND PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5-1733</td>
<td>Pump, Landa, LX6035/L (6-3)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5-1743</td>
<td>Pump, Landa, LX8030/L (8-3)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>5-3208</td>
<td>Unloader, AL-VRT 607, 7.8GPM</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>6-021730</td>
<td>Switch, Flow MV60, Yellow</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2-0051</td>
<td>Nipple, 1/2&quot; JIC x 1/2&quot; M (6-3)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2-0052</td>
<td>Nipple, 1/2&quot; JIC x 3/8&quot; Pipe (8-3)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>2-0079</td>
<td>Swivel, 1/2&quot; JIC Fem, 3/8&quot; Male</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>2-00270</td>
<td>Elbow, 3/8&quot;, Male, Pipe</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2-1007</td>
<td>Nipple, 1/2&quot; Hex (6-3)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2-1008</td>
<td>Nipple, 3/4&quot; Close (8-3)</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>2-1035</td>
<td>Cross 1/2&quot; Female, Cast, Inlet (6-3)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2-1036</td>
<td>Cross, 3/4&quot; Pipe (8-3)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2-1076</td>
<td>Bushing, 1/2&quot; x 1/4&quot; Brass (6-3)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2-1079</td>
<td>Bushing, 3/4&quot; x 1/4&quot; (8-3)</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2-1089</td>
<td>Hose Barb, 1/4&quot; Barb x 1/4&quot; Pipe, 90°</td>
<td>1</td>
</tr>
</tbody>
</table>
VHG-L BURNER ASSEMBLY 6-8 GPM
EXPLODED VIEW
### VHG-L Burner Assembly 6-8 GPM

**Parts List**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95-031610/54L</td>
<td>Burner Ring w/54 Jets, VHG-Large</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>95-031610/65L</td>
<td>Burner Ring w/65 Jets (LP Option)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>7-70162</td>
<td>Ignitor, Piezo #1244-42</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>7-7036</td>
<td>Thermopile, VNG</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>7-70237</td>
<td>Pilot, Natural Gas, Electronic (Option)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>95-07163085</td>
<td>Splash Guard, Pilot Light</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2-00141</td>
<td>Reducer, 1&quot; x 3/4&quot;, Bell, Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>2-00163</td>
<td>Nipple, 3/4&quot; x 2&quot;, Black</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>95-07163081</td>
<td>Nipple, 1&quot; x 15&quot; Black, SCH 40</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2-00291</td>
<td>Elbow, 1&quot; Black Pipe, 90°</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>2-001314</td>
<td>Nipple, 1&quot; x 12-1/2&quot; Black</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>2-00172</td>
<td>Nipple, 1&quot; Close, Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>2-0086</td>
<td>Union, 1&quot; Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>2-00132</td>
<td>Nipple, 1&quot; x 6&quot;, Black Pipe</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>7-015</td>
<td>Tubing, Aluminum</td>
<td>48&quot;</td>
</tr>
<tr>
<td>16</td>
<td>90-10130</td>
<td>U-Bolt, 5/16&quot; x 1&quot; Pipe</td>
<td>5</td>
</tr>
<tr>
<td>17</td>
<td>2-01413</td>
<td>Snap, Bushing, 5/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>2-1116</td>
<td>Elbow, 1/4&quot; Tube x 1/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>2-1072</td>
<td>Bushing, 1/4&quot; x 1/8&quot; Pipe</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>2-3006</td>
<td>Valve, Ball 1/4&quot; Fem x 1/4&quot; Fem</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>2-1022</td>
<td>Elbow, 1/4&quot; Street</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>2-1002</td>
<td>Nipple, 1/4&quot; Close</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>2-1014</td>
<td>Coupling, 1/4&quot; Hex</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>2-1118</td>
<td>Connector, 1/4&quot; Tube x 1/4&quot; MPT</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>7-7000HC</td>
<td>Valve, Gas, 7000 MVRHC</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>95-07163259</td>
<td>Strap, Burner, VHG Large</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>90-2001</td>
<td>Nut, 5/16&quot; ESNA</td>
<td>4</td>
</tr>
<tr>
<td>28</td>
<td>90-4001</td>
<td>Washer, 5/16&quot; Flat, SAE</td>
<td>4</td>
</tr>
<tr>
<td>29</td>
<td>90-199940</td>
<td>Screw, 10/32&quot; x 1/4&quot; Hex</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>10-02024</td>
<td>Label, Natural Gas</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>10-02023</td>
<td>Label, Liquid Propane (LP Option)</td>
<td>1</td>
</tr>
</tbody>
</table>
VHG-L FLOAT TANK 3-4-5 GPM
EXPLODED VIEW & PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-01164</td>
<td>Tank, Universal Float</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2-3014</td>
<td>Valve, Float Fluid Master 400A</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>2-0151</td>
<td>Plug, Float Tank</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2-11041</td>
<td>Connector, Anchor, 1/2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>2-1062</td>
<td>Elbow, 1/2&quot; JIC x 1/2&quot;, 90°</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2-10061</td>
<td>Nipple, Modified, Close</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>2-010058</td>
<td>Bulkhead, 3/4&quot; Poly Pro</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2-0100379</td>
<td>Adaptor, 3/4&quot; x 3/4&quot; MTX Insert</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>90-1999</td>
<td>Screw 10/32&quot; x 3/4&quot;</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>90-017</td>
<td>Nut, 10/32&quot; Keps</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>2-1906</td>
<td>Strainer, 1/2&quot;, Basket</td>
<td>1</td>
</tr>
</tbody>
</table>
### VHG-L FLOAT TANK 6-8 GPM

**EXPLODED VIEW & PARTS LIST**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95-07163021</td>
<td>Assy., Float Tank S.S.</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2-30110</td>
<td>Valve, 3/4&quot; Brass Float</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2-1112</td>
<td>Stem, 10&quot; Float</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2-0102</td>
<td>Ball, Float, Black Plastic</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>2-01104</td>
<td>Trim, 750 B2 x 1/16&quot; Black</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>2-0100379</td>
<td>Adapter, 3/4&quot; x 3/4&quot; MT x Insert 90°</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>2-1009</td>
<td>Nipple, 3/4&quot; Hex</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>2-1033</td>
<td>Tee, 3/4&quot; Female Pipe</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2-10620</td>
<td>Elbow, 3/4&quot; SAE x 3/4&quot;, 90°, Brass</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2-1081</td>
<td>Bushing, 3/4&quot; x 1/2&quot; Pipe</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>2-1906</td>
<td>Strainer, 1/2&quot; Basket</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>2-1053</td>
<td>Nipple, 1/2&quot; JIC x 1/2&quot; Pipe</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>90-1998</td>
<td>Screw, 1/4&quot; x 3/4&quot;</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>90-2000</td>
<td>Nut, 1/4&quot; ESNA</td>
<td>3</td>
</tr>
</tbody>
</table>

▲ Not Shown
## VHG-L CONTROL PANEL 3-4-5 GPM
### STANDARD/REMOTE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6-2020</td>
<td>Switch Selector, w/Red Lever</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>6-2000</td>
<td>Block, Contact, NC</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>6-2001</td>
<td>Block, Contact, NO</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>2-30152</td>
<td>Valve, Metering, 1/4&quot; Hose</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>6-020240</td>
<td>Switch, Rocker, Carling</td>
<td>2</td>
</tr>
<tr>
<td>5A</td>
<td>6-020241</td>
<td>Switch Rocker, Carling M-Circuit,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Time Delay Option Only)</td>
<td>1</td>
</tr>
</tbody>
</table>

### Temperature Control Unit Field Installation Only

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>95-07163154</td>
<td>Panel, Control, VHG Large</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>95-07163155</td>
<td>Panel, Control, Remote, VHG Large</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2-9040</td>
<td>Clamp, Hose, UNI .46 -.54</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>10-07996</td>
<td>Label, Control Panel</td>
<td>1</td>
</tr>
</tbody>
</table>
# VHG-L CONTROL PANEL 6-8 GPM

## STANDARD/REMOTE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6-2020</td>
<td>Switch Selector w/Red Lever</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>6-2000</td>
<td>Block, Contact, WC</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>6-2001</td>
<td>Black, Contact, NO</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>2-30152</td>
<td>Valve, Metering, 1/4&quot; Hose</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>6-020240</td>
<td>Switch, Rocker, Carling</td>
<td>2</td>
</tr>
<tr>
<td>5A</td>
<td>6-020241</td>
<td>Switch, Rocker, Carling, M-Circuit (Time Delay Option)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>95-07163254</td>
<td>Panel, Control, VHG Large</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>95-07163255</td>
<td>Panel, Control, Remote</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>2-9040</td>
<td>Clamp, Hose, UNI .46 - .54</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>10-07996</td>
<td>Label, Control Panel</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>6-01031</td>
<td>▲ Service Cord, 6/4 (6-3000B, H)</td>
<td>6.5 ft.</td>
</tr>
<tr>
<td></td>
<td>6-0109</td>
<td>▲ Service Cord, 10/4 (6-3000C)</td>
<td>6.5 ft.</td>
</tr>
<tr>
<td></td>
<td>6-01033</td>
<td>▲ Service Cord, 4/4 (8-3000B, H)</td>
<td>6.5 ft.</td>
</tr>
<tr>
<td></td>
<td>6-01021</td>
<td>▲ Service Cord, 8/4 (8-3000C)</td>
<td>6.5 ft.</td>
</tr>
</tbody>
</table>
VHG-L POWER IN/REMOTE ELECTRICAL BOX
3-4-5 GPM
VHG-L POWER IN/REMOTE ELECTRICAL BOX
6-8 GPM
## VHG-L ELECTRICAL BOX
### PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6-0517</td>
<td>Strain Relief, Standard (6-30024C; 8-30024C) Remote Option</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>6-05171</td>
<td>Strain Relief, 1&quot; (6-30024B,H; 8-30024B,H Models)</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>6-04110</td>
<td>Box, Junction, 3 Hole, 3/4&quot; (6-30024C; 8-30024C)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>6-041100</td>
<td>Box, Electric, 4&quot; x 2&quot;, 3 Hole (6-30024B,H; 8-30024B,H)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>6-0411</td>
<td>Cover Plate, Junction Box, 2&quot; x 4&quot;</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>6-039021</td>
<td>Box, Metal Junction, 8&quot; x 10&quot; x 4&quot;, Remote Option</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>6-05041</td>
<td>Block, Terminal, 16 Pole, Remote Option</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>95-07163167</td>
<td>Elec/Remote Box Panel, VHG Large (3-4-5 GPM)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>95-07163267</td>
<td>Bracket, Remote Box, VHG Large (6-8 GPM)</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>11-1042</td>
<td>Label, Ground</td>
<td>1</td>
</tr>
</tbody>
</table>
VHG-L ELECTRICAL BOX ASSEMBLY (CONT.)
ALL MODELS

Remote

Remote w/ Time Delay

Remote w/Electronic Ignition

Remote w/Time Delay & Electronic Ignition

Detergent Valve
## VHG-L ELECTRICAL BOX ASSEMBLY (CON'T)
### ALL MODELS - PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6-03700</td>
<td>Timer, Multi-Function, 24V-120/240</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>6-03621</td>
<td>Relay, 120V, See Option</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6-03541</td>
<td>Base, Relay, See Option</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6-0517</td>
<td>Strain Relief, 3/4&quot;, Standard Remote</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6-05041</td>
<td>Block, Terminal, 16 Pole</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Transformer, Micron, 240/480-120V, .075KVA</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Fuse, 1 Amp, See Page 32-33</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>7-70151</td>
<td>Ignition, Electronic Control</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>95-07163157</td>
<td>Cover, Electrical Box, VHG Large</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>95-07163153</td>
<td>Box, Electrical, VHG Large</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>6-1401590</td>
<td>Valve, Detergent, Less Solenoid</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>6-140160</td>
<td>Solenoid Coil, 120V</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>6-0504</td>
<td>Block, Terminal, 4 Pole</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Transformer, 120V/240V-24V, See Page 32-33</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Contactor, 120V, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Overload, Relay, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Fuse, Secondary, See Page 32-33</td>
<td></td>
</tr>
<tr>
<td>11-1042</td>
<td>▲ Label, Ground</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

▲ Not Shown
## HOSE & SPRAY GUN ASSEMBLY
### ALL MODELS

![Diagram of hose and spray gun assembly]

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-2002</td>
<td>Coupler, 3/8&quot; Female</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>4-02033450C</td>
<td>Hose 50' x 3/8&quot;, 1 Wire w/Coupler, Tuff Skin (4-2200, 4-3000, 4-2000)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>4-02083450C</td>
<td>Hose 50' x 3/8&quot;, 2 Wire w/Coupler, Tuff Skin (5-3000)</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>4-02043450C</td>
<td>Hose, 3/8&quot; x 50', 2 Wire, Tuff Skin w/Coupler (6-3000)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4-02063450C</td>
<td>Hose, 1/2&quot; x 50', 2 Wire, Tuff Skin w/Coupler (8-3000)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>4-01212</td>
<td>Spray Gun, Shut-Off Series 2000</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>4-011351A</td>
<td>Lance, Spray Insulated</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4-12805500</td>
<td>Nozzle, 0005.5, Red (4-2200, 5-3000)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>4-12805515</td>
<td>Nozzle, 1505.5, Yellow (4-2200, 5-3000)</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>4-12805525</td>
<td>Nozzle, 2505.5, Green (4-2200, 5-3000)</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>4-12805540</td>
<td>Nozzle, 4005.5, White (4-2200, 5-3000)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>4-12804500</td>
<td>Nozzle, 0004.5, Red (4-3000)</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>4-12804515</td>
<td>Nozzle, 1504.5, Yellow (4-3000)</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>4-12804525</td>
<td>Nozzle, 2504.5, Green (4-3000)</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>4-12804540</td>
<td>Nozzle, 4004.5, White (4-3000)</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>4-12804500</td>
<td>Nozzle, 0005.5, Red (3-1100, 4-2000A)</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>4-12804515</td>
<td>Nozzle, 1505.5, Yellow (3-1100, 4-2000A)</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>4-12804525</td>
<td>Nozzle, 2505.5, Green (3-1100, 4-2000A)</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>4-12804540</td>
<td>Nozzle, 4005.5, White (3-1100, 4-2000A)</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>4-12804000</td>
<td>Nozzle, 0004, Red (4-3000F)</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>4-12804015</td>
<td>Nozzle, 1504, Yellow (4-3000F)</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>4-12804025</td>
<td>Nozzle, 2504, Green (4-3000F)</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>4-12804040</td>
<td>Nozzle, 4004, White (4-3000F)</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>4-12807000</td>
<td>Nozzle, 0007, Red (6-3000)</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>4-12807015</td>
<td>Nozzle, 1507, Yellow (6-3000)</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>4-12807025</td>
<td>Nozzle, 2507, Green (6-3000)</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>4-12807040</td>
<td>Nozzle, 4007, White (6-3000)</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>4-12809000</td>
<td>Nozzle, 0009, Red (8-3000)</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>4-12809015</td>
<td>Nozzle, 1509, Yellow (8-3000)</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>4-12809025</td>
<td>Nozzle, 2509, Green (8-3000)</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>4-12809040</td>
<td>Nozzle, 4009, White (8-3000)</td>
<td>1</td>
</tr>
</tbody>
</table>
## BURNER SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>BURNER ASSEMBLY</th>
<th>JET SIZE</th>
<th>GAS VALVE</th>
<th>PILOT ORIFICE CONVERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHG3-1100</td>
<td>X - 46</td>
<td>#54</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>No</td>
</tr>
<tr>
<td>VHG4-2000</td>
<td>X - 46</td>
<td>#54</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>No</td>
</tr>
<tr>
<td>VHG4-2200</td>
<td>X - 46</td>
<td>#54</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>No</td>
</tr>
<tr>
<td>VHG4-3000</td>
<td>X - 46</td>
<td>#54</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>No</td>
</tr>
<tr>
<td>VHG5-3000</td>
<td>X - 46</td>
<td>#54</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>No</td>
</tr>
<tr>
<td>VHG6-3000</td>
<td>X - 98</td>
<td>#54</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>No</td>
</tr>
<tr>
<td>VHG8-3000</td>
<td>X - 98</td>
<td>#54</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>No</td>
</tr>
</tbody>
</table>

## LP CONVERSION SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>BURNER ASSEMBLY</th>
<th>JET SIZE</th>
<th>GAS VALVE</th>
<th>PILOT ORIFICE CONVERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHG3-1100 LP</td>
<td>X - 46</td>
<td>#65</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>Yes</td>
</tr>
<tr>
<td>VHG4-2000 LP</td>
<td>X - 46</td>
<td>#65</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>Yes</td>
</tr>
<tr>
<td>VHG4-2200 LP</td>
<td>X - 46</td>
<td>#65</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>Yes</td>
</tr>
<tr>
<td>VHG4-3000 LP</td>
<td>X - 46</td>
<td>#65</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>Yes</td>
</tr>
<tr>
<td>VHG5-3000 LP</td>
<td>X - 46</td>
<td>#65</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>Yes</td>
</tr>
<tr>
<td>VHG6-3000 LP</td>
<td>X - 98</td>
<td>#65</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>Yes</td>
</tr>
<tr>
<td>VHG8-3000 LP</td>
<td>X - 98</td>
<td>#65</td>
<td>7000 MVRHC 3/4&quot; x 3/4&quot;</td>
<td>Yes</td>
</tr>
</tbody>
</table>
# PUMP PARTS SPECIFICATIONS: LANDA PUMP

<table>
<thead>
<tr>
<th>Machine</th>
<th>Pump</th>
<th>Part #</th>
<th>Pulley</th>
<th>Part #</th>
<th>Bushing</th>
<th>Part #</th>
<th>Size</th>
<th>Voltage/pH</th>
<th>Hertz</th>
<th>Part #</th>
<th>Pulley</th>
<th>Part #</th>
<th>Bushing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-11024D</td>
<td>LM4035 5-1720</td>
<td>AK84 5-40108401</td>
<td>24MM</td>
<td>5-512024</td>
<td>2 HP</td>
<td>120V/1PH</td>
<td>60</td>
<td>5-1047</td>
<td>AK20-5/8 5-40102058</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-20024A</td>
<td>LM4035 5-1720</td>
<td>BK90H 5-40409001</td>
<td>24mm</td>
<td>5-512024</td>
<td>5 HP</td>
<td>230V/1PH</td>
<td>60</td>
<td>5-1053</td>
<td>BK30 5-40403001</td>
<td>3/4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22024A</td>
<td>LT5030 5-1728</td>
<td>2AK84H 5-40208401</td>
<td>25mm</td>
<td>5-512025</td>
<td>6 HP</td>
<td>230V/3PH</td>
<td>60</td>
<td>5-1011</td>
<td>2AK41H 5-40204101</td>
<td>1-1/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22024C</td>
<td>LT5030 5-1728</td>
<td>2AK84H 5-40208401</td>
<td>25mm</td>
<td>5-512025</td>
<td>6 HP</td>
<td>460V/3PH</td>
<td>60</td>
<td>5-1011</td>
<td>2AK41H 5-40204101</td>
<td>1-1/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22024N</td>
<td>LT5030 5-1728</td>
<td>2BK67H 5-40506701</td>
<td>25mm</td>
<td>5-512025</td>
<td>7.5 HP</td>
<td>380V/3PH</td>
<td>50</td>
<td>5-1063</td>
<td>2BK40H 5-40504001</td>
<td>1-1/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30024A</td>
<td>LT5030 5-1728</td>
<td>2BK80H 5-40508001</td>
<td>25mm</td>
<td>5-512025</td>
<td>8 HP</td>
<td>230V/1PH</td>
<td>60</td>
<td>5-1082</td>
<td>2BK34H 5-40503401</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30024B</td>
<td>LT5030 5-1728</td>
<td>2BK80H 5-40508001</td>
<td>25mm</td>
<td>5-512025</td>
<td>8 HP</td>
<td>208V/3PH</td>
<td>60</td>
<td>5-1083</td>
<td>2BK34H 5-40503401</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30024C</td>
<td>LT5030 5-1728</td>
<td>2BK80H 5-40508001</td>
<td>25mm</td>
<td>5-512025</td>
<td>8 HP</td>
<td>460V/3PH</td>
<td>60</td>
<td>5-1083</td>
<td>2BK34H 5-40503401</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30024D</td>
<td>LT6035 5-1733</td>
<td>3BK70H 5-41007001</td>
<td>25mm</td>
<td>5-512025</td>
<td>10 HP</td>
<td>230V/3PH</td>
<td>60</td>
<td>5-1018</td>
<td>3TB60H 5-40503601</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30024E</td>
<td>LT6035 5-1733</td>
<td>3BK70H 5-41007001</td>
<td>25mm</td>
<td>5-512025</td>
<td>10 HP</td>
<td>460V/3PH</td>
<td>60</td>
<td>5-1018</td>
<td>3TB60H 5-40503601</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-30021B</td>
<td>TS-2021 5-2307</td>
<td>2BK80H 5-40508001</td>
<td>24mm</td>
<td>5-512024</td>
<td>8 HP</td>
<td>230V/1PH</td>
<td>60</td>
<td>5-1082</td>
<td>2BK50H 5-40505001</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-30021C</td>
<td>TS-2021 5-2307</td>
<td>2BK80H 5-40508001</td>
<td>24mm</td>
<td>5-512024</td>
<td>8 HP</td>
<td>208V/3PH</td>
<td>60</td>
<td>5-1083</td>
<td>2BK50H 5-40505001</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# PUMP PARTS SPECIFICATIONS: GENERAL PUMP

<table>
<thead>
<tr>
<th>Machine</th>
<th>Pump</th>
<th>Part #</th>
<th>Pulley</th>
<th>Part #</th>
<th>Bushing</th>
<th>Part #</th>
<th>Size</th>
<th>Voltage/pH</th>
<th>Hertz</th>
<th>Part #</th>
<th>Pulley</th>
<th>Part #</th>
<th>Bushing</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-20021A</td>
<td>TX-1812 5-2312</td>
<td>BK75H 5-40407501</td>
<td>24mm</td>
<td>5-512024</td>
<td>5 HP</td>
<td>230V/1PH</td>
<td>60</td>
<td>5-1053</td>
<td>BK36H 5-40403601</td>
<td>3/4&quot; x H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22021A</td>
<td>T-1011 5-2304</td>
<td>2AK84H 5-40208401</td>
<td>24mm</td>
<td>5-512024</td>
<td>6 HP</td>
<td>230V/1PH</td>
<td>60</td>
<td>5-10401</td>
<td>2AK51H 5-40205101</td>
<td>1-1/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22021B</td>
<td>T-1011 5-2304</td>
<td>2AK84H 5-40208401</td>
<td>24mm</td>
<td>5-512024</td>
<td>6 HP</td>
<td>230V/3PH</td>
<td>60</td>
<td>5-1011</td>
<td>2AK51H 5-40205101</td>
<td>1-1/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22021C</td>
<td>T-1011 5-2304</td>
<td>2AK84H 5-40208401</td>
<td>24mm</td>
<td>5-512024</td>
<td>6 HP</td>
<td>460V/3PH</td>
<td>60</td>
<td>5-1011</td>
<td>2AK51H 5-40205101</td>
<td>1-1/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30021A</td>
<td>TS-2021 5-2307</td>
<td>2BK80H 5-40508001</td>
<td>24mm</td>
<td>5-512024</td>
<td>8 HP</td>
<td>230V/1PH</td>
<td>60</td>
<td>5-1082</td>
<td>2BK50H 5-40505001</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30021B</td>
<td>TS-2021 5-2307</td>
<td>2BK80H 5-40508001</td>
<td>24mm</td>
<td>5-512024</td>
<td>8 HP</td>
<td>230V/3PH</td>
<td>60</td>
<td>5-1083</td>
<td>2BK50H 5-40505001</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-30021C</td>
<td>TS-2021 5-2307</td>
<td>2BK80H 5-40508001</td>
<td>24mm</td>
<td>5-512024</td>
<td>8 HP</td>
<td>460V/3PH</td>
<td>60</td>
<td>5-1083</td>
<td>2BK50H 5-40505001</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-30021B</td>
<td>TS-2021 5-2307</td>
<td>2BK70H 5-40507001</td>
<td>24mm</td>
<td>5-512024</td>
<td>10 HP</td>
<td>230V/3PH</td>
<td>60</td>
<td>5-1018</td>
<td>2BK57H 5-40505701</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-30021C</td>
<td>TS-2021 5-2307</td>
<td>2BK70H 5-40507001</td>
<td>24mm</td>
<td>5-512024</td>
<td>10 HP</td>
<td>460V/3PH</td>
<td>60</td>
<td>5-1018</td>
<td>2BK57H 5-40505701</td>
<td>1-3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### PUMP PARTS SPECIFICATIONS: LANDA PUMP (CON'T)

<table>
<thead>
<tr>
<th>Model</th>
<th>Bushing</th>
<th>Belt Size/Qty</th>
<th>Belt Switch</th>
<th>Pumps Specifications: LANDA PUMP (Con't)</th>
<th>Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-11D</td>
<td>N/A</td>
<td>AX34 (1)</td>
<td>5-602034 Rocker 6-020240 6-4000 N/A N/A N/A N/A N/A N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>4-2A</td>
<td>5-511075 BX38 (1)</td>
<td>5-604038 Rocker 6-020240 6-4013 N/A</td>
<td>6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>4-22A</td>
<td>5-511113 AX36 (2)</td>
<td>5-602036 Rocker 6-020240 6-4018 N/A 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22B</td>
<td>5-511113 AX36 (2)</td>
<td>5-602036 Rocker 6-020240 6-4010 6-5011 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22C</td>
<td>5-511113 AX36 (2)</td>
<td>5-602036 Rocker 6-020240 6-4004 6-5009 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22N</td>
<td>5-511113 BX32 (2)</td>
<td>5-604032 Rocker 6-020240 6-4010 6-5010 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-3A</td>
<td>5-511138 BX34 (2)</td>
<td>5-604034 Rocker 6-020240 6-4013 6-5015 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-3B</td>
<td>5-511138 BX34 (2)</td>
<td>5-604034 Rocker 6-020240 6-4013 6-5012 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-3C</td>
<td>5-511138 BX34 (2)</td>
<td>5-604034 Rocker 6-020240 6-4007 6-5010 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-3B</td>
<td>5-511138 BX32 (2)</td>
<td>5-604032 Rocker 6-020240 6-4013 6-5013 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-3C</td>
<td>5-511138 BX32 (2)</td>
<td>5-604032 Rocker 6-020240 6-4007 6-5011 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-3B</td>
<td>5-522158 BX50 (3)</td>
<td>5-604050 Rocker 6-020240 6-4018 6-5015 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-3C</td>
<td>5-522158 BX50 (3)</td>
<td>5-604050 Rocker 6-020240 6-4010 6-5012 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-3H</td>
<td>5-522158 BX50 (3)</td>
<td>5-604050 Rocker 6-020240 6-4021 6-5016 6-60151 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-3B</td>
<td>5-522158 BX44 (3)</td>
<td>5-604044 Rocker 6-020240 6-4021 6-5018 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-3C</td>
<td>5-522158 BX44 (3)</td>
<td>5-604044 Rocker 6-020240 6-4013 6-5013 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-3H</td>
<td>5-522158 BX44 (3)</td>
<td>5-604044 Rocker 6-020240 6-4021 6-5018 6-60151 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>6-029810</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PUMP PARTS SPECIFICATIONS: GENERAL PUMP (CON'T)

<table>
<thead>
<tr>
<th>Model</th>
<th>Bushing</th>
<th>Belt Size/Qty</th>
<th>Belt Switch</th>
<th>Pumps Specifications: General Pump (Con't)</th>
<th>Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-2A</td>
<td>N/A</td>
<td>BX34 (1)</td>
<td>5-604034 Rocker 6-020240 6-4013 N/A 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>4-22A</td>
<td>5-511113 AX37 (2)</td>
<td>5-602037 Rocker 6-020240 6-4018 N/A 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22B</td>
<td>5-511113 AX37 (2)</td>
<td>5-602037 Rocker 6-020240 6-4010 6-5011 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-22C</td>
<td>5-511113 AX37 (2)</td>
<td>5-602037 Rocker 6-020240 6-4004 6-5009 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-3A</td>
<td>5-511138 BX36 (2)</td>
<td>5-604036 Rocker 6-020240 6-4021 6-5015 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-3B</td>
<td>5-511138 BX36 (2)</td>
<td>5-604036 Rocker 6-020240 6-4013 6-5012 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-3C</td>
<td>5-511138 BX36 (2)</td>
<td>5-604036 Rocker 6-020240 6-4007 6-5010 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-3B</td>
<td>5-511138 BX36 (2)</td>
<td>5-604036 Rocker 6-020240 6-4013 6-5013 6-60111 1 Amp 6-02294 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-3C</td>
<td>5-511138 BX36 (2)</td>
<td>5-604036 Rocker 6-020240 6-4007 6-5011 6-60111 1/2 Amp 6-02295 (2) 3/4 Amp 6-029810</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BASIC FACTS

Based on 60°

<table>
<thead>
<tr>
<th></th>
<th>Propane</th>
<th>Butane</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Cu. Ft. NG Approx 1,100 BTU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formula</td>
<td>C3H8</td>
<td>C4H10</td>
</tr>
<tr>
<td>Vaporization Point (°F)</td>
<td>-43.7</td>
<td>31.1</td>
</tr>
<tr>
<td>Specific Gravity (Vapor)</td>
<td>1.522</td>
<td>2.006</td>
</tr>
<tr>
<td>Specific Gravity (Liquid)</td>
<td>0.508</td>
<td>0.584</td>
</tr>
<tr>
<td>Lbs. per Gal. (Liquid)</td>
<td>4.23</td>
<td>4.87</td>
</tr>
<tr>
<td>BTU per Cu. Ft. (Vapor)</td>
<td>2.563</td>
<td>3.39</td>
</tr>
<tr>
<td>BTU per Gal. (Liquid)</td>
<td>91.547</td>
<td>102.032</td>
</tr>
<tr>
<td>BTU per Lb. (Liquid)</td>
<td>21.591</td>
<td>21.221</td>
</tr>
<tr>
<td>Cu. Ft. per Lb. (Liquid)</td>
<td>8.607</td>
<td>6.53</td>
</tr>
<tr>
<td>Cu. Ft. per Gal. (Liquid)</td>
<td>36.45</td>
<td>31.8</td>
</tr>
<tr>
<td>Octane Number</td>
<td>125</td>
<td>91</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>44.09</td>
<td>58.12</td>
</tr>
</tbody>
</table>

To Calculate Running Cost:

1,000 BTU = 1 Cu. Ft.

100 Cu. Ft. = 1 Therm

1 Therm = 1 Hour

Cost of Gas per Therm = Cost to Run

Example Using Natural Gas at 50¢ Therm:

400,000 BTU Machine

400 Cu. Ft. \(\frac{400,000}{1,000}\)

\[4 \times 50¢ = \$2.00 / \text{Hour to Run} \quad \left(\frac{(400}{100}) \times \text{cost of gas}\right)\]

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. 11 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).

<table>
<thead>
<tr>
<th>1” Water Column</th>
<th>= 50 oz./sq. in.</th>
<th>11” Water Column</th>
<th>= 6.35 oz./sq. in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11” Water Column</td>
<td>= 4 lb./sq. in.</td>
<td>1 lb./sq. in.</td>
<td>= 27.71” Water Column</td>
</tr>
<tr>
<td>1 lb./sq. in.</td>
<td>= 14.73 lbs./sq.in</td>
<td>1” Mercury</td>
<td>= .39 lb./sq. in</td>
</tr>
<tr>
<td>1 Std. Atmosphere</td>
<td>= 14.73 lbs./sq.in</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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, Inc. dealer for maintenance. Regular preventative maintenance will add many hours to the life of your pressure washer. Perform maintenance more often under severe conditions.

<table>
<thead>
<tr>
<th>MAINTENANCE SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replace Fuel Lines</td>
</tr>
<tr>
<td>Pump Oil</td>
</tr>
<tr>
<td>Inspect</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Clean Burner Filter</td>
</tr>
<tr>
<td>Remove Burner Soot From Heating Coil</td>
</tr>
<tr>
<td>Check Belt Tension</td>
</tr>
<tr>
<td>Descale Coil</td>
</tr>
<tr>
<td>Replace High Pressure Nozzle</td>
</tr>
<tr>
<td>Replace Quick Connects</td>
</tr>
<tr>
<td>Clean Water and Chemical Screen/Filter</td>
</tr>
<tr>
<td>Clean Float/Supply Tank</td>
</tr>
<tr>
<td>Replace HP Hose</td>
</tr>
<tr>
<td>Grease Motor</td>
</tr>
<tr>
<td>Check Burner Pilot Jets</td>
</tr>
<tr>
<td>Pressure Relief Valve</td>
</tr>
</tbody>
</table>

OIL CHANGE RECORD

<table>
<thead>
<tr>
<th>Date Oil Changed Month/Day/Year</th>
<th>Estimated Operating Hours Since Last Oil Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>PROBLEM</td>
<td>POSSIBLE CAUSE</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>WATER TEMPERATURE TOO HOT</td>
<td>Incoming water to machine warm or hot</td>
</tr>
<tr>
<td></td>
<td>Gas pressure too high</td>
</tr>
<tr>
<td></td>
<td>Detergent line sucking air</td>
</tr>
<tr>
<td></td>
<td>Defective high limit switch</td>
</tr>
<tr>
<td></td>
<td>Incorrect burner nozzle size</td>
</tr>
<tr>
<td></td>
<td>Insufficient water supplied</td>
</tr>
<tr>
<td></td>
<td>Restricted water flow</td>
</tr>
<tr>
<td>PRESENCE OF WATER IN OIL</td>
<td>Oil seal worn</td>
</tr>
<tr>
<td></td>
<td>High humidity in air</td>
</tr>
<tr>
<td>WATER DRIPPING FROM UNDER PUMP</td>
<td>Piston packing worn</td>
</tr>
<tr>
<td></td>
<td>O-Ring plunger retainer worn</td>
</tr>
<tr>
<td>DETERGENT NOT DRAWING</td>
<td>Air leak</td>
</tr>
<tr>
<td></td>
<td>Detergent metering valve packing not tight or packing worn</td>
</tr>
<tr>
<td></td>
<td>Filter screen on detergent suction hose plugged</td>
</tr>
<tr>
<td></td>
<td>Dried up detergent plugging metering valve</td>
</tr>
<tr>
<td></td>
<td>High viscosity of detergent</td>
</tr>
<tr>
<td></td>
<td>Restriction behind float tank screen removed</td>
</tr>
<tr>
<td></td>
<td>Hole in detergent line(s)</td>
</tr>
<tr>
<td></td>
<td>Strainer basket plugged</td>
</tr>
<tr>
<td></td>
<td>Connections on selector valve loose</td>
</tr>
<tr>
<td></td>
<td>Detergent solenoid not opening (where applicable)</td>
</tr>
<tr>
<td>PUMP RUNNING NORMALLY BUT PRESSURE LOW ON INSTALLATION</td>
<td>Pump sucking air</td>
</tr>
<tr>
<td></td>
<td>Valves sticking</td>
</tr>
<tr>
<td></td>
<td>Unloader valve seat faulty</td>
</tr>
<tr>
<td></td>
<td>Nozzle incorrectly sized</td>
</tr>
<tr>
<td></td>
<td>Worn piston packing</td>
</tr>
<tr>
<td>FLUCTUATING PRESSURE</td>
<td>Valves worn</td>
</tr>
<tr>
<td></td>
<td>Blockage in valve</td>
</tr>
<tr>
<td></td>
<td>Pump sucking air</td>
</tr>
<tr>
<td></td>
<td>Worn piston packing</td>
</tr>
<tr>
<td>PUMP NOISY</td>
<td>Air in suction line</td>
</tr>
<tr>
<td></td>
<td>Broken or weak inlet or discharge valve springs</td>
</tr>
<tr>
<td></td>
<td>Excessive matter in valves</td>
</tr>
<tr>
<td></td>
<td>Worn bearings</td>
</tr>
<tr>
<td>OIL DRIPPING</td>
<td>Oil seal worn</td>
</tr>
<tr>
<td>EXCESSIVE VIBRATION IN DELIVERY LINE RELIEF VALVE LEAKS WATER</td>
<td>Irregular functioning of the valves</td>
</tr>
<tr>
<td></td>
<td>Relief valve defective</td>
</tr>
</tbody>
</table>
## TROUBLESHOOTING

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO SPARK - NO PILOT GAS</td>
<td>No main power</td>
<td>Restore power.</td>
</tr>
<tr>
<td></td>
<td>Faulty limit switch</td>
<td>Test/replace.</td>
</tr>
<tr>
<td></td>
<td>Faulty wiring</td>
<td>Test wiring.</td>
</tr>
<tr>
<td>SPARK - BUT NO PILOT LIGHT</td>
<td>No gas supplied to pilot valve</td>
<td>Check for availability of gas.</td>
</tr>
<tr>
<td></td>
<td>Manual valves in &quot;OFF&quot; position</td>
<td>Turn manual valve and gas cock to full &quot;ON&quot;.</td>
</tr>
<tr>
<td></td>
<td>Faulty pilot valve</td>
<td>Test gas valve.</td>
</tr>
<tr>
<td></td>
<td>Faulty wiring</td>
<td>Test wiring.</td>
</tr>
<tr>
<td></td>
<td>Restricted pilot line or clogged pilot orifice</td>
<td>Clean pilot tubing and orifices.</td>
</tr>
<tr>
<td>PILOT GAS - BUT NO SPARK</td>
<td>Broken or shorted electrode assembly</td>
<td>Test/replace.</td>
</tr>
<tr>
<td>PILOT LIT - BUT MAIN BURNER WON'T COME ON</td>
<td>Faulty wiring</td>
<td>Test wiring.</td>
</tr>
<tr>
<td></td>
<td>Low pilot flame</td>
<td>Check inlet pressure, pilot orifice.</td>
</tr>
<tr>
<td></td>
<td>Improper alignment of sensor in pilot flame</td>
<td>Adjust alignment - see figure 5, page 14.</td>
</tr>
<tr>
<td></td>
<td>Faulty main gas operator in gas control</td>
<td>Test gas valve - repair/replace.</td>
</tr>
<tr>
<td></td>
<td>Faulty flame sensor</td>
<td>Test sensor, wiring - repair/replace.</td>
</tr>
<tr>
<td>PILOT CYCLES OFF AND ON BY ITSELF</td>
<td>Faulty pilot valve</td>
<td>Test gas valve.</td>
</tr>
<tr>
<td></td>
<td>Faulty wiring</td>
<td>Test wiring.</td>
</tr>
<tr>
<td>MAIN BURNER SHUTS DOWN</td>
<td>Low pilot flame</td>
<td>Check inlet pressure, pilot orifice.</td>
</tr>
<tr>
<td></td>
<td>Improper alignment of sensor in pilot flame</td>
<td>Adjust alignment - see figure 5, page 14.</td>
</tr>
<tr>
<td></td>
<td>Faulty main gas operator in gas control</td>
<td>Test gas valve - repair/replace.</td>
</tr>
<tr>
<td></td>
<td>Faulty flame sensor</td>
<td>Test sensor, wiring - repair/replace.</td>
</tr>
<tr>
<td>LOW OPERATING PRESSURE</td>
<td>Faulty pressure gauge</td>
<td>Install new gauge.</td>
</tr>
<tr>
<td></td>
<td>Insufficient water supply</td>
<td>Use larger garden hose. Clean filter washer at water inlet.</td>
</tr>
<tr>
<td></td>
<td>Old, worn or incorrect spray nozzle</td>
<td>Match nozzle number to machine and/or replace with new nozzle.</td>
</tr>
<tr>
<td></td>
<td>Belt slippage</td>
<td>Tighten or replace. Use correct belt.</td>
</tr>
<tr>
<td></td>
<td>Plumbing or hose leak</td>
<td>Check plumbing system for leaks. Retape leaks with teflon tape.</td>
</tr>
<tr>
<td></td>
<td>Faulty or misadjusted unloader valve (where applicable)</td>
<td>Adjust unloader for proper pressure. Install repair kit when needed.</td>
</tr>
<tr>
<td></td>
<td>Worn packing in pump</td>
<td>Install new packing kit.</td>
</tr>
<tr>
<td></td>
<td>Fouled or dirty inlet or discharge valves in pump</td>
<td>Clean inlet and discharge valve.</td>
</tr>
<tr>
<td></td>
<td>Worn inlet or discharge valves</td>
<td>Replace with valve kit.</td>
</tr>
<tr>
<td></td>
<td>Obstruction in spray nozzle</td>
<td>Remove obstruction.</td>
</tr>
<tr>
<td></td>
<td>Leaking pressure control valve (where applicable)</td>
<td>Rebuild or replace as needed.</td>
</tr>
<tr>
<td></td>
<td>Detergent metering valve left open sucking air or faulty metering valve</td>
<td>Close and/or replace metering valve.</td>
</tr>
<tr>
<td>LOW WATER TEMPERATURE</td>
<td>Slow motor RPM</td>
<td>Check incoming voltage.</td>
</tr>
<tr>
<td></td>
<td>Improper size of gas lines</td>
<td>See page 7 for sizing of gas lines.</td>
</tr>
<tr>
<td></td>
<td>Low gas pressure</td>
<td>Increase gas pressure to machine.</td>
</tr>
<tr>
<td></td>
<td>Improper pressure regulator</td>
<td>Specify BTU, building gas pressure 11 w.c.i. to machine for correct sizing of regulator.</td>
</tr>
<tr>
<td></td>
<td>Low gas pressure</td>
<td>Increase gas pressure as described on page 8.</td>
</tr>
<tr>
<td></td>
<td>Soot buildup on coils not allowing heat transfer</td>
<td>Clean coils.</td>
</tr>
<tr>
<td></td>
<td>Improper burner nozzle</td>
<td>See serial plate.</td>
</tr>
</tbody>
</table>
LANDA LIMITED NEW PRODUCT WARRANTY
PRESSURE WASHERS

WHAT THIS WARRANTY COVERS
All LANDA pressure washers are warranted by LANDA, INC. 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 all branded pumps have a 5 year warranty.

ONE YEAR MINIMUM ON 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 cannot provide warranty on these items.

WHAT THIS WARRANTY DOES NOT COVER
This warranty does not cover the following items:
1. Normal wear items, such as nozzles, 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. THE WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. 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.

LANDA INC.
1-360-833-9100 • 1-800-547-8672 • www.landa.com

LANDA VHG-L • 96-6185 • Rev. 3/04