



Pressure Washers

Avenger 3000-5 NG/LP 10 HP 3 & 1-Phase

Operators Manual and
Replacement Parts Book

INTRODUCTION

Thank you for selecting a high pressure power washer from Delco Pressure Washers.

Your pressure washer has been manufactured using the most advanced components in the pressure industry.

When operated properly, our equipment has been designed and manufactured to give you years of trouble free, reliable use, with a minimal amount of regular maintenance.

Your pressure washer is mechanical, as with all mechanical equipment it requires proper installation, operation and maintenance as outlined in this manual.

The Operators Manual has been written for your benefit. For your safety and the safety of others, we recommend you and all operators read and understand the contents.

Should you experience any difficulty with your Delco pressure washer, please contact your nearest Delco Distributor immediately.

We are aware of your investment in an Delco pressure washer, therefore, our prime concern is that you become one of our “satisfied” owners. Please feel free to send us your comments and ideas.

THANK YOU!!!

PRESSURE WASHER LIMITED WARRANTY

1. **DELCO Cleaning Systems, LLC** warrants its products for a period of one year from the date of purchase, against defects in material and/or workmanship. The warranty covers parts and labor, but excludes transportation.
2. Normal wear and tear items such as valves, seals, etc., are warranted for the initial 30 days following purchase by the end-user.
3. The high-pressure hose and accessories (trigger gun, extension/lance/wand and cleaning nozzles) are warranted for the initial 30 days following purchase by the end-user.
4. The burner coil on all **DELCO Cleaning Systems, LLC**, hot water pressure washers and steam cleaners is warranted for five (5) years, excluding abuse due to leaving unit in unheated building, causing coil to freeze and burst.
5. Parts repaired or replaced under this warranty (except wear items) are warranted for the balance of the original warranty period or ninety (90) days, whichever is longer. Defective parts replaced under this warranty are the property of **DELCO Cleaning Systems, LLC**.
6. All warranty service will be performed by a trained technician employed by an DELCO Cleaning Systems, LLC distributor/dealer. Servicing distributor/dealer will abide by the **DELCO Cleaning Systems, LLC**, Service Center Warranty Policy.
7. Warranty does not cover damage caused by freezing, abuse or chemicals. Abuse includes but is not limited to unauthorized repair, alterations carried out by any entity or individuals other than **DELCO Cleaning Systems, LLC**, authorized service personnel, damage caused by contaminants in the water supply or operation in a manner which conflicts with instructions found in the Owners Manual.
8. **DELCO Cleaning Systems, LLC**, and its distributors/dealers disclaim responsibility for any loss of time, use of equipment, loss of income, or any incidental or consequential damages.
9. Settlement of any warranty claim will be at the sole discretion of **DELCO Cleaning Systems, LLC**.

Thank You for Purchasing our Products!

Effective January, 2007, and supercedes all other warranties.

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OPERATOR SAFETY INSTRUCTIONS



WARNING



AVERTISSEMENT



ADVERTENCIA

▲DANGER

Means: If you do not follow the instructions in a **DANGER**, severe bodily injury or death can occur to you and/or other personnel.

▲WARNING

Means: If you do not follow the instructions in a **WARNING**, injury can occur to you or to other personnel.

▲CAUTION

Means: If you do not follow the instruction in a **CAUTION**, damage can occur to the machine or to other property.

▲DANGER:

Failure to read the Owner's Manual prior to using this machine could result in injury to you or to other personnel; damage to the machine or to other property could occur as well. You must have training in the operation of this machine before using it. If you or your operator(s) cannot read English, have this manual explained fully before attempting to operate this pressure washer.

▲DANGER:

Machines can cause an explosion when operated near flammable materials and vapors. Do not use this machine with or near fuels, grain dust, solvents, thinners, or other flammable materials.

▲DANGER:

This unit must be installed in compliance with all applicable gas codes. Failure to do so could result in injury to you or to other personnel

▲DANGER:

Operating a machine that is not completely or fully assembled could result in injury or property damage. Do not operate this machine until it is completely assembled. Inspect hoses, fittings, and heat exchanger for leaks or fatigue before each use.

▲DANGER:

Do not operate the unit when there is an odor of gas present. If you operate the unit when there is an odor of gas, it could result in injury to you or other personnel.

▲DANGER:

Tampering with the machine's factory preset unloader valve settings and/or the pressure relief valve setting could result in a machine explosion. Do not attempt to change the settings. Discontinue use if a malfunction occurs and contact your local authorized Delco distributor.

▲DANGER:

Do not operate the unit with a malfunctioning burner or burner controls. Inspect burner and burner control operation before each use. Failure to do so may result in an explosion. If you suspect a problem with the burner, discontinue use immediately and contact your local authorized Delco distributor for assistance.

▲DANGER:

Failure to properly maintain the heat exchange coil can result in a steam explosion! Scale or lime build-up will act as an insulation and decrease the efficiency of the heat exchanger coil and will also cause hot spots. This can result in a weakening of the tubing which in turn may cause a rupture.

▲DANGER

Electrocution could occur if maintenance and repairs are performed on a unit that is not properly disconnected from the power supply before attempting any maintenance or service.

▲DANGER

Use of this machine with a damaged power cord could result in an electrical shock. Do not use the machine if the power cord is damaged. Do not use the electrical cord to move the machine.

▲WARNING:

Electrocution could occur if the machine is used on a power supply fuse or circuit breaker that repeatedly trips. Have a licensed electrician check the fuse, circuit breaker or power supply, and/or contact your local authorized Delco distributor for assistance.

- ▲WARNING:** Any alterations or modifications of this machine could result in damage to the machine or injury to the operator or other bystanders. Alterations or modifications not authorized by the manufacturer voids any and all warranties and liabilities.
- ▲WARNING:** Water under high pressure can cause severe injury. Keep all persons away from the machine and the spray area.
- ▲WARNING:** Injury to the operator or bystander could occur if the machine is operated without all of the guards being in place on the unit. When operating the machine, all guards must be in place.
- ▲WARNING:** Operating a pressure washer under pressure without a securely fastened hose, and spray nozzle could result in bodily injury or property damage. Make sure the spray nozzle and hose are securely fastened before operating the machine. Do not remove the nozzle or disconnect the high pressure hose while the system is pressurized and/or running.
- ▲WARNING:** Machines have moving parts and hot areas that can cause injury. Keep hands, feet, & loose clothing away from the pressure washer while it is running. After use, allow an adequate amount of cool-down time before attempting to perform any maintenance or service to this unit.
- ▲WARNING:** Failure to wear safety goggles and protective clothing when operating a pressure washer reduces operator safety. Always wear safety goggles & protective clothing when the machine is running or when operating the machine.
- ▲WARNING:** In order to avoid electric shock hazard, make sure the unit is connected to the proper power supply before operating the machine.
- ▲WARNING:** Operating this pressure washer without the appropriate decals could result in operation injury or damage. Make sure all labels and instructional information are fastened to the machine. Get new labels and decals from your Delco distributor.
- ▲WARNING:** Improper discharge of waste water may damage the environment and be illegal. The United States Environmental Protection Agency has established certain regulations regarding discharge of waste water. Also, city and state regulations regarding this discharge may be in effect in your area. Understand and follow the regulations in your area. Be aware of the environmental hazards of chemicals that you dispose.
- ▲CAUTION:** Bodily injury or property damage could occur if you are not properly trained to operate this machine. You must have training in the operation of this machine before using it. **READ AND UNDERSTAND THE INSTRUCTIONS IN THIS BOOK!**
- ▲CAUTION:** Maintenance and repairs performed by unauthorized personnel could result in damage or injury. Servicing of this unit must always be referred to an authorized Delco distributor.
- ▲CAUTION:** Electrical damage can occur if the machine is exposed to direct and/or over spray. Always point the wand toward the object being cleaned.
- ▲CAUTION:** Using an extension cord with your pressure washer will result in a voltage drop & loss of power. Use of an extension cord is not recommended.
- ▲CAUTION:** Operating a pressure washer when the pump is low on oil could cause pump damage. Always check your oil before using the machine.
- ▲CAUTION:** Operating a pressure washer with insufficient water flow can damage the pump. Water should be turned on full-force to avoid insufficient water flow.
- ▲CAUTION:** Your machine warranty will be voided if anything other than genuine Delco parts are used on your pressure washer. Always use Delco parts for replacement.

INTRODUCTION & MACHINE SPECIFICATIONS

The Avenger 3000 -5 LP and natural gas fired system can tackle the toughest industrial tasks. Standard features include dual belt driven triplex ceramic plunger pumps with low-water shut-off, 4.5 minute system shut down protection plus many more features, all built into a compact space-saving design. When you need a quick and efficient cleaning system in your maintenance program, you need the Avenger.

	3000 - 5 NG 09133A	3000 - 5 LP 09134A	3000 - 5 NG 09149A	3000 - 5 LP 09150A
Flow Rate (GPM)	5.0	5.0	5.0	5.0
Pressure (Psi)	3000	3000	3000	3000
Volts	230 -3 Ø	230 -3 Ø	460-3 Ø	460 -3 Ø
Amps	28	28	14	14
Min. Circuit Amp	40	40	20	20
Fuel	NG	LP	NG	LP
BTUH input	469,000	489,000	469,000	489,000
Temp.	140° F RISE	140° F RISE	140° F RISE	140° F RISE
Motor	10 HP	10 HP	10 HP	10 HP
Pump	Triplex Plunger	Triplex Plunger	Triplex Plunger	Triplex Plunger
Metering Valve	1/4"	¼"	¼"	¼"
Heat Exchanger	Tubing 7/8 x 12 GA	Tubing 7/8 x 12 GA	Tubing 7/8 x 12 GA	Tubing 7/8 x 12 GA
Coil	6 P/C 193 Ft	6 P/C 193 Ft	6 P/C 193 Ft	6 P/C 193 Ft
Spray Control	Trigger	Trigger	Trigger	Trigger
Hose	50' Wire Braid	50' Wire Braid	50' Wire Braid	50' Wire Braid
Dimensions (in)	L51"xW22 ½"xH51 ¾"	L51"xW22 ½"xH51 ¾"	L51"xW22 ½"xH51 ¾"	L51"xW22 ½"xH51 ¾"
Weight (lbs)	650 LBS	650 LBS	650 LBS	650 LBS

HOW TO PREPARE THE MACHINE FOR OPERATION

NOTE: Following delivery of your Delco pressure washer, inspect the unit for shipping damage.

Assembly:

1. Uncrate machine. Remove cleaner, parts package, gun and hose from shipping carton.
2. Assemble cleaner, gun, and hose. Do not install the pressure nozzle at this time.
3. Install the draft divertor.
4. Refer to the machine drawing in the service section for specific locations of parts you assemble.

Installation:

1. Do not install the machine in small confined areas, near exhaust fans or in a wash bay where the unit could be subjected to overspray and cleaning chemicals. Install only in well ventilated areas where adequate flow of air is available. Adequate oxygen is needed for combustion or dangerous carbon monoxide will result. Stationary units should be installed in accordance with local plumbing and electrical codes.
2. In all installations, this machine must be vented to the outside with a draft divertor and rain protection.
3. This machine is designed to be installed indoors and must be protected from direct spray or overspray of water.

▲WARNING: Adequate oxygen is needed for proper combustion or dangerous carbon monoxide can result.

Gas Fired Units:

Natural gas units operate on 3½" of water column pressure at the solenoid valve, and it must have from 7" to 8" water column pressure supplied to the unit at the inlet. The water column check points are as follows: Check the 3½" water column pressure from the plug on the bottom of the solenoid valve with the burner operating. The water column pressure is checked with a manometer. A gas shut-off valve should be installed on the gas line, with a union between the shut-off and the unit. Also a sediment trap should be installed after the shut-off valve.

Standard butane or propane gas fired units operate on 11" W.C. Use a gas Manometer when checking gas pressure or when making adjustments to the regulator. Do not use less than 1/2" I.D. hose or pipe in making the gas connection. For top efficiency, a 100 lb. or larger gas bottle should be used.

Minimum gas line iron pipe size required for gas supply per length of gas line from the meter (Natural Gas). (Based on a pressure drop of 0.3" water column pressure and 0.6 specific gravity.)

NOTE: Do not use flexible gas lines. Check total BTU consumption of facility to be assured of proper gas supply to operate pressure washer.

Pipe Length Feet	10	20	30	40	50	60	70	80	100	125	150	175	200
Pipe Diameter Inches	3/4	1	1	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/2	1-1/2	1-1/2

Stacking the Unit:

If the cleaner is used in an enclosed area be sure there is plenty of ventilation.. Be sure the chimney is the same size as the stack on the cleaner. Poor draft will cause the unit to soot and not operate efficiently. When placing the unit for installation, keep in mind that the unit should be positioned in such a manner that the stack will be as straight as possible and protrude through the roof of the building at a proper location and at sufficient height to eliminate downdraft.

A gas fired unit should have a draft diverter and proper rain protection on the vent pipe.

▲DANGER: All gas burner equipped cleaners should be installed and serviced in accordance with the requirements of your local gas company and all applicable state laws or local ordinances.

Water Supply:

1. Connect the machine to the water supply with 3/4" water hose and 3/4" connections.
2. Insure that the water supply is capable of supplying sufficient water flow volume.

▲CAUTION: Insufficient water flow can cause pump damage and failure.

Gas Supply:

1. Insure that the gas cock knob is in the "Off" position.
2. Installation of gas service to this machine is to be made with 1" plumbing or larger. Refer to chart on page 4.

Electrical:

▲CAUTION: This machine must be electrically grounded.

1. Connect only to grounded outlets with 30 ampere, 230 volt a/c (alternating current), 60 Hz, 3 phase circuits protected by fuses or circuit breakers and GFCI protection.

INSTALLATION CHECKOUT:

Before Starting:

1. Connect discharge hose and gun. Remove pressure nozzle.
2. Connect the water supply hose to the water inlet. Turn the water on and allow the water float tank to fill. When the tank has filled and the flow through the float valve has stopped, check to insure that there is at least 1" between the water level and the float valve opening.
3. Before connecting the power supply be sure that the control switch is in the "Off" position.

▲WARNING: For your safety, if you smell gas:

1. Open windows.
2. Do not touch electrical switches.
3. Extinguish any open flame.
4. Immediately evacuate premises and call your gas supplier.

Pilot Lighting Procedure:

1. Turn control switch to #2 burner position.
2. When the trigger is pulled and water starts being pulled into the pump, the vac switch closes. In a couple of seconds the pilot valve opens and simultaneously the spark starts. This operation will continue for 15 seconds or until the pilot ignites. If the pilot fails to light in 15 seconds, the ignition system "locks out" and the power must be turned off to reset the ignition system.
3. The pilot is ignited, the electronic flame sensing proves the ignition source and turns on the second valve allowing main gas to flow. (If pilot ignition does not occur within 60 seconds, the system will lock-out and turn off power to gas circuit.)
4. The proved pilot ignites the main burner. (Pilot operation continues until burner is shut off.)
5. The spark continues several seconds after the burner is lit to provide stable ignition.

Test for Gas Leaks:

▲WARNING: **DO NOT OMIT THIS TEST.** With the main burner in operation, paint the pipe joints, pilot gas tubing connections, and valve gasket lines with rich soap and water solution. Bubbles indicate gas leakage. To stop leak, tighten the joints and screws or replace the gasket. Failure to do this test procedure could cause serious injury.

Manual Shut Down of Burner:

Complete shutdown can be accomplished by turning the cock knob to the "Off" position.

INSTALLATION & SERVICING INSTRUCTIONS

▲WARNING: To avoid possible injury, fire, and explosion, please read and follow these precautions and all instructions on this machine. Maintenance and repairs performed by unauthorized personnel could result in damage or injury. Servicing of this unit must always be referred to an authorized Delco distributor. Repairs, adjustments, and servicing should be limited to the operations listed below.

1. Installation and servicing of gas appliances and ignition systems must only be performed by qualified personnel.
2. Turn off gas and electricity before starting installation or service. Turn back on after completion.
3. Caution must be taken to ensure that no raw gas is present in the surrounding area before attempting to put the machine into operation.

▲WARNING: For your safety, if you smell gas: (A) turn off gas at line valve or meter, (B) open windows, (C) do not touch electrical switches, (D) extinguish all open flames, (E) immediately call your gas supplier.

4. When using L.P.gas, the Control must be equipped with a regulator. Make sure that no gas is present in the area before putting machine in operation. L.P. gas is heavier than air. Sniff at floor level for presence of gas. If present do not attempt to start the machine. (See Warning on page 8.) When changing from natural gas to L.P., or L.P. to Natural Gas using a convertible control, the burner orifice and pilot orifice must also be changed.
5. Make certain that the pilot orifice being used is the correct size for the gas used.
6. To install or remove control, use a special body wrench on inlet boss. Do not grip body with pipe wrench or vise.
7. Insert only correct size pipe or tubing into inlet or outlets of control. Insertion of any other objects can cause internal damage resulting in a hazardous condition.
8. Make sure gas piping is pressure tested before control is connected. High pressure can damage control causing a hazardous condition. Do not subject control to more than 1/2 P.S.I., (14" W.C.) inlet pressure.
9. Use only new, unused, and correct model controls as replacements. Do not re-use old controls.
10. Make sure piping is clean and free from burrs. Apply a small amount of good quality pipe thread compound suitable for the gas being used. Thread compound should be used sparingly on male threads only, leaving the first two threads clean. NOTE: Blow lines out with compressed air to remove all dirt or debris.
11. A drip leg (dirt trap) must be installed, after the shut-off valve, in the gas supply line to the control to prevent dirt from entering control. **See Figure #1.** All piping must conform to local codes and ordinances and with National Gas code (ANSI Z223.1 and NFPA No. 54).
12. After installation has been completed, leak test all gas connections with soap solution with the main burner on. Bubbles indicate leaks that must be corrected.
13. If control has been exposed to water in any way, it must be replaced.
14. Keep combustible material away from gas machine. Keep burner area clean and free of dust and lint.
15. If gas valve fails to shut off, do not turn off electrical power. Turn off gas supply allowing water pump to continue running until system has cooled. Replace control.

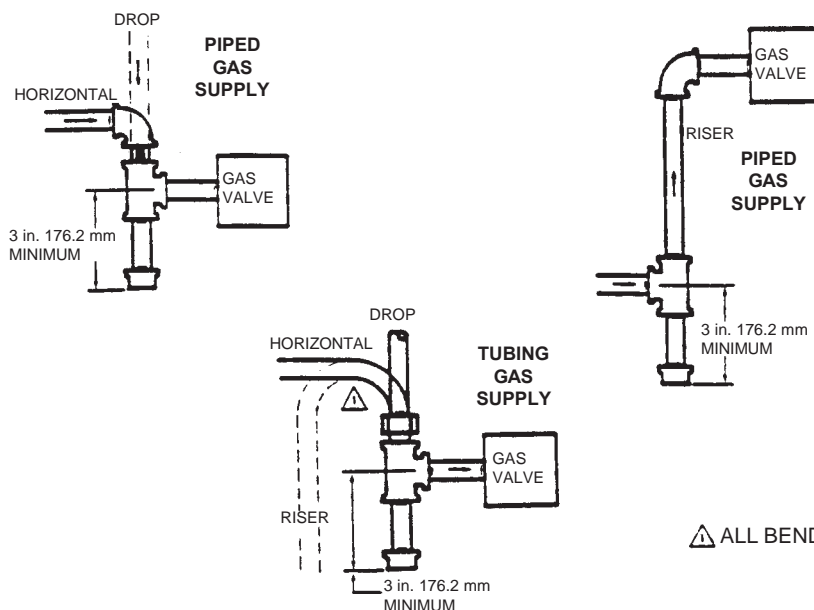


Figure # 1

16. The manual valve should not be used to adjust gas flow.
17. All components must be securely mounted with screws, bolts, etc., within the machine.

NOTE: The trigger on the gun must be pulled to allow antifreeze to pass through the coils, and then the trigger must be released to allow the antifreeze to pass through the bypass line.

18. Turn the key switch to the "OFF" position and close the metering valve.
19. Store the machine in a dry building.

It is critical that the oil in your machine be checked regularly. To check the oil follow this procedure:

1. Locate the oil dipstick in the plug on the top of the pump.
2. Turn the oil plug counterclockwise.
3. Wipe the dipstick with a clean cloth.
4. Put the dipstick in the hole without turning it.
5. Remove the dipstick. If the oil is below the notch, add SAE 30 weight, non-detergent oil.
6. Put the dipstick in the hole.
7. Turn the plug clockwise until it stops.

NOTE: Change the oil after the first 50 hours of use and then after every 500 hours of use.

The following warning applies to installations using L.P., Propane Gas:

▲WARNING: To avoid possible injury, fire and explosion, please read and follow these precautions and all instructions on this machine before lighting the pilot. This machine uses L.P. (Propane) gas which is heavier than air and will remain at **floor level** if there is a leak. Before lighting, sniff at **floor level. If you smell gas**, follow these rules:

1. Get all people out of building.
2. **DO NOT** light matches. **DO NOT** turn electric lights or switches on or off in area. **DO NOT** use an electric fan to remove gas from area.
3. Shut off gas at L.P. tank outside of building.
4. Telephone gas company and fire department. Ask instructions. Before hanging up, give your name, address, and phone number. **DO NOT** go back into the building. If help is coming wait for them to arrive. If your L.P. tank runs out of fuel, turn off gas at the machine. After L.P. tank is refilled, machine must be re-lit according to manufacturer's instructions. If the gas control has been exposed to **WATER** in any way, **DO NOT** try to use it. It must be replaced. **DO NOT** attempt repair on gas valve. It must be replaced. **DO NOT** attempt repair on gas control or machine. Call an authorized Delco distributor for service. Tampering is **DANGEROUS** and voids all warranties.
18. Do not short gas valve terminals. This may burn out the controls.
19. Make certain all wiring connections are tight. The spark ignitor and electrode connection to the ignition control must be tight, or damage to the unit may result.

20. The ignition control and pilot burner must both be chassis grounded.
21. Handle the pilot-electrode assembly carefully. If damaged, replace entire assembly. The correct spark gap should be 7/64" to 1/8".
22. The pilots must be securely mounted relative to the main burner in such a position that main burner ignition will occur with minimum delay with a low pilot flame just sufficient to open the main gas valve.
23. If the pilot fails to light when the control circuits are closed it may require manual resetting. Always wait at least 5 minutes before resetting the system. To reset turn the main switch to pump #1/only, then back to burner #2. Repeat if needed.

OPERATING INSTRUCTIONS

Following delivery and installation of your Delco pressure washer, inspect the unit for shipping damage and follow these directions.

1. Observe all danger, warning, and caution statements.
2. Squeeze the trigger. Turn the control switch to position one (cold water wash). Allow the air to purge from the system. Check the system for leaks.
3. Point the wand toward the floor. Flush out the system.
4. Turn the machine to the "OFF" position.
5. Install the nozzle onto the wand.
6. Turn the control switch to position one to establish the water flow. Turn the control switch to position two (hot water wash). The burner should automatically come on. The burner should light in approximately one to thirty seconds. If delay is longer adjust the pilot and check spark gap (7/64").

NOTE: When the trigger gun is released for more than 4.5 minutes the machine will shut off. You must turn the control switch to the "OFF" position then "ON" to restart. The timer is to protect the pump and is not intended to take the place of the main "ON-OFF" switch.

▲WARNING: If the water should stop flowing from the gun, turn the unit off immediately and contact an authorized Delco service person.

7. Point the wand toward the object to be cleaned and proceed.
8. For chemically enhanced cleaning, place the chemical feed line in liquid detergent. Open the metering valve. Dial the metering valve to obtain the desired chemical concentration. Close the metering valve for rinsing.

DANGER: The detergent level should never fall below the chemical line strainer. If you should discover this condition, immediately turn the metering valve off. Air introduced into the system will cause pump damage and create steam space if the burner is on which may lead to a steam explosion.

▲CAUTION: To prevent damage to your new cleaner:

1. Do not pump acids.
2. Do not allow the pump to run dry.
3. Do not fail to winterize.
9. Following the hot water wash, turn the control switch to position one. Allow the unit to run and adequately cool down the heat exchanger. This period of time maybe spent on a cold water rinse.
10. Turn the control switch to position zero "OFF". Turn the water supply off and disconnect. Disconnect the pressure hose, then drain.

MAINTENANCE

1. Use a water softener on your water system if it is known to be high in mineral content.
2. Use only high quality Delco chemicals and follow the manufacturer's mixing instructions.
3. The cleaner should be flushed thoroughly after using the chemical solutions.
4. Follow the fuel specifications as outlined in the machine specifications.
5. Clean the strainer screen, in the hose connection at the float tank, periodically.
6. Pump lubricant: Periodically check the oil level. Change the oil after 50 hours of operation, and then after every 500 hours. Use SAE 30 weight non detergent oil.
7. Use teflon tape or approved sealer on the plumbing connections when reassembling to prevent leakage.

▲CAUTION: If the machine is to be out of service for a long period of time, we recommend that the system be flushed out with anti-freeze water solution. Do not run the pump dry for extended periods of time or severe damage will occur.

8. Deliming coils: Periodic flushing of the coils is recommended to extend coil life and prevent lime build up. See note on page 11.

How To Check The Oil

It is critical that the oil in your pump be checked regularly. To check the oil follow this procedure:

1. Locate the oil dipstick in the plug on the top of the pump.
2. Turn the oil plug counterclockwise.
3. Wipe the dipstick with a clean cloth.
4. Screw the dipstick in. Pull it back out and check for the oil level mark. The oil level should be at the top mark.
5. If the oil is below the notch, add SAE 30 weight, non-detergent oil.
6. Put the dipstick back into the hole.
7. Turn the plug clockwise until it stops.

NOTE: Change the oil after the first 50 hours of use and then after every 500 hours of use. SAE 30 weight oil must be used.

Freeze-Up Prevention:

To prevent freeze-up follow these instructions:

1. Drain the float tank.
2. Remove the spray nozzle from the wand.
3. Mix antifreeze concentrate and water in a large container. Read the recommended mixing instructions given with the antifreeze.
4. Fill the float tank with the antifreeze mixture.
5. Put the end of the chemical line in the float tank. Fully open the metering valve.
6. Turn the control switch to position one.
7. Let the pump run until the antifreeze moves through the pump, coils, and pressure hose.

NOTE: The trigger on the gun must be pulled to allow antifreeze to pass through the coils, and then the trigger must be released to allow the antifreeze to pass through the bypass line.

8. Turn the control switch to the "O" position and close the metering valve.
9. Unplug the cord and put the machine in a dry building.

How to Check/Clean the Heat Exchange Coil:

The heat exchange coil should be inspected for deposit build-up after 40 hours of use, or once a month, whichever comes first. In hard water areas a water softening system should be employed.

Scaling or liming of the coils is caused by mineral deposits from the water and occurs much faster in hard-water areas and with heavier machine usage. Lime build-up can also be caused by inferior cleaning compounds.

⚠ DANGER: Failure to properly maintain the heat exchange coil can result in a steam explosion! Scale or lime build-up will act as an insulation and decrease the efficiency of the heat exchanger coil and will also cause "hot spots". This can result in a weakening of the tubing which can lead to a steam explosion.

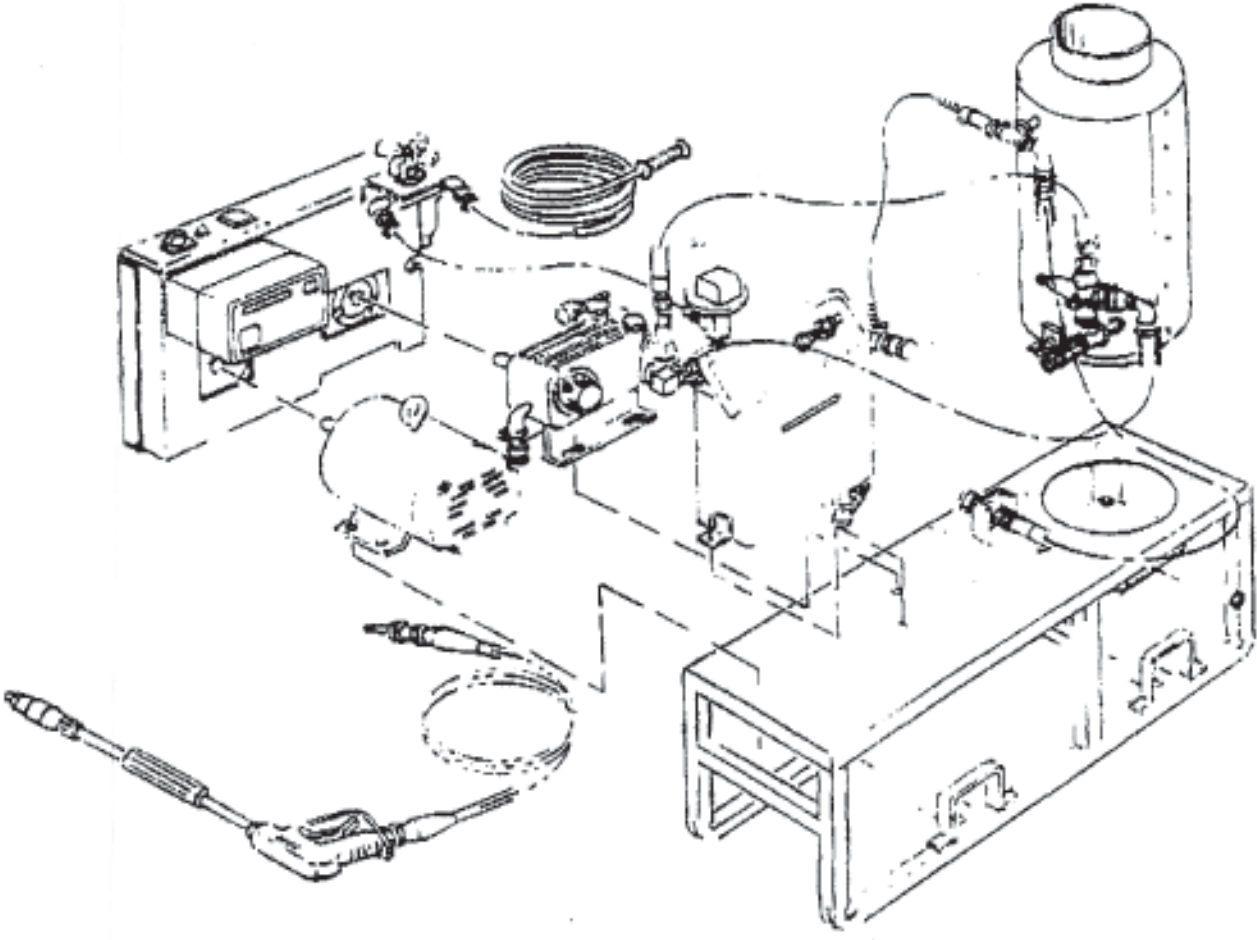
HOW TO CORRECT PROBLEMS IN THE MACHINE

Problem	Cause	Action
Oil is dripping	The oil seal is worn.	Contact an authorized Delco service person.
Chemical not picking up.	Chemical control valve leaking around fittings.	Tighten all fittings. Check for leaks in plastic chemical lines.
	Chemical control valve leaking around stem.	Tighten jam nut. Replace valve.
	Screens on chemical suction lines stopped up.	Clean or replace.
Pop-off valve leaking	Not adjusted properly.	Contact an authorized Delco distributor.
	Seat bad or worn.	Replace pop-off valve.
	Nozzle stopped up or restricted in discharge.	Remove nozzle and clean. Turn hi-pressure pump on and flush lines, then replace nozzle.
The pump overheats.	The oil level is low.	Fill to the proper oil level with high quality SAE 30-weight non-detergent oil.
	The machine has been running for an extended period of time with the trigger gun off.	Immediately press the gun release lever to allow cool water to flow into the pump.
Pressure excessive, rises too fast, and pops off at relief valve	Scale or dirt in coils	See "Preventative Maintenance" descaling of coils.
	High pressure nozzle.	Remove nozzle at tip of gun and clean. Flush.
There is/has been water in the oil and water is dripping from under the pump.	The oil seal is worn.	Contact an authorized Delco service person.
	The humidity is high.	Contact an authorized Delco service person.
	Cracked plunger.	Contact an authorized Delco service person.
	The plunger packing is worn.	Contact an authorized Delco service person.
	The plunger retainer o-ring is worn.	Contact an authorized Delco service person.
Excessive vibration to gun and hose	Worn, clogged or defective check valves in pump.	Contact an authorized Delco service person.
	Restricted or under size nozzle.	Clean and or replace with proper size.
	The pump is drawing air.	Contact an authorized Delco service person.
The motor will not start.	Power cord may not be connected.	Connect the power cord.
	Switch may not be turned "ON".	Turn switch "ON".
	Ground fault circuit interrupter did not reset.	Reset the ground fault circuit interrupter.
	The power cord may be connected to a dead outlet.	Contact a licensed electrician.
	May have a defective motor or switch.	Contact your authorized Delco dealer.
	The thermal overload switch tripped.	Allow motor to cool, reset thermal switch.
The motor has difficulty starting, or is overheating.	Circuit may be too long, overloaded, or conductors may be undersized.	Locate the outlet nearest to the circuit panel which can be reached with the cord supplied with the machine.
	Incorrect voltage or frequency.	Check the voltage and frequency.
	The motor is wet.	Contact an authorized Delco service person.
	The coils are limed.	Delime the coils. See Operators Safety Manual
	The nozzle is dirty.	Remove and clean the nozzle.
Low Pressure	Loose belt on pump.	Tighten the belt.
	Leaks in plumbing.	Tighten all connections.
	Insufficient water supply	Increase water supply by using larger lines.
	Insufficient water.	Check water pressure and flow to machine. Check float valve and float valve adjustments.
	Nozzle is worn.	Replace the nozzle.
	Wrong nozzle size.	Replace with proper size.
	Dirty or worn check valves in pump.	Contact an authorized Delco distributor.
	V-packings.	Contact an authorized Delco distributor.

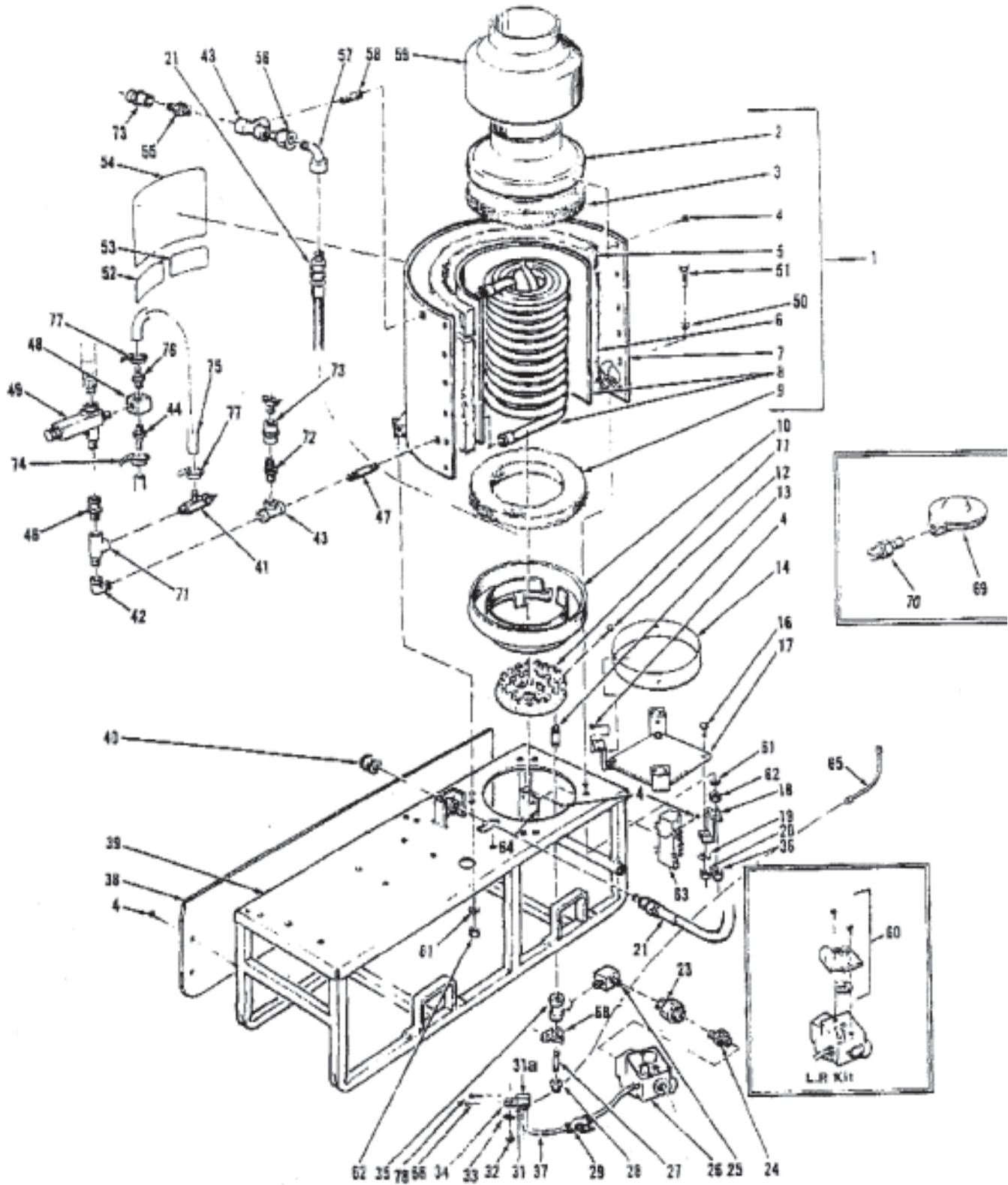
HOW TO CORRECT PROBLEMS IN THE MACHINE

Problem	Cause	Action
The pump is noisy.	There is air in the suction line.	Check the water supply. Make sure all fittings are tight.
	The valves are dirty.	Contact an authorized Delco service person.
	The bearings are worn.	Contact an authorized Delco service person.
	The pump check valve springs are worn.	Contact an authorized Delco service person.
Low temperature	Scale or dirt inside coils.	Clean per procedure in deliming.
	Low gas pressure.	Call your local gas supplier. Consult specification plate for proper gas pressure.
	Insufficient air supply.	Insure air supply.
	Gas line too small or too long.	Call your local gas supplier. Gas line must be the same size as valve inlet or larger. See chart on page 4.
The gas burner will not light.	Gas is turned off.	Call the gas supplier.
	Defective main control switch, vacuum switch, hi-limit switch.	Disconnect the electrical supply from the machine and turn the gas cock knob to "OFF". Check the 24 volt supply circuit. Remove wires at vacuum switch and manually activate the vacuum switch. Continuity should be present.
Pilot light will not remain burning.	Insufficient pilot pressure.	Adjust per instructions in gas valve section.
	Cross drafts.	Machine must have draft divertor installed. Close all out-side doors which may allow windy conditions to blow the pilot out.
No spark and no pilot gas.	No main Power.	Check breakers or fuses.
	Faulty transformer.	Contact an authorized Delco service person.
	Faulty vac switch.	Contact an authorized Delco service person.
	Faulty limit switch, high limit switch.	Contact an authorized Delco service person.
	Faulty ignition control unit.	Contact an authorized Delco service person.
Spark but no pilot gas	No gas supplied to pilot valve.	Check manual pilot in line valve.
	Manual valve(s) in the "Off" position.	Check knob position and gas shut off.
	Restricted pilot line or plugged pilot orifice.	Contact an authorized Delco service person.
	Faulty pilot valve.	Contact an authorized Delco service person.
	Faulty wiring.	Contact an authorized Delco service person.
	Faulty ignition control.	Contact an authorized Delco service person.
Pilot gas but no spark.	Broken or shorted electrode assembly.	Contact an authorized Delco service person.
	Faulty ignition control unit.	Contact an authorized Delco service person.
Pilot flame is lit but main burner does not come on.	Low pilot flame.	Check manual pilot valve.
	Improper alignment of sensor in pilot flame	Contact an authorized Delco service person.
	Faulty main gas operator in gas control.	Contact an authorized Delco service person.
	Faulty wiring	Contact an authorized Delco service person.
	Faulty flame sensor.	Contact an authorized Delco service person.
	Faulty ignition control unit.	Contact an authorized Delco service person.
Pilot cycles on and off by itself.	Faulty pilot valve.	Contact an authorized Delco service person.
	Faulty wiring.	Contact an authorized Delco service person.

Delco Avenger 3000 - 5 NG/LP
Drawing No. 1 Machine Layout



Delco Avenger 3000 - 5 NG/LP
Drawing No. 2

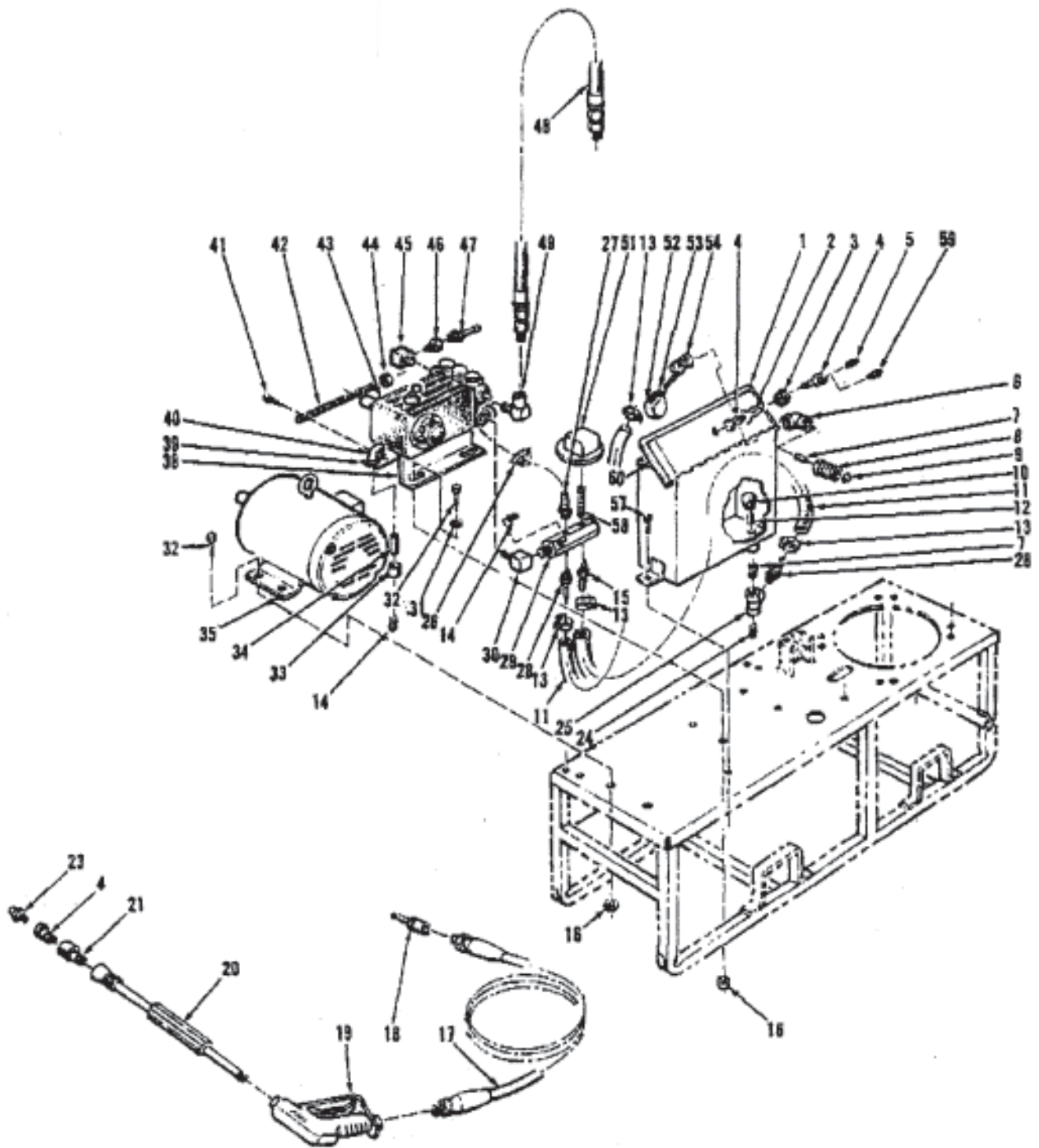


**Delco Avenger 3000 - 5 NG/LP
Parts List for Drawing No. 2**

Ref.	Part No.	Qty.	Description	3000-5 NG 230V 3000-5 LP 230V 3000-5 NG 460V 3000-5 LP 460V
1	29670A	1	Coil & Tank Assembly	x x x x
2	29676A	1	Head Exhaust	x x x x
3	194834	1	Insulation (4#) 2"x 20" OD	x x x x
4	170906	14	Screw #10 x 1/2 HW S/D	x x x x
5	194810	1	Insulation (6#)1"x 24" x 76"	x x x x
6	194811	1	Insulation (6#)1"x 5"x 76"	x x x x
7	29674A	1	Skin Tank	x x x x
8	29671A	1	Coil 20" 6 P/C	x x x x
9	194817	1	Insulation (6#)1" x 20" OD	x x x x
10	29678A	1	Head Burner	x x x x
11	29699A	1	Ring Burner	x x x x
12	194915	44	Jet Burner, #52	x x
	194920	"	Jet Burner, #62	x x
13	170405	1	Nipple ¾ x 4" Blk	x x x x
14	29668A	1	Shroud Burner	x x x x
16	170795	8	Screw 10 - 24 x 3/4	x x x x
17	29686A	1	Plate Reflector	x x x x
18	29669A	4	Bracket Shroud Burner	x x x x
19	170879	8	Washer 3/16 Plated	x x x x
20	920200	8	Nut # 10 - 24	x x x x
21	29692A	1	Hose 3/8 x 32"	x x x x
22	170966	1.5ft	Hose, 5/8"	x x x x
23	170490	1	3/4" Union Blk	x x x x
24	50351A	1	Adapter, ¾ x 1"	x x x x
25	53637A	1	Elbow, ¾ Hyd	x x x x
26	59605A	1	Valve Gas Delco	x x x x
27	170408	1	Nipple 3/4 x 3 Blk	x x x x
28	170478	1	Cap 3/4" Blk	x x x x
29	199161	1	Valve Pilot Shut Off	x x x x
31	57005A	1	Pilot Burner Delco	x x x x
31a	56704A	1	Pilot Orifice, .010 LP	x x
32	85804A	1	Screw ¼- 20 x ½	x x x x
33	980614	1	Washer Shake Proof	x x x x
34	191697	1	Bracket - pilot	x x x x
35	170455	1	Tee ¾ BLK.	x x x x
36	920110	8	Nut 5/16 - 18 Elastic	x x x x
37	170961	3 ft	Tubing Alum. 1/4 OD	x x x x

Ref.	Part No.	Qty.	Description	3000-5 NG 230V 3000-5 LP 230V 3000-5 NG 460V 3000-5 LP 460V
38	29688A	1	Panel Bottom	x x x x
39	29656A	1	Main Frame	x x x x
40	192276	1	Quick Coupler 3/8 mpt	x x x x
41	59734A	1	Valve Relief	x x x x
42	53636A	1	Elbow, St. ½ Hyd	x x x x
43	59015A	2	Tee 1/2" Sch 80 Hydraulic	x x x x
44	170034	1	Hose Barb 5/8 x 3/8 npt	x x x x
46	29690A	1	Fitting 1/2 Female x 1/2 Male	x x x x
47	54159A	1	Nipple Pipe 1/2 x 6" Galv.	x x x x
48	56118A	1	Manifold, Unloader ¾" BRA	x x x x
49	59404A	1	Valve Unloader	x x x x
50	170860	8	Washer, Lock 5/16 Plated	x x x x
51	85814A	8	Screw 5/16 - 18 x 1¼ Hx Hd	x x x x
52	77032A	1	Label Danger Steam Explosion	x x x x
53	77033A	1	Label Warning	x x x x
54	77070A	1	Label Machine Avenger	x x x x
55	57418A	1	Switch High Temp 230	x x x x
56	170775	1	Bushing 1/2 x 3/8 Hyd	x x x x
57	170768	1	Elbow Street 3/8 Hyd	x x x x
58	56353A	1	Nipple 1/2" x 3" Sch 80	x x x x
59	192648	1	Divertor - Draft	x x x x
60	55368A	1	Kit LP Conversion	x x
61	980652	4	Washer Lock 5/16	x x x x
62	170854	4	Nut 5/16 - 18	x x x x
63	56057A	1	Module, Ignition	x x x x
64	69844A	1	Bracket, Module	x x x x
65	51819A	1	Cable, Ignition	x x x x
66	962256	1	Screw 10-24 x 3/16"	x x x x
68	52758A	1	Clamp, Grounding	x x x x
69	197523	1	Pressure Regulator - LP	x x
70	191099	1	Pressure Regulator - Adapter	x x
71	59014A	1	Tee, ½" Hydraulic Branch	x x x x
72	57417A	1	Switch, Hi-Limit(55C) 130°	x x x x
73	170956	2	Coupling, Pipe ½" PVC	x x x x
74	192116	1	Clamp #10	x x x x
75	170964	1 Ft	Fuel Hose ¼ x Bulk (Foot)	x x x x
76	720271	1	Adapter, ¼H x ¼MPT	x x x x
77	722021	2	Clamp #4	x x x x
78	962346	1	Screw, 10-24 x ¼	x x x x

Delco Avengers 3000 - 5 NG/LP
Drawing No. 3

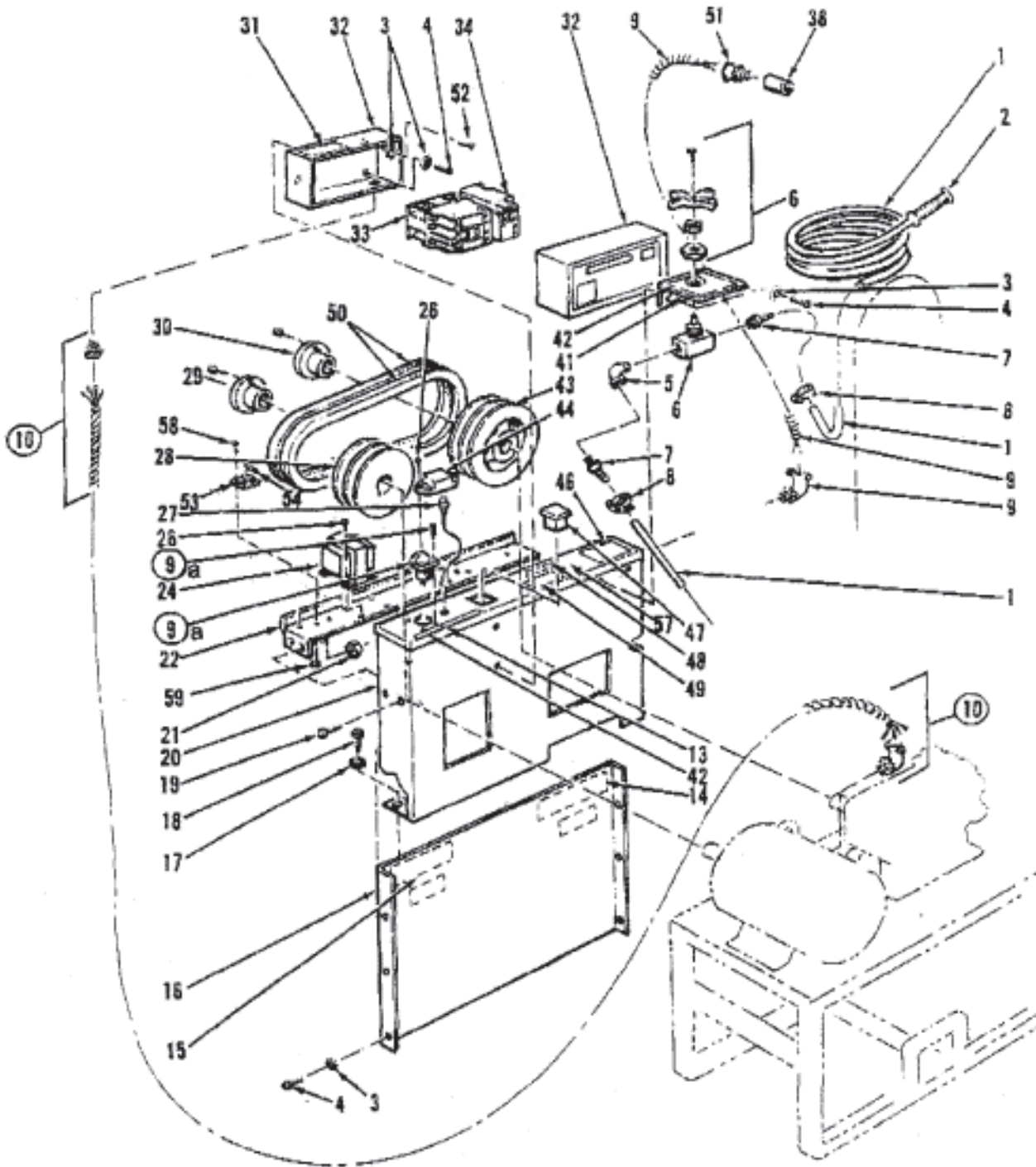


Delco Avengers 3000 - 5 NG/LP Drawing No. 3 Parts List

Ref.	Part No.	Qty.	Description	3000-5 NG 230V	3000-5 LP 230V	3000-5 NG 460V	3000-5 LP 460V
1	69133A	1	Float Tank Avenger S.S.	x	x	x	x
2	196133	1	Nozzle Spray, 5.5x40°	x	x	x	x
3	193947	3	Grommet Rubber 7/16 ID x 15/16"	x	x	x	x
4	197051	2	Nipple coupler Quick 1/4" Male	x	x	x	x
5	196134	1	Nozzle, 5.5 x 0° x ¼" SS	x	x	x	x
6	170243	1	Elbow 1/2" Galv.	x	x	x	x
7	170216	2	Nipple 1/2" x Close Galv.	x	x	x	x
8	170071	1	Fitting 3/4"h x 1/2" npt Female	x	x	x	x
9	198078	1	Screen - Hose Washer	x	x	x	x
10	198072	1	Screen - 1/2" Tank	x	x	x	x
11	170966	1.790 ft	Hose 2 Braid 5/8" Bulk (foot)	x	x	x	x
12	170106	1	Nipple 1/2" x Close Brass	x	x	x	x
13	192116	4	Clamp Hose #10	x	x	x	x
14	170012	2	Plug 1/4" Brass	x	x	x	x
15	194404	1	Hose Barb, (21/64 ORIF) 5/8 x 3/8	x	x	x	x
16	171101	8	Nut Whiz Lock 3/8" - 16	x	x	x	x
17	194352	1	Hose Asm. 3/8" x 50'	x	x	x	x
18	197056	1	Nipple Coupler Quick 3/8" Male	x	x	x	x
19	54223A	1	Trigger Gun Assembly	x	x	x	x
20	53508A	1	Extension 1/2" x 35"	x	x	x	x
21	192277	1	Coupler - Quick 1/4" Fem. - 1/4" mpt	x	x	x	x
23	196156	1	Nozzle, 5.5 x 25°	x	x	x	x
24	170014	1	Plug Pipe 1/2" Brass	x	x	x	x
25	170265	1	Tee 1/2" x 1/2" x 3/8" Galv.	x	x	x	x
26	722021	1	Clamp #4	x	x	x	x
27	720271	1	Adapter 1/4" h to 1/4" mpt	x	x	x	x
28	170034	2	Hose Barb 5/8" h x 3/8" npt Male	x	x	x	x
29	29681A	1	Manifold Input Avenger	x	x	x	x
30	170044	1	Street Elbow ½" 90° Brass	x	x	x	x
31	170883	4	Washer Lock 3/8"	x	x	x	x
32	962244	8	Screw 3/8-16 x 3/4 Hx Hd	x	x	x	x
33	170266	1	Coupling 1/4"	x	x	x	x
34	170281	1	Nipple 1/4" x 4" Galv.	x	x	x	x
35	195796	1	Motor, Electric	x	x	x	x
38	197502	1	Rail Pump	x	x	x	x
39	170040	1	Elbow Street 1/4" x 90° Brass	x	x	x	x
40	29689A	1	Rail w/Hole Tapped in it	x	x	x	x
41	962289	1	Screw 1/4" - 20 x 3/4" Allen Head	x	x	x	x
42	67126A	1	Rod Belt Tension	x	x	x	x
43◆	45947A	1	Pump, General	x	x	x	x
44	920365	1	Nut 1/2" - 13 ES Lok 10028 ESNA	x	x	x	x
45	170039	1	Elbow St. 3/8" 90 Degree	x	x	x	x
46	170004	1	Bushing Pipe 3/8 x 1/8 Brass	x	x	x	x
47	199027	1	Valve Pipe 1/8" npt Male Brass	x	x	x	x
48	29692A	1	Hose 3/8" x 32" Hyd. Swivel B/E	x	x	x	x
49	170768	1	Street Elbow Hyd. 3/8"	x	x	x	x
51	198433	1	Switch Vacuum	x	x	x	x
52	191519	1	Float Ball	x	x	x	x
53	29575A	1	Nut, Retaining, Float Valve	x	x	x	x
54	199067	1	Float Valve	x	x	x	x
57	170910	2	Screw Tapping 5/16" x 3/4" Hex	x	x	x	x
58	56329A	1	Nipple 1/4" x 2-1/2" S.S. sch 40	x	x	x	x
59	56248A	1	Nozzle 5.5 x 15° x ¼" SS	x	x	x	x
60	93951A	1	Trim Vinyl (Ft)	x	x	x	x

NOTE: ◆ indicates a change has been made since last publication of this manual.

Delco Avenger 3000 -5 NG/LP
Drawing No. 4

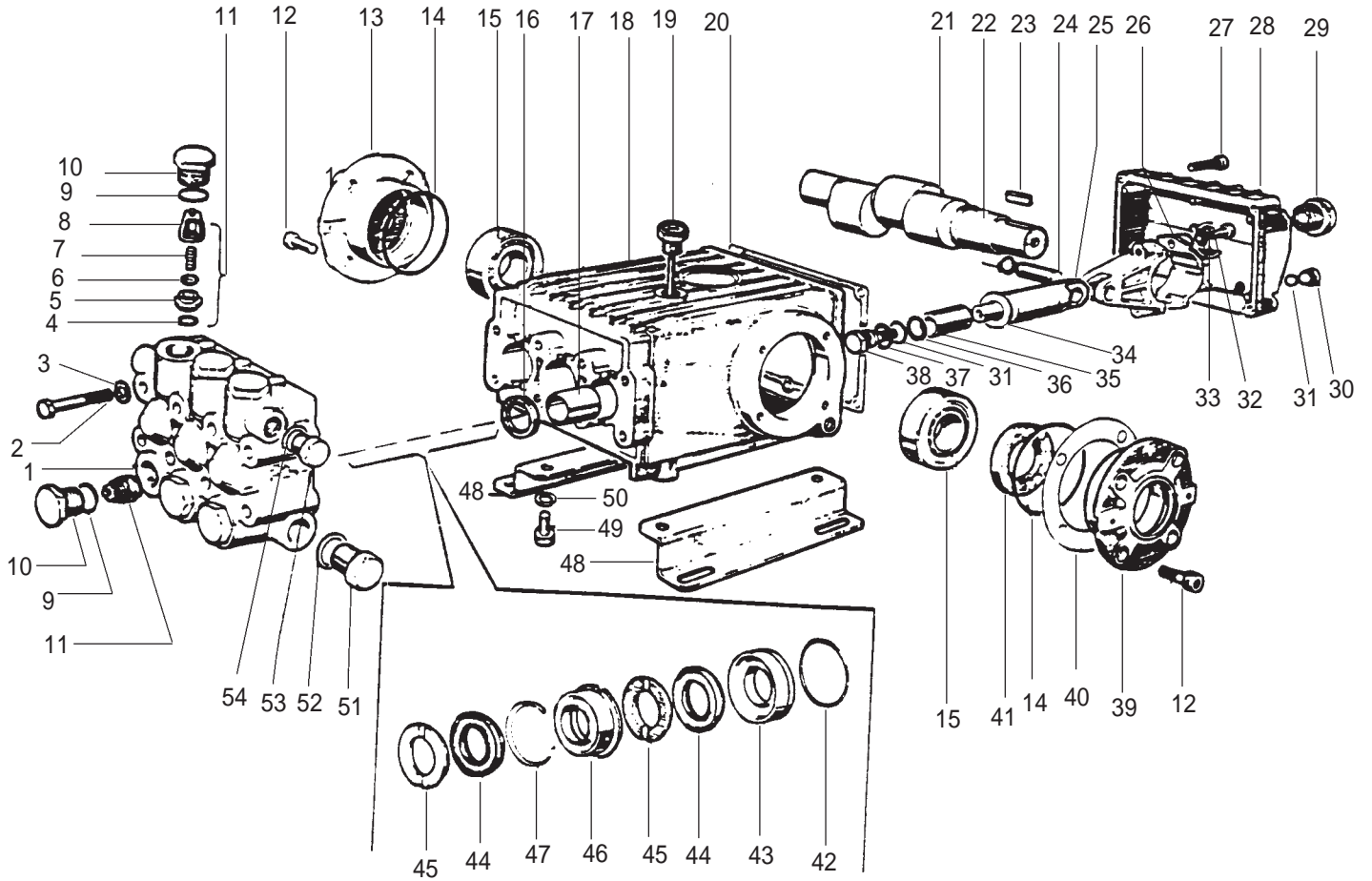


Delco Avenger 3000 - 5 NG/LP Drawing No.4 Parts List

Ref.	Part No.	Qty.	Description	3000-5 NG 230V 3000-5 LP 230V 3000-5 NG 460V 3000-5 LP 460V
1	170974	10Ft	Tubing PVC 1/4"	x x x x
2	29576A	1	Strainer Chem w/check Valve	x x x x
3	980614	11	Washer, Shakerproof 1/4"	x x x x
4	85804A	11	Screw 1/4 - 20 x 1/2	x x x x
5	170040	1	Elbow Street 1/4 x 90 Brass	x x x x
6	199081	1	Valve, Metering 1/4	x x x x
7	720271	2	Adapter 1/4 H to 1/4 mpt	x x x x
8	722021	2	Clamp #4 Hose	x x x x
9	49733A	1	Harness, Wiring, Avenger	x x x x
9A	198450	1	Control Switch	x x x x
10	19507A	1	Motor Wire Assembly	x x
	19508A	1	Motor Wire Assembly	x x
13	72139A	1	Decal, Shut Down Delco	x x x x
14	77029B	1	Label, Warning Belt Drive	x x x x
15	77068A	1	Label, Machine Avenger	x x
	77069A	1	Label, Machine Avenger	x x
16	29663A	1	Panel, Front	x x x x
17	980664	4	Washer 5/16 EXT Tooth (Pltd)	x x x x
18	170910	4	Screw Tapping 5/16 x 3/4 Hex	x x x x
19	962244	4	Screw 3/8 - 16 x 3/4	x x x x
20	29661A	1	Panel, Rear Control	x x x x
21	171101	4	Nut Whiz Lock 3/8 - 16	x x x x
22	29667A	1	Brkt, Control Panel	x x x x
24	198605	1	Transformer 240/24V	x x x x
24A	193775	1	Fuse 4.5 Amp(not illustrated)	x x x x
26	170795	6	Screw 10 - 24 x 3/4	x x x x
27	196962	1	Pilot Light 24V Red	x x x x
28◆	197123	1	Pulley Avenger	x x x x
29	191777	1	Bushing - Pulley H x 1 3/8	x x x x
30	191773	1	Bushing - Pulley H x 24 mm	x x x x
31	72103A	1	Decal, 230 Volt	x x
	77082A	1	Decal, 440 Volt	x x
32	53706A	1	Enclosure	x x x x
33	53048A	1	Starter, 18 amp	x x
	46737A	1	Starter, Motor, 32 amp 24v	x x
34	57398A	1	Relay, Overload 12-18 amp	x x
	46316A	1	Relay, Overload	x x
38	170956	1	Coupling Pipe	x x x x
41	29664A	1	Brkt. Metering Valve	x x x x
42	77031A	1	Label Control Panel	x x x x
43	29685A	1	Pulley Avenger	x x x x
44	29697A	1	Timer Off Delay 24 Volt	x x x x
46	77030A	1	Label, Operations	x x x x
47	44411A	1	Meter Hour	x x x x
48	77039B	1	Label, made in USA	x x x x
49	77027A	1	Label, Warning	x x x x
50◆	191665	2	Belt - V B-35	x x x x
51	170636	2	Connector 3/8" 1-Screw	x x x x
52	85806A	1	Screw 1/4"-20 x 3/4"	x x x x
53	43005A	1	Fuseblock, 1/4" Glass	x x x x
54	42910A	2	Fuse, .8 Amp 250V	x x x x
58	85313C	2	Screw, 6-32 x 3/8	x x x x
59	920112	1	Nut, 6-32	x x x x

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Delco Avenger 3000 - 5 NG/LP
Pump Drawing



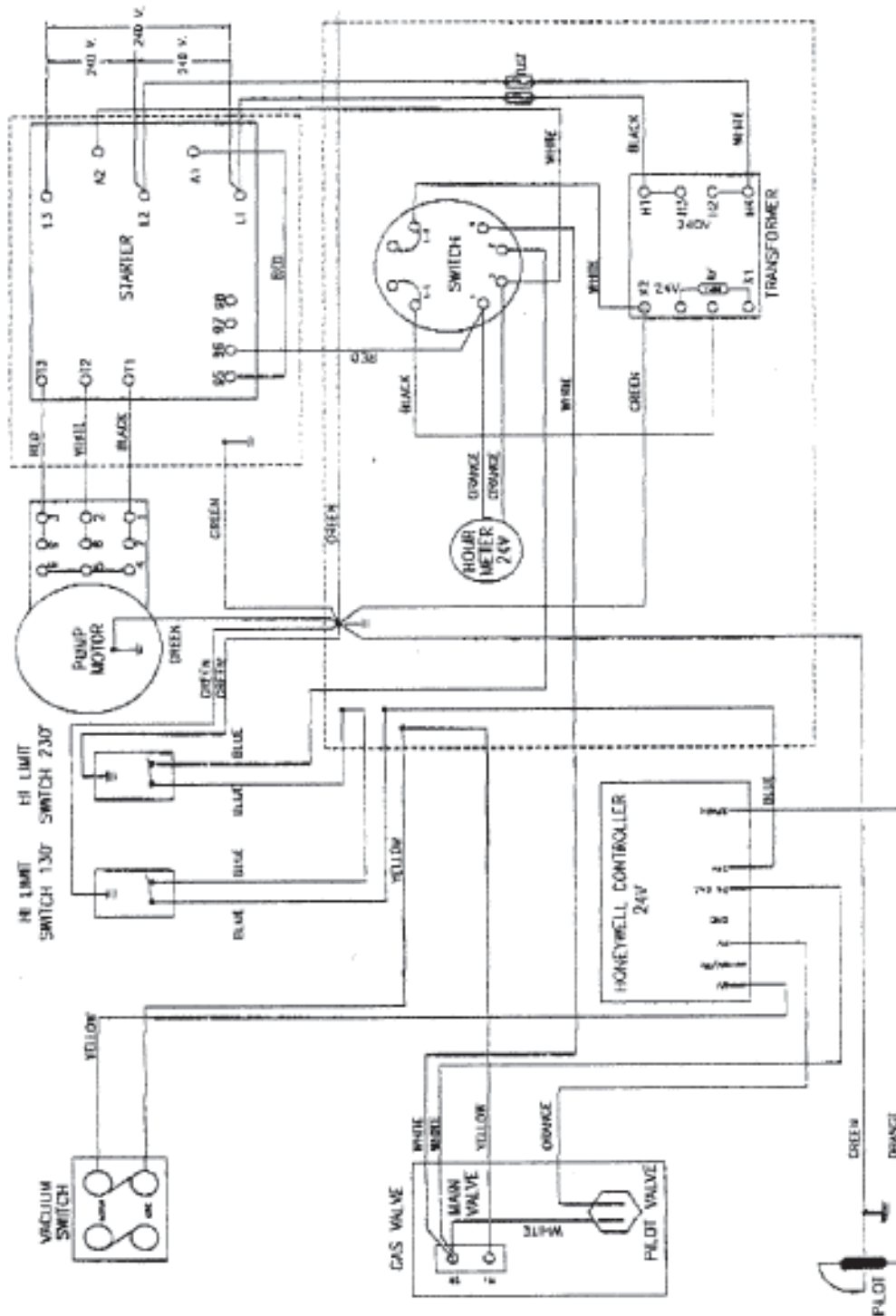
Delco Avengers 3000 - 5 NG/LP Pump Parts List

Ref.	Part No.	Description	Qty	Ref.	Part No.	Description	Qty
1	195746	Manifold	1	31	196644	O Ring, Kit 195406	ref.
2	191687	Screw M8.0 x 70.0 Hx Hd	8	32	198089	Screw M8.0 x 35.0	6
3	199585	Washer, 8 Uni	8	33	199580	Washer 8.4 x 13 x 0.8	6
4	196702	O Ring, Kit 195401	ref.	34	199581	Washer, Kit 195406	ref.
5	196642	O Ring, Kit 195401	ref.	35	197075	Plunger, Piston	3
6		Kit 195401	ref.	36	197627	Ring, Back-up, Kit 195406	ref.
7		Kit 195401	ref.	37	199589	Washer, Kit 195406	ref.
8		Kit 195401	ref.	38	195406	Kit, Plunger, Bolt	1
9	196642	O-Ring Kit 195405	ref.	39	192331	Cover, Crankcase, Front	1
10		Cover, Valve, Hex, Kit 195405	ref.	40	198321	Shim, Thickness	2
11	195401	Kit, Valve, Check	1	41	195403	Kit, Oil, Seal, Crankshaft	1
12	198099	Screw M8 x 16	8	42	196645	O-Ring, Kit 195410	ref.
13	192320	Case Bearing	1	43		O-Ring, Kit 195428	ref.
14	196643	O Ring Bearing Case	2			Adapter, Female, Kit 195410	ref.
15	29614A	Bearing	2			Adapter, Female, Kit 195428	ref.
16	195402	Kit Oil Seal Crankcase	1	44		V-Packing, Kit 195408	ref.
17	193987	Guide 22 x 25 x 30 min.	3			V-Packing, Kit 195428	ref.
18	29615A	Crankcase	1	45		Adapter, Male, Kit 195407	ref.
19	197065	Plug Dipstick	1			Adapter, Male, Kit, 195428	ref.
20	193894	Gasket	1	46		Ring, Interm., Kit 195409	ref.
21◆	52941A	Crankshaft	1			Ring, Interm., Kit 195428	ref.
22	197568	Retaining - Piston Pin	6	47	197639	Ring, Kit 195409	ref.
23	195101	Key 8 x 7 x 25 min.	1			Ring, Kit 195428	ref.
24	196972	Pin, Plunger	3	48	66809A	Rail, Pump, Pntd	2
25	197649	Rod, Piston	3	49	198097	Screw M10x18.0	4
26	191326	Rod, Asm, Connecting	3	50	199597	Washer 10 OIM	4
27	198098	Screw M6 x 30	5	51	197067	Plug, Inlet	1
28	192342	Cover, Crankcase	1	52	199583	Washer 21.5x27x1.5	1
29	193900	Gauge, Oil	1	53	197069	Plug, Discharge	1
30	197066	Plug, Drain	1	54	199584	Washer 17.5x23x1.5	1

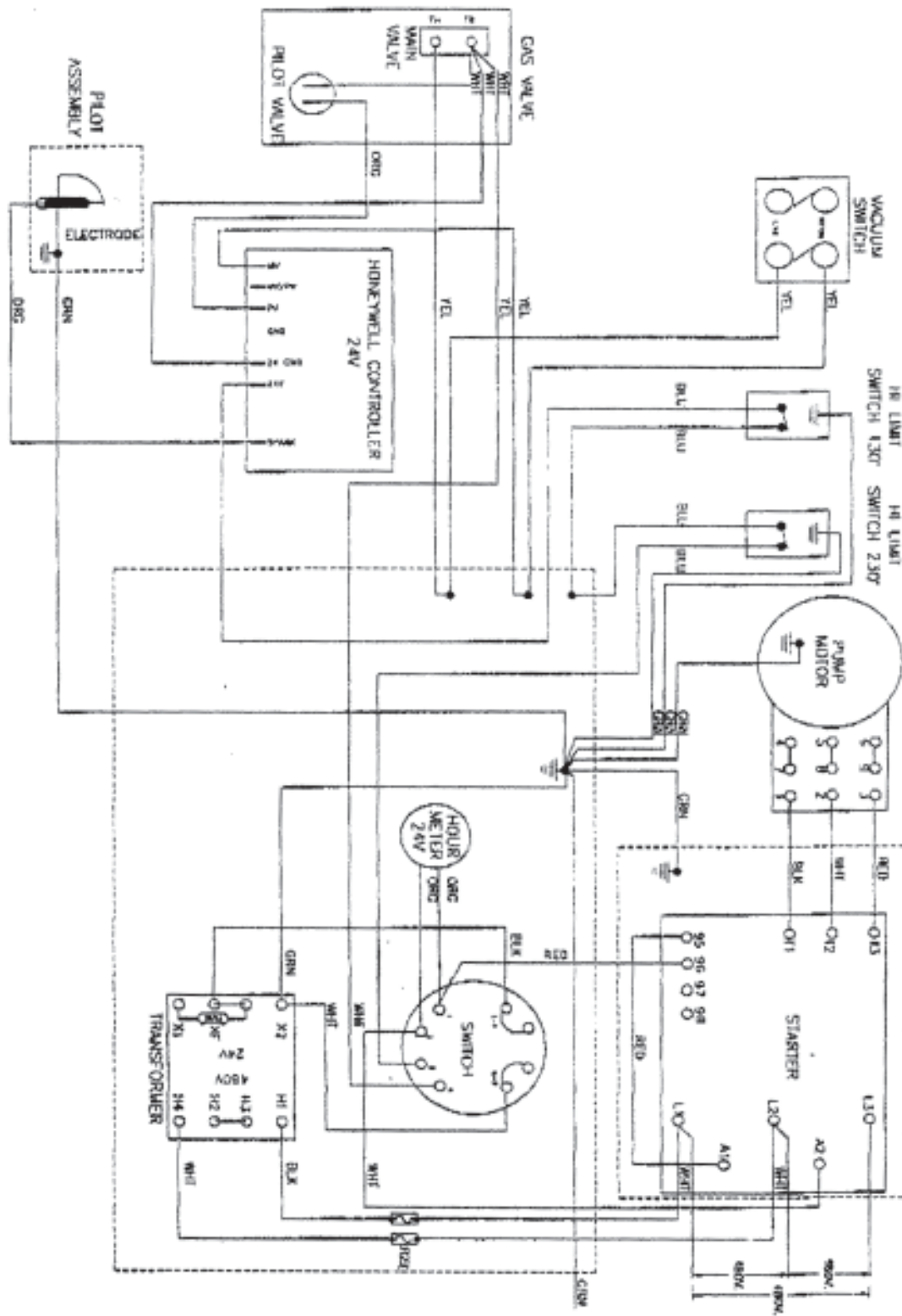
NOTE: ◆ indicates a change has been made since last publication of this manual.

Kit No.	Description	Qty
195401	Check Valve Ass'y Kit: Ref. #4, 5, 6, 7, 8, (11) (6 pcs.)	1
195402	Kit Oil Seal Crankcase Ref # 16, Oil Seal (3)	1
195403	Kit Oil Seal Crankshaft Ref # 41, (2)	1
195404◆	Kit Valve, Cover, O Ring Ref. # 9, O Ring (6) Ref. #10, Hex Valve Cover (6)	1
195406	Kit, Plunger, Bolt Ref. # 31 O Ring (4) Ref. # 34 Washer (3) Ref. # 36, Ring, Backup (3) Ref. # 37, Washer (3) Ref. # 38, Kit-Includes all (1)	1
195407	Kit, Adapter, Male Ref. # 45 Kit 195407 (1) Ref. # 45 Kit 195428, (3)	1
195408	Kit, V-Packing Ref. #44, V-Packing (1)	1
195409	Kit, Intermediate Ring Ref. # 46 Ring Intermediate (1) Ref. # 47 Ring, Long, Life (1)	1
195410	Kit, Adapter, Female Ref. # 42, O Ring (1) Ref #43, Female Adapter (1)	1
195428	Kit, Piston, Repair, Complete Ref. # 42, O Ring (3) Ref. # 43, Female Adapter (3) Ref. # 44, V-Packing (3) Ref. # 45, Male Adapter (3) Ref. # 46, Ring Int. (3) Ref. # 47, Ring, Long Life (3)	1

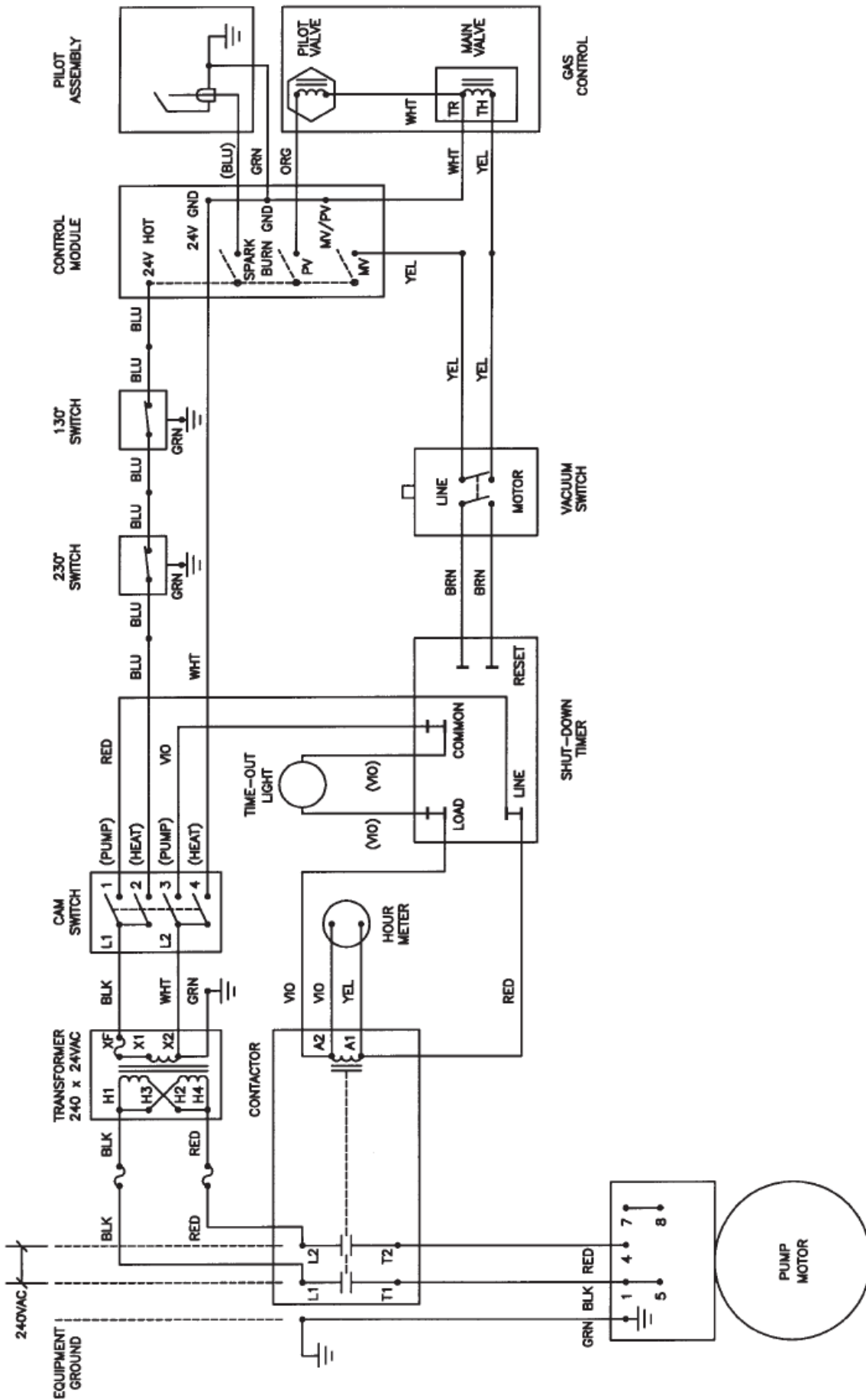
**Delco Avengers 3000 - 5 NG/LP 230V without shut down timer
Electrical Schematic**



**Delco Avengers 3000 - 5 NG/LP 460V without shut down timer
Electrical Schematic**



Delco Avenger 3000-5 & 2000-5 NG/LP 1-Phase
with shut down timer Electrical Schematic 3/07



READ THIS BOOK

This book has important information for the use and safe operation of this machine. Failure to read this book prior to operating or attempting any service or maintenance procedure to your Delco machine could result in injury to you or to other personnel; damage to the machine or to other property could occur as well. You must have training in the operation of this machine before using it. If you or your operator(s) cannot read English, have this manual explained fully before attempting to operate this machine.

Si Ud. o sus operadores no pueden leer el Inglés, se hagan explicar este manual completamente antes de tratar el manejo o servicio de esta máquina.

For new books write to:

DELCO Cleaning Systems, LLC • 1111 Lake Francis Dr. • Siloam Springs, Arkansas 72761.

