

\$15.00

# INSTALLATION, OPERATION AND MAINTENANCE MANUAL



**IMPORTANT: READ BEFORE OPERATING**



## Recovery and Filtration Systems

AZV55

RZVE1

AZV88

RZV10E1

AZV5J

## Recovery Systems

RPV30E1

RPV50E1

## Gas Engine Recovery System

RGV40H12

RGV40V12

Hydro Vacuum® is mfg. in the USA by Hydro Tek Systems. Inc.

**HYDRO TEK**  
CLEANING EQUIPMENT MFG.

## TABLE OF CONTENTS

INTRODUCTION .....	3
STATEMENT OF WARRANTY .....	4
SAFETY WARNING.....	4 – 6
GENERAL OPERATING INSTRUCTIONS Setup, Operation, and Shut Down.....	6 – 8, 10
TROUBLE SHOOTING .....	9, 11 – 12
AND SERVICE MAINTENANCE GUIDE	
MAINTENANCE LOG .....	BACK COVER
PARTS LIST / EXPLODED VIEW .....	Enclosed
WIRING DIAGRAM.....	Enclosed

**WATER RECOVERY**



**HYDRO VACUUM**

Phone  
Website

800.274.9376 or 1.909.799.9222  
[www.hydrotek.us](http://www.hydrotek.us)

Business hours

Mon – Fri 7:30am – 4:00pm pacific

Address

Manufactured by Hydro Tek  
2353 Almond Avenue  
Redlands, CA 92374 USA

**THANK YOU:** The employees and management of HYDRO TEK SYSTEMS, INC. thank you for selecting our products. The production and quality assurance team have taken the greatest care to ensure that your new cleaning equipment and washing accessories exceed the standards set by you, the customer, by Hydro Tek engineering and management, and by our safety certification to U.L. 1776.

**YOUR RESPONSIBILITY:** This operator's manual was compiled for your benefit. By studying and following the safety, installation, operation, maintenance, and troubleshooting information contained within, you can look forward to many years of trouble-free service from your equipment. Every person who will operate the equipment must read and follow the safety warning and operating instruction sections of this owner's manual prior to use. You are responsible for operating the product properly and safely. You are also responsible to follow the maintenance schedule on the back page of this manual to keep your warranty active.

**FREIGHT DAMAGE:** If delivered by a trucking company, please inspect for any concealed freight damage and note this on the paperwork from the trucking company before signing. Should you find damage has occurred during shipping, do not return the damaged merchandise to Hydro Tek, but file a claim immediately with the freight carrier involved.

**QUESTIONS:** Help us provide you with the fastest service. Please locate the enclosed warranty registration card and return it to Hydro Tek to register your machine.

If problems occur, contact the dealer you bought your machine from, a local authorized Hydro Tek service center, or call Hydro Tek at 1-(909) 799-9222 option 4 and ask for technical services.

**GETTING STARTED:** If your dealer has not prepared the equipment for startup, you may need to connect the hose and power supply. If you purchased a Hydro Vacuum recycle system with a Hydro Tek trailer your wiring is most likely already factory installed to the generator of Hydro Tek pressure washer on the trailer. Other brands of washers or aftermarket generators may not have enough 115vac output, ground fault interrupter outlet, or enough 12vdc output to run a Hydro Vacuum. Portable generators must be rated for 2 to 3 times the total running wattage of the Hydro Vacuum to prevent electrical damage, refer to Tek Sheet for minimum electrical and tank requirements. After plugging into an electrical outlet, be sure to push the reset button on the GFCI.

**Thermostat on pressure washer must be set to a maximum operating temperature of 200°F to prevent damage to the pump and filtering system.**

#### **ONE YEAR PARTS WARRANTY:**

Hydro Tek will provide replacement parts on the Hydro Vacuum® product line (Labor is not included)

#### **Items and Conditions Not Covered:**

1. Normal wear items such as discharge hose, guns, wands, spray arms, nozzles, quick couplers, o-rings, generator & motor brushes, filters, fuses, belts, and tires.
2. Cost of regular maintenance/adjustments or damage from lack of maintenance.
3. Damage due to freezing, abrasive fluids, chemical deterioration, scale build-up, or water ingress.
4. Damage from fluctuation in electrical or water supply.
5. Any product or part that has been altered, modified, over pressurized, misused, or has been in an accident.
6. Dealer installation or damage from improper installation of the machine or alteration by a dealer or promise of additional warranty from dealer. The manufacturer warranty is not transferable from the dealer to the retail purchaser on used or rented equipment.
7. Labor is not paid on added accessories such as surface cleaners, hose reels, wastewater recovery, hot link water heaters, and filtration.

#### **WARRANTY PROVIDED BY OTHERS:**

Gasoline engines, some electric motors and some pumps are warranted by the manufacturer of the component and their warranty is provided through that manufacturer's service centers.

**GENERAL CONDITIONS:** Hydro Tek's responsibility with respect to claims is limited to making the required repairs or replacements to the original retail user, and no claim of breach of warranty shall be cause for any cancellation or rescission of the contract of sale of any Hydro Tek product. Hydro Tek reserves the right to change or improve the design of any of its products or illustrations without assuming any obligation to modify any product previously manufactured.

This supersedes any and all previous warranty statements for products purchased after February 2017. Hydro Tek is not liable for indirect, incidental or consequential damages including any cost of substitute equipment, loss of revenue, pecuniary expense or loss, or inability to use a Hydro Tek product. Hydro Tek disclaims all implied warranties, including those of merchantability and fitness for use for a particular purpose. Some states do not allow exclusions or limitations on how long an implied warranty lasts, so the above exclusions may not apply to you. It is the buyer's responsibility to ensure installation and use of Hydro Tek products conforms to local codes.

**INTERNATIONAL END USERS:** Warranty is furnished by authorized Hydro Tek dealers or distributors only; and the warranty may vary depending on the dealer or distributor and may be different from Hydro Tek's warranty; please consult distributor for details.

#### HOW TO OBTAIN WARRANTY SERVICE:

1. List washer model# \_\_\_\_\_ . List serial # \_\_\_\_\_ (on base plate of machine near the motor/engine).
2. Contact your local service dealer and return the Hydro Tek washer or part within the warranty period along with your sales receipt. To locate service, call customer service at Hydro Tek or go to: [www.hydrotek.us](http://www.hydrotek.us) and enter your zip code.
3. You also have the option to obtain a return goods authorization and ship the questionable part freight prepaid directly to the manufacturer. The part will be evaluated upon receipt. If found defective, Hydro Tek will repair or replace part under the conditions of warranty and return to you.
4. If the defective component is an engine or motor made by another manufacturer, we, or your authorized Hydro Tek dealer, can help you obtain warranty service through the specific manufacturer's local authorized service center.
5. If you are unable to resolve the warranty claim, write to Hydro Tek Systems, Inc. 2353 Almond Ave. Redlands, CA 92374 USA, Attn.: Technical Services. Please enclose a copy of the dated purchase receipt and explain the nature of the defect.

#### ELECTRICAL PRECAUTIONS:

1. **Observe all State, Local, and National codes for the installation of your electrically powered washer.**

2. For a grounded product rated 250 volts, single phase, or less: This product is provided with a ground fault circuit interrupter built into the power cord plug. If replacement of the plug or cord is needed, use only identical replacement parts.

3. **GROUNDING INSTRUCTIONS:**

Cord Connected, Grounded Products:

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

**DANGER** – *Improper connection of the equipment-grounding conductor can result in electrocution.* Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the product, do not cut off the ground pin – if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use any type of adaptor with this product.

#### WARNING

**THIS EQUIPMENT CAN BE HAZARDOUS TO THE OPERATORS SAFETY AND ONLY AUTHORIZED PERSONNEL WHO HAVE READ AND UNDERSTOOD THE OPERATION MANUAL SHOULD BE PERMITTED TO OPERATE THIS UNIT. NEVER ALLOW CHILDREN TO PLAY ON OR AROUND THIS EQUIPMENT.**

4. To comply with the national electric code, this pressure washer should only be connected to a receptacle that is protected by a ground fault circuit interrupter (GFCI).
5. **EXTENSION CORDS:** Use of extension cords is not recommended.
6. **NEVER** operate electrically powered equipment after it has tripped a breaker or a ground fault device without having the reason for the trip determined by an authorized service engineer or competent electrician.
7. Use only in a dry area. Do not handle electrical cords and plugs when they are wet, when your hands are wet, or when standing in water. Do not spray high-pressure water on to the machine.
8. Disconnect power supply before making any repairs or adjustments.
9. Disconnect battery cable before servicing engine on 12-volt systems.

**Warning: FIRE OR EXPLOSION HAZARD CAN CAUSE PROPERTY DAMAGE, SEVERE INJURY OR DEATH.**

**FIRE PRECAUTIONS:**

1. **DO NOT** use improper fuels or solvents in this equipment, and only fill with the correct fluids when the unit is in an OFF condition, main power is disconnected, and engine and burner are cool.
2. **NEVER** operate this equipment in the presence of flammable vapors, dust, gases, or other potentially combustible materials.
3. **AVOID** contact with the exterior of the mufflers, and exhaust port or stack to prevent burns.
4. **DO NOT** store fuel or other flammable materials near the burner or any other open flame.
5. Gasoline power units are designed for outdoor use and installation only.

**VENTILATION PRECAUTIONS:**

1. Use this engine driven equipment only in well ventilated areas. Exhaust gases contain carbon monoxide, an odorless, deadly poison.
2. Observe all State, Local, and National codes providing for indoor use or installation of this unit.
3. Provide adequate ventilation to prevent excess carbon monoxide levels, engine overheating and inefficient burner combustion (min. 2' air space). Do not restrict normal engine airflow.
4. For engine driven units mounted in a van or box truck type vehicles, provide an external engine exhaust line that is larger in diameter than the factory exhaust pipe and vent the exhaust to the outside of the vehicle, but not below the vehicle's interior floor height. Also, insure adequate fresh air circulation within the van for engine cooling purposes to prevent heat build-up and for engine fresh air intake. Clearance of at least 12" is recommended on all sides of the unit. Provide a burner exhaust vent, at least 8" diameter, to the outside through the van roof, or through the side panel that is at least 10" in diameter, and position this vent to avoid water, dirt and debris collection. No flammable liquids, aerosols, or flammable materials should be stored within 24" of the unit and should not be stored under the unit. During refueling, ALL ignition sources and switches should be OFF and there should be a person with the proper fire extinguisher and training within the vicinity of the unit in case of fire. Unit should not be left running unattended or out of site.

**Safe Operation – Water containment**

This process is accomplished by the use of a containment berm(s) to trap the wash water run off being discharged from the washing process and area. Arrange water barriers, containment berm(s) and covers, so as to minimize the possibility of an accidental discharge into storm drains.

Wash water collection and disposal - Recovered wash water may be recycled or otherwise disposed of in the proper manner. Always know what will be done with the collected water. Re-used (recycled), discharged with proper authorization to sanitary sewer or hauled and dumped at a proper disposal site. The wash water may be permitted for discharge to a local sanitary sewer drain line.

When properly set up and operated within the compliance regulations this system will allow an operator to meet regulatory laws for containment and storm drain protection in most areas. Always check with local authorities for certification as most cities and counties are now certifying operators for compliance within their agency.

When set up and operated as instructed you will generally meet EPA compliance standards.

DO NOT drink water! Dispose of gray water properly and with proper permits as required by your local regulations. Discharged water is non-potable.

Do not operate any system when filter readings are above normal operating psi.

Do not operate in FILTRATION BYPASS/RECOVERY MODE unless permitted for discharge.

PERSONAL INJURY MAY OCCUR UNLESS INSTRUCTIONS ARE FOLLOWED.

READ OWNER'S MANUAL BEFORE USING THIS EQUIPMENT.

ELECTROCUTION HAZARD: 110/230 VAC volt power - keep dry and grounded. ! MUST BE PLUGGED INTO GFCI RECEPTACLE!

FLAMMABLE LIQUID HAZARD: Do not allow system to pump flammable liquids.

EXPLOSION/FIRE HAZARD: Operate only in a non-flammable area. Do not operate when flammable materials or vapors are present.

HAZARDOUS LIQUIDS: ! Do not use for picking up hazardous materials.

PROTECT FROM FREEZING.

VACUUM MOTOR ENCLOSURE SURFACE MAY BE HOT DURING AND AFTER USAGE.

SHUT OFF IMMEDIATELY IF WATER DISCHARGES FROM AIR DISCHARGE PORT.

ALWAYS SWEEP AND PICK UP SAND AND DEBRIS BEFORE WASHING.

NEVER TRAVEL WITH WATER IN HOPPER TANK or COLLECTION TANKS.

**INSTRUCTIONS:**

- Power cords
  - Plug the GFCI plug into a 115vac receptacle with adequate amperage for the specific model you have purchased (either 15amp or 20 amp)
  - On AZV models: The vacuum pick up systems 115vac plug is to be plugged in at the GFCI receptacle on the Hydro Tek pressure washer. The 12vdc power cord with inline-fuse should be attached to the Hydro Tek pressure washer battery.
- Dry sweep area to remove large debris
- Place the sand dam and water dike system at the low area to create a seal to capture wash water and prevent runoff to storm drain.
- Install the vacuum hose provided between the scupper pick-up device and the inlet to the filtration system. Install the oil skimmer absorber at the scupper inlet.
- Install the debris basket strainer in the top of the tank. Be sure it's cleaned to maximize vacuum and collection time. Install the lid into place and secure. Attach vacuum pick up hose.
- Set pressure washer thermostat-operating temperature to 200° maximum
- Before start up:
  - On AZV models: Start engine on the Hydro Tek pressure washer and turn on auxiliary power switch (if equipped) before tuning any of the AZV system's switches to the on position
  - All others: Make sure the GFCI is set to on
- Turn on vacuum motor switch. Turn on Transfer pump Switch. Switches must remain in the "ON" position while working.
- Before shut down:
  - On AZV models: Leave the Hydro Tek pressure washer running until shut down procedures of recovery system are completed.
- Shut down:
  - Turn off switch for vacuum
  - Turn off switch for transfer pump system after transfer pump completes pump out cycle.
- Drain hopper in to 5-gallon bucket; dispose of sludge properly at Hazardous Materials collection center (Do Not exceed 6" of sludge in hopper). Drain Hopper prior to driving.
- Replace string wound cartridges at consistent 20psi running pressure. Bag filters, where used, can be cleaned and reused until plugged. Clean complete system daily.
- Drain water in bulk supply tank daily to prevent bacterial contamination or treat with chlorine.

**DO NOT drink water!** Dispose of gray water properly and with proper permits as required by your local regulations.

**NOTE:** Depending on the dry sweeping clean up done before pressure washing, the inlet basket strainer service intervals will vary.

- Do not use soap or other additives.
- Have extra filters and filter bags on hand, as it is quicker to change them. Also, string wound filters don't clean for reuse generally. Replacement filters and filter bags are available through your dealer.
- After the job, remove all filters. Clean the filter bags and reinstall them and replace the string wound filters. If pressure gauge reaches 20psi during use, filters need to be replaced.
- Replace oil skimming absorption sock, used at scupper head, as needed.
- Use caution not to lose the O-ring seals on the top of the filter housing.

RPV and RZV models: The vacuum and pump out system are 115vac and include a 35' power cord with GFCI and can be plugged into a 115vac wall plug or minimum 3500 watt generator. (These are not capable of operating from the 3000 watt generator on Hydro Tek pressure washers).

**PROPER CONTAINMENT**

USE A DAMMING SYSTEM FOR WATER RETENTION. USE GROUND PICKUP SCUPPER WITH VACUUM HOSE FOR WATER COLLECTION AND PICK UP SUCTION TO THE SYSTEM.



NOTE: The AZV-RZV systems have a FILTRATION BYPASS/RECOVERY MODE ONLY. Simply disconnect fitting at the filter outlet to allow direct discharge to a controlled permitted sanitary sewer line, landscape area or discharge area (when legally available and permitted). Disconnect the hose at the filter outlet, attach 3/4 garden hose to fitting and route to permitted discharge point. If filtering is not needed remove cartridge filters. If discharging to sanitary sewer, change the Duo Flow Dirt Bag filter to the optional capture strainer bag (VFB8S) available for your dealer.



Waste water generated from the washing process (1) collects at a central point of retention. (If heavy oils will be generated in the cleaning process it is recommended that an oil absorbing sock, or similar, be placed at the pick-up point for oil collection and removal.) (2) Use the wastewater vacuum system, with either water containment tools and suction device or a vacuum surface cleaner, for water recovery. Wash water is strained through a first stage collection filter (3) where contaminants larger than 100 micron are trapped. Filtered water collects and settles in the tank where a short dwell time aids in oil/water/solids separation. A transfer pump (4) moves collected water through filters. The pre-filtered water travels through a 20 micron pleated filter (5), then through a 10 micron carbon filter (6) for more reduction in particle size and oil and organics reduction. In some instances, (where permitted by law), the filtered water (7) may be discharged to controlled landscape areas or discharged to a sanitary sewer line where available. Final filtered water (8) is then delivered to a storage tank through a 5 micron final filter within the storage tank. (9) This filtered water is then ready for re-use by the pressure washer for a complete closed-loop wash system for total compliance. When washing is completed, sludge is purged (10) into a container for proper disposal.

**RPV SERIES**

The RPV series is recovery only vacuum system with pump. This system is designed to recover and pump to a storage tank, controlled landscape or sanitary sewer where approved.

RPV MODELS: The vacuum and pump out system on this unit are both 115vac. The system has included a 35' power cord with GFCI and can be plugged into a 115vac wall plug or minimum 3500 watt generator. (This unit is not capable of operating from the Hydro Tek pressure washer 3000 watt generator power.)

Install the debris basket strainer in the top of the tank. Be sure it's cleaned to maximize vacuum and collection time. Systems require being plugged in to 115vac and the GFCI set to operate.





**Transfer pump:**

If pump is on but will not pump, shut off vacuum, remove discharge hose and run pump to allow it to prime itself.

To reset pump – turn switch to off, unplug, then restart

On AZV-RZV models,

Check auxiliary switch position, if equipped.

Check output voltage at plug receptacle of Hydro Tek pressure washer.

Check GFCI reset at plug receptacle on pressure washer.

**Reduced filter flow:**

Replace string wound filter cartridges at consistent 20psi running pressure. Replace filters daily or more often under severe conditions. Keep a large supply of replacement filters on hand.

**Unit will not pump:**

Check fuse in fuse holder and replace.

Check battery connections.

Check battery charge.

Check reset breaker at panel.

**AZV-RZV-RPV Vacuum****Won't come on:**

Check output voltage at plug receptacle, or at "model SC or SCU" unit.

Check auxiliary switch position, if equipped.

Check GFCI reset at plug receptacle or at "model SC or SCU" unit.

**Shuts off:**

Check water level in tank. This unit is equipped with a hi-level shut off system. If indicator light is off this condition is probably due to plugged filters. Check filters for reduced flow, follow procedures for cleaning filters.

**Reduced pick up:**

Check length of hose. This unit is provided with 50' and not recommended for additional hose.

Check scupper for plugging.

Check inlet bag filter, follow procedure for cleaning or replace.



The RGV Gas Vac features an industrial engine and a high volume vacuum. This system requires 2 interceptor separator recovery tanks to be located between the vacuum and the work area when setting up. It is recommended that the system and hex interceptor separator tanks be mounted.

- First mount the 4 rubber isolator feet on the bottom of the RGV Hydro Vac. Then install the RGV Hydro Vac on the trailer or vehicle that it will transport it.
- Install battery (650cca or larger recommended) into battery box and attach red cable to (+) positive post

and black cable to (-) negative post. Securely close battery box.

- Mount the two interceptor tanks near the system to allow both of the 3" x 5' long vacuum hoses to reach from the Hydro Vac to each tank.
- Route and attach quick-plug connectors from separation tanks to gas vac. This will operate and power the transfer pumps and high-level water shut down. (see figure TB)
- Fill fuel tank with a quality gasoline and check engine oil level.
- You are ready to operate.
- Route your 2" vacuum pick up hoses to the scupper, vacuum surface cleaner or other vacuum tools. (not included)
- Turn the key on the engine start to start engine and choke if necessary to start. Once started the vacuum is functioning.
- Start your pressure washer and set thermostat operating temperature to 200° maximum.
- After completion of work and water recovery allow engine to run a minute then shut off Hydro Vac.
- Interceptor tanks will pump out until low level is reached. After pump out completes, unplug / disconnect any hoses or cords and empty residual water and sludge in tank into 5 gallon container and dispose of properly. Lift off tank lid, empty and clean basket filter. Contain debris and dispose of properly.

### **⚠ WARNING!**

**DO NOT drink water!** Dispose of gray water properly and with proper permits as required by your local regulation

- **DO NOT OPERATE WITHOUT HIGH LEVEL SHUT OFF ATTACHED.**
- **DO NOT OPERATE NEAR FLAMMABLE VAPOR OR LIQUIDS.**
- **WEAR EAR (SOUND) PROTECTION WHEN NEAR EQUIPMENT.**
- **SHUT OFF SYSTEM, CHECK PUMP OUT IF WATER IS PRESENT IN AIR DISCHARGE.**
- **DO NOT USE HIGH SUDS DETERGENTS OR EXCESSIVE CONCENTRATION OF DETERGENTS.**
- **Dispose of collected wastewater properly: Permits can be obtained to dump wastewater into a sanitary sewer system if properly treated and tested. It is illegal to allow wash water to run into storm drains**



**GASOLINE ENGINE:** With proper care and maintenance, your gasoline engine will give years of trouble free service. Please follow the Service and Maintenance Guide and the enclosed engine sheet or contact your local authorized engine dealer for maintenance and repairs.

Use clean, fresh, unleaded gasoline with an octane rating of 87 or higher in the engine fuel tank. Up to 15% MTBE (methyl tertiary butyl ether) or 10% ethanol is acceptable. Do not use unapproved gasoline such as E20 or E85 ethanol blends. Any failures from use of these fuels will not be warranted. Consult engine manual for proper oil type and

capacity. The engine manufacturer recommends a break-in period at which time the engine oil and filter should be replaced. Thereafter, change oil and filter as required by engine manufacturer. Refer to engine manual for preventative maintenance schedules and procedures. Do not rely on the low oil shutdown (if equipped) as a reminder to add oil. The engine manufacturer will typically not warranty engine damage from lack of oil even if the low oil system failed.

### POWER TRANSMISSION:

**WARNING:** Shut off power supply before servicing.

**BELT DRIVE:** Check belt condition, alignment and tension periodically. Replace belts when they show signs of wear or cracking. Tighten belts by loosening the mounting bolts on the vacuum blower to permit them to slide. Turn the horizontal rail adjusting bolts to tighten belts until they deflect ¼" to ½" with finger pressure.

Dispose of collected wastewater properly: Permits can be obtained to dump wastewater into a sanitary sewer system if properly treated and tested. It is illegal to allow wash water to run into storm drains.

### Power System: Troubleshooting Gasoline Engine on Gas Vac system

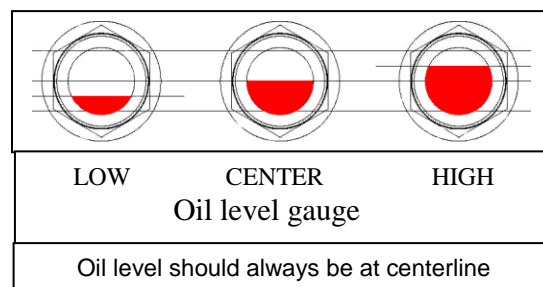
PROBLEM	PROBABLE CAUSE (The most recurring probable cause is listed first)	REMEDY (Repairs should only be made by a qualified technician)
Engine will not start or crank over	Battery dead.  Dirty battery connection.  Battery cables disconnected. Engine, pump, or gearbox is seized. Key-switch, solenoid and starter on engine defective	Charge or replace battery, add electrolyte if battery is new. Clean connections / Carefully check polarity. Connect or replace damaged cables. Replace or repair seized part. Repair or replace.
Engine will not start but will crank over	Engine power switch is off or defective. Low oil shut down is activated. Low water switch engaged or defective (not on all models). Low on fuel. Fuel filter is clogged. Engine flooded or starved.	Check engine power switch. Add oil to engine, check more frequently. Add water to bulk tank feeding pressure washer. Fill with appropriate fuel Replace or clean fuel filter Choke only as required.
Engine bogs down under load whenever picking up water	Engine needs to be repaired or replaced. Operating in high elevation. Carbon deposits on cylinder head Exceeding water pick up volume	See engine manual or engine dealer. Check for correct engine speed (RPM). Remove head and wire brush deposits. Check GPM, 20 GPM maximum
Battery keeps losing voltage (For 12vdc systems)	Battery voltage low.  RPM too low.  Engine charging system faulty.	Have battery checked and load test, charge if low and replace if necessary. Allow air to free flow 2 minutes before shutting off engine. Engine RPM should be 3600 RPM with no load. Check engine charging system – must have 16 amp output.

**Troubleshooting Vacuum/Blower on Gas Vac system**

<b>PROBLEM</b>	<b>PROBABLE CAUSE</b> (The most recurring probable cause is listed first)	<b>REMEDY</b> (Repairs should only be made by a qualified technician)
Knocking	Unit out of time. Distortion due to improper Mounting or pipe strains. Excessive pressure differential.  Worn gears. Worn bearings.	Re-time impellers Check mounting alignment and relieve pipe strains. Reduce to manufacturer's recommended pressure. Examine relief valve, re-set if necessary. Replace timing gears. Replace bearings.
Excessive blower temperature	Too much oil in gear case. Too low operating speed. Dirty air Filter. Clogged filter or muffler Excessive pressure differential.  Worn impeller clearances. Internal contact.	Reduce oil level. Increase blower speed. Clean or replace air filter Remove cause of obstruction. Reduce pressure differential across the blower. Replace impeller. Correct clearances.
Impeller end or tip drag	Insufficient assembled clearances Case or frame distortion. Excessive operating pressure. Excessive operating temperature. Slipping belts.	Correct clearances. Check mounting and pipe strain. Remove cause. Remove cause Tighten belts.
Lack of volume.	Worn clearances. Dirty air filter	Re-establish proper clearances. Clean or replace air filter.
Excessive bearing or gear wear	Improper lubrication.	Correct lubrication level. Replace dirty oil or greasing.
Loss of oil	End plate, gear case or drive cover vents plugged. Worn Seal.	Clean vents.  Replace seals.

Blower oil type is ISO VG 150

<b>Period</b>	<b>Work to be done</b>
1-24 hours after 1st startup	Check oil level frequently Check belt tension Record baseline data
100-200 hours after 1st startup	Change lubricating oil
Monthly	Check oil level*
1500-2000 hours*	Change oil (mineral)
6000-8000 hours*	Change oil (synthetic)
200 hours	Greasing



\* The maintenance period can vary depending on the service operating hours per day and environmental conditions. The oil should be changed at least once a year, even if the blower was not operated  
Record maintenance work done.