Maintenance & Installation Instructions
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I. WARRANTY

A. PORTA-VET

Porta-Vet of Hudson, Iowa, warrants each new mobile clinic to be free of defects in workmanship and materials, subject to normal usage, for a period of 12 months from date of delivery.

If defects in workmanship or materials are found our representative, upon inspection, will authorize repairs to be made by Porta-Vet at no charge.

Service personnel from the Porta-Vet factory can be sent to your location on a “charge” basis.

B. COMPONENT PARTS

Component parts not manufactured by Porta-Vet such as pumps, motors, refrigerators, etc. shall be covered by their respective manufacturer’s warranty.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume liability for Porta-Vet in connection with the sale or lease of Porta-Vet products.
II. INSTALLATION

A. PRELUDE TO THE INSTALLATION

1. DOES IT FIT?
   It is very important to be sure that the mobile clinic is designed to fit your specific vehicle. There are certain length and width constraints which dictate certain models for certain vehicles. Be aware that some older mobile clinic models may not fit newer model vehicles. Porta-Vet personnel can assist you if you are unsure of your application.

   All mobile clinics which are to be installed on the customer’s vehicle, in the field, are supplied with installation instructions and an installation kit. The installation kit includes all the instructions, parts and hardware required to install the mobile clinic in the vehicle you have specified.

   The installation instructions follow principles understood by any qualified automobile service agency. The tools and equipment required for installation and the minor alterations to the electrical and/or cooling systems are also available from these agencies. Porta-Vet will provide these services on a “charge” basis.

2. THE HOOK-UP KIT CONTAINS THE FOLLOWING ITEMS:
   (1) 20 ft. 110 power cord
   (2) heater hoses - one with a male hydraulic coupler on one end and one with a female hydraulic coupler on one end.
   (12) nylon tie-down straps
   (2) nylon “Y” hose couplings
   (6) stainless steel hose clamps
   (1) wiring harness with six or seven (May 2006) color coded wires
   (1) wiring “quick splice” (yellow)
   (1) yellow butt connector (after May 2006) for power inverter extension
   (1) red terminal extension wire with 50 amp fuse holder (after May 2006 - new units only)
   (1) in-line fuse holder “pig tail” w/fuse tap
   (1) #8-9-10 Robertson square drive screwdriver

NOTE - older models require an on/off toggle switch.
3. NECESSARY TOOLS
vise grips or hose pinch-off pliers
5/16” socket or wrench
9/16” socket or wrench
12 volt test light
3/8” diameter drill bit and drill
wire stripper and crimper
wire cutter
sharp edge cutter to cut rubber hose
spreader bar or equivalent

B. HANDLING OF A MOBILE CLINIC

1. PROPER LIFTING METHODS
Most Porta-Vet clinics have lift hooks - either a 2-point or 3-point lift is employed. IMPORTANT! The lifting force must be straight up so that there is no side pressure on the lift eyes. When lifting from a single point a “spreader bar” must be used between the lift hooks to assure vertical lift pressure (see illustration below).
2. INSERTING IN TRUCK BED
   Place the mobile clinic all the way forward and centered side-to-side in the truck bed. Consult Porta-Vet personnel if you are unsure of your lifting options.

3. ATTACHING THE UNIT TO THE TRUCK BED
   Attaching the mobile clinic to the truck bed is important. The two 3/8” hex bolts provided are to be used. Before drilling, be sure that the mobile clinic is all the way forward and centered side-to-side in the pick-up bed.

   Use a 3/8” drill bit to drill holes through the truck bed to match the holes in the mobile clinic. Be sure that you are not drilling into something under the pickup bed!! Use the 9/16” wrench or socket to tighten the nut, washer and lock washer assembly.

C. HANDLING THE ELECTRICAL HARNESS

1. HARNESS DIAGRAM
   Plug the wiring harness into the socket on the mobile clinic. Run the harness down between the truck box and the cab, along the driver’s side, to the truck frame. Leave just a small amount of slack whenever a bend is required. Secure the wiring harness with the nylon tie-down straps (provided) to the truck frame. Keep them clear of moving parts, exhaust and sharp edges along the route to the engine compartment firewall.

   For all wire harnesses with metal plug and metal receiver on the unit the wires in the harness are color coded as follows:
   - Yellow - master ground
   - Brown - water pump
   - Blue - refrigerator
   - Black - over-the-road or daytime heater
   - Red - lights
   - Green - water temperature control solenoid valve
Illustration for harness with metal plug and metal receiver:

All new Porta-Vet units since May 2006 with black plastic plug and black plastic receiver on unit:

- Plug On Truck Wire Harness
- Socket On Unit

The following wires in the harness are color coded as follows:

- Yellow - master ground
- Brown - water pump
- Blue - refrigerator
- Black - over-the-road or daytime heater
- Red - lights
- Green - water temperature control solenoid valve
- White - power inverter
Note: Power isolation relay is necessary in newer model trucks to isolate Bowie/PortaVet Mobile Clinic power system from vehicle OEM electric system.

Relay MUST be equipped with diode for reverse voltage spike suppression.

Color coding shown applies only to relay and socket supplied by Bowie International, LLC.

Relay Terminal: Color: Connects To
30: Blue: Supplies power to ignition only equipment
85: White: Vehicle battery negative post
86: Black: Jumper an outgoing leg of ignition only circuit in underhood fuse panel
87: Yellow: Vehicle Battery +12V post

Figure 1: Relay Mounted in Socket

Ground wire of mobile clinic harness
Fused power supply wires of mobile clinic harness
Strand of mobile clinic harness supplying ignition-only circuits

OEM underhood fuse panel

Bowie International, LLC, Lake City, IA 51449

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2. HOOKING UP THE HARNESS
With the harness now routed to the engine compartment near the firewall of the engine compartment, distribute the wires accordingly.

The yellow wire is the master ground wire. Using the ring terminal attach it to bare metal in the engine compartment. Often we use one of the mounting bolts to the brake master cylinder.

The red, brown and blue wires (and white with fuse extension on the May 2006 harness) are attached in a common terminal. This connection needs to attach to a power source that is hot at all times. This connection is the power lead to your lights, water pump, inverter (May 2006) and refrigerator circuits. We often use the vehicle solenoid or master fuse panel to achieve this connection or the positive terminal of the battery.

On the May 2006 harness the white wire for the inverter will be connected to a red terminal wire with a large 50 amp fuse attached. This individual power lead needs to be attached to the same power source as the red, brown and blue wires.

The green and black wires are respective “hot leads” to the water temperature solenoid valve and the over-the-road heater. These leads need a power source that is on/off with the ignition to avoid dead battery situations. On some vehicles a power-on/power-off source is available in the engine compartment. On other vehicles your best option is found under the dash inside of your truck. For this option, feed the wires through the firewall being careful to avoid sharp edges. Usually we use the fuse panel for this connection. Using your 12 volt test light search for the largest rated fuse that tests power-on/power-off with the operation of the ignition key.

CAUTION! It is important to fuse-protect this connection. We recommend that you use the in-line fuse tap “pig tail” provided.

If your unit has a thermostat to control the day heater fan, connect as follows:
Determine your key-on/key-off power source, combine the black
wire to the green wire using quick-splice, then fasten the green wire to your fuse tap “pig tail”. Next, pull the selected fuse from the truck’s fuse panel, determine the hot side of the fuse and clip on fuse tap to the removed fuse. Return it to the panel. Secure all loose wires to keep them from moving components, etc.

For connecting units with on/off toggle switches route green and black through firewall and connect the green wire to either of the two terminals on the toggle switch. Attach the black wire to the other terminal. Next, connect the fuse tap “pigtail” to the above mentioned power source and route a wire from the “pig tail” to the on/off toggle switch. Connect that wire to the terminal to which the green wire is attached. It is IMPORTANT that the fusetap power supply lead is attached to only the green wire terminal. Mount the toggle switch to the dash in a location that will protect it. Secure all wires.

3. TESTING ELECTRICAL OPERATION
Try your lights, water pump and refrigerator, if applicable, for operation. They should be on/off with their respective switches.

Turn your ignition key to “on” position. You are ready to resume testing. For clinics equipped with a day heater thermostat turn the calibrated dial up until the fan motor runs. This proves its electrical function. Set the thermostat at your desired level. We recommend an approximately 50 degree setting. On models with a toggle switch to operate the day heater fan activate the switch. The fan should be on/off with the switch.

4. TESTING HOT WATER SYSTEM ELECTRONICS
Turn ignition key to “on” position. Test the hot water system electronics by slowly turning counter-clockwise, then clock-wise the temperature adjustment knob found on the side of the water tank. Listen for a “click” of the solenoid valve with the clockwise turning. The part of the dial where the “click” occurs is the current exposed temperature. Every 1/8 turn from this point will increase the water temperature approximately 35 degrees. Set this according to your preference and amend if necessary once you have water in the tank and have driven the vehicle to allow for “hot water” to be achieved.
D. THE WATER HOSES

1. HOSE IDENTIFICATION

Two long black hoses are part of the installation kit. It is important to have the proper size and length hose for your specific vehicle. Consult Porta-Vet personnel to assure proper hose application requirements.

One of the hoses has a male coupler on one end. One hose has a female coupler and also has tape marking the opposite end. The tape is for identification purposes once the hoses are routed to the engine compartment.

Find the two hoses routed from the firewall of the truck engine compartment to the engine’s water pump and to the engine block. On some engines one hose routes from the firewall to the radiator rather than to the water pump. The hoses perform opposite functions, therefore it is necessary to differentiate them. Be sure not to confuse them with air conditioning hoses.

2. INSTALLING WATER HOSES

Couple the kit hoses to the mobile clinic. Run both hoses down between the truck box and the truck cab, on the passenger side, to the frame. Secure the hoses to the frame keeping them clear of moving parts, exhaust and sharp edges along the route to the engine compartment.

WARNING: USE CAUTION WHEN DEALING WITH A HOT ENGINE.

Loosen the radiator cap to relieve the pressure in the cooling system before proceeding with the following instructions.

It is important to identify the difference in the hoses you are about to connect. The hoses from the mobile clinic are different and one is marked with tape. The two hoses from the cab heater are different. The hose coming from the engine block to the cab heater is generally the “pressure” side. This means hot water flows from the engine toward the cab heater. Of the hoses from the mobile clinic, the hose with the tape on it is the “pressure”
side hose. Use one of the “Y” couplers, and with the use of a sharp edge cutter, splice the hoses together. Refer to diagram 3 for proper sequence. It is important to apply judgment where you put your splice so that it does not interfere with any other functions.

Splice the other “Y” coupler into the engine’s hose that routes from the cab heater to the engine water pump. This hose may route to a radiator connection, but usually tracks to the water pump of the engine. Again, it is important to use the “Y” coupling properly as diagram 3 prescribes.

The hose from the mobile clinic without tape on the end of it is the outlet hose. Again, secure this hose with the supplied hose clamps.

Visually inspect the route of all hoses. Secure all hoses that have potential of contact with hot or sharp surfaces.

3. TESTING THE WATER HOSE SYSTEM
You are now ready to test the usage of your water hose system.
Using a vice-grip type pliers, clamp off the hose that runs from the “Y” on the heater inlet hose to the cab heater. You are restricting flow of hot water and forcing all hot water to the mobile clinic. Start your truck motor and let it run until warm. Be sure you have re-tightened your radiator cap.

**CAUTION** - it may be necessary to add antifreeze to the cooling system. Without a full cooling system your mobile clinic may fail to function properly.

Using your hand as a heat sensor, feel the couplers on the mobile clinic as the truck motor warms. You should feel the “inlet” coupler warm up first and the “outlet” coupler should become warm second. *(Be careful as they will eventually get too warm to hold on to.)*

If this does not happen just as described, consult your trouble shooting guide or Porta-Vet personnel. Be sure to remove your vice-grip type pliers after testing.

**E. SYSTEMS CHECK-OUT PROCEDURE**

1. **LIGHTS**
   Lights in the mobile clinic are manually on and off with respective switches. Failure to turn lights off when vehicle is not running may lead to low or dead battery conditions.

2. **WATER PUMP**
   The water pump system is on/off with the toggle switch labeled “pump”. The nozzle on the hose controls the flow of water. There is a filter on the water pump. The filter is a stainless steel screen. This filter requires cleaning periodically.

3. **OVER-THE-ROAD OR DAY HEATER**
   The over-the-road heater functions only when vehicle is running. Set the thermostat labeled “day heater” for desired temperature. When temps fall below the setting inside the mobile clinic, the heater fan cycles “on”. As temperatures rise above the setting, the heater fan cycles “off”. Note: some older models operate with a toggle switch usually located under dash of truck.
4. NIGHT HEATER
The night heater operates on 110 volts only. Using the power cord provided in the installation kit, plug the mobile clinic into 110 volt access found on the outside surface of the mobile clinic. Near this 110 volt inlet there is a small red lamp. This red lamp indicates “power on” so that you know a good connection has been made. Find the thermostat inside the mobile clinic labeled “Night Heater”. This calibrated thermostat will cycle to your prescribed temperature level. We recommend 50-60 degrees.

5. SETTING WATER TANK TEMPERATURE
There is a water tank temperature regulating thermostat on the side of the water tank. It is not a calibrated thermostat.

Adjust water temperature control as earlier described in this manual. Remember, with each 1/8 increment of the control water temperature is effected approximately 35 degrees. Water can only achieve effective temperature when truck motor is sufficiently warm itself.

6. REFRIGERATOR (if equipped)
For those mobile clinics with the optional 12v/110v refrigerator, it is important to operate them properly.

The refrigerator operates on 12 volt power and only reverts to 110 volt power when your 110 volt power cord is attached to your mobile clinic.

Set the master on/off switch and adjust the thermostat at the lowest acceptable level. It is important to discipline yourself with respect to 110 volt operation. Failure to adequately provide 110 volt operation may lead to low or dead battery conditions.

7. POWER INVERTER (All new units after late 2005)
Simply press the ON switch and the inverter should power up.
III. MAINTENANCE TIPS

An application of light oil or grease to the following points is beneficial:
• top door hinges
• door closer cam locks
• on respective models with recycling fans two drops of oil to the bearings and shaft at the beginning of the heating season
• key holes
• all drawer and tray slides
An annual application of silicone spray or lubricant to the door seals is also beneficial.

Clean filter on water pump periodically.

Check all hose clamps on unit periodically.

See page 21 for a full approach to fiberglass maintenance.

IV. TROUBLESHOOTING

A. IF THE LIGHTS DON’T WORK
1. Check fuse under hood in master harness found in red colored wire.
2. Check to see if harness is plugged into mobile clinic and making a sufficient connection.
3. Activate test toggle on master control panel. If red light in center of toggle does not come on you are not getting power to the mobile clinic. Check circuit breaker above toggle on panel.
4. If red light does not illuminate when test toggle is actuated begin checking the bulb, then the switch. Trace power in the wire using 12v test light until the problem is uncovered.

B. IF THE WATER PUMP DOES NOT RUN
1. Check in-line fuse under hood.
2. Check to see if harness is plugged into mobile clinic and is making good contact.
3. Activate test toggle labeled pump. If red light in center of test toggle does not come on, you are not getting power to the mobile clinic. Check circuit breaker above toggle on panel.
4. If red light in center of test toggle switch does illuminate when test toggle is activated use 12 volt test light and trace power to pump switch, to the pump and to the ground connection until electrical problem is uncovered.

C. IF THE WATER PUMP RUNS BUT DOES NOT PUMP WATER
   1. Check the filter for damage or obstructions.
   2. Check water level.

D. OVER-THE-ROAD OR DAY HEATER FAN DOES NOT RUN
   1. Check day heater thermostat setting when applicable or toggle switch under dash.
   2. Check fuse tap pigtail. Follow green wire to fuselink.
   3. Check circuit breaker and test toggle.
   4. Check fan motor inside heater (should spin freely).

E. NIGHT HEATER FAN OR HEATER DOES NOT OPERATE
   1. Check 110 volt power connections.
   2. Check 110 volt fuse.
   3. Check thermostat setting.

F. WATER AND TEMPERATURE CONTROL - if water is cold after truck is warmed up
   1. Feel to check if hoses are warm leading to the mobile clinic.
   2. Check anti-freeze level in radiator of truck.
   3. Check setting of water temperature and thermostat.
   4. Check circuit breaker for solenoid or fuse on some models.
   5. Check pigtail fusetap. Follow green wire to fuselink.
   6. Check solenoid for operation.

G. WATER AND TEMPERATURE CONTROL - if water is too hot
   1. Adjust water temperature control.
   2. If control doesn’t affect water temperature your hoses may be hooked up incorrectly and need to be switched.
   3. The solenoid may be stuck open.

H. IF THE DOORS DON’T CLOSE TIGHTLY
   1. Each door has an adjustable tension lock. If door is loose, readjust tension point.
   2. Weather seals may need replacement.
I. REFRIGERATOR TROUBLESHOOTING - does not run on 12v
   1. Check for in-line fuse on blue wire under hood of vehicle. This is a 10 amp fuse.
   2. Check to make sure that wiring harness is plugged in securely.
   3. Using a 12v test light check power to refrigerator. The black wire on the refrigerator is the lead.

J. REFRIGERATOR TROUBLESHOOTING - does not run on 110v
   1. Check 110v power connections.
   2. Check 110v fuse.
   3. Refrigerator may be plugged directly into your 110v drop cord to by-pass mobile clinic wiring to help determine problem. (It must be understood that the refrigerator operates on both 12V and 110V and these are separate circuits. It is possible that the refrigerator can operate on 12v and fail to operate on 110v or vice-versa.)

Your local R.V. (Recreational Vehicle) dealer has a good knowledge of refrigeration or other 12 volt problems, if you cannot correct the problem contact us at 800-553-1785.

K. REMOTE LOCK TROUBLESHOOTING
   If red external light is flashing steady and locks function normally plug orange wire into refrigerator 12v outlet and within 5 seconds press lock and unlock buttons on remote at the same time. Then unplug the orange wire. This should remove brain box from valet mode to normal function or call us for help. This may take several attempts.

   If red external light is on or blinking and LED lights work on remotes when you press lock or unlock and the locks don’t work this indicates a bad brain box. Call for assistance.
L. DOORS WILL NOT OPEN ON THE TRIPLE CROWN, CROWN JEWEL AND MAGNUM 4

On flush mount handle units - On the side doors generally the rod that attaches the handle to the latch becomes detached due to the retaining clip breaking. You can gain entry to the side doors through the round Porta-Vet sticker. Place a small screwdriver through the 5/16” hole on the left side of the sticker in about 2”-3”. Work back and forth feeling for the trip lever or bolt attached to the trip lever, open door, wire rod in place until you can get another clip from Porta-Vet.

For back door access – Remove screws from reflector on whichever side is not opening with handle. Place small screwdriver in hole pushing in until you hit trip lever or bolt. Then push in until the latch opens. Repair rod or remove stud until repair parts arrive.

M. POWER INVERTER – 110V

For older 6 point harness, if the inverter does not power on; check or replace the fuse on the brown “pump wire” on the 12v wiring harness that is located in the engine compartment connected to a (+) positive power source.

For newer 7 point harness; check the 50 amp fuse on the extension connected to the white wire.

There may be a fuse located on the back of some inverters that can also be checked.

There is an owner’s manual and warranty information manual found separately from this with your power inverter owner’s manual.

N. THE PROBLEM CANNOT BE RESOLVED

The installation and maintenance guides follow principles understood by qualified automobile service agencies. Often they can be of assistance. If they cannot help you or you do not have this option convenient to you please contact Porta-Vet personnel for advice and/or assistance.
PV1—Location of 110V power inverter on Magnum 4 and Pony I units.
PV2—Location of 110V power inverter on all Crown Jewel, Triple Crown, Pony II and Pony Express units.
Basic Fiberglass Maintenance

Wax at least twice yearly to restore gloss and protect the finish. Use only wax recommended for fiberglass and follow instructions carefully. NEVER wax a gel coat surface in direct sunlight.

Wash the surface with a mild detergent. For best results, use a cleaner recommended for fiberglass and follow label directions.

DO NOT use automatic dishwasher detergent, abrasives, bleaches, strong chemicals with acid bases or ammonia.

Chalking
A fine rubbing compound as well as a mild detergent will reduce the weathering and chalking accumulated on the surface. Use only a fine grit compound and follow label directions carefully. For best results, wax after compounding. DO NOT apply rubbing compound in direct sunlight.

Scratches, Nicks and Stains
• Most scratches and nicks can be removed by using a rubbing compound followed by waxing as described above. Deep marks or gouges should be professionally repaired.

• Most stains can be removed by washing with mild detergent. For stubborn stains, use a fine abrasive household cleanser designed for fiberglass products, followed by waxing to restore original luster.

• Non-water soluble stains such as grease and oil, rubber heel marks, etc., can be removed by using a solvent such as acetone, rubbing alcohol, toluene or xylene, followed by a mild detergent. If these solvents are not effective, try a rubbing compound or fine sanding followed by a rubbing compound and then waxing.

If you have questions, consult with us.