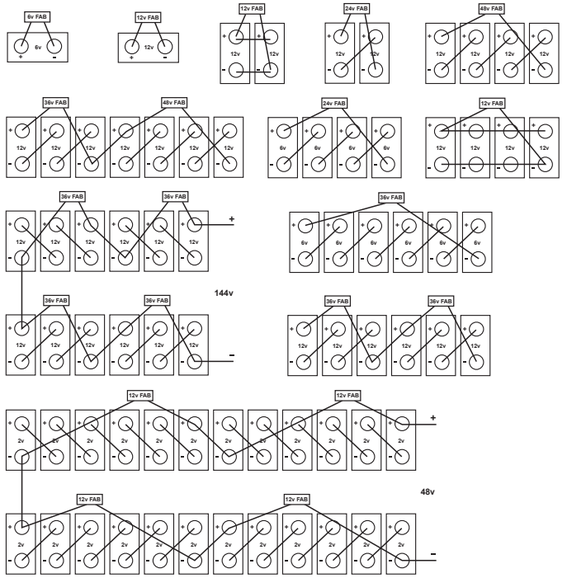

4. Troubleshooting

If Volvo Battery Reconditioner does not activate it may be due to one of the following or a combination:

- Unit connected incorrectly (reverse polarity) – change the wires to the correct terminals.
- Bad connection – clean and tighten connection terminals of Volvo Battery Reconditioner unit.
- Battery has a short – have an electrician inspect the problem.
- Battery voltage is below the activation voltage – change to mode 1 constant or recharge the battery.
- 5 amp blade fuse on positive cable is blown, open fuse holder and replace blade fuse.

5. Warning

- Volvo Battery Reconditioner is supplied with wires 450mm in length so when spread apart fully, battery terminals which are 900mm apart can be reached. **DO NOT EXTEND WIRES, AS DOING SO WILL RESULT IN LOSS OF PULSE EFFICIENCY AND VOIDING OF WARRANTY.** For large battery bank installations multiple units installed in series are required (see diagrams in section 3)
- If checking state of health of multiple individual batteries, allow a cooling down period of 30 sec between each test to avoid damage to unit and voiding of warranty.

6. Important

- Ampere Hours (Ah) is the rating for reserve capacity for auxiliary applications and is not to be confused with Cold Cranking Amp (CCA) the rating for engine starting applications.
- Although Volvo Battery Reconditioner will help reduce electrolyte boil-off, levels should be checked monthly.
- Always use caution and wear protective clothing and eye protection when working with batteries.
- Ensure unit is fixed clear of any moving parts and wires are zip tied to avoid damage.
- Do not use solvents to clean the unit.

7. Warranty

- Volvo Battery Reconditioner warranty covers defects in workmanship and materials for 1 years from purchase date.
- The warranty is not transferable and does not restart if and when a faulty unit is replaced.
- The warranty does not cover misuse, accident, alteration or abnormal operation.
- No warranty exists for usage outside specifications.
- For warranty replacement return faulty units to a Volvo Battery Reconditioner reseller with proof of purchase.

8. For Applications Using 6v, 36v & 48 volt

- The red LED when used on the above voltage applications indicate that the battery has the reached 80% depth of discharge and should be recharged immediately.

ACTIVATION MODES

6 volt:	Mode 1 (Constant) active > 5.3v	Mode 2 (Window) active 5.3v to 6.4v inactive > 6.4v	Mode 3 (High) Active > 6.4v
12 volt:	Mode 1 (Constant) active > 10.5v	Mode 2 (Window) active 10.5v to 12.8v inactive > 12.8v	Mode 3 (High) active > 12.8v
24 volt:	Mode 1 (Constant) active > 21.0v	Mode 2 (Window) active 21.0v to 25.6v inactive > 25.6v	Mode 3 (High) active > 25.6v
36 volt:	Mode 1 (Constant) active > 31.5v	Mode 2 (Window) active 31.5v to 38.4v inactive > 38.4v	Mode 3 (High) active > 38.4v
48 volt:	Mode 1 (Constant) active > 42.0v	Mode 2 (Window) active 42.0v to 51.2v inactive > 51.2v	Mode 3 (High) active > 51.2v

VOLVO

VOLVO

BATTERY RECONDITIONER

Installation & User Guide

Congratulations on purchasing the most effective technology available today for obtaining maximum performance & maximum service life from your Lead-Acid batteries.

Pulse technology

Volvo Battery Reconditioner is not a charger, it is a proven electronic device using a patented Pulse Technology to help batteries work harder and last longer by preventing a common cause of premature battery failure 'Sulphation build-up on the battery plates'. Pulse Technology has been independently tested and proven by respected scientific organizations around the world to be an effective remedy against Sulphation. Pulse Technology has also been in Military use since 1974.

How to install Volvo Battery Reconditioner

1. Simply install the Volvo Battery Reconditioner cables onto the positive and negative battery terminals of a single battery or a battery bank (refer to diagrams in section 3).
2. Volvo Battery Reconditioner will start de-sulphation of battery or batteries immediately after the installation and commissioning sequence has completed.
3. Secure Volvo Battery Reconditioner with screws near the battery or use a Nylon zip fastener to secure Volvo Battery Reconditioner to the battery or battery cables.

What you will see after installing Volvo Battery Reconditioner

- Volvo Battery Reconditioner will go through a commissioning and battery load test sequence, where it will establish the health of your battery (12v & 24v applications only).
- The battery load test will then be repeated every 21 hours (12v & 24v applications only).
- Volvo Battery Reconditioner will go through a commissioning and battery voltage test sequence, where it will establish the depth of discharge of your battery (6v, 36v & 48v applications only).
- The battery voltage test will then be carried out every 30 seconds so that the state of charge is continually monitored (6v, 36v & 48v applications only).
- After activation Volvo Battery Reconditioner will flash either Green or Red depending on the result of the relevant battery tests mentioned above.

What do Green LED flashes mean?

- Repeated Green LED flashes (12v & 24v applications only) mean your battery successfully passed the load test and will be maintained in peak condition by having Volvo Battery Reconditioner permanently installed.
- Repeated Green LED flashes (6v, 36v & 48v applications only) mean your battery is in a charged state.
- If you move Volvo Battery Reconditioner to other batteries, make sure it is installed for a minimum period of 6 weeks.

What do Red LED flashes mean?

- Red LED flashes (12v & 24v applications only) mean 'check battery', (refer to the list of items to check below).
- Red LED flashes (6v, 36v & 48v applications only) mean that the battery or battery bank is discharged to 80% and must be recharged immediately.
- Volvo Battery Reconditioner restores lost capacity due to sulphation within a minimum period of 6 weeks providing the battery is mechanically sound.

Factors resulting in Red LED Flashes

CHECK THE FOLLOWING:

- Low electrolyte – add de-mineralized water to bring cell levels to maximum.
- Battery is low in charge or flat – recharge battery immediately.
- Sulphation – Volvo Battery Reconditioner is designed to eliminate this problem within a minimum period of 6 weeks.
- Poor connections – Check all wires connected to the battery or batteries are firm and clean.
- Battery case distortion – batteries sag over time due to high temperatures in engine bays. Nothing can be done to rectify this problem.
- Battery plate corrosion – over time battery plates will corrode and batteries will eventually fail at the end of their service life from this.
- Plate material shedding – this is due to road vibration combined with chronic under-charging causing the plate material to be soft and fall out of the plate grid.
- By Installing Volvo Battery Reconditioner charging efficiency is maximized, therefore reducing plate material shedding by keeping it firm and in place.

What you can do to help slow down Sulphation

- Keep Volvo Battery Reconditioner permanently installed on your batteries.
- Refrain from discharging batteries below 50% depth of discharge.
- Recharge batteries as soon as possible after discharge.

1. General information

- Installing Volvo Battery Reconditioner is quick, easy and requires no special skills or tools.
- Volvo Battery Reconditioner is compatible with all charging systems and is protected against accidental reverse polarity connection.
- Volvo Battery Reconditioner must be installed directly on the battery or battery bank.
- Multiple Units can be installed in series configuration on large battery banks to achieve voltages above 48v.
- Each Volvo Battery Reconditioner conditions 2000 Ah of capacity, adding more Volvo Battery Reconditioner raises the rating by 2000 Ah each.
- Volvo Battery Reconditioner will begin to pulse the battery immediately after the commissioning sequence with the correct amount of pulse energy regardless of the load test result.
- Volvo Battery Reconditioner is water, dust and vibration proof, complying to IP67 waterproof rating.
- Volvo Battery Reconditioner is equipped with a 3 second start up delay to eliminate sparking upon connection to the battery.
- Volvo Battery Reconditioner automatically deactivates when the temperature of the internal electronics rises beyond 100c.
- Volvo Battery Reconditioner is equipped with a push button 3 Mode Activation Switch to easily switch between modes to cover all applications.
- Mode 1 (constant) suitable for all applications. Mode 2 (window) suitable for when radio interference is experienced on AM band, switching to mode 2 deactivates the unit while driving and re-activates the unit when the engine is off. Mode 3 (high activation) suitable for electric vehicles if interference is experienced during operation. The factory default setting is mode 1 constant.
- Volvo Battery Reconditioner employs an intelligent state of health detection system, automatically adjusting the pulse output to achieve maximum de-sulphation in the shortest time possible.
- Volvo Battery Reconditioner performs an industry standard battery load test (12v, and 24v applications only).
- Load test result displayed as: Green LED = battery Ok / Red LED = check battery.
- Volvo Battery Reconditioner performs the load test after installation and repeats the test every 21hr (12v, & 24v applications only).
- The on-board battery load test is limited to batteries of 10 Ah capacities and above.
- Volvo Battery Reconditioner is supplied with an external 5 amp blade fuse on the positive cable.

COMMISSIONING SEQUENCE UPON INSTALLATION

1. Orange (Mode) LED's light up to indicate unit start-up.
2. If the battery is below 13v (12v systems) the load test is performed or below 26v for 24v systems.
3. Red or Green LED will flash depending on the battery load test result (12v & 24v applications only).
4. Red or Green LED will flash depending on the battery state of charge test result (6v, 36v & 48v applications only).

2. Changing the Activation Mode

After Volvo Battery Reconditioner has activated, press the Mode Select switch, wait for LED to confirm the activation mode has been changed.

12v system	Mode 1 (unit is active above 10.5v) Mode 2 (unit is active between 10.5v to 12.8v and inactive above 12.8v) Mode 3 (unit is active above 12.8v)
24v system	Mode 1 (unit is active above 21v) Mode 2 (unit is active between 21v to 25.6v and inactive above 25.6v) Mode 3 (unit is active above 25.6v)
36v system	Mode 1 (unit is active above 31.5v) Mode 2 (unit is active between 31.5v and 38.4v and inactive above 38.4v) Mode 3 (unit is active above 38.4v)
48v system	Mode 1 (unit is active above 42v) Mode 2 (unit is active between 42v to 51.2v and inactive above 51.2v) Mode 3 (unit is active above 51.2v)

3. Installation instructions

Remove nuts from the battery clamps. Do not remove clamps from the battery, attach the eyelet connector of the Red (+) wire onto the bolt of the positive post clamp. Repeat for Black (–) wire, attaching it to the bolt of the negative post. Diagrams for common configurations are shown on next page.