USER'S GUIDE

VVP-15C ELECTROFISHER

SMITH-ROOT

EU07955

Contents

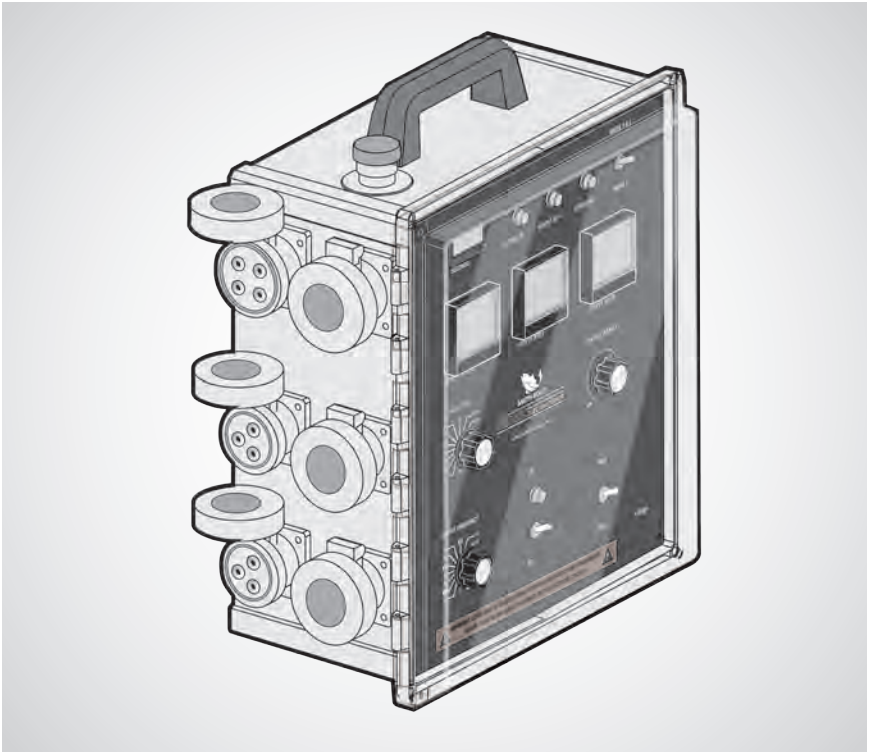
Description 1
Front Panel Controls 3
Set-up 5
Begin Electrofishing 5
Basic Hookup 6
Nets 6
Key to Symbols On Labels 6
Possible Overload Conditions 7
Safety Quick List 9
Settings Chart 11
Connector Specifications 12

WARNING - Battery posts, terminals and related accessories contain lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

Items manufactured by companies other than Smith-Root carry the original manufacturer's warranty. Please contact product manufacturer for return instructions.

All Smith-Root, Inc. manufactured products are covered by a one year warranty.

Credit & Refund Policy: Customers returning equipment, in new condition, will be given credit within five days from the date of the return. A return authorization must accompany returns. Valid equipment returns include, but are not limited to, ordering incorrect equipment, funding deficits, and defective equipment returned for reimbursement. All returns are subject to a restocking fee and applicable shipping charges. The restocking fee is figured at 10% of the purchase price but not less than $20.00. Customers receiving equipment in damaged condition will be referred to the shipping company for insurance reimbursement.



DESCRIPTION

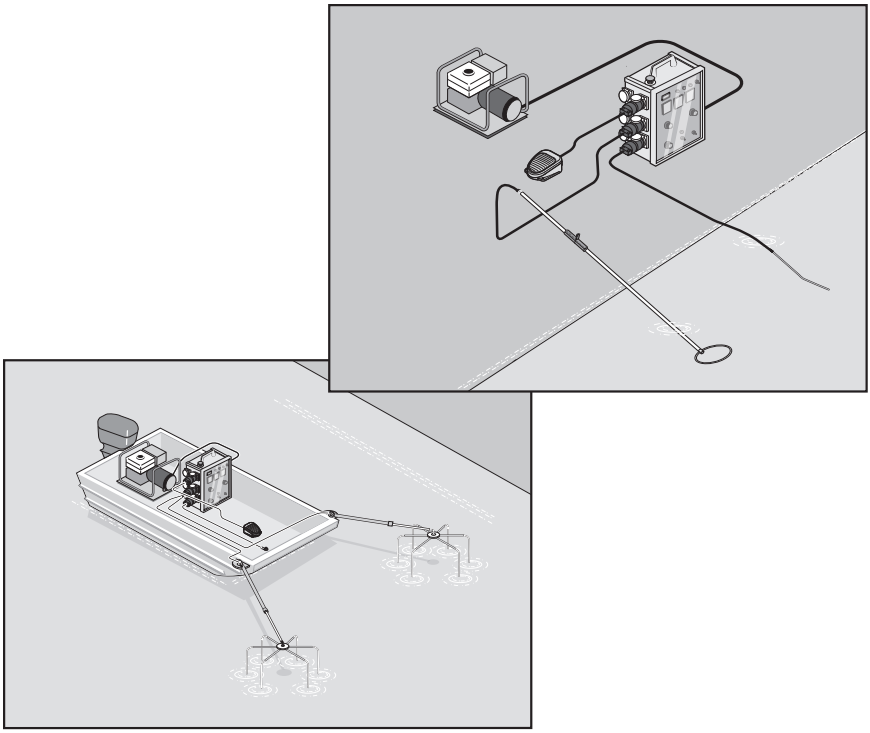
The **VARIABLE VOLTAGE PULSATOR ELECTROFISHER MODEL VVP-15C** is designed to supply DC or DC Pulsed voltages for use in electrofishing. Great care has been taken to improve upon the original designs of the VVP-15 and MK-22. This updated electrofisher provides almost identical control features and metering to allow consistency with previous samplings. Higher efficiency is an added benefit of our Generation C, allowing increased samples with less wear and tear on equipment.

The VVP-15C requires at minimum a 5000 watt generator to reach full rated output. Generators with less output can be used but will not achieve full output potential.

Recommended Generators: Honda EM5000S, Honda EG5000, Honda EM3800S or Honda EG3500.

This equipment will not function properly when operated from a 240 Volt AC generator if the generator neutral line is grounded or connected to any other points. Consult generator manufacturer for specifications regarding whether your generator has a floating neutral or procedures to modify your generator. This applies to both the 240Volt and 120V outputs. Additional caution should be taken to insure that any devices used on the 120V output are not internally grounded to the neutral. If the neutral connections cannot be removed a 240 volt to 240 volt isolation transformer of adequate wattage rating must be used (5000-Watt Nominal, SRI line #7791).

DESCRIPTION

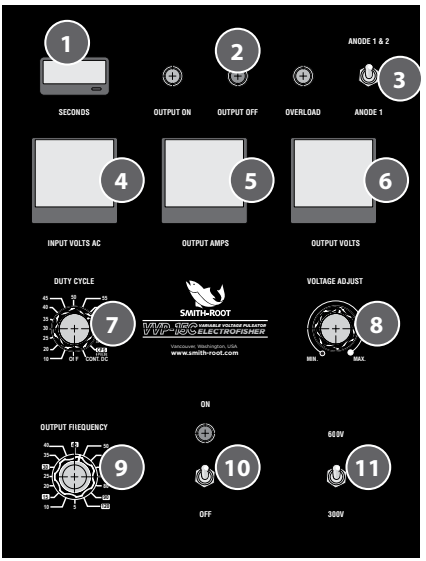


VVP-15C Combo Package Includes:

Description	Quantity
Control Box	1
Foot Switch	1
Input Power Cord	1
Output Power Cord	2

WARNING!: HIGH VOLTAGE IS USED IN THE OPERATION OF THIS EQUIPMENT! DEATH ON CONTACT MAY RESULT IF PERSONNEL FAIL TO OBSERVE SAFETY PRECAUTIONS. BE CAREFUL TO AVOID CONTACT WITH ALL CIRCUIT COMPONENTS AND CONNECTIONS WHILE CHECKING OR SERVICING THIS EQUIPMENT

FRONT PANEL CONTROLS:



1. **SECONDS:** LCD timer. Shows accumulated electrofishing time since last reset.
2. **OUTPUT STATUS INDICATORS (3):**

   OUTPUT ON: Red indicator light indicates that the output from the unit is ON.

   OUTPUT OFF: Green indicator light indicates that the output from the unit is OFF.

   OVERLOAD: Red indicator light indicates average or peak output current overload.
3. **ELECTRODE SELECTOR:** This switch selects the active control input(s). In either position, both anode and both cathode connectors will be active.
4. **INPUT VOLTAGE AC METER:** Indicates the RMS value of AC input voltage.
5. **OUTPUT AMPS METER:** Indicates output current.
6. **OUTPUT VOLTAGE METER:** Indicates the value of DC output voltage.
7. **DUTY CYCLE CONTROL:** Selects continuous DC mode, desired duty cycle of standard DC Pulses or number of burst pulses for CPS modes.
8. **VOLTAGE OUTPUT ADJUST CONTROL:** Output voltage from the Model VVP-15C can be varied from 0 Volts to Maximum Volts of selected Range (may be limited by load conditions and overload protection) for all outputs—DC, and Pulsed DC (CPS included).
9. **OUTPUT FREQUENCY CONTROL:** selects desired frequency of DC Pulses.

   The Pulsed DC output from the unit is a rectangular pulse voltage with a possibility of 14 preset duty cycles and 14 preset frequencies. Each duty cycle can be used with each frequency.

   This allows for 196 standard pulse mode options with duty cycles between 10% and 80% and frequencies between 5 and 120 Hz. The CPS modes have 3 pulses per burst and 6 pulses per burst options that work in combination with designated frequencies (15Hz, 30Hz, 45Hz, 60Hz, 90Hz and 120Hz) for a

CONTROLS

total of 12 CPS modes. These configurations allow for a total of 208 accurate and repeatable DC Pulse modes. The DC continuous mode is not affected by the position of the frequency control.

10. OFF/ON: Is the main power switch and circuit breaker. The green LED indicates input power to the unit.

11. OUTPUT RANGE SELECT: Switch selects either 300 or 600 as maximum output voltage.

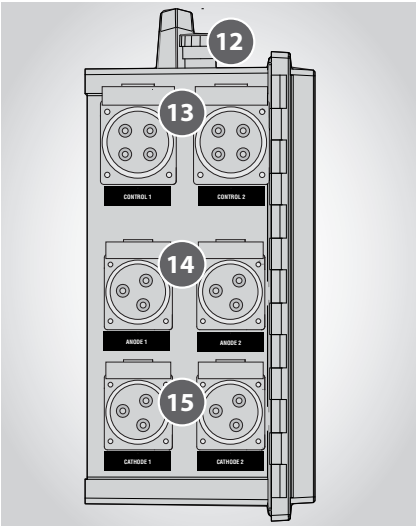
TOP BUTTON - SIDE ELECTRODE/CONTROL CONNECTORS:

12. EMERGENCY STOP: Switch disables the electrofisher. For additional safety also move the input circuit breaker to the off position, turn off the generator and after the generator stops disconnect the power cord from the generator.

13. CONTROL 1/CONTROL 2: These connectors are for foot switch or hand switch control inputs.

14. ANODE 1/ANODE 2 OUTPUT: These connectors are the positive + electrode connections.

15. CATHODE 1/CATHODE 2: These connectors are the negative – electrode connections.



SET-UP INSTRUCTIONS

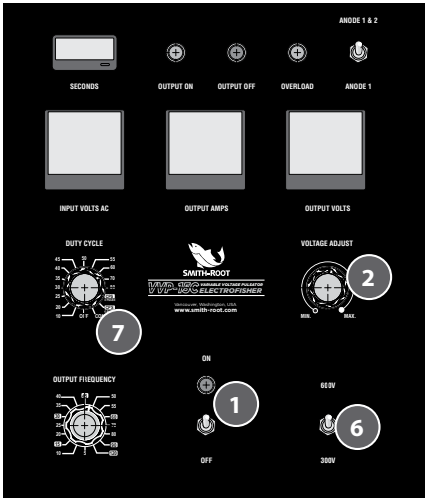


Fig. 1

1. Set the POWER switch to the OFF or down position (Fig. 1, 1).
2. Set the OUTPUT VOLTAGE ADJUST control to the extreme counter-clockwise position (Labeled *MIN.*)(Fig. 1, 2).
3. Attach foot switch (or other control device) (Fig. 2, 3).
4. Connect the electrodes to be used to the desired output connector (Fig. 2, 4).
5. Connect the AC INPUT 230 VAC connector to the AC power source (generator) (Fig. 2, 5).
6. Set the OUTPUT (range) switch to the desired position (Fig. 1, 6).
7. Select desired DUTY CYCLE & FREQUENCY, (Cont. DC or pulsed DC are selected at this step) (Fig. 1, 7).

BEGIN ELECTROFISHING

1. Start the generator.
2. Toggle power circuit breaker ON.
3. Put the Emergency Stop switch in the on position.
4. Depress foot switch or anode pole thumb switch.
5. Increase output by rotating OUTPUT ADJUST CONTROL in a clockwise movement.
6. During operation, before changing OUTPUT (range) switch, set the OUTPUT ADJUST control to the extreme counter- clockwise position (MIN.) and release footswitch(s)/pole switch(s)
7. Make sure that the front cover is closed during actual electrofishing operations and keep the front panel safe from splashes and rainy weather.

SET-UP

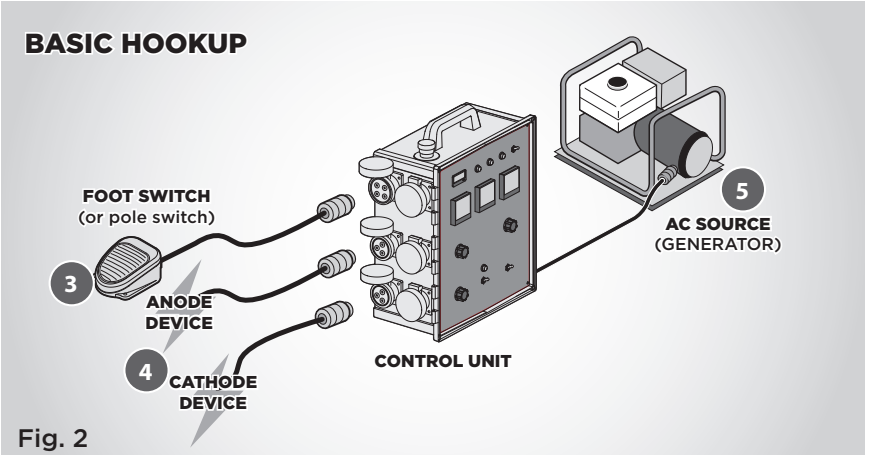


Fig. 2

NETS

No net of any kind shall be attached to any electrode.

Nets used with this equipment shall have the following characteristics:

- The handle shall be constructed of a non-conductive material.
- The handle shall be of sufficient length to avoid hand contact with the water.
- The handle shall not be wrapped or covered metallic material.
- The net shall not have a metallic weighting chain extending beyond the bottom edge of the net proper.

KEY TO SYMBOLS ON LABELS

- Danger/Important
- Read The Manual
- Double Insulated
- High Voltage

POSSIBLE OVERLOAD CONDITIONS DURING OPERATION

1. AVERAGE OVERLOAD - Overload lamp turns on (continuous)

Cause: Average power has exceeded programmed limits.

Characteristics: During operation "OUTPUT ON" indicator will turn off and "OUTPUT OFF" indicator will turn on. The output will be disabled. Operator will observe decreased output voltage and current. This condition will automatically reset after three seconds. The three second time out can not be bypassed.

Correction: If average overload occurs repeatedly the operator must reduce the output voltage and/or one of the mode settings.

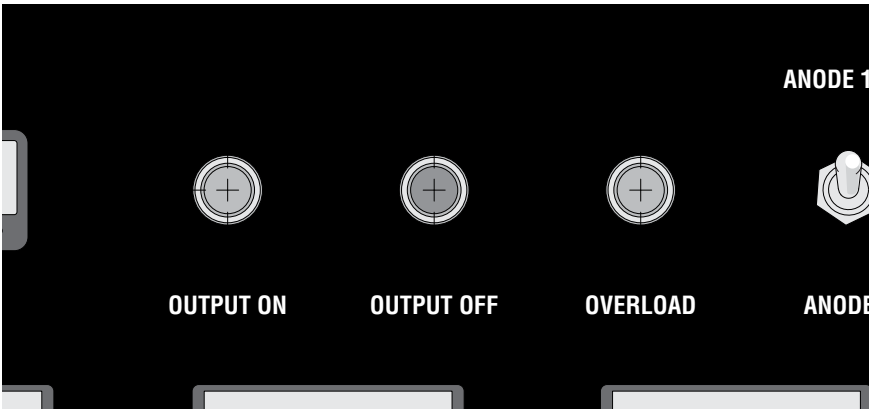
2. PEAK OVERLOAD - Overload lamp flashes - *(this condition should not occur frequently).*

Cause: Likely shorted output, possible extreme loading conditions.

Characteristics: "OUTPUT ON" indicator will turn off and "OUTPUT OFF" indicator will turn on. Output will be disabled. VVP-15C will not reset after three seconds.

Turn off control circuit (foot switch or anode pole switch).

OVERLOAD



Correction: Turn off the "ON/OFF" circuit breaker. Return VVP-15C to set-up conditions. Inspect electrodes to ensure output is not shorted. If situation occurs at low settings then perform detailed inspection of output cabling and arrays. If unable to correct, call Smith-Root, Inc. for assistance.

If green 'ON' indicator light isn't lit, check input circuit breaker and generator overload indicator.

3. GENERATOR OVERLOAD

Cause: Generator power rating has been exceeded.

Characteristics: "OUTPUT ON" indicator and "OUTPUT OFF" indicator will flash alternately. Output will be disabled. VVP-15C will reset when safety switch is released.

Correction: If generator overload occurs repeatedly the operator must reduce the voltage output and/or one of the mode settings. If a generator with an output rating of less than 5000 watts is being used a larger generator may be necessary.

SAFETY QUICK LIST

1. At least one member of the crew must have current first aid and CPR cards.
2. Make sure every member of your crew knows where the nearest hospital is and how to get there or where to go to get help.
3. All members of the crew should have completed an electrofishing course.
4. Before loading up equipment and heading into the field make sure every member of the crew knows your evacuation routes in case of an accident.
5. Check the equipment for damaged or missing parts and for proper operation. Never use an electrofisher that is in poor condition or not working correctly as it can present a severe shock hazard.
6. Check the cathode cable for wear and burrs that may cause injury or tear holes in protective clothing. Check the insulation for damage. Replace the cathode as necessary.
7. Check the anode pole for cracks in the fiberglass and handle assembly. Replace as necessary.
8. Check the curl cord for cracks and abrasion. Do not use a cracked pole or a pole with a damaged curl cord.
9. Check your boots and high voltage gloves for holes. Boots and gloves must be water tight and without any holes. Repair or replace as necessary.
10. If you are using chest waders you should use a wading belt. A wading belt will slow the entry of water into the waders.
11. Use only dip nets with non-conductive handles. Never use an anode as a net, as it is extremely dangerous to other members of the crew and can cause severe injury to any fish caught with it.
12. Never electrofish alone.
13. Never electrofish when you are tired.
14. Only one person on a crew can order the power for the electrofisher to be turned on, and that person is the crew leader. The crew leader is responsible for the safety of everyone on the crew.

15. Any member of the crew can call for or turn off the power to the electrofisher.
16. If an accident occurs, stop electrofishing and turn off the power to the VVP-15C. The remaining members of the crew should help or attend to the accident victim. Get help for the injured person if necessary. Evaluate what happened and make the necessary procedural or equipment changes before proceeding.
17. Never electrofish with spectators on shore. Electric fields can travel large distances through buried pipes, metal culverts, and metal sheet piling. If spectators show up during electrofishing, stop the operation and go explain what you are doing. Explain the risks to them being there and ask them to please leave for their own safety. If they refuse to leave, stop electrofishing, load your equipment, and leave the area.

WARNING: ***Operating this equipment in a manner not specified in this manual or with accessories not approved by Smith-Root, Inc. may impair the protection offered by the equipment.***

VVP-15C SETTINGS CHART

VVP-15C SETTINGS		
FREQUENCY	DUTY CYCLE	OUTPUT SELECT
15	CPS 3 PULSE	300 OR 600
30	CPS 3 PULSE	300 OR 600
45	CPS 3 PULSE	300 OR 600
60	CPS 3 PULSE	300 OR 600
90	CPS 3 PULSE	300 OR 600
120	CPS 3 PULSE	300 OR 600
15	CPS 6 PULSE	300 OR 600
30	CPS 6 PULSE	300 OR 600
45	CPS 6 PULSE	300 OR 600
60	CPS 6 PULSE	300 OR 600
90	CPS 6 PULSE	300 OR 600
120	CPS 6 PULSE	300 OR 600
N/A	CONT. DC	300 OR 600
5 THRU 120	10 THRU 80	300 OR 600

CONNECTOR SPECIFICATIONS

CONNECTORS ON SIDE OF VVP-15C ELECTROFISHER:

- Anode: Cee Norm 1357
- Control: Cee Norm 13455
- Cathode: Cee Norm 1356

CONNECTORS ON CABLES FOR VVP-15C ELECTROFISHER:

- Input Power: Cee Norm 21250
- Anode: Cee Norm 21238
- Control: Cee Norm 21891
- Cathode Cee Norm 21237

CONNECTORS ON GENERATORS OR PARALLELING BOX:

- Cee Norm 1360

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