

Solicitation Response(SR) Dept: 0310 ID: ESR1015200000002991 Ver.: 1 Function: New Phase: Final

Modified by batch , 10/15/2020

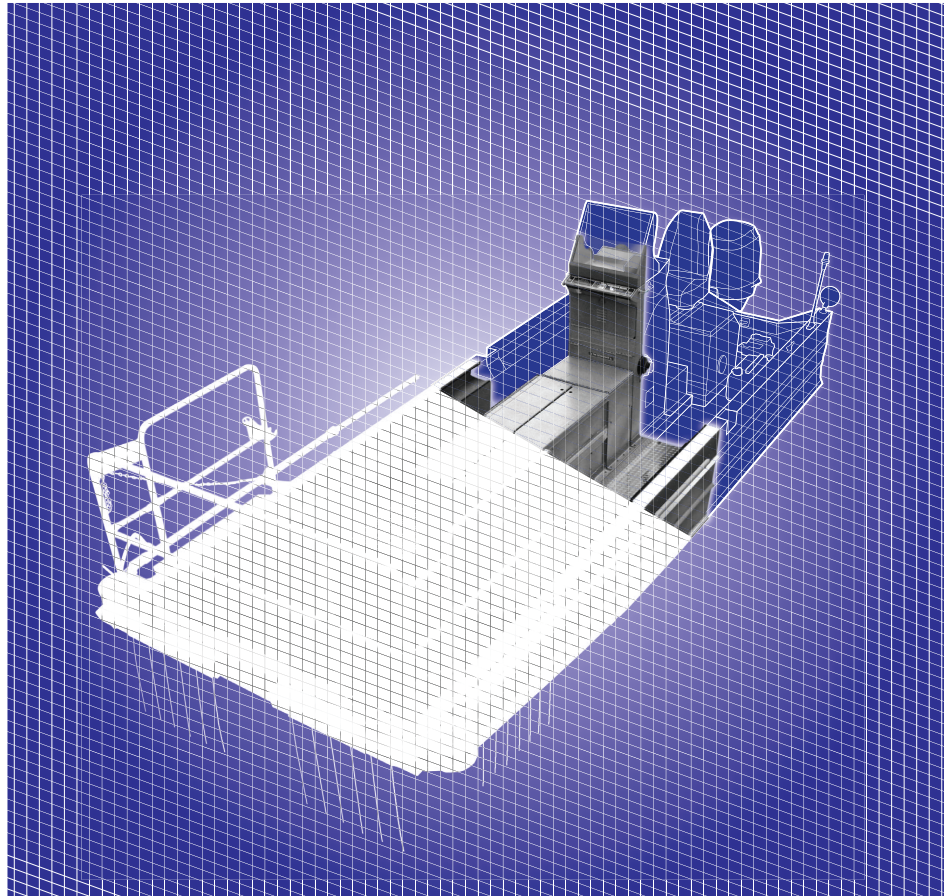
Header  1

General Information Contact Default Values Discount Document Information Clarification Request

Procurement Folder: 786450	SO Doc Code: ARFQ
Procurement Type: Agency Purchase Order	SO Dept: 0310
Vendor ID: 000000230185	SO Doc ID: DNR2100000015
Legal Name: SMITH ROOT INC	Published Date: 10/9/20
Alias/DBA:	Close Date: 10/15/20
Total Bid: \$194,580.00	Close Time: 13:30
Response Date: 10/15/2020	Status: Closed
Response Time: 13:16	Solicitation Description: Addendum No 01_Wildlife- Electrofishing Boats for D3, D4,&
Responded By User ID: smithroot2	Total of Header Attachments: 1
First Name: Tammy	Total of All Attachments: 1
Last Name: Lucas	
Email: procurement@smith-root	
Phone: 360-573-0202	

PROPOSAL

CUSTOM ELECTROFISHING BOAT



FOR SMITH-ROOT CUSTOM ELECTROFISHING BOATS



www.smith-root.com

16603 NE 50th Avenue
Vancouver, WA 98686 USA
360.573.0202 Voice
360.573.2064 FAX
info@smith-root.com



DIVISION OF NATURAL RESOURCES
PROPERTY & PROCUREMENT OFFICE
324 4TH AVE
SOUTH CHARLESTON WV 25303-1228

RE: Addendum No 01_Wildlife-Electrofishing Boats for D3, D4, & D6

ARFQ 0310 DNR2100000015

Dear James H Adkins,

We'd like to thank you for the opportunity to bid on the new Wildlife-Electrofishing Boats! Attached is a copy of quote #016308-00 (enclosed) that includes a 18ft. heavy duty commercial boat and all of the requested features and accessories.

The Smith-Root 18ft Heavy Duty Boat package is not available from any other source and comes the most cutting-edge design and workmanship in the industry (details included in subsequent attachments). The boat also features an all welded construction along with thicker marine grade aluminum that provides better durability over other suppliers. The increased side thickness provides maximum safety and a much greater service life. Couple this with Smith-Root's great reputation; the work boat quoted herein will exceed your expectations in reliability, performance, safety and longevity. Along with this we've included a number of upgrades at no additional cost.

No other company manufactures a boat electrofisher with the capabilities of the APEX Boat electrofisher. This includes over 1500 different waveform selections. Apex is the only electrofisher to store GPS, electrical input, electrical outputs, warning codes, and performance information for every second of electrofishing. Additionally, it is the only boat electrofisher to have a built in USB port to download all electrofishing data while also allowing the upload of new software.

Smith-Root has an engineering staff available by telephone during business hours to assist with any questions during the use of the equipment.

The specifications listed in the attached documents can all be met by Smith-Root, Inc.

Federal Tax ID Number: 91-0843323

Business Size Classification: 55158

DUNS Number: 027473040

Thank you for your interest in our equipment. If you have any questions or if you need additional information, please contact Smith-Root, Inc.

Sincerely,
Deborah Oja
Phone: 360-573-0202 x 2119



**State of West Virginia
Agency Request for Quote
Equipment**

Proc Folder: 786450			Reason for Modification: Addendum No. 01 is issued to publish and distribute the attached information to the Vendor Community.
Doc Description: Addendum No 01_Wildlife-Electrofishing Boats for D3, D4,& D6			
Proc Type: Agency Purchase Order			
Date Issued	Solicitation Closes	Solicitation No	Version
2020-10-09	2020-10-15 13:30	ARFQ 0310 DNR2100000015	2

BID RECEIVING LOCATION

BID RESPONSE
 DIVISION OF NATURAL RESOURCES
 PROPERTY & PROCUREMENT OFFICE
 324 4TH AVE
 SOUTH CHARLESTON WV 25303-1228
 US

VENDOR

Vendor Customer Code: 000000230185

Vendor Name : Smith-Root, Inc

Address : 16603 NE 50th Ave

Street :

City : Vancouver

State : WA **Country :** USA **Zip :** 98686

Principal Contact : Debbie Oja

Vendor Contact Phone: 360-573-0202 **Extension:** 2119

FOR INFORMATION CONTACT THE BUYER
 James H Adkins
 (304) 558-3397
 jamie.h.adkins@wv.gov

Vendor Signature X *Debbie Oja* **Debbie Oja FEIN#** 91-0843323 **DATE** 10/14/2020

All offers subject to all terms and conditions contained in this solicitation

INVOICE TO	SHIP TO
DIVISION OF NATURAL RESOURCES WILDLIFE RESOURCES SECTION 324 4TH AVE SOUTH CHARLESTON WV 25303 US	VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Electrofishing Box	3.00000	EA	\$8,975	\$26,925

Comm Code	Manufacturer	Specification	Model #
41102604	Smith-Root, Inc	Output Power 7,200W continuous AC, 24,000W peak. Exceeds requirements. See attached specification sheet.	APEX Part # 12038

Extended Description:
Per specifications outlined in 3.1.1.

INVOICE TO	SHIP TO
DIVISION OF NATURAL RESOURCES WILDLIFE RESOURCES SECTION 324 4TH AVE SOUTH CHARLESTON WV 25303 US	VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Jet Prop Electrofishing Boat	3.00000	EA	\$46,000	\$138,000

Comm Code	Manufacturer	Specification	Model #
25111502	Boat / Smith-Root, Inc Outboard Engine / Mercury Outboard Kicker Engine / Mercury	SR Boat Hull Mercury 115EXLPT FourStroke Mercury 9.9EXLPT Tiller Exceeds requirements See attached specification sheets	SR-18EHX 115EXLPT 9.9EXLPT

Extended Description:
Per specifications outlined in 3.1.2.

INVOICE TO		SHIP TO	
DIVISION OF NATURAL RESOURCES WILDLIFE RESOURCES SECTION 324 4TH AVE SOUTH CHARLESTON WV 25303 US		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER No City WV 99999 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Boat Trailer	3.00000	EA	\$5,385	\$16,155

Comm Code	Manufacturer	Specification	Model #
25181713	Karavan	Exceeds requirements See attached specifications	KCBT-4000-TDB-78-S-ST

Extended Description:
Per specifications outlined in 3.1.3.

INVOICE TO		SHIP TO	
DIVISION OF NATURAL RESOURCES WILDLIFE RESOURCES SECTION 324 4TH AVE SOUTH CHARLESTON WV 25303 US		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER No City WV 99999 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	Generator	3.00000	EA	\$4,500	\$13,500

Comm Code	Manufacturer	Specification	Model #
26111600	Honda Power Equipment	7000 watt 120/240V inverter generator Exceeds requirements See attached specifications	EU7000iS

Extended Description:
Per specifications outlined in 3.1.4.

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Technical Questions Due at 9:00 a.m. ET	2020-10-07

	Document Phase	Document Description	Page
DNR2100000015	Final	Addendum No 01_Wildlife- Electrofishing Boats for D3, D4,& D6	4

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

SOLICITATION NAME: Wildlife- Three (3)Electrofishing Boats

SOLICITATION NO: ARFQ DNR21*15

ADDENDUM NO: No. 01

The purpose of this addendum is to modify the solicitation identified above to reflect the change(s) identified and described below.

Applicable Addendum Category:

- Modify bid opening date and time
- Modify specifications of product or service being sought
- Attachment of vendor questions and responses
- Attachment of pre-bid sign-in sheet
- Correction of error
- Other:

Description of Modification to Solicitation

Addendum issued to publish and distribute the attached documentation to the Vendor community.

1. To answer technical questions submitted by vendor.

NO OTHER CHANGES.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

Attachment A

Technical Questions and Agency Answers

ARFQ DNR21*15

Wildlife – Three (3) Electrofishing Boats

Technical Question (1): How many lights/lightbars and in what locations?

Agency Answer (1): Must have two (2) high output LED lights mounted on each corner of the boat. Lights must be waterproof. Light must be a minimum of 5,000 lumens.

Technical Question (2): 3 How many lights, style and in what locations? (Electrofishing Lights)

Agency Answer (2) Must have four (4) high output LED electrofishing lights. Lights must be 4''round and waterproof. Light must be a minimum of 5,000 lumens. Lights must be mounted to bow of the boat.

Technical Question (3) Pedestal seat or swivel seat?

Agency Answer (3): Swivel seat is acceptable if the seat box can be used for storage.

Technical Question (4) Fuel tanks for boats

Agency Answer (4): Boat must be equipped with portable fuel tanks.

Technical Question (5) Do the safety railings need to be coated in a rugged, non-conductive, non-slip

Agency Answer (5) No

Technical Question (6) Does the interior of the boat need to be painted?

Agency Answer (6) Slip resistant compound applied to the interior is acceptable

Technical Question (7) Do the safety railings need to be coated in a rugged, non-conductive, non-slip treatment?

Agency Answer (7) No

Technical Question (8) What is the requested weight rating of the trailer?

Agency Answer (8) Trailer must be compatible with boat as stated in specification 3.1.2

Technical Question (9) Does the generator need to be mounted in a housing for environmental protection or does it need to be mounted in an open stand?

Agency Answer (9) Open stand is acceptable.

Technical Question (10) Please provide more details. Are you asking for a modified V hull?

Agency Answer (10): Modified-V hull is acceptable.

Technical Questions (11-19)

Q#15 Electrofisher Feedback: Do you have timed transects or standardize your effort by time? If so, would you prefer to have an electrofisher with a feature that informs you when you are approaching that effort and when that effort is reached?

Q#16 Electrofisher Display:

Do you prefer to have a depiction of the output waveform on your screen that changes as you modify it to help you understand the changes you are making.

Q#17 Do you prefer an electrofisher that displays the electrical information being supplied by the generator?

Q#18 Do you prefer equipment that has day and night mode on the screens so that you can easily see the display during any time of day?

Q#19 Do you prefer a control box that automatically graphs your recent outputs on the screen so that you only need to glance down at your control box to determine the performance of the equipment and if you are meeting your power goals?

Q#20 Electrofisher Portability

Do you prefer an electrofishing control box that has two ergonomic handles and therefore, makes it easier to carry?

Q#21 Electrofisher Capabilities

Do you prefer a single electrofisher that can produce 80 amps of Current and 1,200 Volts, depending on the environmental conditions so that you can operate in a wide variety of water conductivity conditions, or would you prefer to have to purchase two different electrofishers at twice the cost in order to have these same capabilities?

Q#22 Do you prefer to have to purchase an extra part at extra cost to install on your boat if you decide to operate with a super quiet inverter generator, or do you prefer that the electrofishing control box automatically work with inverter generators without having to spend extra money and without having to install this extra part?

Q#23 Do you want an electrofisher with data recording capabilities to help with monitoring, standardization, reporting, and mapping of their electrofishing efforts.

Agency Answers (11-19) Items must meet all required mandatory requirements listed in the specifications.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: ARFQ DNR21*15

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification. Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | | | |
|-------------------------------------|----------------|--------------------------|-----------------|
| <input checked="" type="checkbox"/> | Addendum No. 1 | <input type="checkbox"/> | Addendum No. 6 |
| <input type="checkbox"/> | Addendum No. 2 | <input type="checkbox"/> | Addendum No. 7 |
| <input type="checkbox"/> | Addendum No. 3 | <input type="checkbox"/> | Addendum No. 8 |
| <input type="checkbox"/> | Addendum No. 4 | <input type="checkbox"/> | Addendum No. 9 |
| <input type="checkbox"/> | Addendum No. 5 | <input type="checkbox"/> | Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Smith-Root, Inc

Company



Debbie Oja

Authorized Signature

10/14/2020

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Debbie Oja Information Manager

(Name, Title)

Debbie Oja Information Manager

(Printed Name and Title)

16603 NE 50th Ave. Vancouver, WA 98686

(Address)

360-573-0202 X 2119

(Phone Number) / (Fax Number)

doja@smith-root.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Smith-Root, Inc

(Company)

Debbie Oja Information Manager

(Authorized Signature) (Representative Name, Title)

Debbie Oja Information Manager

(Printed Name and Title of Authorized Representative)

10/14/2020

(Date)

360-573-0202 X 2119

(Phone Number) (Fax Number)

**WEST VIRGINIA DIVISION OF NATURAL RESOURCES
ONE TIME PURCHASE-ELECTROFISHING BOX, BOAT, AND TRAILER**

EXHIBIT A-PRICING SHEET

Item Number	Estimated Quantity	Description	Unit Price	Extended Cost	Total Amount
3.1.1	3	Electrofishing Box	\$8,975		\$26,925
3.1.2	3	Electrofishing Boat	\$46,000		\$138,000
3.1.3	3	Boat Trailer	\$5,385		\$16,155
3.1.4	3	Generator	\$4,500		\$13,500
				TOTAL	\$194,580.00

Note: all items are to be F.O.B. destination. Freight or delivery charges must be included in the unit cost.

Debbie Oja

Signed: Debbie Oja Vendor Representative

Date: 10/14/2020

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.


"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Smith-Root, Inc.

Authorized Signature:  Date: October 14, 2020
Curtis J. Kirkham, Corp. Treasurer/CFO

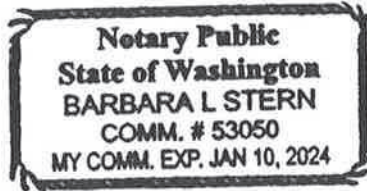
State of Washington

County of Clark, to-wit:

Taken, subscribed, and sworn to before me this 14th day of October, 2020.

My Commission expires January 10, 2024.

AFFIX SEAL HERE



NOTARY PUBLIC



October 14, 2020

RE: Model APEX Electrofishing Control Box used for boat electrofishing
Sole Source Information

The Smith-Root APEX Electrofishing Control Box is not available from any other source in the United States or at a reduced price. As the majority of our sales are to government agencies, we are required to sell to everyone at the same price.

No other company manufactures a boat electrofisher with the capabilities of the APEX Boat electrofisher. This equipment allows for hundreds of thousands of different electrical output combinations. The Programmable Output Waveform concept is patented by Smith-Root and not available from any other source, providing access to the most effective and safe output waveforms available. Additionally, the APEX is readily available to receive any future software improvements through email, therefore providing the simplest and lowest cost access to any newly developed waveforms and capabilities in the future.

The APEX is the only electrofisher with built in scientific data monitoring and recording that allows the biologist to download the recorded data via flash drive for analyzing and mapping. This is not offered on any other electrofishing equipment in the world. The APEX Boat electrofisher records more than 24 hours of GPS, electrical input, electrical outputs, warning codes, and performance information for every second of electrofishing. Additionally, it is the only boat electrofisher to have a built in USB port to download all electrofishing data while also allowing the upload of new software.

The ability to record and download is important when reviewing data to help standardize electrofishing methodologies for your specific sampling events. Within the AFS standards methods book (2009), Miranda identifies major factors that must be controlled when standardizing for electrofishing assessments. These factors include characteristics of the waveform (square DC, AC, rectified DC, etc.) and power transferred to the fish (Peak Power). The APEX unit is the only electrofisher to allow for second by second monitoring of these factors over the period of sampling, and therefore allows for superior scientific data and standardization.

The APEX is also the only electrofisher to provide on-screen active waveform visualization, graphs of output performance, GPS coordinates, and alarm mode to inform users about their defined effort limits. Further, the APEX is the only electrofisher with onboard tutorials and help screens describing voltage, duty cycle, and frequency outputs to educate users while in the field about appropriate electrofishing settings. These characteristics help achieve improved personnel safety, fish health safety, and meeting of scientific objectives.

Not only is the APEX Boat Electrofishing Control Box the most advanced electrofisher in the world, but it also singularly provides the electrical output capabilities that would require the purchase of two of the other manufacturers' electrofishers. Therefore, the APEX saves you money while also expanding your research capabilities. The APEX is the only electrofisher engineered to provide 80 amps of peak output amperage when using lower voltage ranges, while also maintaining the ability to go up to 1,200 volts. No other electrofisher

allows this range of output capabilities. Electrofishers from alternative manufacturers are significantly limited in their capabilities when compared to the APEX because of components that limit the output to only 40 amps at lower voltages, or by limiting voltage to 600 volts on equipment that goes to 80 amps. Therefore, without an APEX you are required to purchase and carry around multiple electrofishing control boxes when switching between waterbodies of varying conductivities. Alternatively, the APEX is designed to successfully operate across the widest range of water conductivities with one electrofisher. Smith-Root Advantage: you capture fish successfully across the widest range of water conductivities with only one electrofishing control box, therefore saving you money and expanding your research capabilities.

If you have any questions or if you need additional information, please contact this office. Thank you for your interest in our equipment.

Sincerely,
Debbie Oja
doja@smith-root.com
360-573-0202 X2119

APEX Electrofisher

- Electrofisher is fully integrated into Captain Command Center*
- Records the following information for every second of electrofishing*:
 - Date (Month, Day, Year)*
 - Time (Hours, Minutes, Seconds)*
 - Resettable Timer (Seconds; up to 99,999 seconds)*
 - Peak Voltage (Volts)*
 - Peak Current (Amps)*
 - Peak Power (Watts)*
 - Average Voltage (Volts)*
 - Average Current (Amps)*
 - Average Power (Watts)*
 - Primary/Secondary Waveform*
 - Waveform (Alternating Current, Direct Current, Pulsed Direct Current, Burst of Pulses Direct Current, Modified Alternating Current)*
 - Input Voltage (Volts)*
 - Input Duty Cycle (%)*
 - Input Frequency (Hz)*
 - GPS (Latitude, Longitude, Elevation, Accuracy)*
- 12 programmable electrofishing “favorites” settings for saving output waveforms: recalls waveform, duty cycle, frequency, and voltage
- Dual Outputs
- Waterproof connections, UV resistant
- Positive locating keyways only terminate into correct receptacle
- Input Power: 8,000 Watt continuous for max outputs; 240V 50/60hz 30A max generators (must have floating neutral)
- Output Voltage: 0-1,200 VDC; 0-240 VAC rms 339 Vpeak
- Output Current: 24 ADC continuous @ 250 VDC
- Peak Output Current: 80 Amps (0-300 Volts), 40 Amps (300-600 Volts), 20 Amps (600-1,200 Volts)
- Output Power: 7,200 Watts Continuous AC
- Peak Output Power: 24,000 Watts
- Frequency Range (pulses per second; pps): 1-1,000 hertz (pps) in 1 hertz increments*
- Duty Cycle: 1% to 100% in 1% increments
- Timer: 0-99,999 Seconds*
- Alarm: 60-3,600 seconds with alarm at end of count and reminder every 60 seconds thereafter*

- Data Port: USB 2.0 for downloading stored data and uploading software and firmware updates*
- Display: Sunlight readable 1,000 nits; Day Night Mode; 5" 800x480 color LCD
- Automatic voltage range shifting for three ranges of voltage
- Software protection for internal circuitry and overloading
- Digital warnings display input and output errors
- Data recall when generator is powered down
- Digital metering of peak and average watts, amps, and volts
- Hermetically sealed/splash resistant design
- Cooling via convection through heat sink
- Water resistant main breaker
- External hardware gasketed and o-ringed for splash resistance
- Single 5" color LCD screen monitors and displays*:
 - Resettable Timer (Seconds; up to 99,999 seconds)
 - Peak Voltage (Volts) outputs graphed for 3 minutes*
 - Peak Current (Amps) outputs graphed for 3 minutes*
 - Peak Power (Watts) outputs graphed for 3 minutes*
 - Average Voltage (Volts)*
 - Average Current (Amps)*
 - Average Power (Watts)*
 - Primary/Secondary Waveform*
 - Waveform animation*
 - Input Voltage (Volts)
 - Input Duty Cycle (%)
 - Input Frequency (Hz)
 - GPS (Latitude, Longitude)*
 - Alarm (programmable seconds of effort alert)*
 - Input from generator
 - Software Version
- Day and Night Mode for LCD screen
- System includes internal rechargeable battery that maintains display when generator is off
- Light and tonal alert system to indicate that electrofisher is operating
- GPS antenna*
- Heavy duty rubber feet
- Robust handles for transporting and carrying*
- Quarter turn "military style" connectors

QUICK-START GUIDE

APEX BOAT ELECTROFISHER



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i. Saving Electrical Inputs		(See smith-root.com)	
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Effort	8		
i. Timer/Alarm			

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 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.

APEX CONTROLS AND FEATURES

Take the time to familiarize yourself with the APEX's features before beginning electrofishing.

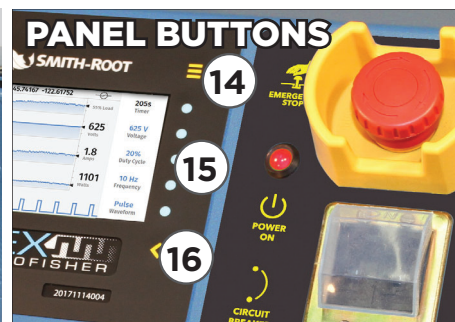
FRONT PANEL



BACK PANEL



PANEL BUTTONS



FRONT PANEL:

1. **AUDIO ALARM** 📢
Sounds to indicate that the unit is on and to indicate modes or faults.
2. **FLASHING RED LIGHT** ⚡
Flashes to indicate that the output is active
3. **USB PORT** 📁
For downloading data and updating software via thumb drive.
4. **GPS ANTENNA**
Allows APEX to receive GPS information.
5. **KEYPAD/ DISPLAY**
The control pad and display, showing settings and status of APEX and allowing the setting of parameters.
6. **EMERGENCY SHUTDOWN SWITCH** 🛑
The on/off switch. The switch must be rotated clockwise to turn on the unit. Push down to turn it off. Use in conjunction with the circuit breaker
7. **POWER ON INDICATOR**
Red LED is lit up when power is on..
8. **CIRCUIT BREAKER** ⏏
The main power on/off switch which also provides

crucial circuit/overload protection. Use in conjunction with the emergency stop button to turn unit off and on.

BACK PANEL:

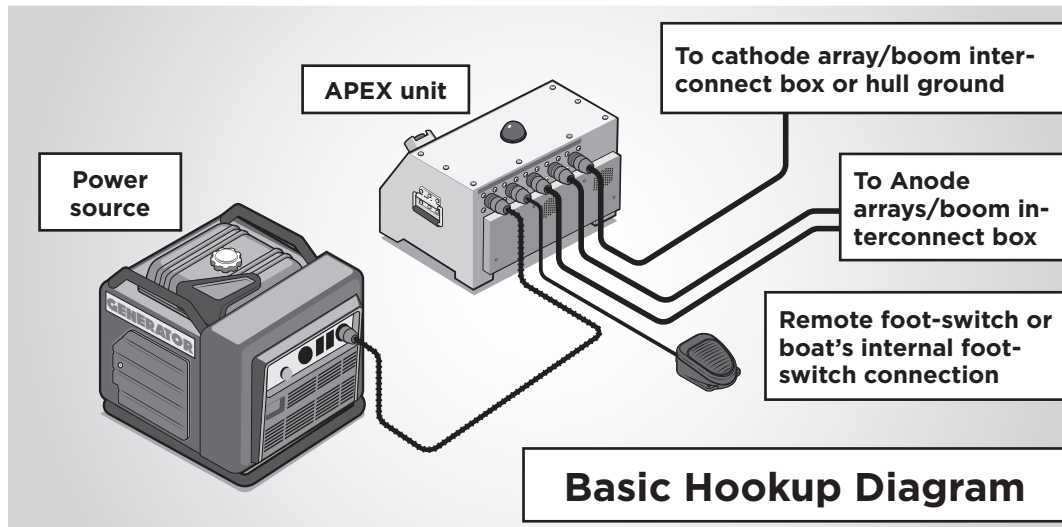
9. **POWER IN CONNECTOR** ⚡
Power input connector for connecting to generator.
10. **FOOT SWITCH CONNECTOR** 🦶
Allows control of output via connected foot switch.
11. **ANODE CONNECTORS (1 & 2)** ⚡
Allows connection to positive electrode devices. Use one or both as needed.
12. **CATHODE CONNECTOR** ⚡
Allows connection to negative electrode device (cathode array/boat hull).
13. **FAN SHROUD**
Provides system cooling (see *Cooling/Airflow*)

PANEL BUTTONS:

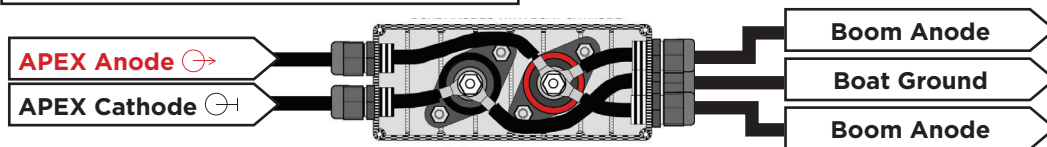
14. **Menu Button** ≡
15. **Hotkeys** ●
16. **Back Button** ⬅

QUICK-START GUIDE

APEX Boat Hookup



Hook up using Boom Interconnect Box



Instructions

The instructions below will work with most boats and also some shore electrofishing applications.

1. Connect APEX to generator power source by hooking up the generator's output connector to the APEX's *Power In* connector \ominus .
2. Connect remote foot switch to APEX's *Foot Switch* connector \ominus . You can also connect the APEX's foot switch connector to a boat's internal foot switch system, if so equipped. Consult technical support if further guidance is needed.
3. Connect one or both Anode Connectors to anode arrays or boom-mounted anode arrays via the APEX's Anode connectors 1 and/or 2 \ominus .
4. Connect the cathode array to the APEX via the Cathode connector \ominus . You can also, in some configurations, use the boat's hull as the cathode.

Consult your boat's specifications or Smith-Root technical support for more information.

APEX Boat Electrofisher Quick-Start Guide



WARNING! LIVE ELECTRICAL EQUIPMENT WHEN ENERGIZED. DIRECT CONTACT WITH EQUIPMENT MAY CAUSE ELECTRIC SHOCK OR BURN. Appropriate personal protective equipment is required at all times. Using this equipment in a manner not advised in the instruction manual, quick start guide, tutorial video(s) or otherwise could result in injury, death, or damage to the unit. Users should notify bystanders of the equipment's use and function before and during operation. If conditions become unsafe, cease using the equipment immediately. While electrofishing, it is strongly advised to wear **electrically rated lineman gloves, insulated footwear, and a Personal Flotation Device (PFD).**

1. External Components

- i. Electrode cables - Connect the electrically positive anode and negative cathode of the electric system.
 - a. Anode - Positive electrode(s) that extend from bow of boat.
 - b. Cathode - Negative electrode that is often the aluminum hull and/or a bow-mounted cathode dropper array.
- ii. Foot Switch - Connects to the foot switch that allows the user to easily activate and deactivate the electrical output.
- iii. Power Source - Connects to the generator that powers the APEX control box.

2. Powering up and down

- i. Circuit Breaker
 - a. Turn on - Push the circuit breaker in the UP position.
 - b. Turn off - Push the circuit breaker in the DOWN position
- ii. Emergency Stop Button - Red button on the control panel of the APEX with yellow protective shroud.
 - a. Turn on - Twist and lift the red button to activate the APEX. A short tone will emit from the unit and then the red light will activate for duration of the startup time (about 8 seconds).
 - b. Turn off - Push down on the red button.

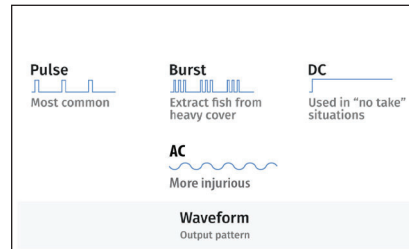
3. Electrical Settings

- i. Waveform - Determines the shape of the electrical output. From home screen, press WAVEFORM button and use blue hotkey buttons ● to select a waveform. Press FAVORITES button to store and recall settings. Press HELP button for a description of each wave-

QUICK-START GUIDE

form. Once complete, press BACK button to return to home screen.

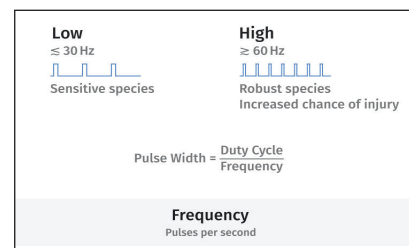
- a. Direct Current (DC) - Continuous, uninterrupted current flows from APEX between anode and cathode. This method is generally favored for use with endangered and threatened species. DC does create a higher power demand from the generator.



Screenshot: Waveform types

- b. Pulsed - Pulsed Direct Current (PDC) is pulsed at a user-defined frequency and duty cycle. This is the most commonly used electrofishing waveform because of its balance of moderate power use, increased capture efficiency over DC, and decreased injury potential over AC.
- c. Burst - Current is pulsed in packets of bursts with defined gaps of electrical output between bursts. This waveform is commonly used to remove fish from heavy cover or juvenile lamprey from sediments.
- d. Alternating Current (AC) - Current reverses polarity on the frequency of the output from the generator (only available up to 347 volts RMS). This waveform is uncommonly used with the exception of eradication studies or on the extremes of water conductivity.

- ii. Frequency - Determines the rate of electrical pulsing. To modify frequency, press FREQUENCY button, then use arrows to increase and decrease values. Press HELP button for a description of Frequency. Once complete, press BACK button to return to home screen.

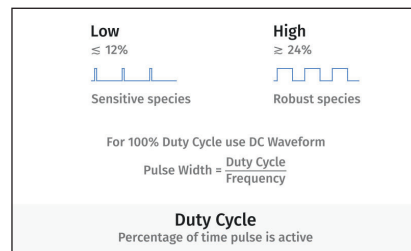


Screenshot: Frequency

- a. 7.5 - 15 Hertz - Low frequency is commonly used with Pulsed Direct Current Waveform to capture catfish and other electrically sensitive bottom dwelling fish. Fish are often active, requiring active netting.

- b. 30 Hertz - Moderate frequency is commonly used for more fragile species with increased vertebral count and minimized scales.
- c. 60 hertz - Higher frequency is commonly used for more robust species with decreased vertebral count and thicker scaling.
- d. > 60 Hertz - Generally avoided because of increased risk of injury.

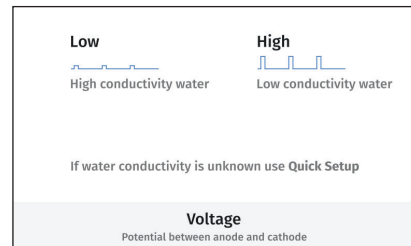
iii. Duty Cycle - Determines the percentage of time that the APEX is applying power every cycle. To modify Duty Cycle, press DUTY CYCLE button, then use arrows to increase and decrease values. Press HELP for a description of Duty Cycle. Once complete, press BACK button to return to home screen.



Screenshot: Duty Cycle

- a. 12-15% - A minimal duty cycle percentage that maintains very short widths for each electrical pulse. Similar to low frequency, this is commonly used for more fragile species with increased vertebral count and minimized scales.
- b. 20-40% (~30%) - A duty percentage commonly used for more robust species with decreased vertebral count and thicker scaling.

iv. Voltage - Determines the amplitude of the electrical potential. The voltage should be set according to environmental conditions, especially ambient water conductivity. To modify voltage, press VOLTAGE button, then use arrows to increase and decrease values. Once complete, press BACK button to return to home screen.



Screenshot: Voltage

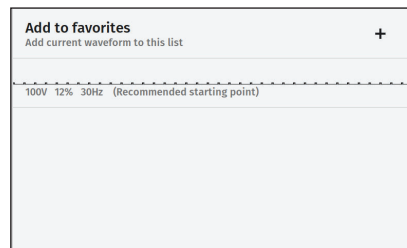
- a. 600 - 1,200 Volts - High voltage is used in very low ambient conductivity water. Additionally, higher voltages are often useful in deep and wide pools.
- b. 300 - 599 Volts - Moderate voltage is typically used in moderate ambient conductivity waters.

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- c. 50 - 299 Volts - Low voltage is typically used in high conductivity water. Additionally, lower voltage is often useful in shallower pools.

4. Favorites

- i. Saving Electrical Inputs - To save an electrical input to the Favorites section, press the WAVEFORM button on the home screen, then press FAVORITES. Finally, press the + button to save the active input settings.



Screenshot: Favorites

- ii. Recalling Electrical Inputs - To activate an electrical input previously saved in the Favorites section, press the WAVEFORM button on the home screen, then press FAVORITES. Press the button associated with the previously saved input settings of choice and then press the USE ✓ button.

5. Effort

- i. Timer/Alarm
 - a. Timer - The timer counts the number of seconds the output was activated since the timer was last reset. To reset the timer, Press the TIMER button, then press RESET. Once complete, press BACK button to return to home screen.
 - b. Alarm - An alarm can be set at 60 second intervals to inform the user that a defined amount of effort has elapsed. A reminder alarm will subsequently activate every 60 seconds of effort beyond the alarm. Therefore, it can be helpful to set the alarm for 60 seconds less than the intended effort as a method of warning the user of the upcoming end of effort. To set the Alarm, press the TIMER button, then press ALARM and use arrows to increase and decrease the number of seconds. Once complete, press BACK button to return to home screen. A tonal alarm will activate once the noted amount of electrofishing effort elapses. A reminder alarm will continue to occur every 60 seconds after the alarm is triggered until the timer is reset.

6. In Field Help

- i. Light Bulbs - Light bulb icons can be accessed on the APEX for further information on particular topics.
- ii. Diagnostic Screen - A diagnostic screen can be found in the menu that displays a multitude of input and output parameters along with system information. Press Menu, then Device Information, then Diagnostics.

7. Menu

- i. Display Mode - Allows user to modify display for different lighting conditions.
 - a. Light - Bright background
 - b. Dark - Dark background
- ii. Dual Channels - Allows the user to define and activate two different electrical outputs by releasing and pressing the foot switch in less than one second
 - a. Activated - A single electrical output is set on the main screen.
 - ii. Deactivated - Two electrical outputs, a primary and a secondary, are set on the main screen. This is commonly used when a sensitive setting is used in the primary output slot and a more aggressive output is used in the secondary to allow fish to escape heavy cover then be properly incapacitated. The primary output is activated by pressing the foot switch and the secondary output is activated by releasing and pressing the foot switch in less than one second. If you do not press the pedal within one second of release, the primary output will be activated.
- iii. Device Information - Displays information about the manufacturing, service, and operation of the APEX electrofisher.
 - a. Reset - Resets the APEX to default settings.
 - b. Diagnostics - Displays information about the performance of the APEX electrofisher.

QUICK-START GUIDE

7. Input and Output Data Storage

- i. Data Storage – The APEX stores input and output data every second that the anode pole switch is activated.
 - a. Recording data – The APEX automatically records data when the output is active.
 - b. Viewing Data – The home screen displays real time electrical input values, peak electrical output values, GPS location (when signal is available), battery meter, timer/alarm, and real-time graphs. Real-time graphs actively display the previous 3 minutes of peak output electrical settings as well as all faults/errors/warnings. Along the bottom of the home screen is a display of one second of input variables in graphical format..
 - c. Downloading data – Unscrew the dust and water cap from the USB port on the front panel of the APEX and insert a USB flash drive. All stored data on the APEX will load onto the USB flash drive as a .csv file that can be opened in a spreadsheet program (i.e. Microsoft Excel). Follow onscreen prompts to remove USB flash drive. Place cap back on APEX after transferring data.



Transferring logs



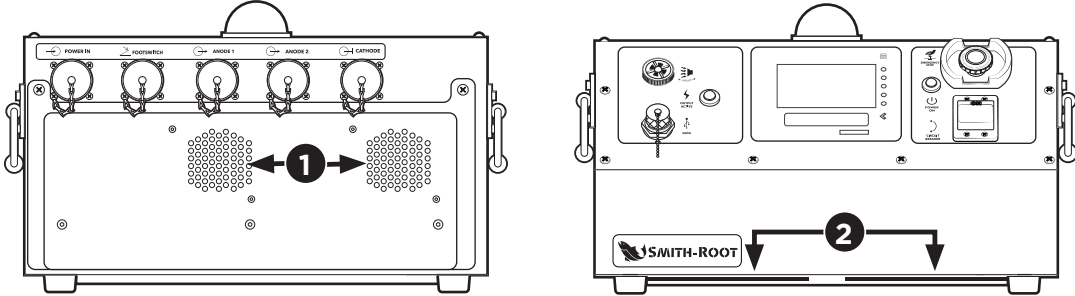
Log transfer complete

Remove drive

8. Safety

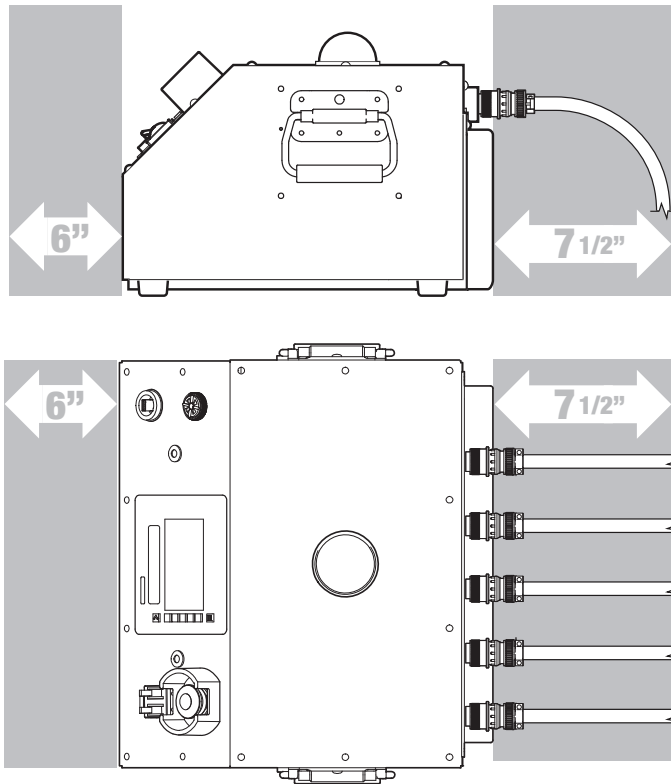
- i. Sound – A tonal alert makes a tone when the APEX is first turned on, when an error/fault/warning occurs, and when the foot switch is activated. Tonal rate is continuously related to the average power being put into the water. A lower rate (~1 tone per second) indicates lower power and a high rate (~4 tones per second) indicates higher power. The volume can be controlled by rotating the bezel on the tonal alert.
- ii. LED light - Lights on the face of the APEX activate when the APEX is first turned on in sync with sound, when an error/fault/warning occurs, and when the foot switch is activated. In noisy situations, this safety feature proves valuable.

COOLING/AIRFLOW



The APEX control box has external fans **(1)** and built-in heat dissipation channels **(2)** to keep the unit within optimal thermal parameters when in use. The fans are active when the unit and generator are on.

To allow proper air flow through the external fans and heat dissipation channel, do not obstruct the 7 1/2 inches of space behind and 6 inches in front of the Apex Control Box.





info@smith-root.com
(360) 573-0202
Vancouver, WA USA
www.smith-root.com



LIMITED PRODUCT WARRANTY

Smith-Root provides this limited warranty to the Purchaser of this electrofishing product. This warranty is not assignable or transferable to any party.

Smith-Root, Inc. warrants that this Product is free from defects in material and workmanship that would result in Product failure during normal usage, according to the following terms and conditions:

The Product must be purchased from Smith-Root, Inc. or an authorized distributor.

For general Product sales, the limited warranty for the Product extends for the length of ownership beginning on the date of the purchase of the Product by the original Purchaser for a period of 1 year.

For Electroanesthesia and Barrier Product sales, the limited warranty for the Product extends for the length of ownership beginning on the date of Product commissioning or ninety (90) days from the date of the purchase of the Product by the original Purchaser, whichever occurs first, for a period of 1 year.

The Purchaser of the Product assumes responsibility for the care and maintenance of the Product beginning on the date the Purchaser takes possession of the Product.

During the limited warranty period, Smith-Root, Inc. will repair, or replace, any defective parts, or any parts with new or refurbished replacement items if such repair or replacement is needed because of product malfunction or failure during normal usage. This warranty does not cover damage due to normal wear and tear. This warranty does not cover damage to the Product due to abnormal use, abnormal conditions, improper storage, exposure to moisture or dampness, and immersing the Product in a lake or a stream. This warranty does not cover unauthorized modifications, unauthorized connections, unauthorized repair, misuse, neglect, abuse, accident, alteration, improper installation, or battery leakage, theft, blown fuse, or improper use of any electrical source, or damage caused by the connection to other products. This warranty does not cover damage caused by shipping by the Purchaser. This warranty does not cover damaged from external causes such as collision with an object, or from fire, flooding, sand, dirt, windstorm, lightning, earthquake or damage from exposure to weather conditions, or an Act of God.

This limited warranty does not cover consumable items that are sold with or are part of the Product. Consumable items include, but are not limited to: batteries, suspension systems, rat tails, battery chargers, electrode poles, electrode rings, footswitch, dip nets, carry cases, accessory items, and/or suspension systems.

All claims under this warranty must be made in writing to Smith-Root, Inc. within 30 days of the alleged defect or malfunction of the Product. All claims must be made by first contacting the Customer Service Department at Smith-Root, Inc. and following the written instructions provided by a Smith-Root, Inc.'s representative.

The Purchaser shall bear the cost of shipping the Product to Smith-Root, Inc. Smith-Root, Inc. shall bear the cost of shipping the Product back to the Purchaser provided that the damage was covered under this limited warranty. The Purchaser is responsible for any and all parts or labor charges not covered by this limited warranty. Product is not covered under the terms and conditions of this limited warranty, the Purchaser will be notified and given an estimate of the charges the Purchaser must pay to have the Product repaired, with all shipping charges billed to the Purchaser. If the estimate is refused, the Product will be returned freight collect.

Smith-Root, Inc. at its sole option, in lieu of repair, may provide a replacement Product or refund the purchase price of the Product.

Smith-Root, Inc. at its sole option and in the course of a warranty repair, may install reconditioned components that are in compliant with product performance and reliability specifications.

ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR USE, SHALL BE LIMITED TO THE DURATION OF THE FOREGOING WRITTEN WARRANTY. OTHERWISE, THE FOREGOING LIMITED WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. SMITH-ROOT, INC. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF ANTICIPATED BENEFITS OR PROFITS, LOSS OF SAVINGS OR REVENUE, PUNITIVE DAMAGES, LOSS OF USE OF THE PRODUCT OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF ANY SUBSTITUTE EQUIPMENT OR FACILITIES, DOWNTIME, THE CLAIMS OF ANY THIRD PARTIES, INCLUDING CUSTOMERS and INJURY TO PROPERTY, RESULTING FROM THE PURCHASE OR USE OF THE PRODUCT OR ARISING FROM BREACH OF THE WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL OR EQUITABLE THEORY, EVEN IF SMITH-ROOT, INC. KNEW OF THE LIKELIHOOD OF SUCH DAMAGES. SMITH-ROOT, INC. SHALL NOT BE LIABLE FOR DELAY IN RENDERING SERVICE UNDER THE LIMITED WARRANTY, OR LOSS OF USE DURING THE PERIOD THAT THE PRODUCT IS BEING REPAIRED.

PURCHASER ACKNOWLEDGES THAT THE PRODUCT GENERATES HIGH VOLTAGES AND/OR CURRENTS FOR USE IN WATER. PURCHASER FURTHER RECOGNIZES THAT THE PRODUCT SHOULD ONLY BE USED BY A PERSON SKILLED IN THE USE OF ELECTRO-FISHING EQUIPMENT. SMITH-ROOT ACCEPTS NO RESPONSIBILITY FOR THE TRAINING OF THE PURCHASER OR THE PURCHASER'S AGENT, EMPLOYEE'S AND/OR CONTRACTORS IN THE USE OF THIS PRODUCT.

Smith-Root, Inc. neither assumes nor authorizes any authorized service center or any other person or entity to assume for it any other obligation or liability beyond that which is expressly provided for in this limited warranty including the provider or seller of any extended warranty or service agreement.

This is the entire warranty between the Smith-Root, Inc. and the Purchaser and supersedes all prior and contemporaneous agreements or understandings, oral or written, relating to the Product and no representation, promise or condition not contained herein shall modify these terms.

Purchaser consents that any dispute between Smith-Root, Inc and Purchaser pursuant to the purchase of the Product will be governed by the laws of the State of Washington, without regard to its conflict of laws principles. Purchaser consents to the exclusive jurisdiction of and venue in the state and federal courts located in the State of Washington, Clark County.

Any dispute or claim that arises out of or that relates to this warranty, or to the interpretation or breach thereof, or to the existence, scope, or validity of this agreement or the arbitration agreement, shall be resolved by arbitration in accordance with the then effective arbitration rules of (and by filing a claim with) Arbitration Service of Portland, Inc., and judgment upon the award rendered pursuant to such arbitration may be entered in any court having jurisdiction thereof.

The above limited warranty is effective July 6, 2015.



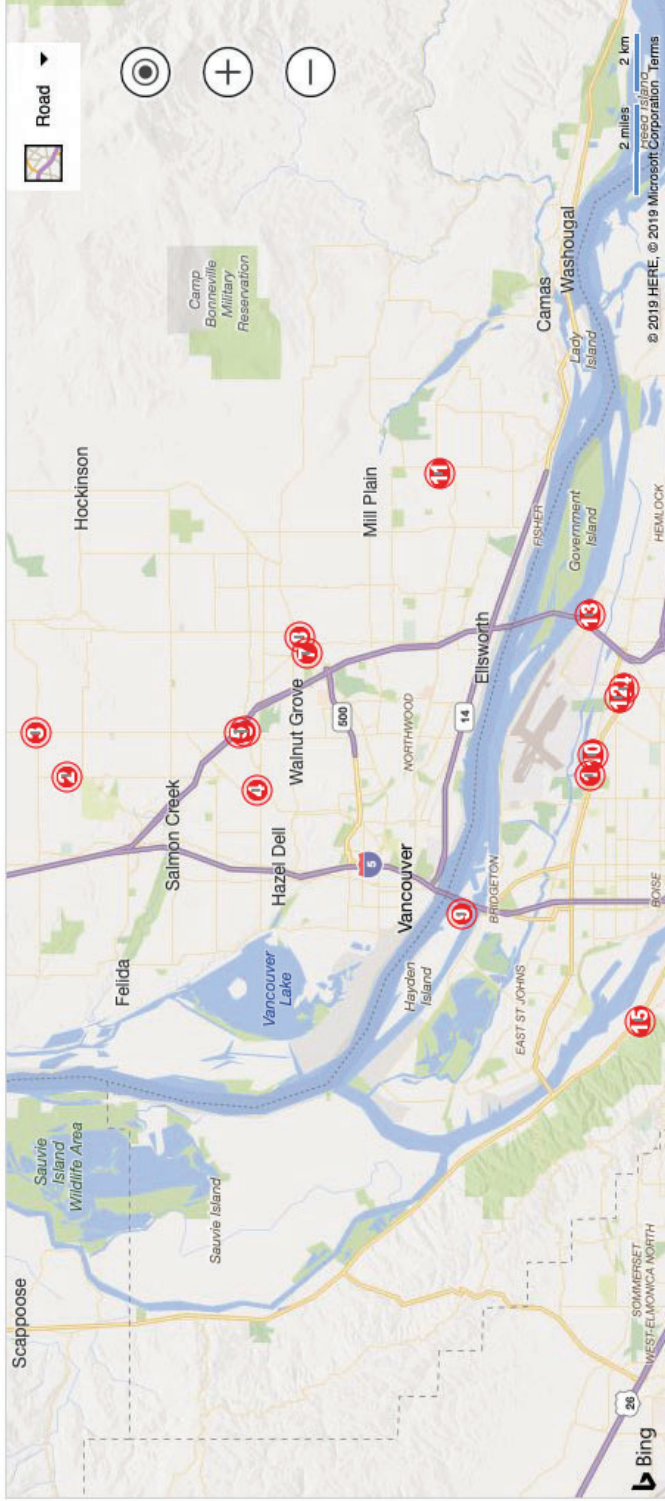
- Home
- Find a Dealer
- Search
- SNOW BLOWERS
- PUMPS
- ROBOTIC MOWERS
- GENERATORS
- LAWN MOWERS
- TILLERS
- TRIMMERS
- SUPPORT



Dealer Locator

Select a Product or

Dealer Type Sales Service Rental Special financing



1 **Cessco, Inc.**
 4222 NE Columbia Blvd
 9.1 miles Portland, OR 97218-1335
 (503) 288-1242
 Sales and Service



2 **Smith-Root, Inc.**
 16603 NE 50th Ave
 0.0 miles Vancouver, WA 98686-1845
 (360) 573-0202
 Sales and Service





Distributor's Limited Warranty

Honda Power Equipment

This warranty is limited to the following Honda Power Equipment products when distributed by American Honda Motor Co., Inc., Power Equipment Division, 4900 Marconi Drive, Alpharetta, Georgia 30005. The following warranty applies to products purchased at retail or placed in rental service on or after January 1, 2010.

PRODUCTS COVERED BY THIS WARRANTY:	LENGTH OF WARRANTY: ⁽¹⁾ (FROM DATE OF ORIGINAL RETAIL PURCHASE)	
	PRIVATE RESIDENTIAL ⁽²⁾	COMMERCIAL/RENTAL/INSTITUTIONAL
Autonomous Mower		
Miimo	24 months	24 months
Hand-Held Products		
HHT Series (Limited lifetime warranty on the HHT drive cable ⁽³⁾)	24 months	12 months
UMC Series	36 months	24 months
Nikkari Attachments for UMC Series	36 months	24 months
Walk Behind Mowers		
HRS and HRR Series	36 months	3 months
HRX Series (Limited lifetime warranty on the HRX mower deck ⁽⁴⁾)	60 months	3 months
HRC Series	24 months	24 months engine, 12 months other components
Tillers		
FG110 and F220 Series (Limited lifetime warranty on the FG110K1 for tine breakage ⁽⁴⁾)	24 months	12 months
Tillers (GX engine powered, except as listed above)	36 months	36 months
Snow Throwers, Snow Blowers		
HS520 and HS720 Series	24 months	3 months
Snow Throwers, Snow Blowers (all others except as listed above)	36 months	36 months
Water Pumps		
WX10 and WX15 Series	24 months	12 months
Gasoline engine powered pumps (all others except as listed above)	36 months	36 months
Electric submersible pumps	12 months	12 months
Generators		
EB2800i, EG2800i	36 months	12 months
EU1000i	24 months	12 months
Generators (all others except as listed above)	36 months	36 months

(1) Length of Warranty: Batteries supplied with applicable products as standard, original equipment are covered by this warranty for a period of 12 months (private residential) or 3 months (commercial/rental/institutional use) from the date of original retail product purchase, with the exception of Miimo. Batteries supplied with Miimo as standard, original equipment are covered by this warranty for a period of 24 months.

(2) Private residential: Used in maintaining owner's primary and/or secondary residence. Any other use, including but not limited to informal "for hire" use, is considered commercial/rental/institutional use.

(3) Limited lifetime warranty (HHT drive cable) is valid for the original purchaser only. This warranty applies to product purchased on or after August 1, 2004.

(4) Limited lifetime warranties (FG110K1 tines, HRX217 mower deck) are valid for the original purchaser for private residential use only. FG110K1 tine breakage on worn out tines is not covered by warranty. The limited lifetime HRX deck warranty and the FG110K1 tine warranty apply to product purchased on or after November 1, 2006.

To Qualify for This Warranty:

The product must be purchased in the United States, Puerto Rico, or the U.S. Virgin Islands from American Honda or a dealer authorized by American Honda to sell those products. This warranty applies to first retail purchaser and each subsequent owner during the applicable warranty time period, unless noted otherwise.

What American Honda Will Repair or Replace Under Warranty:

American Honda will repair or replace, at its option, any part that is proven to be defective in material or workmanship under normal use during the applicable warranty time period. Warranty repairs and replacements will be made without charge for parts or labor. Anything replaced under warranty becomes the property of American Honda Motor Co., Inc. All parts replaced under warranty will be considered as part of the original product, and any warranty on those parts will expire coincident with the original product warranty.

To Obtain Warranty Service:

You must, at your expense, take the Honda Power Equipment product, accessory, replacement part, apparel, or the power equipment on which the accessory or replacement part is installed, and proof of purchase to any Honda Power Equipment dealer in the United States, Puerto Rico, or the U.S. Virgin Islands who is authorized to sell and/or service that product, during the dealer's normal business hours. To locate a dealer near you, visit our web site at <http://powerequipment.honda.com> and click on Find a Dealer. If you are unable to obtain warranty service or are dissatisfied with the warranty service you receive, contact the owner of the dealership involved; normally this will resolve the problem. However, if you should require further assistance, write or call the Power Equipment Customer Relations Department of American Honda Motor Co., Inc. at the following address:

American Honda Motor Co., Inc.
Power Equipment Customer Relations Dept.
4900 Marconi Drive
Alpharetta, GA 30005-8847
Telephone: (770) 497-6400

American Honda Motor Co., Inc.
January 2018



Distributor's Limited Warranty

Exclusions:

- Any damage or deterioration resulting from the following:
 - Neglect of the periodic maintenance as specified in the product owner's manual
 - Improper repair or maintenance
 - Operating methods other than those indicated in the product owner's manual
 - Increasing engine speed beyond factory specification
 - The use of non-genuine Honda parts, accessories, lubricants, and fluids other than those approved by Honda
 - Exposure of the product to soot and smoke, chemical agents, bird droppings, sea water, salt, or other corrosive environments
 - Collision, fuel contamination or deterioration, neglect, unauthorized alteration, misuse, incorporation or use of unsuitable attachments or parts
 - Normal wear and tear (including, but not limited to, normal fading of painted or plated surfaces, sheet peeling, and other natural deterioration)
- Consumable parts: Honda does not warrant parts deterioration due to normal wear and tear. The following parts are not covered by this warranty unless they are needed during another repair covered under this warranty: spark plug, fuel filter, air cleaner element, clutch disc, tire, wheel bearing, recoil starter rope, cable, belt, cutter blade, oil, and grease.
- Cleaning, adjustment, and normal periodic maintenance work (carburetor cleaning, engine oil draining, blade sharpening, belt and cable adjustments).
- Any product that has ever been declared a total loss or sold for salvage by a financial institution or insurer.
- Auger and paddle assemblies, skid shoes, and scraper bars of snow throwers/snow blowers, tiller tines of roto-tillers, and mower blades and mower deck housings are specifically not warranted against impact damage including, but not limited to, abrasive damage.

Disclaimer of Consequential Damage and Limitation of Implied Warranties:

American Honda disclaims any responsibility for loss of time or use of the product, transportation, commercial loss, or any other incidental or consequential damage. Any implied warranties are limited to the duration of this written limited warranty. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, therefore the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Honda Parts, Accessories, and Apparel

This warranty is limited to Honda Power Equipment parts, accessories, and apparel when distributed by American Honda Motor Co., Inc., 4900 Marconi Drive, Alpharetta, Georgia 30005-8847.

PRODUCTS COVERED BY WARRANTY:	LENGTH OF WARRANTY: (FROM DATE OF ORIGINAL RETAIL PURCHASE)	
	PRIVATE RESIDENTIAL	COMMERCIAL/RENTAL/INSTITUTIONAL
Parts	6 months	3 months
Batteries	6 months	3 months
Accessories	12 months	3 months
Apparel	6 months	3 months

To Qualify for This Warranty:

- The parts, accessories, or apparel must be purchased from American Honda or a dealer authorized by American Honda to sell those products in the United States, Puerto Rico, and the U.S. Virgin Islands. Parts and accessories must be purchased for installation on original Honda equipment or engines to be eligible for warranty coverage. Installing parts and accessories on non-Honda products or engines voids this warranty.
- You must be the first retail purchaser. This warranty is not transferable to subsequent owners.

What American Honda Will Repair or Replace Under Warranty:

American Honda will repair or replace, at its option, any Honda Power Equipment parts, accessories, or apparel that are proven to be defective in material or workmanship under normal use during the applicable warranty time period. Anything replaced under warranty becomes the property of American Honda Motor Co., Inc. The warranty on all parts, accessories, and apparel replaced under warranty will expire coincident with the original warranty on the replaced parts, accessories, or apparel. Parts and accessories installed by a dealer who is authorized by American Honda to sell them will be repaired or replaced under warranty without charge for parts or labor. If installed by anyone else, parts and accessories will be repaired or replaced under warranty without charge for parts, but any labor charges will be the responsibility of the purchaser. Apparel will be repaired or replaced under warranty without any charge.

To Obtain Warranty Service:

You must, at your expense, take the Honda Power Equipment part, accessory, or apparel, or the Honda Power Equipment on which the accessory or part is installed, and proof of purchase to any Honda Power Equipment dealer in the United States, Puerto Rico, or the U.S. Virgin Islands who is authorized to sell that product, during the dealer's normal business hours.

To locate a dealer near you, go to our web site at <http://PowerEquipment.Honda.com> and click on Find a Dealer.

If you are unable to obtain warranty service or are dissatisfied with the warranty service you receive, contact the owner of the dealership involved; normally this will resolve the problem. However, if you should require further assistance, write or call the Power Equipment Customer Relations Department of American Honda Motor Co., Inc.

American Honda Motor Co., Inc.
 Power Equipment Customer Relations Dept.
 4900 Marconi Drive
 Alpharetta, GA 30005-8847
 Telephone: (770) 497-6400

Exclusions:

This warranty does not extend to parts, accessories, or apparel affected or damaged by collision, normal wear, use in an application for which the product was not designed, or any other misuse, neglect, incorporation or use of unsuitable attachments or parts, unauthorized alteration, improper installation, or any causes other than defects in material or workmanship of the product. Installing parts and accessories on non-Honda products or engines voids this warranty.

Disclaimer of Consequential Damage and Limitation of Implied Warranties:

American Honda disclaims any responsibility for loss of time or use of the product, or the power equipment on which the product is installed, transportation, commercial loss, or any other incidental or consequential damage. Any implied warranties are limited to the duration of this written warranty. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Karavan Trailers, Inc. Limited Warranty Policy

Please register your trailer online at www.karavantrailers.com

A complete Owner's Manual is available online

Contact us at: warranty@karavantrailers.com or 920-928-6411

Karavan Trailers, Inc. warrants each new **Karavan Trailers** trailer to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. **Karavan Trailers** shall repair or replace, without charge, any parts found to be defective because of imperfect workmanship or materials, within a reasonable time after the trailer is returned at purchaser's expense to any **Karavan Trailers** authorized distributor or dealer.

Who is covered?

This warranty is extended to the original purchaser only.

How do I make a claim?

1. Your claim must be filed on the Karavan website at: <http://www.karavantrailers.com> or in writing to: Karavan Trailers, Inc., 100 Karavan Drive, Fox Lake, WI, 53933.
2. Claim must provide true and complete information when filed.
3. You must cooperate with Karavan when attempting to resolve the claim.
4. Only Karavan and authorized dealers may be used to fulfill the warranty claim.
5. Karavan may elect to repair or replace your product, or in some cases, offer you a refund.
6. Karavan will inform you whether your claim is covered by warranty within thirty days of receiving the trailer.
7. Any disputes must be resolved in state or federal court.

What is not covered?

Although you may use the parts and maintenance, and repair services of your choosing, we recommend using authorized dealers and parts for any repairs or maintenance, because improper or incorrect use of parts, maintenance, or repairs will void this warranty. Authorized parts are recommended for replacement of winches, lights, couplers, brakes, tongue jacks, and springs. Authorized dealers are listed on the Karavan website.

The warranty will not cover defects or damage caused by unauthorized modifications or alterations.

The warranty does not apply to any defect or malfunction caused by damage, unreasonable use, or failure to provide reasonable and necessary maintenance.

The warranty will not cover damage caused by overloading the trailer beyond stated capacities or the use of improperly installed weight distribution hitches in conjunction with hydraulic surge brakes.

Rust formation is not covered because the trailer is exposed to highly corrosive conditions.

Tires are not covered. Warranty on tires shall be made through the nearest tire representative.

Bearing cups, bearings and seals are covered for 180 days from date of purchase.

The use of any unit as part of a rental fleet or use for commercial purposes voids this warranty.

Other Limitations

Any implied warranties, obligations, or liabilities including, but not limited to, any implied warranty of merchantability or implied warranty of fitness for a particular purpose, shall be limited in duration to the one-year duration of the written limited warranty.

Karavan Trailers, Inc. shall not be liable for incidental expenses of the consumer including, without limitation: loss of time, inconvenience, towing charges, travel expenses, lodging, telephone, gas, or loss or damage to personal property or loss of wages.

Karavan Trailers, Inc. shall not be liable for any incidental or consequential damages for breach of this or any other warranty expressed or implied.

This warranty gives you specific legal rights, and you may also have other rights which vary from State to State. Some States do not allow limitations on how long an implied warranty lasts, and/or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Karavan Trailers, Inc. will follow any controlling warranty laws for trailers purchased in countries outside the United States.

Bow Eye Safety Chain

WARNING: Failure to tie down the bow independently from the winch strap could allow your boat to shift while traveling, causing loss of control of the tow vehicle and result in serious injury or property damage.

Karavan Trailers, Inc. starts using bow eye safety chains on trailers with a 1200-lb winch rating and over. It is very important that you use the bow eye safety chain at all times when loading and unloading. The bow eye safety chain is an added protection should the winch or winch strap fail.

Brakes

In most states, trailers with a Gross Vehicle Weight Rating of 3,000 pounds or more are required by law to have brakes on all wheels. Upon special request, you can order axles with brake flanges to be able to install brakes. Brakes are becoming more of a necessity especially since the introduction of the small size car. Most trailer brakes are designed to operate automatically when the towing vehicle's brakes are applied. When the towing vehicle slows down or stops, the forward momentum of the trailer against the ball hitch applies pressure to a master cylinder in the trailer coupler. This pressure activates the trailer brakes through a hydraulic brake system.

Caution: Weight equalizing or sway control devices inhibit the performance of surge brake actuators and must not be used. Air shocks on the rear axle of the tow vehicle offer a good means of leveling the vehicle and trailer when necessary.

Reporting Safety Defects

If you believe that your vehicle has a defect that could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Karavan Trailers, Inc. If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Karavan Trailers, Inc.

To contact NHTSA, call the Vehicle Safety Hotline toll-free at: 1-800-327-4236 (TTY 1-800-424-9153), <http://www.safercar.gov>; or write to: Administrator, NHTSA, 1200 New Jersey Avenue S.E., Washington, DC 20590

You can also obtain other information about motor vehicle safety from <http://safercar.gov>.



Smith-Root

16603 NE 50th Ave

Vancouver, WA 98686

Re Karavan Trailers Inc.

May 8, 2019

To whom it may concern,

This letter serves as notification that Smith-Root, doing business at 16603 NE 50th Ave, Vancouver, WA 98686, is an authorized reseller of Karavan trailers along with service parts and accessories. All OEM equipment warranties are applicable on the Karavan products sold by Smith-Root.

Thank you,

Regards,

Brett Dow

General Manager Marlon USA

Marlon USA
26219 Mountain HWY E.
Spanaway, WA 98387
866-930-9411

Chilliwack
7984 Venture Place
Chilliwack, BC V2R 0K2
Canada
800-663-7367

Stony Plain
965 Boulder Blvd
Stony Plain, Alberta, T7Z 0E6
855-962-5500

Manitoba
179 Cessna Way
St Andrews, Manitoba
R1A 3N6
855-885-9150

KARAVAN TRAILERS, INC.

100 KARAVAN DR. P.O. BOX 27 FOX LAKE, WI 53933

PHONE (920) 928-6200 FAX (920) 928-6201

TO WHOM IT MAY CONCERN:

Smith-Root IS AN AUTHORIZED DEALER FOR KARAVAN TRAILERS AND PARTS IN THE STATE OF Washington.

THIS IS NON-EXPIRING AGREEMENT UNLESS EITHER PARTY SHOULD DESIRE TO CANCEL, AT WHICH TIME THE OTHER PARTY SHOULD BE NOTIFIED.



JIM CURTIN
PRESIDENT
KARAVAN TRAILERS

5/9/19

DATE

SIGNATURE

DATE

PRINT NAME

DEALERSHIP NAME

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____

DAY OF _____ 20_____

NOTARY, _____

COUNTY OF DODGE, WISCONSIN

MY COMMISSION EXPIRES _____

Outboards & Jets

Product	Standard Limited Warranty
2-Stroke Classic Carbureted – 50 hp & 90 hp	1 year
2-Stroke Classic EFI – 150 hp	2 years
2-Stroke Classic Carbureted Non-DFI V-6	2 years
FourStroke – 2.5 hp to 300 hp (including Verado, Pro FourStroke & Jet outboards)	3 years
OptiMax – 75 hp to 250 hp (including Pro XS & Jet outboards)	3 years
OptiMax Jet Drives – 200 hp & 250 hp	1 year

This chart represents the standard factory warranty on Mercury Marine Products. Promotional coverage may also be available. Please visit <http://www.mercurymarine.com/promotions> or contact your local authorized Mercury Marine dealer for details.

Non-Current Outboards = product more than 6 years old from date of manufacture is excluded from warranty coverage (refer to Service Bulletin 2011-010)

The commercial warranty duration for Outboard and MotorGuide is one-year and commercial-use products do not receive promotional benefits. Corrosion coverage is not available on commercial-use engines.

3-year corrosion warranty is standard on all pleasure-craft engines.

Mercury Product Protection is available on select models, for a combined coverage of seven (7) years. Contact Mercury Product Protection at 888-427-5373 to determine eligibility.

Mercury Racing

Sterndrives	Warranty
525 EFI 600 SCi	One-year limited warranty* and three years limited corrosion warranty
EU662 SCi 700SCi	One-year limited warranty and no corrosion warranty
850 SCi	180 days limited warranty for recreational boating and no corrosion warranty
1025 SCi 1075 SCi	90 days limited warranty for recreational boating and no corrosion warranty
1200 SCi	No warranty
1350 QC4V	One-year limited warranty and no corrosion warranty
Outboards	Warranty
OptiMax 225-250XS	Three-year limited warranty for recreational boating and three-year limited corrosion warranty Two-year product protection is available.
Verado 350 SCi OptiMax 300XS OptiMax 225-250 Sport XS	Two-year limited warranty for recreational boating and three-year limited corrosion warranty Two-year product protection is available.
Parts	One-year limited warranty

* No corrosion warranty for models equipped with the NXT¹ or NXT¹ SSM drives.

Warranty coverage on Mercury Racing consumer product is for recreational use only. There is no warranty for commercial use on Mercury Racing consumer products.

MotorGuide Trolling Motors

Model	Warranty
Tour Series	2 years
DS (Digital Steer) Series	3 years
PTSV Tracking Series	2 years
Freshwater Digital	2 years
Freshwater 5-Speed Motors	2 years
All Great White Motors	2 years
MPSeries 5-Speed Motors*	2 years
MP Series Digital*	2 years
Wireless Trolling Motors	2 years
MotorGuide Service Repair Motors	1 year
Parts and Accessories	1 year

* MotorGuide Pro Series sold to Tracker and Bass Pro only

Mercury Precision parts and accessories have a standard limited warranty of one year.

Mercury gauges, controls and rigging components - if installed on the boat at the same time as the engine - will have a standard limited warranty equal to that of the engine (if built after 5/1/2007). If purchased separately, Mercury gauges, controls and rigging components will have a standard limited warranty of one year.

Government Warranty

Model	Warranty	Model	Warranty
Outboards	3 years parts & labor plus 3 years corrosion failure protection	Inflatable Boats	1 year parts & limited fabric and seams or tube and hull
High Performance Outboards (including JP models)	2 years	MerCruiser Products (Sterndrives & Inboards)	1 year parts & labor plus 3 years corrosion failure protection
High Performance Sterndrives	1 year	Parts & Accessories	1 year from date of purchase
All MotorGuide Products	2 years parts & labor (except Pinpoint Sonar) 1 year parts & labor on Pinpoint Sonar		

All **Horizon** products sold directly to governmental agencies or to a governmental agency via a boat builder will receive a base warranty of 3 years. Any other promotional warranties (e.g. certified builder) will be applied as specified by the terms of those special warranties. For all practical purposes, governmental agencies product registrations will be treated as a consumer warranty registration for regular and corrosion warranty. They are still ineligible for MPP coverage.



MerCruiser Models (including emissions control models) sold outside of California*

Sterndrives	Standard Limited Warranty	Installation Quality Certification Warranty [‡]	Corrosion Warranty
3.0 TKS / 4.3 TKS	1 year	2 years	3 years
3.0 MPI [†] / 4.3 MPI / 5.0 MPI [†]	1 year	2 years	3 years
4.3 MPI SeaCore / 5.0 MPI [†] SeaCore	3 years [§]	4 years [§]	4 years
350 MAG [†] / 377 MAG [†] / 8.2 MAG [†] / 8.2 MAG H.O. [†]	1 year	2 years	3 years
350 MAG [†] SeaCore / 377 MAG [†] SeaCore 8.2 MAG SeaCore / 8.2 MAG H.O. SeaCore	3 years [§]	4 years [§]	4 years
Tow Sports	Standard Limited Warranty	Installation Quality Certification Warranty	Corrosion Warranty
5.7 MPI [†] / Scorpion 350 [†] / Scorpion 377	2 years	3 years	3 years
Inboards	Standard Limited Warranty	Installation Quality Certification Warranty	Corrosion Warranty
5.7 MPI [†] / 6.2 MPI [†] / 8.2 H.O. [†]	1 year	2 years	3 years
5.7 Horizon [†] / 6.2 Horizon [†] / 8.2 Horizon [†]	3 years	4 years	3 years

All MerCruiser models have a three-year corrosion warranty.

[‡] See list of Installation Quality Certified Boat Brands at <http://www.mercurymarine.com/service-and-support/customer-support/miqc-boat-brands/>

[†] Includes Emissions Control models

* Specific coverages apply to product registered in the state of California

[§] If engine, drive and transom are purchased together or as part of boat package. If engine is purchased separately then warranty is for one (1) year only.

For detailed information on California emissions limited warranty, please go to <http://www.mercurymarine.com/service-and-support/customer-support/warranty/>

Commercial applications for MerCruiser products are only eligible for one-year of factory warranty or 500 hours, whichever occurs first. They are not eligible for the extra year of IQ certified coverage, the 3-year corrosion warranty, the extra Horizon warranty, or Mercury Product Protection.

Mercury Product Protection is available on select models, for a combined coverage of seven (7) years. Contact Mercury Product Protection at 888-427-5373 to determine eligibility.

Mercury Remanufacturing[‡]

Product	Standard Limited Warranty	Optional Mercury Product Protection Coverage	Total Possible Coverage
Outboard Pacemakers	Equal to standard Outboard warranty	See Below [§]	7 years
Product	Standard P&A Limited Warranty	Optional Mercury Product Protection Coverage	Total Possible Coverage
Mercury CPO* Outboard / MerCruiser CPO Engines & Drives / Plus Series Engines	1 year	2 years	3 years
Mercury Racing CPO Outboards	1 year	N/A	1 year
Reman 8.1 MIE Horizon 8M0052317 & 8M0052318	3 years	N/A	3 years

* CPO = Certified Pre-Owned

[‡] Excluded from retail incentives

[§] Optional MPP coverage, coupled with standard warranty, may not exceed seven (7) total years of coverage.

Inflatable Boats

Product	Standard Limited Warranty
PVC Fabric	5 years limited on fabric & seam failure
Hypalon Fabric	10 years limited on fabric & seam failure
Fiberglass Hulls (excluding Amanzi)	1 year on fiberglass hull & parts
Amanzi	5 years on fiberglass hull 1 year on parts
Professional RIBs	1 year

Warranty administration contact information

Outboards / MerCruiser / MotorGuide
Phone 920-929-5054 Fax 920-906-6663

Mercury Product Protection
Factory-Backed extended service contracts
Phone 888-427-5373 Fax 920-926-2639
Email mpp_support@mercmarine.com





May 9, 2019

To whom it may concern,

This letter serves as notification that Smith-Root, doing business at 16603 NE 50TH Ave in Vancouver, WA 98686, is an authorized reseller of Mercury Marine outboards, rigging items, service parts and accessories. All OEM equipment warranties are applicable on the Mercury Marine products sold by Smith-Root.

Thank you,

A handwritten signature in blue ink that reads 'K Stommel'.

Kristy Stommel
Government Sales Account Representative

The Smith-Root Advantage

You have a limited number of days in the field.
Field equipment plays a critical role in your success.
Complete your research with confidence.
Experience the Smith-Root Advantage.

Cutting-Edge

We didn't invent the electrofisher. That was Isham Baggs in England in 1863. However, since 1964, Smith-Root has defined the electrofishing world. As the science of electrofishing advanced, Smith-Root integrated the science with engineering, and brought the technology forward. Smith-Root introduced digital display of peak power outputs for standardization and is the only manufacturer to provide Quick-Start capabilities for increased confidence and effectiveness in the field. Most recently, Smith-Root continues to advance the electrofishing world by developing the only electrofishers that include automatic data recording of all electrical inputs, electrical outputs, GPS location, time, date, and elevation. These data are providing scientists with cutting edge electrofishing standardization, maps for presentations and reports, and improved data for fish population monitoring.

Smith-Root Advantage: Your cutting-edge field equipment enables you to achieve cutting-edge science.

Head of the pack

Just as you conduct novel science, we create novel equipment. Others continuously attempt to copy our designs and equipment, but unlike others, our engineers and scientists continuously invent and develop new equipment to keep you on the forefront of science. Subsequently, as we are rolling out our new and advanced components and capabilities, others are just getting around to copying our obsoleted parts and equipment. Smith-Root is often imitated, but we are never duplicated. Our most recent advancements include the only electrofishing equipment with an integrated USB drive used for downloading data from field sessions, as well as uploading newly updated software and firmware onto the electrofishing device. Therefore, you will always have the most advanced electrofisher on the market without fear that only a few months after purchasing your equipment a new feature will antique your equipment.

Smith-Root Advantage: You and your Smith-Root equipment are always at the head of the pack.

Longevity

Smith-Root electrofishing equipment stands the test of time. Most research budgets only allow for electrofishing equipment to be purchased one, or if you are fortunate, two occasions in a career. This means that equipment should have a proven track record of lasting more than 15 years. No other electrofishing company can demonstrate the reliability and dependability of Smith-Root equipment. Many of the Smith-Root electrofishers being used in the field today are older than the other electrofishing companies have been in existence! As the leaders in developing, manufacturing, and testing electrofishing equipment for 55 years, we know what it takes to make cutting-edge equipment that lasts for your career.

Smith-Root Advantage: Long lasting equipment that stands the test of time creates confidence and budget savings throughout your career and projects.

Reliability

Fish and fish scientists go places that few others dare to venture. We design, manufacture, and test our equipment to match the ruggedness and diversity of your field work and field sites. No other manufacturer can boast the track record of reliability and ruggedness of our specially designed pack frames, electrical circuitry, and accessories. Our on-staff scientists travel the world to teach, train, and certify scientists in the practice of electrofishing and return with feedback from in-the-field researchers. Our engineers then integrate this feedback into our designs for even greater reliability.

Smith-Root Advantage: You have the confidence to trek your reliable gear into the field wherever the fish lead you.

Safety

Safety is a top priority for all electrofishing crews. We know that when providing safe equipment, we must not hinder your ability to accomplish your research objectives. Therefore, all safety features are designed and tested to only activate when dangerous opportunities arise. Did you know that Smith-Root is the only electrofishing manufacturer to go through outside testing to certify equipment with an “ETL Safety Listing”? No other manufacturer of equipment matches the number of safety features and listings, while also leading the way in functionality.

Smith-Root Advantage: You get the comfort of successfully completing your research while using the safest equipment available.

Versatility

It is imperative that the equipment you take in the field not only functions on your current project, but also continues to function across the diverse landscapes and environments you will encounter over the course of your career. A Smith-Root electrofisher will succeed across the widest range of freshwater environments because of its superior peak power capabilities. Therefore, it won't just function on your current projects, but will also succeed on unforeseen projects you have in the future. Smith-Root equipment boasts the widest range of electrical outputs on the market, and therefore will continue to meet your needs as your research and environments expand and evolve.

Smith-Root Advantage: As your career and projects become more diverse, the versatility of your Smith-Root equipment will continue to help you achieve your research objectives.

Service

Accidents happen in the field and equipment breaks. Additionally, environmental conditions vary, requiring advice on electrical settings and field techniques. Our on-staff fish scientists and service technicians provide unparalleled service to solve problems, provide advice, and answer questions over the phone. Should we be unable to solve the problem over the phone, we have devoted technicians that rapidly repair and return equipment so that you can get back in the field to conduct your important research. We regularly receive feedback confirming our firm standing at the head of the pack in repair and customer service.

Smith-Root Advantage: no matter the issue or question with your field equipment, Smith-Root leads the way in getting you back in the field quickly.

Philanthropy

You do an amazing job of managing and conserving our shared aquatic environments. Your actions continually inspire us to give back. We contribute significantly to advancing the Fisheries Science Profession through donations to the American Fisheries Society (AFS) at the Society, Division, Chapter, Section, Student Subsection, and Committee levels. Additionally, our employees serve in elected positions within AFS and contribute significant amounts of time to planning conferences. We also support children's fishing events across the USA, youth science programs, and non-profit organizations that conduct aquatic habitat restoration projects across the globe.

Smith-Root Advantage: You have the confidence that Smith-Root is a major philanthropist for youth fishing and the profession of fisheries science, management, and conservation.

Science and Research

You conduct critically important management and conservation work. We strive to provide you with equipment that meets the requirements and scientific standards necessary to achieve your goals. Therefore, Smith-Root scientists and engineers continuously conduct research and science on our equipment and supply our equipment to leading scientists in the field who publish electrofishing research in scientific journals.

Smith-Root Advantage: Not only is our equipment the most rugged, reliable, and versatile, but it is also the most researched.

Global

Aquatic research is rarely bound by political boundaries. Therefore, we have a responsibility to supply our equipment to the best aquatic scientists around the globe. Smith-Root has partnerships with leading international businesses to best support global sales and service. These partners hold parts and equipment at their locations for more rapid responses. Additionally, we provide training in international locations as well as provide advice and service over the phone to anywhere in the world.

Smith-Root Advantage: No matter where you go in the world, your Smith-Root equipment will be supplied and supported.

Innovation

Technological innovation is a major contributor the advancement of your science. We heard your advice and introduced the Electric Fish Handling Gloves for safely immobilizing fish while reducing the need to utilize chemicals for fish sedation. Additionally, we innovated and developed the eDNA Filtration Pump to monitor rare, endangered, threatened, and invasive species from cellular material filtered from the water. For electrofishers, we are the only manufacturer to include automatic data recording of all electrical inputs, electrical outputs, GPS location, time, date, and elevation for every second of electrofishing that can then be downloaded through an integrated USB drive. That USB drive also allows you to upload all software and firmware updates while in the field. One more way that we recently directed our innovation to help you is by utilizing the same interface for all of our new equipment. Therefore, your ability to use and understand one piece of equipment is extended to others, saving you time and extending your expertise.

Smith-Root Advantage: Rest assured that Smith-Root is listening to you and innovating to help advance our technology along with advancements in science and engineering.

Education

You have questions, like, “What is electricity? How does electricity work in water? How do environmental conditions and the electrofisher’s settings play a major role in my ability to catch fish of different species and different lengths?” These questions and many more are answered during our two-day Electrofishing Certification and Safety Training courses. In fact, Smith-Root is the leading provider of Electrofishing Certification in the world, and a free enrollment for a class at our headquarters in Vancouver, Washington, USA, is included with the purchase of any of our backpack electrofishers. Our Certified Fisheries Professional instructor has taught this course around the globe, and Smith-Root is honored to educate people on the safe and effective use of electrofishing equipment. Additionally, Smith-Root is the only electrofishing manufacturer who provides help and guidance to educate you on proper settings and techniques while in the field.

Smith-Root Advantage: You become educated and have the confidence to effectively and safely operate the equipment to meet your scientific objectives.

Two for the price of one

Not only is the APEX Boat Electrofishing Control Box the most advanced electrofisher in the world, but it also singularly provides the electrical output capabilities that would require the purchase of two of the other manufacturers’ electrofishers. Therefore, the APEX saves you money while also expanding your research capabilities. The APEX is the only electrofisher engineered to provide 80 amps of peak output amperage when using lower voltage ranges, while also maintaining the ability to go up to 1,200 volts. No other electrofisher allows this range of output capabilities. Electrofishers from alternative manufacturers are significantly limited in their capabilities when compared to the APEX because of components that limit the output to only 40 amps at lower voltages, or by limiting voltage on the control box to only 600 volts. Therefore, without an APEX you are required to purchase and carry around multiple electrofishing control boxes when electrofishing in waterbodies of varying conductivities. Alternatively, the APEX is designed to successfully operate across the widest range of water conductivities with one electrofisher.

Smith-Root Advantage: You capture fish successfully across the widest range of water conductivities with only one electrofishing control box, therefore saving you money and expanding your research capabilities.

HEAVY DUTY ELECTROFISHING BOATS



The Right Boat for the Job

The most widely used boat electrofisher in the world made with a custom designed and manufactured hull from Smith-Root's very own boat shop. Ideal for long field days on lakes and rivers. Plenty of storage, stability, and space to get the job done. Available in hull lengths of 14 ft, 16 ft, and 18 ft.



Built With Intention, Designed to Perfection

Custom-built from the bottom up, the Heavy Duty Series sets the gold standard for electrofishing boats. With a full engineering staff and a heritage of excellent performance and long lasting boats; Smith-Root can build you the perfect boat for your application.

Built to Last

The custom designed hull is constructed from heavy gauge marine grade aluminum for a long service life. The all-welded design combined with hard rivets means your Smith-Root boat will be on the water for decades.

Go Where the Fish Are

With a custom designed shallow-draft hull, the Heavy Duty Series puts you on the fish in those hard-to-reach nearshore habitats.

Just Launch and Electrofish

Built for electrofishing, all models come fully equipped and ready for fieldwork. Apex Electrofisher, generator, electrode arrays and booms are all standard.



Smith-Root, Inc.
16603 NE 50th Ave
Vancouver, WA 98686
360-573-0202
360-573-2064 FAX
www.smith-root.com

Federal ID #91-0843323

Our Quotation # 016308-00

Quotation Valid Thru : 01/15/2021

Bill To: 003756

WV DEPT. OF NATURAL RESOURCES
WILDLIFE RESOURCES SECTION
324 4TH AVE
SOUTH CHARLESTON WV 25303

Ship To:

WV DEPT. OF NATURAL RESOURCES
1 Depot Street
ROMNEY WV 26757
United States

Attention : JIM HEDRICK

Terms: NET 30

Quote Date	Your Request #	FOB	Ship Via	Salesperson
10/14/2020	ARFQ DNR21_15	VANCOUVER, WA	BEST WAY	CH
Item	Part / Rev / Description	Quantity Quoted	Unit Price	Extended Price
001	07904 001 TRAILER TANDEM KARAVAN SR16-21 Galvanized Tandem axle, bunk trailer with low friction slides. Also includes spare tire/mount, disc brakes, winch and LED low profile light kit: -2-inch coupler. -Transom straps. -Guide bunks. -Galvanized steel fenders. -Rated for quoted boat	3.0000 EA	6,885.00	US\$ 20,655.00
002	07254 000 GENERATOR HONDA EU7000IS	3.0000 EA	6,000.00	US\$ 18,000.00
003	12056-18 NS BOAT SR-18 ECONOMY EHX ELECTROFISHER APEX ***Quoted as equal or exceeds on all requested specifications 18ft V hull Extra heavy duty hull Please see below and the provided specification check list for details and specifications. Our hulls are constructed of rugged marine grade aluminum that gives superior impact strength and excellent resistance to water and weather corrosion. The hulls feature inside and outside all-welded seams and a formed chine that overlays the double welded bottom seams. Transoms are designed and built to resist damage that can happen in or out of the water. Closed-cell marine grade spray-in flotation is installed along both sides, with ample flotation placed below the deck line. This extra flotation is provided so that a fully equipped electrofishing boat will float	3.0000 EA	77,000.00	US\$ 231,000.00

ORIGINAL



Smith-Root, Inc.
 16603 NE 50th Ave
 Vancouver, WA 98686
 360-573-0202
 360-573-2064 FAX
 www.smith-root.com

Federal ID #91-0843323

Our Quotation # 016308-00

Quotation Valid Thru : 01/15/2021

Bill To: 003756

**WV DEPT. OF NATURAL RESOURCES
 WILDLIFE RESOURCES SECTION
 324 4TH AVE
 SOUTH CHARLESTON WV 25303**

Ship To:

**WV DEPT. OF NATURAL RESOURCES
 1 Depot Street
 ROMNEY WV 26757
 United States**

Attention : JIM HEDRICK

Terms: NET 30

Quote Date	Your Request #	FOB	Ship Via	Salesperson
10/14/2020	ARFQ DNR21_15	VANCOUVER, WA	BEST WAY	CH
Item	Part / Rev / Description	Quantity Quoted	Unit Price	Extended Price
	<p>approximately level in the unlikely event of flooding. These features ensure our hull provides maximum safety and a much greater service life. Couple this with Smith-Root's long lasting and reliable boom/array system, the electrofishing boat quoted herein will exceed your expectations in both reliability and performance.</p> <p>Quiet running generator, Electrofishing Booms with SAA-6 Anode Arrays, Cathode Array, removable Fish Livewell, Pumps, LED lighting package and USCG-approved LED navigation and anchor lights with waterproof switch panel. Dri Deck Matting, Dual Marine Group-24 Battery System, Portable Federal EPA Compliant Fuel Tank, underneath the work deck is a large, dry storage compartment with locking marine doors. Steering and Control Console with Heavy-Duty Custom Canvas Cover.</p> <p>Electrofishing support system: Swing out electrofishing booms (telescoping) made of Custom UV resistant fiberglass material. Booms are removable and come with heavy duty wiring and strain relief system. Booms will also have removable/adjustable hangers that mount to safety rail and Smith-Root's fully adjustable/lockable clutch system. This clutch system includes custom friction pads which provide a greater service life over previous versions.</p> <p>SAA Arrays: This package is offered with SAA arrays which features six stainless steel dropper cables that expand from twelve inches to thirty-six inches in diameter. The droppers are</p>			

ORIGINAL



Smith-Root, Inc.
 16603 NE 50th Ave
 Vancouver, WA 98686
 360-573-0202
 360-573-2064 FAX
 www.smith-root.com

Federal ID #91-0843323

Our Quotation # 016308-00

Quotation Valid Thru : 01/15/2021

Bill To: 003756

**WV DEPT. OF NATURAL RESOURCES
 WILDLIFE RESOURCES SECTION
 324 4TH AVE
 SOUTH CHARLESTON WV 25303**

Ship To:

**WV DEPT. OF NATURAL RESOURCES
 1 Depot Street
 ROMNEY WV 26757
 United States**

Attention : JIM HEDRICK

Terms: NET 30

Quote Date	Your Request #	FOB	Ship Via	Salesperson
10/14/2020	ARFQ DNR21_15	VANCOUVER, WA	BEST WAY	CH
Item	Part / Rev / Description	Quantity Quoted	Unit Price	Extended Price
	submersible to three feet of water and are complete with a brass quick connect fitting and safety line. Compatible with all Smith-Root Electrofishing Booms. Motor Package: Each boat will come with a top of the line Mercury Command Thrust 115HP Extra long shaft motor that features power tilt and trim along with a second generation side mount controller and a smart craft digital/analog tach. Additionally, each will come with and a 9.9 HP Mercury Command Thrust Kicker Motor Pricing on this quote reflects delivery to the following address: DIVISION OF NATURAL RESOURCES WILDLIFE RESOURCES SECTION 324 4TH AVE SOUTH CHARLESTON WV 25303			
004	12038S NS ELECTROFISHER SYSTEM APEX CNTRL BOX	3.0000 EA	11,975.00	US\$ 35,925.00
005	COMPETI 000 COMPETITOR DISCOUNT	3.0000 EA	-42,000.00	US\$ -126,000.00
			Freight Tax	US\$ 15,000.00
			Quote Total	US\$ 179,580.00 US\$ 194,580.00

ORIGINAL

Quote Specification Check list

Specifications for Bid		
Requested Specification	Does the boat quoted by Smith-Root meet or exceed the requested specifications (Y/N)?	Notes
Electrofishing Box		
Must be capable of sampling waters between 50-1800 μ S.	Y	
Must have programmable electrofishing settings.	Y	12 programmable electrofishing "favorites" settings for saving output waveforms: recalls waveform, duty cycle, frequency, and voltage
DC output must have pulsed and continuous output, square waveform, voltage adjustment from 0-600 volts at 1-volt increments, maximum output of 75+ amps, duty cycle adjustment from 1-100% in 1% increments.	Y	
AC output must have pulsed and continuous output, square wave, voltage range from 0-200 volts at 30 amps RMS.	Y	
Must have pulse rate of 1-250 HZ.	Y	Frequency Range (pulses per second; pps): 1-1,000 hertz (pps) in 1 hertz increments*
Must have independent digital metering of peak output for watts,amps and volts	Y	
Must have digital readout of electrofishing pedal time	Y	
Must have emergency shut-off switch.	Y	
Must have illuminated readouts for nighttime use.	Y	Display: Sunlight readable 1,000 nits; Day Night Mode; 5" 800x480 color LCD
Must have waterproof connections	Y	
Box must be water resistant	Y	
Must be removable for use on multiple systems (pram barge, smaller Jon boat, raft, etc.)	Y	
Boat		
Must be US Coast Guard Approved.	Y	
Minimum 18' in length.	Y	18ft -10in
Maximum 19' in length.	Y	18ft -10in
Must be V front with flat bottom.	Y	
Must be equipped with a 115 HP outboard with hydraulic jack plate.	Y	ENGINE OUTBOARD MERCURY MOTOR 115EXLPT Command Thrust FourStroke With Power tilt and trim
Must be equipped with minimum 9.9 HP kicker motor.	Y	TILLER 9.9EXLPT Command Thrust ProKicker FourStroke
Must have minimum hull thickness of 0.125	Y	Marine Grade Aluminum
Must have minimum of 0.125" thick hull.	Y	Marine Grade Aluminum
Minimum 28" side	Y	30in
Minimum 80" beam.	Y	96in Beam
Must have center console.	Y	Custom Console with Electrofishing box mount made of Marine Grade Aluminum
Center console must be equipped with the following:		
-Hydraulic steering wheel	Y	PROTECH Hydraulic Steering System
-Windshield	Y	
-Right side throttle control	Y	Mercury Gen 2 Controller
-Waterproof console cover	Y	Custom fit console cover
-Heaviest Grade Pedestal seat	Y	Ultra Premium Captains Seat
-Under seat storage	Y	Aluminum Seat Box
Must have front deck with storage underneath with:	Y	
-Kick plate footswitches	Y	
-Kickplate footswitches must have the capability to work independently.	Y	
-Non-slip floor mat.	Y	Dri-Dek matting throughout
-Must have tread plate aluminum flooring.	Y	
Must have removable livewell with pump, recirculation and lights.	Y	
-Minimum 60 gallon	Y	63 Gallon
-Two-hinged lids	Y	
Must have removable bow safety railing.	Y	
Must have two pivoting electrofishing booms with chain supports	Y	
Must have navigation lights.	Y	
Must have LED headlights or lightbar.	Y	2 High Power water proof LED lights mounted at each corner of the boat
Must have LED electrofishing lights.	Y	4 High Power water proof LED lights mounted at the bow
Must have red LED deck lights.	Y	Flush mount Decklights through out
Minimum of two 12-volt DC accessory plugs.	Y	
Must have easily accessible on-board battery charging system	Y	
Must have bilge pump.	Y	

Must have independent on-board battery for motors.	Y	
Must have audible navigation signaling device (horn).	Y	
Boat Trailer		
Trailer must be compatible with specification 3.1.2.	Y	
Trailers must be appropriately rated for the specified boat.	Y	
Must be galvanized steel.	Y	
Must have braking system.	Y	
Must have 2-inch coupler.	Y	
Must have waterproof LED lights.	Y	
Must have heavy-duty winch and safety chain.	Y	
Must have mounted spare tire	Y	
Must have transom straps.	Y	
Must have guide bunks.	Y	
Must have roller bottom bunks or bunks equipped with low friction slides.	Y	Bunks with bunk slides
Must have galvanized steel fenders.	Y	
Must have minimum 13" wheel	Y	
Generator		
Must be compatible with commercially manufactured air-cooled inverter generators.	Y	
Must have minimum displacement of 380cc.	Y	
Generator must be AC Output 120/240 Volts 7000 Watt Maximum	Y	
Must be equipped with electric and recoil starting options.	Y	
Must be equipped five (5)-gallon minimum fuel tank capacity.	Y	
Must not exceed a maximum noise level of 65 decibels during operation.	Y	
Must be removable.	Y	