



RCR Battery & Battery Charger Service Info



Take care of your ONYX Motorbike, and it will take care of you...! This document provides reference information, procedures, and other supporting information for the battery and battery charger provided with your ONYX Motorbike. Also see the INS003-Battery Stuff Insights document for additional information about battery charging and charger information.

BATTERY REFERENCE INFORMATION

This section provides reference information, procedures, and other supporting information for the battery employed on ONYX Motorbikes.

Item	Specification
Battery Voltage - Output	72 VDC
Battery Case Dimensions	14.125" x 4.375" x 6.625" (358 mm x 111 mm x 168 mm)
Battery Weight	25 lbs. (11.3 kg)
Operating Voltage Range	60-84 VDC
Maximum Charge Voltage	84 Volts +/- 2%
Battery Capacity	23 Amp-hour / 1,656 Watt-hour (1.6 kWh)
Rated Current	55 Amps (constant current, discharge)
Peak Current	~70 Amps (maximum current measured under 3,000 Watt motor load)
Typical / Max Charge Current	5 Amps – Recommended Standard / 10 Amp Maximum Rapid Charge
Battery Cell Type	High-Quality 3.7V Lithium Ion - NCM (Nickel Cobalt Manganese Oxide Based) 18650 Cells
ONYX Battery Pack Configuration	20S9P (20 Serials (20S) 9 Parallels (9P))
Battery Pack Cell Matching & Grouping Tolerances	Cell Capacity Gap = +/- 30 mah; Cell Voltage Gap = +/- 5 mV; Cell Internal Resistance Gap = +/- 3 mOhm
ONYX Battery Management System (BMS)	Integrated Battery Battery Management System (BMS manages safe and efficient charging and balancing of each and all battery cells as a system to maintain battery life and performance)
ONYX Battery BMS & Other Protections	The BMS has an overcharge voltage protection function that detects and protects single cells in addition to serial groupings that will cut off charging to 4.25 V +/- 50 mV (recover at 4.15 V +/- 50 mV). The over-discharge cutoff is 2.8 V +/- 80 mV (recover at 2.85 V +/- 150 mV). Batteries also incorporate PTC and CID protections. PTC (Positive Thermal Coefficient) provides external short condition cell protection, and CID (Current Interrupt Device) provides overcharge condition cell protection.
Battery Load Connector	Heavy-Duty Anderson 2-Pole Connector
Battery Charge Cable Connector Type	Metal Case 3-Pin XLR (female)
Battery (Charge Cycle) Life	Rated for 800 Charge Cycles



SERVICE NOTES

Battery Reference Info



RCR 72V Lithium Ion Battery Pack



RCR 72V Lithium Ion Battery Pack – Bike Connection Cord (left), XLR Charge Cord (right), and ON/OFF Switch Shown

BATTERY SERVICE INFORMATION

The following section provides additional detailed reference information about the lithium ion battery used in the ONYX RCR Model.



CAUTION

- If you are not confident in your ability to successfully and safely perform maintenance or repair tasks, we recommend having the work performed by a local, certified, and reputable bike mechanic. Contact ONYX Motorbikes for assistance with finding a suitable service shop near you.
- Do NOT open the battery case for any reason. There are no serviceable parts inside the battery.
- Do NOT touch the two (2) protected metal contacts on the red 2-pole Andersen style battery connector.

The proprietary ONYX 72V RCR Battery is a NO-MAINTENANCE lithium ion battery that is encased in a sealed heavy-duty protective metal case. There are no serviceable items inside or outside of the battery case.

The only service that can be performed on the battery is to keep it clean, dry, and protected from dirt and debris. If the battery case gets dirty, wipe the case with a damp soft cloth. If necessary, blow out the battery connectors with dry compressed air.

BATTERY CHARGER INFORMATION

This section provides information related to the Battery Charger employed on ONYX Motorbikes.

Item	Specification
Battery Charger – Standard Charge	Separate External 84 VDC Output, Fixed Output 5 Amp Smart-Charger, 110 VAC and 230 VAC Power Cord
Battery Charger Charge Cable Connector Type	Metal Case 3-Pin XLR (male)
Battery Charger Charge Cable Connector Pinout	Male - Pin 1 = DC+ (positive); Pin 2 = DC- (negative); Pin 3 = GND (ground/signal)
Battery Charger Protection Fuse	Replaceable Fast-Blow Fuse
72V RCR Battery Charger Fuse: (check to see which style you have...)	<ul style="list-style-type: none"> Standard ONYX 5A RCR Battery Charger Fuse (most common): Typical PN# F10AL250V; 5 X 20mm 250V (10 Amp) Fast Blow Glass Fuse  <p>OR</p> <ul style="list-style-type: none"> Early Generation ONYX 5A RCR Battery Charger Fuse: Typical PN# T6.3AH 250V; 5 X 20mm 250V (6.3 Amp) Slow Acting Ceramic Cartridge Fuse 

Standard 5 Amp Battery Charger Reference Info



RCR 72V Battery Charger – Power Cord Not Shown



RCR 72V Battery Charger 3-Pin XLR Style Charging Cord – Male End with Pin Identification

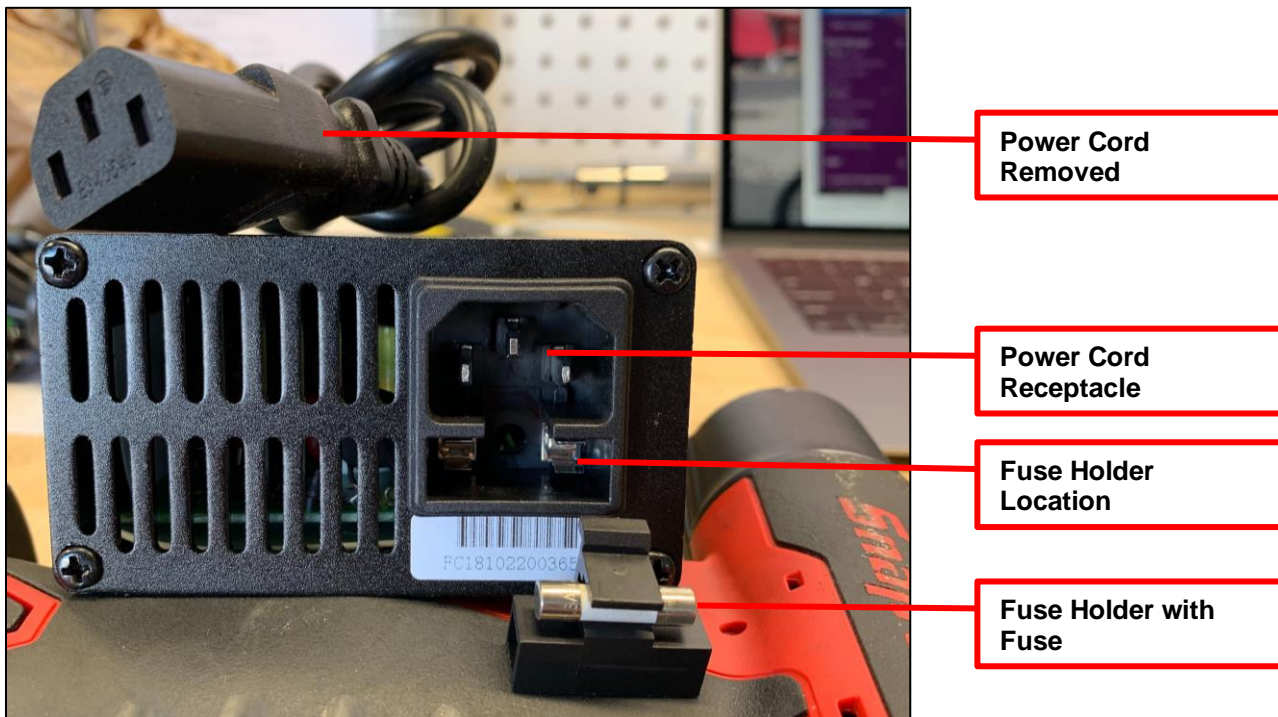
**Reference:
PIN #1 (DC+)**

RCR BATTERY MAXIMUM CHARGE NOTES & INFORMATION

Keep in mind that the 100% RCR battery maximum charge voltage is 84.0 Volts +/- 2% on the 72V battery for the RCR. Yours may charge fully to a little more or a little less. This is normal, so don't worry if it is not exactly 84.0V. The BMS manages it to make sure it is optimized based on the cells and their condition in the pack. Also, don't be fooled, and note that the bike draws a certain amount of voltage when it is on. For example, a standard RCR will normally draw approximately 0.6 volts when it is turned on. Therefore, it is normal for the display show 83.8 V (in the upper right corner) when fully charged.

BATTERY CHARGER FUSE SERVICE INFORMATION

This section provides information related to changing the Battery Charger fuse.



1. Remove the power cord from the battery charger receptacle.
2. Using a flatblade screwdriver, carefully pry out the fuse holder.
3. Carefully remove the blown fuse from the fuse holder.
4. Install the new fuse in the fuse holder.
5. Insert the fuse holder into the battery charger.
6. Plug the power cord into the battery charger.
7. Test the operation of the battery charger by plugging it into a stable 120-240VAC power source. The indicator light should be green with no battery connected.