

Installing Your Electric QuietTorque™ 10.0 SD Motor System



List of Equipment Supplied:

- 1 – Motor/Saildrive Assembly
- 1 – Motor Controller Assembly
- 1 – Battery Power Switch
- 1 – 250A Class-T Fuse and holder
- 1 – Relay (also commonly called a “contactor” or “solenoid”)
- 1 – Throttle assembly w/ key switch and attached cable (p/n 01007)
 - 8 – #8 x 1/2” Phillips head screws
- 1 – Battery Monitor (display) w/ attached cable (p/n 01057 or 01059)
 - 2 – #6 x 1” Phillips head screws
 - 2 – #6 x 1 3/4” Phillips head screws
- 8 – 3/8” x 2 1/2” lag screws

List of Tools Needed for Installation:

- 1/2” combination wrench (open and box end) or socket
- 9/16” combination wrench or socket
- 3/4” combination wrench
- 1/8” hex wrench (Allen wrench)
- 3/16” hex wrench
- #2 Phillips screwdriver
- 3” hole saw
- 1” drill or hole saw
- 5/16” drill
- 5/32” (0.156”) drill
- Electric drill

Unpacking:

You will have received your motor in two double wall cardboard cartons. One will include the saildrive assembly. The other will include the motor, motor controller and other accessory items.

Installation Preparation:

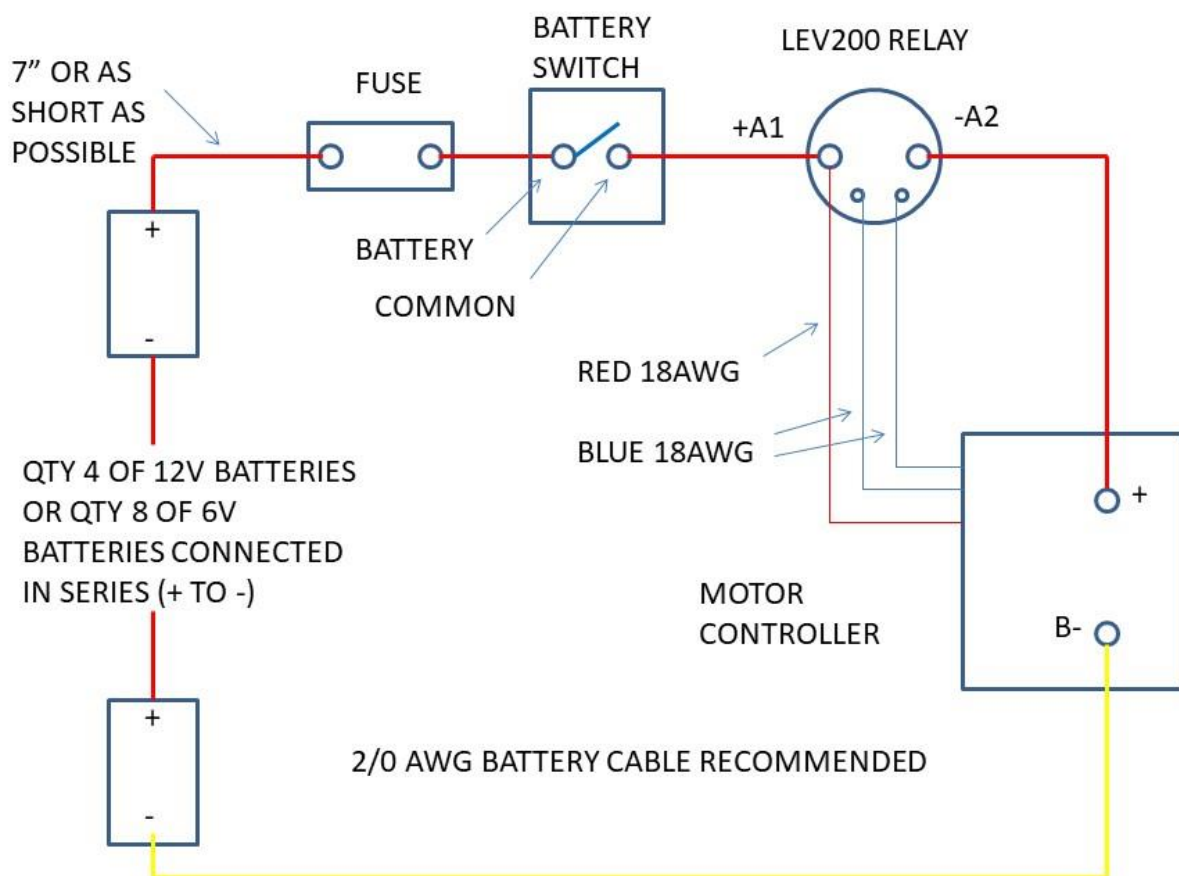
If you are repowering, you likely have a situation where many years of oil, grease and dirt have accumulated in your engine compartment. It is strongly recommended that you take the time to de-grease, sand and paint the wood and fiberglass in this area. This will greatly help in getting rid of the fossil fuel smell that commonly permeates this space. It is much easier to do this when the old engine and associated hardware are removed before installation of the batteries and electric motor have begun.

Battery Installation:

Note: It is very important to provide sufficient ventilation in your battery compartment area. Flooded lead/acid batteries routinely give off hydrogen gas when charging. Even AGM and GEL batteries can outgas, if overcharged. Since hydrogen gas is lighter than air, always provide ventilation at the TOP of the compartment. Also, provide ventilation at the bottom to help facilitate airflow.

1. Before starting, measure up your desired spaces and make sure the batteries you will use fit. Be sure to allow some space and access above the batteries for watering and terminal cleaning.
2. Locate all the batteries and secure in place. This is usually the most time consuming part of the installation.
3. Connect all the batteries in a series string in a (-) to (+) configuration. Always use a wrench with plastic coated handles when tightening battery terminals. If one is not available, wrap the handle with electrical tape. Batteries can produce very high currents in a short circuit situation that will melt (weld) metal and cause serious burns.
4. Use a volt meter and verify you have the correct voltage at the (-) and (+) battery terminals. A fully charged 48V (nominal) battery bank will measure 50Vdc – 52Vdc. A LiFePO4 battery bank will be in the 52Vdc-54Vdc range.
5. Run a cable from the battery (-) to the area where the motor will be installed. Traditionally, black was used. Current ABYC standard calls for yellow jacketed cable for this connection. We recommend 1/0 AWG (or larger) for a QT 10.0 installation. Refer to ABYC standards for additional guidance.
6. Install fuse as close as practical to the (+) battery terminal(s). Leave the connection to the (+) terminal of the battery disconnected for now. Use red cable for the positive side connections.
7. Install the master power switch. Make sure it is off.
8. Install the relay after the power switch. Notice there is a (+A1) polarity marking on one of the large studs. This stud should be on the battery side. Connect the cable from the master power switch and the red 18AWG wire from the motor controller. It should be on top of the current carrying cable. Normally, the relay is installed on the mounting bracket of the motor controller.

9. Connect the two blue wires to the coil connections on the relays. They are not polarity sensitive.
10. Connect a cable to the other large stud (-A2) on the relay and run to the area where the motor will be installed.
11. To the greatest extent possible, route the + and - cables together. This helps minimize electrical interference to your VHF radio and minimizes any risk of magnetic interference that could affect your compass. Long runs may also be twisted. Do not bundle with other wiring.

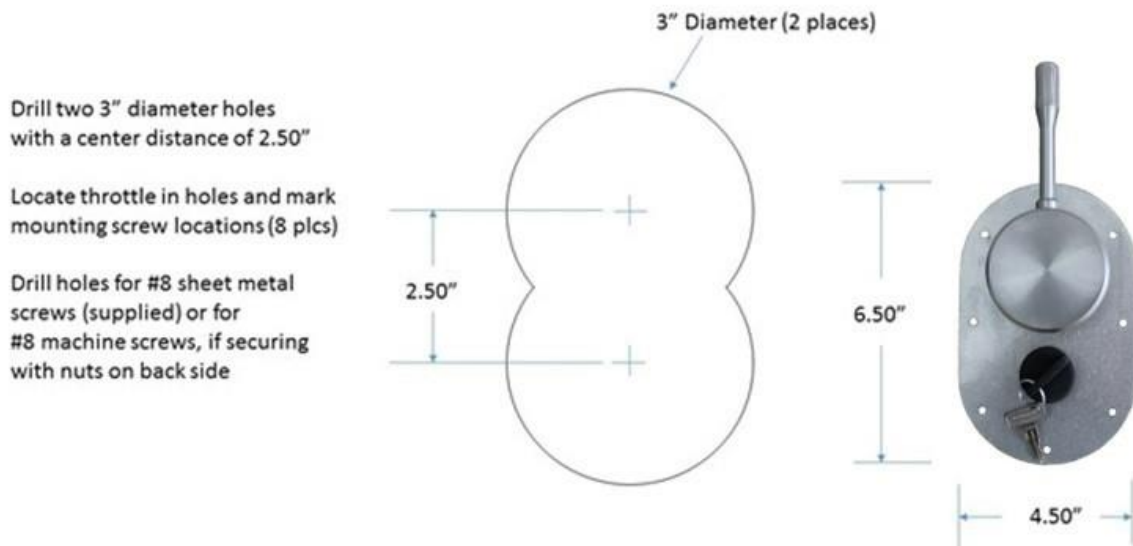


QT 10.0 WIRING DIAGRAM

Throttle Installation:

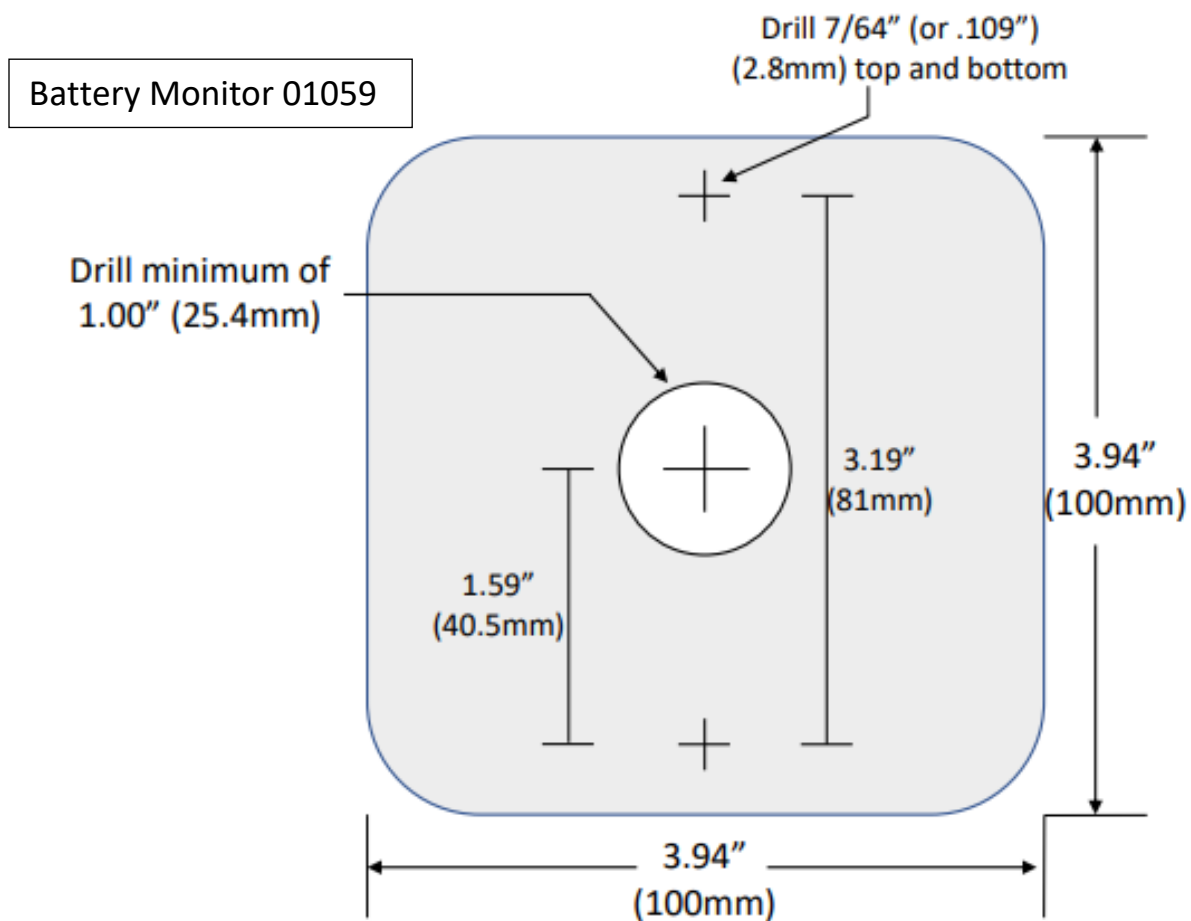
1. Locate a convenient area in the cockpit. This should be a flat surface. Often, there is already a hole where the old engine controls were. A sheet aluminum plate can be cut to fit, in this case. **If you have ordered the optional Binnacle Mount, skip this section and refer to the Binnacle Mount instructions.**
2. Cut two 3" (80mm) holes with a 2.50" (64mm) center distance between the holes. Typically, these are aligned vertically, but can be in any orientation.
3. Put throttle control in place and mark the screw holes, drill holes and secure in place. Use a waterproof sealant around the flange of the throttle quadrant to make it watertight. Silicone RTV works well. #8 x 1/2" Phillips head screws (provided) or #8-32 x 1/2" machine screws with backing nuts are typical choices.
4. Run the cable(s) to the area where the electric engine will be installed and secure in place.

Throttle Mounting Template

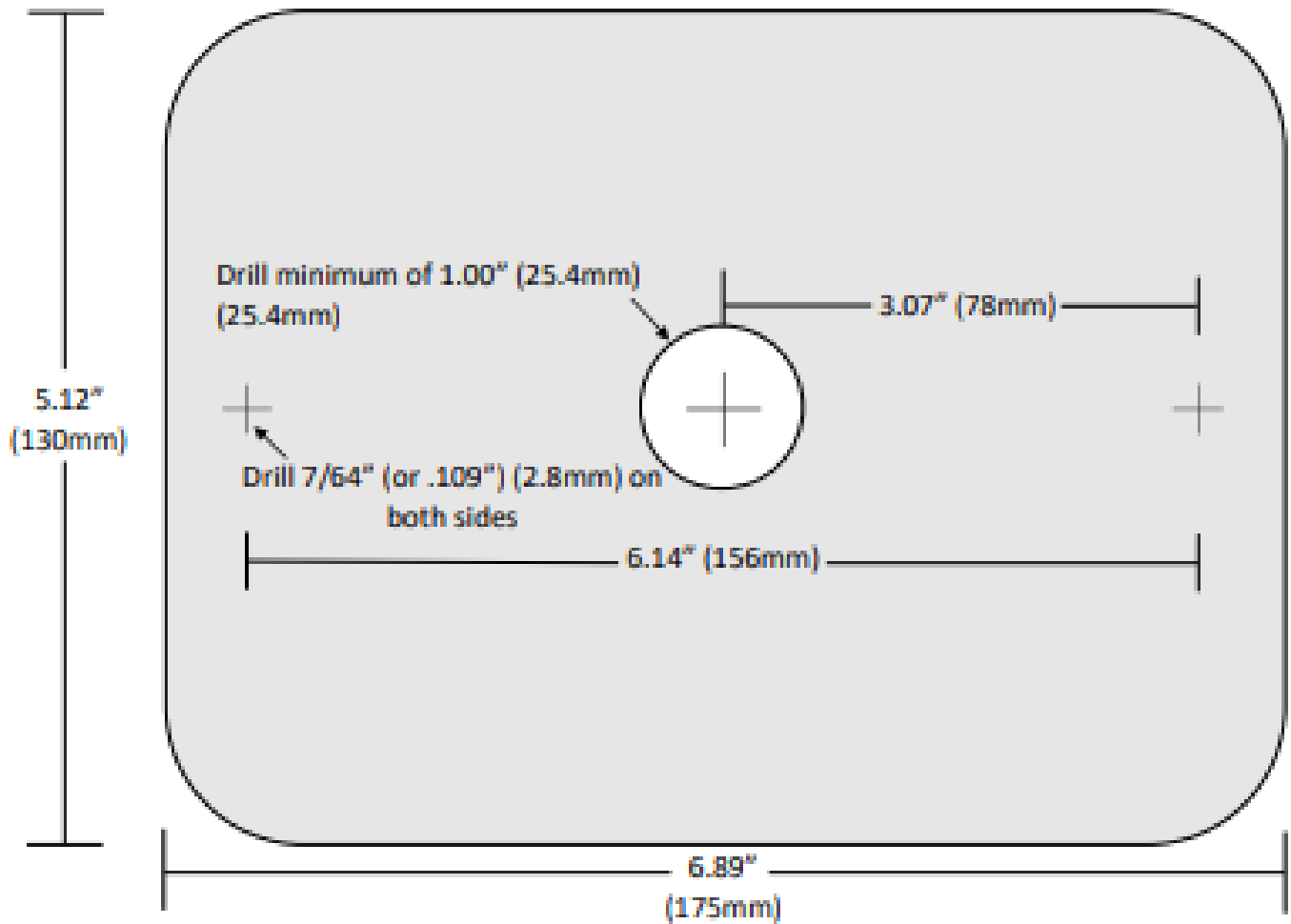


Battery Monitor Installation:

1. Find a location in the cockpit to install the Battery Monitor. This should be a flat surface with good visibility from the normal steering position.
2. Use the figures below depending on your battery monitor to determine hole placement for mounting. Drill the appropriate holes.
3. Apply sealant around the holes and drive in provided #8 x 1/2" screws or other hardware as appropriate.
4. Run the cable to the engine area and secure.

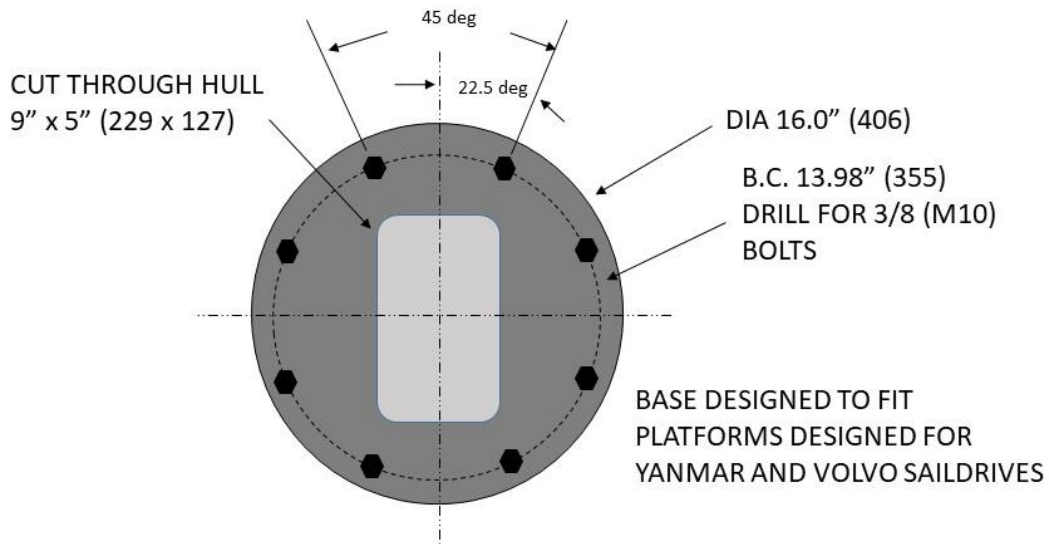


Battery Monitor 01057



Electric Engine Installation:

1. If you do not already have a fiberglass platform meant for mounting a saildrive, construct a platform as shown below around a 9" x 5" hole cut through hull.
2. For ease of installation, leave the motor dismounted from the saildrive assembly.
3. Place saildrive unit into position and mark holes. There are 8 holes on a 12" circle. They are drilled for 3/8" (M10) bolts or lag screws. If mounting on an existing fiberglass platform, check to make sure the holes line up with the holes in the platform. If they line up, skip step 4. You should be able to use the already threaded holes in the mounting platform.



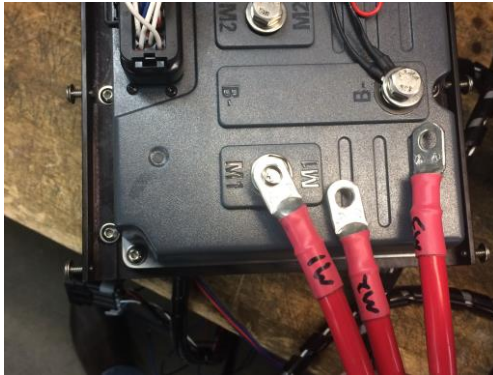
4. Remove saildrive and drill pilot holes.
5. Re-install saildrive assembly and seal with a good marine sealant, such as 3M 5200 applied to the entire contact surface. Make sure both surfaces are clean and degreased. Allow to cure.
6. Install the motor on the saildrive. The belt should be tensioned such that there is approx. 1/8" deflection between pulleys with moderate finger pressure. If your motor does not have a belt, insert the motor shaft into the coupler on the saildrive. Tighten the bolts on the coupler before installing and tightening the bolts that hold the motor in place.



7. Remove plug above mounting plate and fill with ATF to level of hole (approx. 2L). Put pipe dope on plug and install tightly.



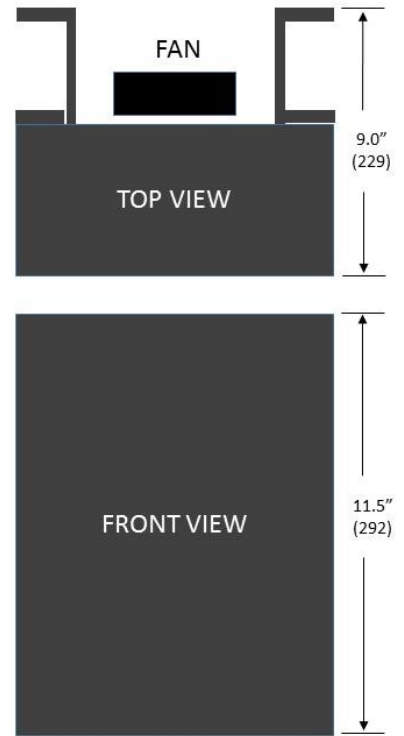
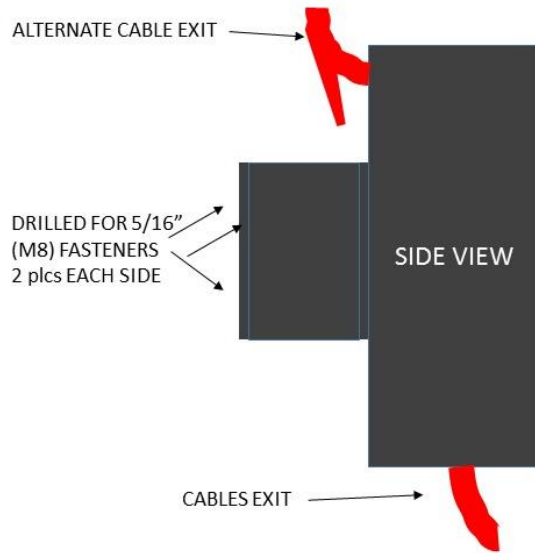
8. Install the motor controller close enough to the saildrive for the cables to reach. Connect the power cables (M1, M2 and M3) to the terminals on the motor controller labeled M1, M2 and M3. Connect the encoder cable. If you have two saildrives, make sure the motor labeled "1" is connected to the controller labeled "1" and the motor labeled "2" is connected to the controller labeled "2". They may also be labeled "Port" and "Starboard".



9. Connect a yellow (-) cable to the (B-) terminal on the controller. There will also be either two or three smaller yellow wires with 5/16" terminals. Put these on top of the battery cable terminal and secure with the supplied bolt.
10. Connect the red (+) cable from the relay to the (+) terminal on the Sevcon controller. The B+ connection on the motor controller is not used.
11. Connect the Throttle Control cable and Battery Monitor cable to the corresponding connectors on the wire harness connected to the Sevcon motor controller. They secure with a twist and are waterproof. The display connector has 8 pins. The throttle has 6 pins. They also have an alignment post. Make sure to connect the correct connectors together and rotate until the alignment post is aligned. Do not force them together, they go together easily when properly aligned. Rotate the locking collar clockwise to secure.

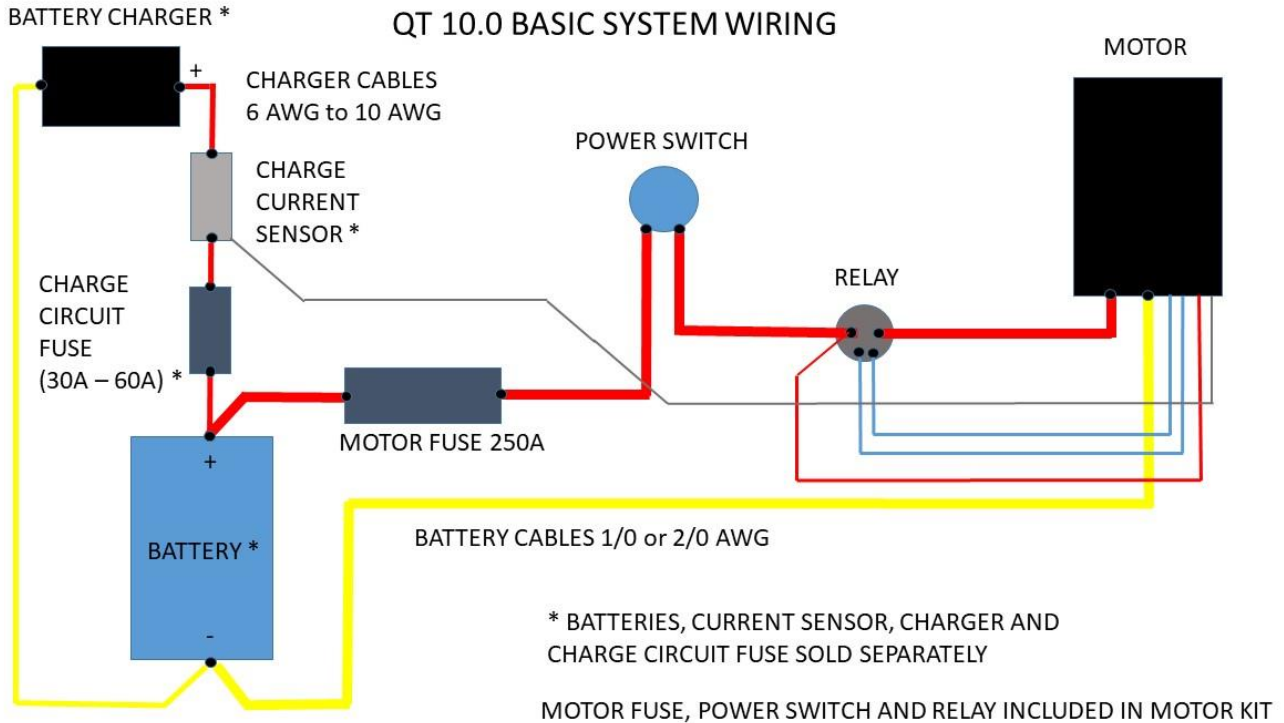
MOTOR CONTROLLER DIMENSIONS AND MOUNTING

- 2 x CONTROLLERS NEED TO MOUNT WITHIN 6" (150mm) OF EACH OTHER
- IP 68 RATED FAN COOLING ALLOWS FOR VERTICAL OR HORIZONTAL MOUNTING
- CABLES CAN EXIT FROM TOP AND/OR BOTTOM
- SECURE TO MOUNTING SURFACE, SUCH AS BULKHEAD, WITH UP TO 5/16" (M8) SCREWS (4 plcs)

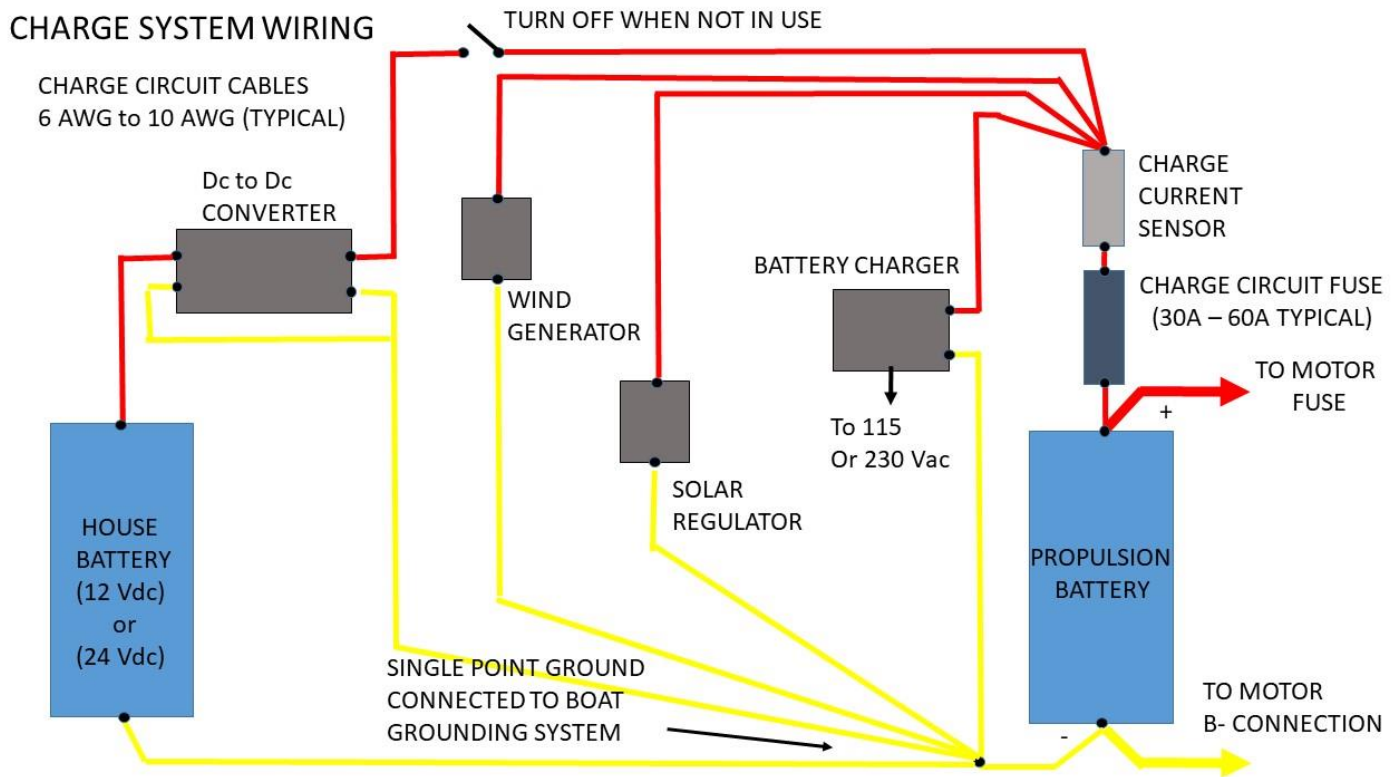


Charging System

1. Below is a wiring diagram for a basic charging system using a battery charger powered by shore power. Typically, the battery charger will have a dc maximum output current rating of 25A – 30A. This size charger can be powered from a 115Vac outlet. It can also be powered by a Honda 2000 (or clone) generator. Refer to separate instructions for installing and using the Charge Current Sensor.



2. In other cases, a more complex charging system taking advantage of renewable energy sources may be used. Below is a basic connection diagram for a more complex system. Consult with the installation instruction for the various devices for additional information. Also, included is a dc-dc converter. This device does a voltage conversion from the 48Vdc propulsion battery to the 12Vdc house battery. When used, it will keep the house battery charged. In cases where there are only lights and minimal electronics onboard, the house battery can be eliminated, saving space and weight.



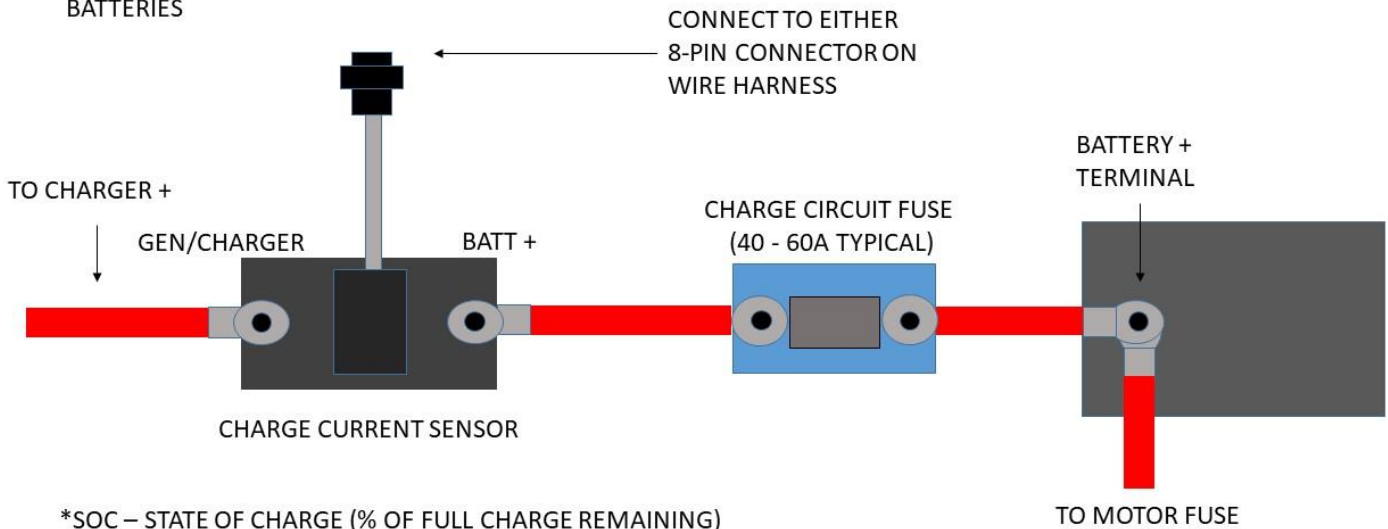
Charger/Generator Current Sensor Wiring:

If you plan to charge while underway, either directly from a dc generator, or through an ac generator powering one or more battery chargers, refer to the wiring diagram below. This charge current sensors will ensure the SOC reading on the display is accurate while charging. If it is not used, the Electric Yacht controls will not be aware that charging current is flowing into the batteries. Instead, it will only see a voltage that is high for the actual SOC and display an incorrect SOC value. It is highly recommended that this sensor is installed if charging while underway will be done with any frequency.

OPTIONAL CHARGE CURRENT SENSE CONNECTION

NOTES:

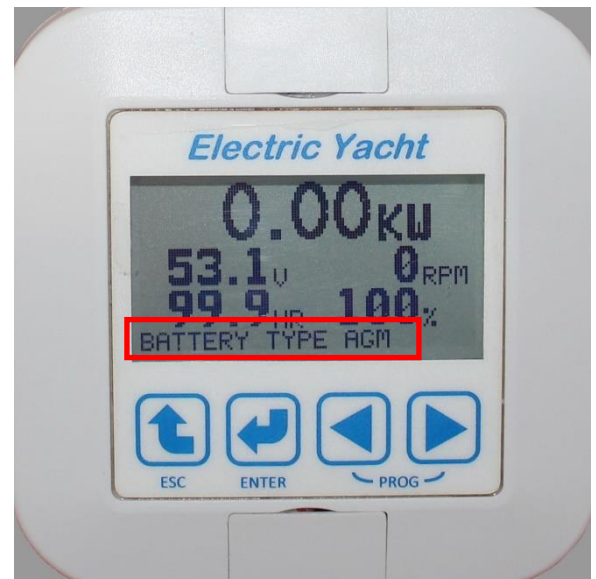
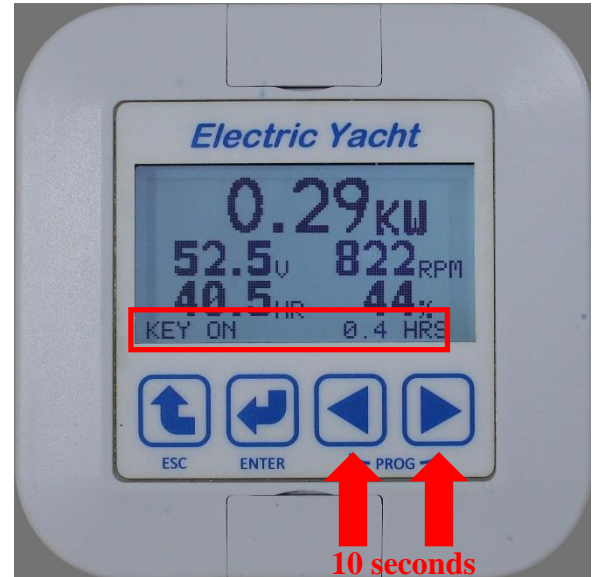
1. DISPLAY(S) CAN CONNECT TO EITHER 8 PIN CONNECTOR
2. CHARGE CURRENT SENSOR INSURES ACCURATE SOC* INFORMATION IS DISPLAYED WHILE CHARGING BATTERIES



*SOC – STATE OF CHARGE (% OF FULL CHARGE REMAINING)

Initial Check Out:

1. Connect a voltmeter between the (B-) terminal on the motor controller and the (+) terminal on the relay. This is the forward terminal with a cable coming from the Master Power switch. Verify correct voltage and polarity.
2. Turn the key switch to the “ON” position and verify the battery monitor (display) comes on.
3. Press and hold the left and right arrow buttons on the battery monitor simultaneously for about 10 seconds until the bottom line of the display changes to show battery type. You are now in programming mode.
4. Use the left or right arrows to choose your battery type. Press the “ENTER” key.
 - a. Flooded refers to traditional “wet cell” batteries.
 - b. AGM refers to traditional Absorbed Glass Matt, such Lifeline batteries.
 - c. TPPL refers “Thin Plate Pure Lead”, examples would include Odyssey and Northstar brands.
 - d. LiFePO4 refers to “Lithium Iron Phosphate,” an example is Battle Born brand.
 - e. NMC refers to lithium “Nickel Manganese Cobalt”, an example is the Torqeedo brand.



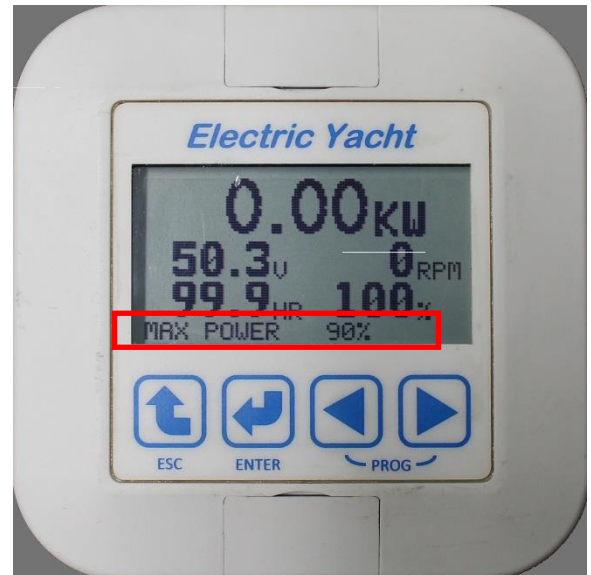
5. Use the left and right arrows to choose the nominal battery voltage. In most cases, this will be 48V. Press the “ENTER” key. If one of the Li-ion types are chosen, select the series “cell count”. A common “48V” series string of LiFePO4 cells uses 16 cells in series, though some use 15 cells. A typical Li-NMC “48V” battery will use 14 cells in series.



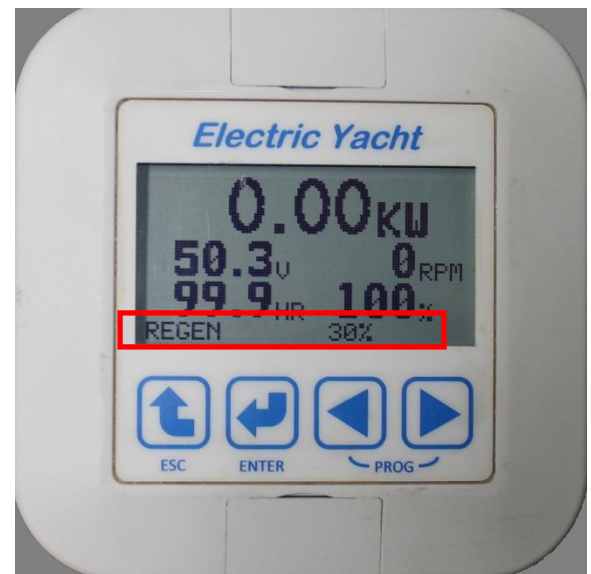
6. Use the left and right arrow keys to select the amp-hour capacity of your battery. Press the “ENTER” key.



7. Allow 5 seconds for the Battery Monitor to get the Max Power setting from the Sevcon motor controller. In most cases, leave the setting at 100%. If reducing maximum power is desired, use the left or right arrow keys to set it to the desired setting. Wait 5 seconds before pressing the "ENTER" key.

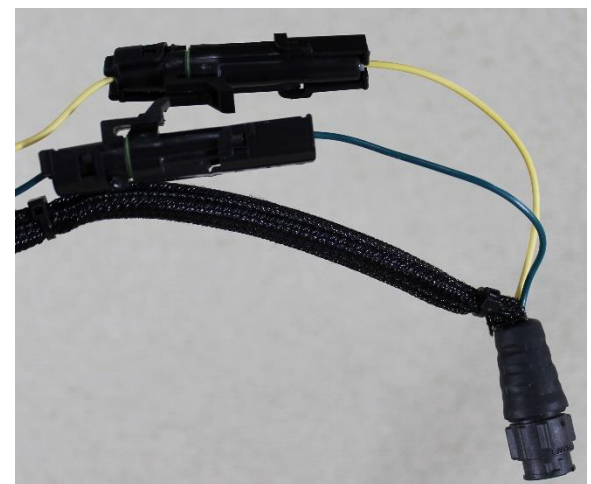


8. Allow 5 seconds for the Battery Monitor to get the Regeneration setting from the Sevcon motor controller. Use the left and right arrows to adjust this to the desired setting. 30% is a good starting point. The value can be optimized later while sailing.



9. Slowly move the "throttle" handle forward and observe direction. If the boat is moving ahead, no action needs to be taken. If it is moving astern, turn off the main power switch and reverse the two black connectors in the wire harness located at the front of the motor. When reversed, each will have a green wire on one end and yellow on the other.

Note: If operating out of the water, the motor will spin up to full speed at low power settings. This is normal. Final adjustments must be made in the water.



Open Water Checkout:

1. In protected water with light to no wind and minimal wave action, slowly advance the throttle to full throttle and let the boat accelerate until running at a constant speed.
2. Observe the battery current.
 - a. If it is at least 175A, you have a good match between your reduction ratio and your propeller.
 - b. If it is less than 175A and the motor speed is over 2000RPM, you have a little too much reduction. As long as you are getting adequate performance, this is fine. If not, you will need to replace the motor pulleys with the next larger size. Contact us and we will supply.
 - c. If the maximum motor speed is less than 1750 RPM, you don't have enough reduction. This condition will result in slightly reduced efficiency. It is not harmful, but it is recommended to replace the motor pulleys with a smaller size.
3. Check the reverse performance. Due to differences in propeller efficiency between forward and reverse, the current draw will likely be different.
4. Install the cover over the motor controllers.
5. To optimize the Regeneration setting, set up on a beam reach on a day when wind will allow sailing at hull speed. Go back into Programming mode on the Battery Monitor and get to the Regen setting. Adjust the setting up or down until the maximum + power is observed on the Battery Monitor. Press "ENTER" and you are set.

The motor system is now ready to operate.

*****Note for users of LiFePO4 batteries*****

LiFePO4 Li-ion batteries have a very flat voltage discharge curve. This does not allow resetting the SOC based on voltage, which is the case with lead acid chemistries and Li-NMC chemistry.

If these batteries are recharged with the motor power off, which is commonly done, the SOC may not reset to 100%. To correct this, press and hold the ESC key. While holding the ESC key, use the RIGHT ARROW key to increase the SOC reading and the LEFT ARROW key to decrease the reading. In most cases, the reading should be increased to 100%.

Regeneration Fine Tuning:

When motor power and key switch are ON, and the throttle handle is in the center “neutral” position, the unit can regenerate power under sail. This will show as “+” current (A) and power (kW) on the display. The amount of regeneration depends highly on the diameter of the propeller and boat speed. As a practical matter, most boats sized for a 10kW motor will not produce large amounts of power through regeneration. However, you can expect to get some useful power when sailing at good speed.

Usage Guidelines:

1. Take your time. Without the noise of the old engine, it is more enjoyable to cruise under power. Running at a slower speed will increase range and battery life.
2. On light air days, dial in a few amps of current to keep the boat moving through dead spots.
3. Plan ahead. Minimize motor usage if you might need to make a long cruise home under power.
4. To maximize battery life, don't discharge below 50% on a regular basis. If you need to use more, recharge as soon as possible. Never leave batteries in a discharged state for a long period of time.
5. Always turn off the Master Power switch when leaving the boat. The key switch does not remove power from the controller. There is a small current draw if the Master Power switch is not off.

Maintenance:

Your electric system should require far less maintenance than your old gas or diesel engine. The following are general guidelines.

1. Grease the two bearings on the motor unit once/year or every 500 hours. Use a good grade of waterproof wheel bearing grease.
2. Drain and replace ATF in saildrive leg at annual intervals or when boat is hauled out for bottom painting or other maintenance.
3. Check the water level of your batteries periodically if you have flooded lead acid. Add distilled water if needed. Only add water when the batteries are charged. If you are using good "Smart" chargers, this should only be necessary once or twice a year. AGM or LiFePO4 batteries don't need watering.
4. Occasionally feel all of the connections after running the motor at high current for at least ten minutes. Any hot terminals should be cleaned and re-tightened.
5. Clean the battery tops and terminals once per year or when corrosion is evident. Recoat the terminals with dielectric grease.
6. It is recommended to replace the timing belt every five years. It can be done in about an hour with hand tools.

Happy Sailing!

Fault Conditions:

Certain conditions may cause the motor controller to generate a fault code. In some cases, the motor will stop. In other cases, it will continue to operate at full or reduced power. If the controller is in a fault condition, it will flash a fault code with the small green LED on the front of the (Sevcon) motor controller. It is necessary to remove the metal cover from the motor to observe the fault code. The LED will flash for a specified number of times corresponding to the code, stop for a second and repeat. It will only show one fault condition at a time.

The following is a description of the fault codes. Many of the codes can have more than one cause. The most likely is listed first. Contact the factory if the cause of the fault code cannot be determined and corrected.

1. Configuration issue	Consult with factory
2. Control sequence fault	Make sure throttle is in neutral when key is turned on. If fault persists, it could be a short circuit in the wire harness. Consult factory if no obvious control wiring damage is evident.
3. Over voltage or over current condition	Check motor power (M1, M2 and M3) cable connections and battery power connections. Make sure they are all correct. If so, try repositioning terminals where they connect to motor controller so they do not touch near the connection. If fault continues, contact factory. This could be an indication of permanent damage due to mis-wiring of battery or motor phases (M1, M2 and M3).
4. Power relay not functioning correctly	Check connections to power relay. If fault cannot be cleared, contact factory.
5. Motor open circuit	Most likely one of the three phase cables (M1, M2 and M3) to the motor are not connected.
6. Throttle potentiometer fault	Indicates a failure of the potentiometer on the back side of the throttle control or an issue with the wiring to the potentiometer.
7. Voltage out of range	Indicates a high voltage or low voltage condition. Check connections and battery voltage.
8. Motor or controller temperature	Motor or motor controller is in high temperature cut back. Motor will continue to operate, but at reduced

	<p>power. If it occurs when motor is not hot, it may be caused by failure of motor temperature sensor or temperature sensor wiring to motor controller.</p> <p>Note: The display will show “HI TEMP” at the bottom of the screen if the motor or controller are near their maximum allowed operating temperature. It is advised to reduce power if this occurs. However, no damage will occur. The motor controller will automatically reduce power to insure neither the motor nor controller overheats.</p>
1. Controller in off line programming mode	Contact factory. Cannot be corrected by user.
2. Encoder fault/high current fault	The motor is not getting valid motor rotor shaft position signal from motor shaft position encoder. This signal is carried on the cable with the black 8 pin connector between the motor controller and the motor. May also indicate a current regulation issue. This may be caused by a short circuit, incorrect or missing connection between motor controller and motor controller (M1, M2 and M3).
Contact factory if any other fault code occurs.	

Motor Controller connections (rectangular connector):

- 1 – Logic Power
- 2 – CAN Termination
- 3 – Relay Coil (BLU)
- 4 – Relay Coil (BLU)
- 13 – CAN High (RED)
- 15 – Encoder Power (-) (BLK)
- 18 – FWD
- 21 – Encoder Sine (BLU)
- 22 – Analog Speed Input
- 24 – CAN Termination (GRN)
- 26 – Encoder Power (+) (RED)
- 27 – CAN Low (BLU)
- 30 – REV
- 33 – Motor Temp Sensor
- 35 – Encoder Cosine (WHT)

Battery Monitor Connector Pin Out:

- 1 – Power (+12Vdc) (RED)
- 2 – RS-485 (+) (WHT)
- 3 – RS-485 (-) (GRN)
- 4 – Common (BLK)
- 5 – CAN HIGH
- 6 – CAN LOW
- 7 – Unused (+24Vdc)
- 8 – Unused

Throttle Connector Pin Out:

- 1 – Potentiometer Power (+5V) (GRN)
- 2 – Potentiometer Wiper (WHT)
- 3 - +48V (RED)
- 4 – Logic Power to Motor Controller (ORG)
- 5 – Potentiometer Common (BLU)
- 6 – Unused

Charge Current Sensor Pin Out:

- 1 – Power (+5V) (RED)
- 2 – Current Sensor Output Signal (WHT)
- 3 – Unused
- 4 – Unused
- 5 – Ground (0Vdc) (BLK)
- 6 – Unused

Motor Controller to Motor Connection:

- M1 to M1 (Stamped into motor case near terminal)
- M2 to M2
- M3 to M3

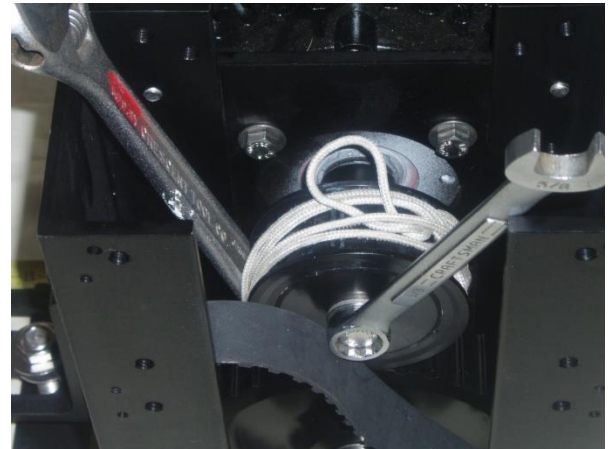
Motor Controller to Motor Encoder:

- A – Encoder Sine (BLU)
- B – Encoder Cosine (WHT)
- C – 0Vdc (BLK)
- D – N/C
- E – +5Vdc (RED)
- F – Shield (BLK)
- G – Temp Sensor (BLK)
- H – Temp Sensor (WHT)

Motor Pulley Replacement:

This procedure can be done with the motor in the boat.

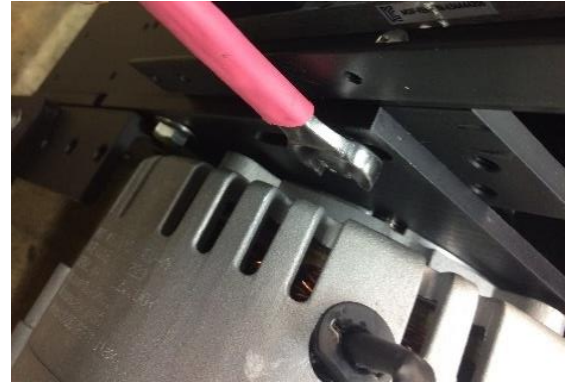
1. Disconnect the battery bank positive terminal.
2. Loosen the four bolts that hold the black motor plate to the frame.
3. Slide the belt off the motor pulley.
4. Make a pulley holding tool by passing a 6' (approx.) piece of 1/8" or 3/16" rope line through the handle of a Crescent wrench (or similar) and tying the ends. Wrap the rope around the pulley CW.
5. Loosen the bolt on the end of the motor shaft with a 5/8" box end wrench.
6. Slide off the old pulley, key and spacer washers that are under it. If it is stuck, use a gear or wheel puller to remove it. DO NOT hammer, as this can damage the motor bearings.
7. Put some fresh anti-sieze compound on the motor shaft.
8. Slide the pulley and key onto the motor shaft.
9. Wrap the rope around the pulley CCW.
10. Install and tighten the bolt, use removable (blue) Loctite on the threads.
11. Slide the belt back on the pulley.
12. Slide the motor away from the center shaft until tight. Cog tooth timing belts do not need to be overly tight. A deflection of 1/8" – 1/4" with moderate finger pressure is adequate.
13. Tighten the four motor plate bolts.
14. Re-connect the battery positive terminal.



Belt Replacement:

This procedure can be done with the motor in the boat.

1. Disconnect the battery bank positive terminal.
2. Loosen the four bolts that hold the black motor plate to the frame.
3. Slide the belt off the motor pulley.
4. Remove the four bolts securing the bearing plate to the motor frame and slide off bearing plate.
5. Remove the old belt and replace with the new one.
6. Replace the bearing plate and tighten bolts. Use removable (blue) Loctite on the bolt threads.
7. Push the motor outward until the belt is tight. Cog tooth timing belts do not need to be overly tight. 1/8" – 1/4" deflection with moderate finger pressure is adequate.
8. Tighten the four motor plate bolts.
9. Re-connect battery positive terminal.



LIMITED WARRANTY

This products of JASM, LLC d/b/a Electric Yacht, a Minnesota Limited Liability Corporation, are warranted to be free from defects in material and workmanship for a period of 36 months from the date of purchase by the first non-commercial retail customer and 12 months from date of purchase for commercial use customers. The above warranty shall be subject to the terms, conditions, and exclusions below.

For warranty service, contact JASM, LLC for instructions. For work required by the manufacturer, prior authorization will be obtained before part(s) are shipped to JASM, LLC.

This warranty is applicable to the first purchaser only and is not transferable. All requests for warranty service must be made within the warranty period.

During the warranty period, JASM, LLC, will repair or replace or refund the purchase price of any part that, upon examination by JASM, LLC, is found to be defective in material or workmanship under normal use and service. JASM, LLC shall in its sole discretion determine a defective part will be repaired or replaced or purchase price refunded. In the event of a refund, purchaser shall return the entire product to JASM, LLC, or its Authorized Service Dealer prior to receiving such refund. JASM, LLC, may retain all defective parts or components. Any repaired or replaced part or equipment will only be covered by the warranty period remaining on the original purchase.

JASM, LLC, does NOT warrant or make any representation in respect to installation errors made by a dealer, mechanic, installer, or individual. This warranty applies to defects in material and workmanship only; it does NOT apply to the following:

- Normal Wear and Tear: Like all mechanical devices, this motor needs periodic parts and service to perform well. This warranty does not cover repair when normal use has exhausted the life of a part or the motor.
- Improper Installation and Maintenance: This warranty does not apply to equipment or parts that have been subjected to improper or unauthorized installation, alteration, or modification, or that have been improperly maintained, repaired, serviced, or stored., as per the Owner's Manual.
- Damage caused by fire, flood, storm, or other natural acts and natural disasters.
- Damage caused by an accident or collision. Nicks and normal wear are not covered. This includes damage incurred during shipping.
- Damage caused by misuse, mistreatment, negligence.
- Products and components not manufactured by JASM, LLC. Purchaser shall be limited to warranty, if any, provided by the manufacturer, and JASM, LLC will not be held liable for any such defects.
- Use in an application for which the equipment was not designed.
- Reimbursement for transportation or shipping charges, towing charges, in and out of water charges, technician travel time, labor supplied by anyone other than JASM, LLC.
- Growth of marine organisms on internal or external surfaces or components.

This warranty is void if the equipment has been altered or modified in any way.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THIS WARRANTY IS PROVIDED IN PLACE OF ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE TO THE EXTENT ALLOWABLE BY LAW. TO THE EXTENT SUCH WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE CANNOT BE EXCLUDED AS A MATTER OF LAW, SUCH WARRANTIES ARE HEREBY LIMITED TO ONE YEAR AND SUBJECT TO THE Warranty

EXCEPTIONS HEREIN TO THE EXTENT ALLOWED BY LAW. IN NO EVENT WILL JASM, LLC, INCLUDING THEIR OFFICERS, DIRECTORS, MEMBERS, EMPLOYEES OR AGENTS BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES, INCLUDING

WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF BUSINESS INFORMATION, ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT, AND ALL SUCH DAMAGES ARE EXPRESSLY EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. In any event, any liability of JASM, LLC for any cause of action (whether in contract, tort, including without limitation, negligence, or otherwise) shall be limited to return of the purchase price paid by purchaser. Some states or countries do not allow exclusion or limitation of implied warranties or consequential, incidental, or other damages, and the foregoing 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 or country to country. No distributor, agent, or employee is authorized to make any modification or extension to this warranty. JASM, LLC makes no other warranty, guaranty, promise, or representation of any kind whatsoever regarding the product. Any other warranty, guaranty, promise, or representation by others are unauthorized and are not binding on JASM, LLC.