



Powered by
Torqeedo

Owner's Manual

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This operating manual will help you use your Hobie evolve safely and efficiently. All information is given according to our latest knowledge. Content is subject to technical changes.



• Indicates a danger or a procedure that may cause injury and property damage.



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Introductions

Dear Customer,

Thank you for choosing the Hobie evolve. As a member of the Hobie family, you are now on the road to pure adventure in electric boating. This owner's manual is designed to help you get maximum enjoyment from your new Hobie evolve. But more important, it is designed to help you use it safely.

We are delighted that you have chosen our motor. Your Hobie evolve is powered by the Torqeedo 403 motor and is state-of-the-art in terms of motor, battery, and propeller technology. It has been designed and manufactured with the utmost care and with a special focus on comfort, user-friendliness, and safety, and has been extensively tested before delivery.

We hope you will enjoy this product.

Sincerely,

The logo consists of two parts. The top part is the word "Hobie" in a stylized, black, cursive script font, with a registered trademark symbol (®) at the end. The bottom part is the word "TORQUEEDO" in a bold, black, italicized sans-serif font.



Important Safety and Operating Instructions

Important safety instructions



Torqeedo motors are designed to operate safely and reliably as long as they are used according to the operating manual. **Please read this manual carefully** before you start the motor. Ignoring the instructions in this operating manual can cause damage or personal injury. Hobie Cat Company and Torqeedo accept no liability for any damage caused by actions that contradict this operating manual.

To ensure safe operation of the motor:

- Familiarize yourself with all the motor controls. For instance, you should be able to stop the motor quickly if necessary.
- Only allow adults who have been instructed on how to operate the motor or have read the operating instructions to run it.
- Never operate the motor if someone is in the water close to the boat. Stop the motor immediately if someone goes overboard.
- Always have a paddle and/or MirageDrive® on board for another source of propulsion.
- Check the status and function of the device before each tour.
- Note that the on-board computer does not include changes to currents and wind conditions in the range calculation. If you are moving with the wind or current the remaining range is calculated assuming you continue going with the wind or current. If you change direction or if wind/current change, your remaining range may be significantly lower. Therefore you should note the effects that the wind and current have on your range.
- Never use the motor as an attachment point for your kayak; never use the motor as a handle for lifting, carrying or tying to.
- Do not open the battery casing; protect the battery pack from mechanical damage.
- Do not short circuit the battery pack.
- Avoid submerging the battery pack and remote throttle for long periods of time.
- If the error code E46 is shown in the display or if you changed the fuse of the battery, the battery charge status in the display is not accurate. After a complete charge of the battery, the battery charger status displayed will be reliable again.
- The battery of your Torqeedo 403 motor has been declared a hazardous item in UN Class 9. Private transportation is not critical, but if shipped by a transport company the relevant statutory provisions must be observed.
- Keep the supplied magnetic key at least 50 cm / 20 inches away from pacemakers.
- Keep the supplied magnetic key away from magnetic information media (e.g. debit/credit cards, music cassettes, magnetic tapes etc.). The magnet integrated in the key has enough strength to render the saved data unusable.

Important operating instructions



The following is a selection of the most important instructions for handling Torqeedo motors. In addition to these instructions, please observe the complete operating instructions to prevent damage to your motor.

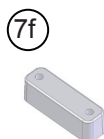
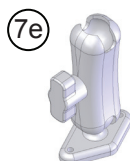
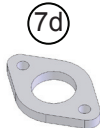
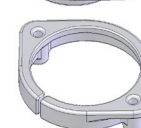
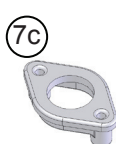
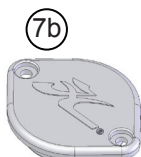
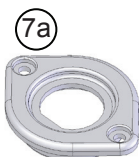
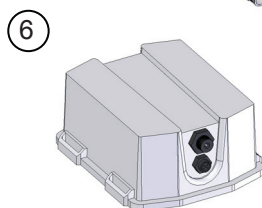
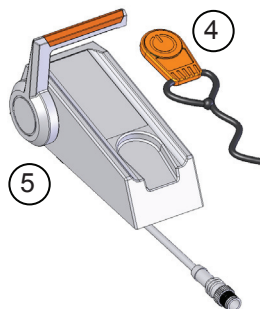
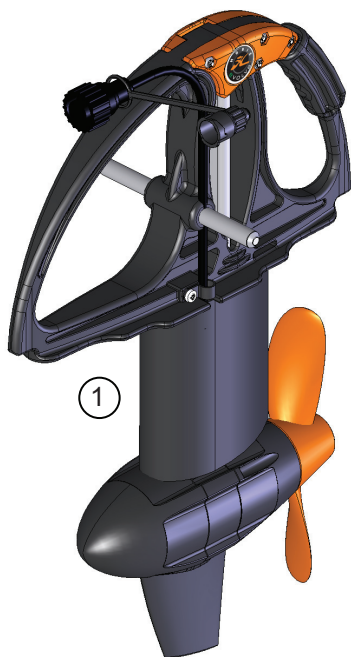
- Only run the motor when the propeller is under water. If it is run in the air for longer periods, the shaft sealant rings that seal the motor to the drive shaft may become damaged. If the motor is run in air for long periods, the motor itself can overheat.
- The Hobie evolve product range, the associated remote throttle, battery pack, and all electric plug-in connections are protected against dirt and water in line with protection type IP68.
- The Torqeedo 403 has an integrated protective device that switches the motor off when it reaches a particular slope of 90°. This prevents the propeller from turning if the boat capsizes or tilts.
- After use, always take the motor out of the water.
- After operation in salty or brackish water, wash all components in fresh water.
- Occasionally use contact spray to care for all cable connections. If you use the motor in salt or brackish water, we recommend applying contact spray once a month.
- You will extend the life of your battery if you do not expose it for longer than necessary to a very hot environment. In order to guarantee that the life of the battery is as long as possible, the battery should be stored for longer period of time (e.g. over the winter) at around 50 % charge and between 0 °C and +15 °C / +32 °F and +60 °F.
- Only charge the battery at environmental temperatures between 0 °C and +45 °C / +32 °F and +113 °F.
- If the motor malfunctions an error code is shown on the display. After resolving the error the motor can be restarted out of the stop position again. In rare cases it may be necessary to switch the motor off using the "on/off" button. You will find descriptions and details in Section 9.3.
- Do not disconnect the cable connections when the propeller is turning.
- If you have a problem with your motor, please follow the instructions in this operating manual for handling warranty claims.

Kit Breakdown

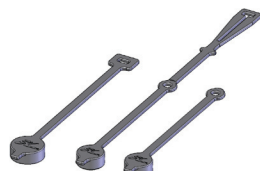
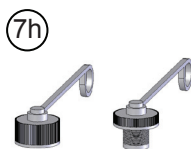
1. Hobie evolve Mirage Well Assembly
2. Prop Alignment Tool
3. Hobie Twist and Stow Rudder Mount and Hardware
(The Hardware is assembled to the aluminum piece and include the cover plate slide, sister screw, 10-32 Flat head screw to match the sister screw, three 10-32 x 1/4" Truss head screws and three 10-32x 7/8" Truss head screws with self locking nuts)
4. Magnetic Key
5. Throttle
6. Battery
7. Misc. Small Parts:
 - a. Power Cable Thru-Hull Fitting w/ Backing Plate
 - b. Hole Cover Plate w/ Backing Plate
 - c. Throttle Cable Mounting Backing Plate
 - d. Gasket Pack (3 Pieces)
 - e. Ram® Mounting Arm
 - f. Ram Backing Plate w/ Hardware
 - g. Screws for Thru Hull Fittings (QTY 6 #10 Sheet Metal Screws)
 - h. Assorted Caps for Connectors
 - i. Throttle Cable Extension
 - j. Power Cable Extension
 - k. 9/64" Allen Key (Not shown here)
 - l. Small tube of thread Loctite® (Not shown here)
 - m. Charger (Not shown here)

Tools Required:

Phillips Head Screwdriver
Flat Head Screwdriver
Electric Drill
1/8" Drill Bit
3/4" Drill Bit
1-3/4" Hole Saw
6/64" Allen Key (included with this kit)



Mounting hardware included,
but not shown here



Thru Hull Fitting Installation

Components included with this kit give you the option of having a majority of the wires in the kit be run inside your kayak. Using these fittings will make the deck of your kayak less cluttered, but will require that you do some drilling and part installation. Here are the instructions for installing these parts. If you do not want to run the wires internally, you can keep everything on the deck and organize the wires to your liking.

Throttle Cable Thru Hull Installation

1. Choose a location for mounting your throttle.

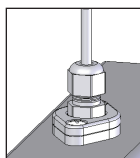
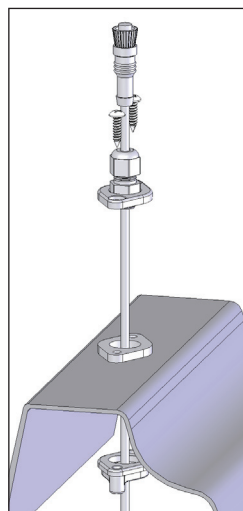
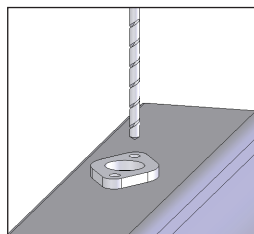
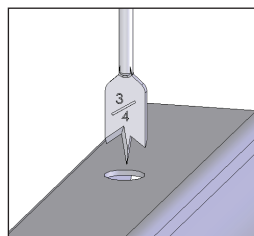
The location of the thru-hull fitting will change from boat to boat. The closer you can mount the fitting to where you would like the throttle to be, the less cable you will have to feed. When choosing your location, also consider that you will need to be able to reach inside to attach the backing ring. *Be sure to evaluate and test fit a couple different locations prior to drilling any holes.*

2. After choosing your location, drill a 3/4" hole.

3. Place the small diamond shaped gasket (provided with this kit) centered over the hole you just drilled and use the two smaller holes in the gasket as a guide to drill two 1/8" holes.

4. Place the small diamond shaped gasket over the holes you just drilled. Now feed the throttle cable through the gasket and hole in the kayak until the throttle cable mounting plate butts up against the gasket.

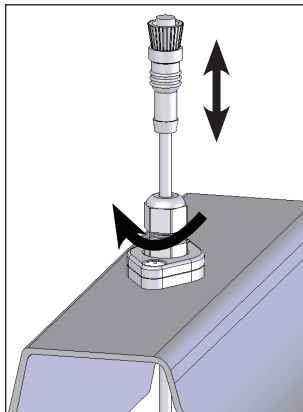
5. Thru bolt the mounting plate to the kayak using the provided backing plate and sheet metal screws.



Throttle Cable Gland Function

You will notice that there is a taller hex nut-shaped part mounted to the throttle cable mounting plate. This part is called a “cable gland”. This allows you to easily change your cable length that is available to attach the throttle.

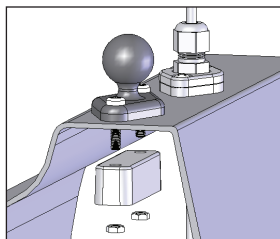
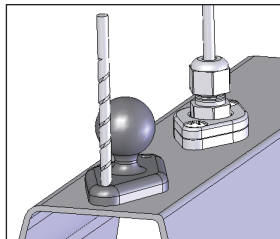
1. For more cable, turn the cable gland counterclockwise enough so that it loosens its grip on the cable and you can pull out more length.
2. Once you have the desired length, turn the cable gland clockwise to hold the cable and to provide a seal around the cable to prevent water leaks.
3. If you are not using the motor and don't want cable lying around the deck, you can follow the same gland operation and feed the cable into the hull all the way to the end plug.



Ram Mount Installation

To mount your throttle to the hull, you will be using the provided Ram mounting system. This mount allows you to easily remove and adjust the position of your throttle to the hull with almost infinite adjustability.

1. Choose a location for the mount. Keep in mind that you will need to be able to reach inside to attach the backing plate. We recommend that you install the deck mounted ball somewhere near the throttle cable.
2. Use the available ball mount as a guide to pre-drill the two 1/8" mounting holes.
3. Use the provided bagged mounting hardware to attach the ball to the hull. The nuts will fit into the hex profile of the backing plate to keep them from spinning as you tighten everything.



Thru Hull Fitting Installation

Power Cable Thru Hull Installation

Before making any holes in your boat, first take a look at how your kayak is set up and how you would like to configure your Hobie evolve drive system. This kit comes with two installation options for the motor: through the MirageDrive well and off a Twist and Stow rudder. The chart below will help you choose the best option for you.

<i>Suggested Installation Guideline</i>		
Feature	Mirage Mounted evolve	Twist and Stow Mounted evolve
Hybrid Option (MirageDrive and motor operation at the same time)		•
Easily reachable motor	•	
Good for weedy areas for easy prop clearing	•	
Ability to easily remove motor from kayak for storage	•	
Kayak is NOT equipped with a Twist-N-Stow Rudder	•	
Kayak is NOT equipped with T-handle up/down rudder control	•	
Easier beaching		•

MirageDrive Well Option Power Plug Location:

If you use the Mirage well location for the motor, we recommend that you install the power port somewhere on the bulkhead in front of the foot well. This is a convenient location to reach for motor connection.

Twist and Stow Option Power Plug Location:

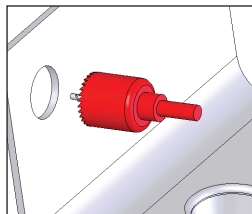
If you are going to use the stern mounted motor option, you will be installing the plug port somewhere near the back of the kayak. Be sure to place the port on the right side of the kayak and not the left. This will help keep the power wire from entangling when putting the motor up and down. Also be sure to make sure that the port is located in a spot where the cable doesn't have to stretch too much when the motor moves up and down.



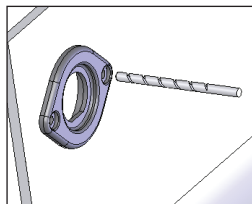
Power Cable Thru Hull Installation

1. Before creating the hole, be sure to test the location to make sure that you can get the backing ring to the location that is needed and that the power cable has room to fit without being bent too severely. Also make sure that the cable coming from the motor will reach the location of the port.

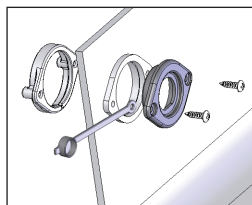
2. When you have chosen the location of the power cable, drill a 1-3/4" hole in the hull. We recommend using a hole saw, but other cutting methods can be used if care is exercised.



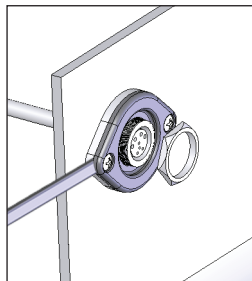
3. Using the power plug mounting plate, use the hole locations to drill two 1/8" holes for the screws to pass through.



4. Place the gasket on the outside of the hull and put the assembly together using the provided screws and with the backing plate on the inside of the kayak. Also, place one of the cable caps underneath the top plate so that a screw passes through the hole on the lanyard.

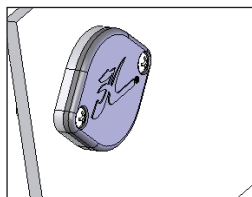


5. Now take the power cable extension and insert the end with the "flat" on one side of the cable end through the thru-hull fitting. Make sure that the flat is lined up and the cable end is all the way in. Use the nut to tighten the assembly together.



6. Now you can run the cable on the inside of the hull to the location you are planning to place your battery.

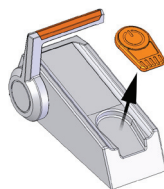
7. If you decide for some reason to remove the thru hull fitting, the included cover plate and the additional gasket can be used to cover the hole.



Hobie evolve Mirage Well Operation

Drive Installation

1. Before installing the drive, make sure that the power cable is disconnected and/or the safety key is not on the throttle pad.

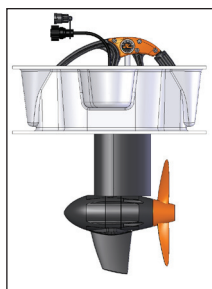


2. If the prop is turned sideways, manually turn it so that the blades are straight up and down.

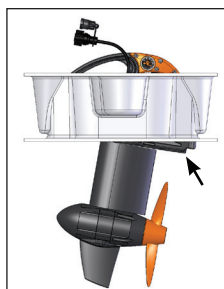
3. Drop the motor into the Mirage well. Please note that there is a close variance in fit on each boat, so some installations may require that you rock the motor back a little to get it to drop into place.



4. Once the motor passes through the boat, lower the spine into the locking system in the boat. Make sure that it is dropping in straight and not going in crooked.



Correct

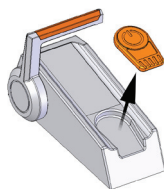


Incorrect

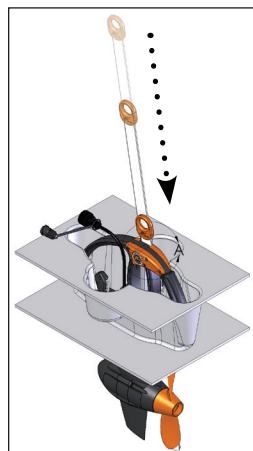
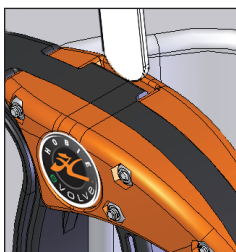
5. Now lock the drive into the kayak using the Click and Go or cam knobs. Once locked into place, try to rock it back and forth a little to make sure it is secure in place. A small amount of rocking is normal.

Drive Removal

1. Before handling the motor, make sure that the power is disconnected and/or the safety key is not on the throttle pad.



2. Slide the Prop Alignment Tool through the top slot on the drive and allow it to go all the way down. This tool will turn the propeller into the up/down configuration for removal.



3. Remove the Prop Alignment Tool from the drive and unclick the Click and Go or loosen the cam knobs.

4. Pull the motor up and rock it back slightly to allow the motor pylon to slip through the well.

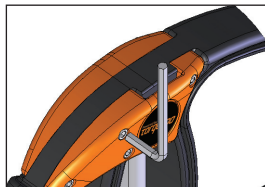


Hobie Mirage evolve Disassembly

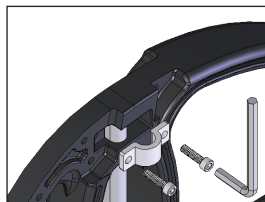
To convert your Twist and Stow rudder to the Hobie eVolve motor, you will have to disassemble the MirageDrive mount and assembly the Twist and Stow mount using the following instructions.

Mirage evolve Disassembly

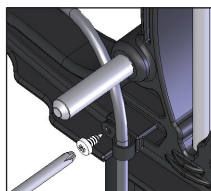
1. Unbolt the two cover plates at the top of the spine using the provided 9/64" Allen hex key wrench.



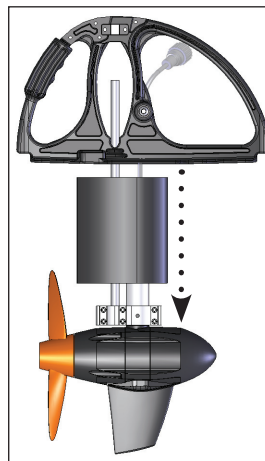
2. Loosen the two batten retainer straps at the top of the spine.



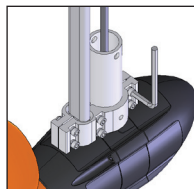
3. Unscrew the wire retaining strap and remove from the wire.



4. Pull the motor and batten assembly out through the bottom of the spine and take off the rubber fairing.



5. Unbolt all of the screws that are holding the motor and batten clamp together. With all of these steps completed, you should have just a pylon assembly. Be sure to keep all of the nuts and bolts in a safe place as you will need them if you decide to put the Mirage eVolve back together again.



Hobie evolve Twist and Stow Rudder Conversion

Hobie evolve Twis and Stow Assembly

1. Insert the cable into the track on the rudder attachment extrusion.

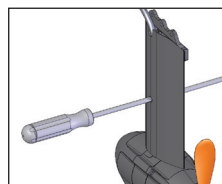
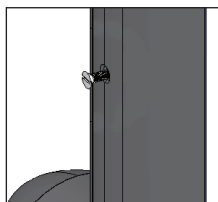
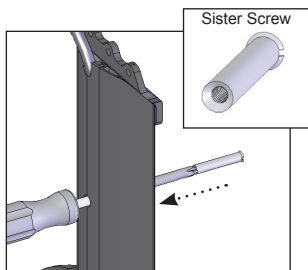
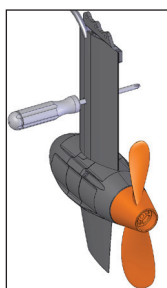
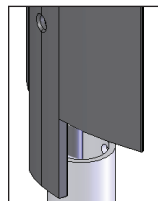
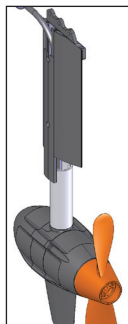
2. Slide the tongue and groove plate to cover the track that you installed the cable into. Please note that there is semi-circular cutaway on one end of the cover plate which should be pointing up when installed on the boat.

3. Slide the pylon assembly into the aluminum extrusion. The prop should be on the side of the extrusion that has the sharper corner.

4. Once the pylon tube is inserted inside the aluminum profile, you will notice that there is a hole on both sides of the outer aluminum piece in addition to the pylon tube. Slide a screwdriver through the entire assembly to get everything aligned and also to push the cable out of the way.

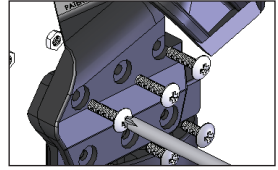
5. Place the end of the sister screw that has the blind hole over the tip of the screwdriver and push the screwdriver out using the sister screw. This will keep the cable out of the way while installing the sister screw. Look in the hole and make sure it is all the way in.

5. With the sister screw pressed all the way in, thread the small flat head screw into the sister screw and tighten. *Place a couple drops of Blue Loctite (provided in this kit) onto the screw that goes into the sister screw to prevent it from backing out from motor vibration.* To tighten the assembly, you will need to have a flat head screwdriver on one side and a Phillips head screwdriver on the other to hold the screws in place as you tighten them up.

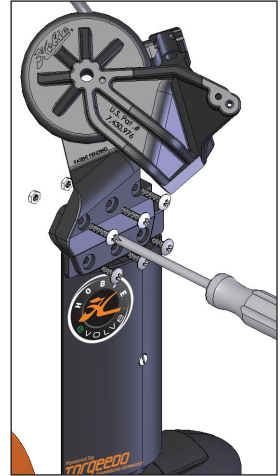


Hobie evolve Twist and Stow Rudder Conversion

6. Remove all six screws that are attaching the rudder blade to the rudder housing and take the rudder blade off. Keep this rudder in a safe location so you can find it again if you wish to convert your rudder back to a blade instead of a motor. Steering and Up/Down control lines will not need to be changed.



7. Line up the assembled Hobie evolve Rudder Attachment to the rudder mount on the kayak and install with the provided Truss head machine screws. Note that the top three screws are longer and are bolted with a nut and the bottom three are threading into the aluminum. Place a couple drops of Loctite on the lower three shorter screws that are going into the aluminum. It helps to install the bottom three screws first as the alignment is easier at this stage. **DO NOT USE A POWER SCREWDRIVER TO INSTALL THE LOWER SCREWS. INSTALL BY HAND SO THAT THEY ARE JUST SNUG.**



8. Finished assembly is shown to the right.



Hobie evolve Twist And Stow Operation With the motor installed on the Twist-N-Stow rudder, there are some operating instructions you should be aware of.

Hybrid Feature

There is an unique feature that the MirageDrive and evolve motor can provide together. If you pedal with the motor going, you can watch your power consumption decrease and your range increase. The combination of human and electric power acts as a hybrid and can significantly extend your range.

Up/Down Control

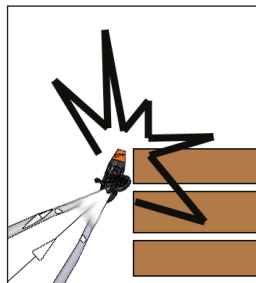
The motor mounted in the stern configuration can **ONLY** be raised in boats that have the T-Handle System which became standard on all 2009 to current model Hobie Mirage kayaks. Earlier kayaks have an up/down handle which will hold the rudder down in light reverse operation. Check with you dealer on a T-Handle conversion kit.

One way to help control how softly the motor sets down on the deck is by using both up and down T-handles. Simply pull the motor up with the up handle and control how quickly the motor rests on the kayak deck with the down handle.



Propeller Awareness

Having the propeller mounted off the back versus the Mirage setup leaves the propeller in a more vulnerable position. **PLEASE BE AWARE OF YOUR SURROUNDINGS WHEN OPERATING THE MOTOR IN THE STERN MOUNTED POSITION. CARELESSNESS COULD RESULT IN INJURY OR MOTOR DAMAGE.**



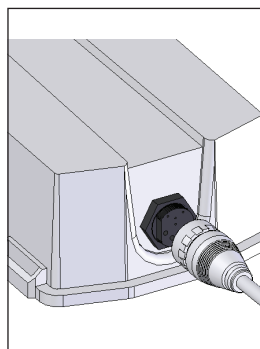
Time to Hit the Water

These steps will help guide you through the setup that is needed to get you going on the water.

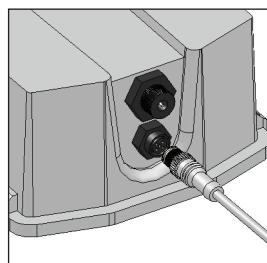
Before Heading Out

1. Make sure that the magnetic key is not on the throttle pad.

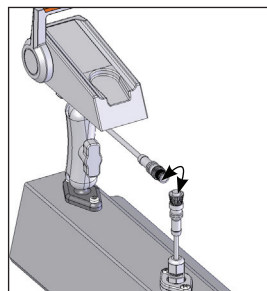
2. Place your battery in the kayak and attach the power cord extension. To attach the connector, mate the cord fitting to the battery and twist lock the connections together. You will not be able to twist the connections together until the plugs are oriented and seated together correctly. When the battery is resting, make sure that the top is facing up to ensure that the GPS gets a good signal. Do not cover the battery with metallic objects or those containing metal.



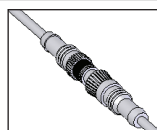
3. Connect your throttle cable extension to the battery. There is a guide in the connector which only allows it to connect in a certain orientation. **MAKE SURE THAT THE THREADS ARE GOING TOGETHER CORRECTLY TO PREVENT THEM FROM CROSS-THREADING.** If it isn't going together, make sure that the threads are lined up properly and are free of any debris.



4. Attach your throttle to the ball mount on the kayak using the RAM attachment arm. Once you have the throttle at the desired adjustment, tighten up the side knob.



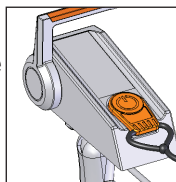
5. Connect the cable coming out from the throttle to the throttle extension cable.



- 6a. If you are using the Mirage well configuration of the Hobie evolve, place the motor unit into the well as instructed earlier in the manual and connect the power cord to the bulkhead power port.
- 6b. If you are using the stern mounted configuration, make sure that the motor is plugged into the power port as it would be difficult to do so after you push off the shore.

Pull the motor down using the down control T-handle and cleat it in the down position. It is important to pull the down holding line tight to keep the motor from coming up when going in reverse.

7. Place the magnetic key on the throttle pad and turn the display on.



8. While close to shore, give the motor some power to make sure everything is working properly and that you acknowledge the current battery charge status.

Coming into Shore

1. As you come into shore, be sure to reduce your speed. If you are using the Hobie Mirage well evolve be sure to use the Prop Alignment Index and remove the drive before running aground. Using the stern mounted Hobie evolve requires that you either pull the motor on deck or just release the cleated down line.

2. Unhook all of the throttle and power connections and place the protective caps over the ends of the plugs. **MAKE SURE THAT THE CONNECTIONS ARE DRY PRIOR TO INSTALLING THE CAPS.** Spray some contact spray (ex WD-40®) on the terminals from time to time.

3. When transporting a kayak with the stern mounted Hobie eVolve, make sure that it is firmly held in place so it doesn't bounce around when driving on the road. The shockcord on the kayak may not be strong enough to hold it in place if the kayak is transported upside down. **REMOVE BATTERY FROM HULL DURING TRANSPORTATION OR TURNING OVER THE KAYAK.**

4. If you are using the motor in salt or brackish water conditions, rinse all the equipment with fresh water.

Operating Elements

This section covers technical information about some of the componentry of your electric motor kit. It is important that you read this information to become familiar with and have a good general knowledge of all the parts included in this kit.

BATTERY PACK

About your Battery

The battery pack is equipped with high performance lithium manganese batteries, also known as LIMA cells. The LIMA cells have a self-discharge of under 1% per month at 20 °C / 70 °F, have stable cycles, and no memory effect. The lithium battery can be used at environmental temperatures from -20 °C to +60 °C / -4 °F to +140 °F.

A controller with several functions to protect and care for your battery is integrated in the battery pack. The controller, among other functions, protects the battery from fully discharging and overcharging by controlling the charging current.

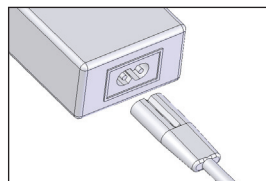
The capacity of the battery pack changes over time. To adjust the capacity indicator we recommend completely emptying the fully charged battery once a year at average speeds.

The battery pack has a 20 A safety fuse. Open the marked cover in the battery's base to exchange the fuse. When closing the cover ensure that the cover and seal sit properly (label to the outside).

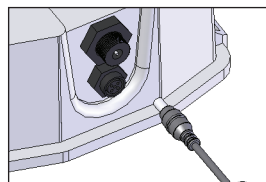
Charging

The charging unit supplied is modified charges the evolve battery pack in approximately 8 hours (from 0% to full charge). When charging at high environmental temperatures (> 35 °C / > 95 °F longer charging times may occur as the controller is equipped with a temperature-dependent charging power "off" switch which ensures a proper and gentle charging of the cells. To charge your battery:

1. Plug the cable end that plugs to the wall into the charger junction box which has the cable end to connect to the battery. There are two sets of wall plug cords in this kit and should be used according to the plug shape that adapts to your wall socket.



2. Connect the charging unit to the battery by plugging into the charging port just above where the throttle cable attached. Make sure to cover



this port when it isn't being used for charging.

3. You can charge the battery pack with the throttle still plugged in. If the remote throttle is connected, you can turn on the display and view the current charging status in percent with "charging" being displayed in the top most field on the display.



- The battery is protected from water penetration (IP68).
- Use the Torqeedo 403 battery exclusively with the evolve motor.
- Only use the power supply unit supplied or one authorized by Torqeedo to charge the battery pack.
- Only charge the battery at environmental temperatures between 0 °C and 45 °C / +32 °F and +115 °F.



- Protect the battery pack from mechanical damage. If the housing of the battery is damaged, do not use the battery.
- Do not short circuit the battery pack.
- Avoid submerging the battery pack for long periods of time.
- The LIMA battery cells only catch fire if they are exposed to temperatures over 300 °C / 570 °F. This is an important advantage over other lithium based battery systems. If this should occur try to put the battery in a location where it will not cause damage. If this is not possible, keep a safe distance or cover the battery with sand or other dry, non-flammable materials.

Caring for the Battery

You will extend the lifespan of your battery if you do not expose it to hot environments for longer than necessary. In order to guarantee the longest possible lifespan of the battery, if you store it for a long period of time (e.g. over the winter), it should be charged to around 50% and stored between 0 °C and +15 °C / 32 °F and +60 °F.

REMOTE THROTTLE

Controlling Speed and Direction

You can adjust the speed and propeller rotation direction by moving the remote throttle. Forward movement of the remote throttle means the kayak moves forward, backward movement of the remote throttle means the kayak moves backwards. Please note that reverse movement does not have the same thrust as going forward. The middle position (neutral) corresponds to the stop position.


Magnetic Key

The remote throttle is equipped with a magnetic key that operates as an on/off safety function. The motor only works if you place the magnetic key on the proper location on the remote throttle control. If the magnetic key is removed the motor stops. You can only start the motor again if you first replace the magnetic key and then move the remote throttle to the central (stop) position.


Remote Throttle Button Layout

The remote throttle is equipped with an on-board computer with an integrated display and three buttons below the screen.

Turning the Display On

Press the “on/off”  button for 1 second to switch the motor on. Pressing the button again for 3 seconds switches the motor off again. You can switch the motor off in any operating mode. If there is no activity for one hour the motor switches off automatically. Press the button again to switch it back on.

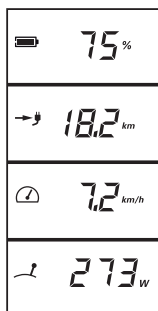
Changing the Display Units

1. Press and the  button.
2. You will first be able to select the units in which the remaining range is displayed. By pushing the middle button in the center of the display you select between kilometers, miles, nautical miles, and hours.
3. Choose your unit selection by pressing “setup” again.
4. You then enter the speed indicator setting. You can choose between kilometers per hour, miles per hour, and knots. Again, select the units with the center button and confirm your selection and leave the “setup” menu again by pressing the “setup” button.

Calibrating the Throttle

The middle button is used for calibration. If the display shows a relevant error message you can recalibrate the motor with the help of this button. You will find details on the error codes and calibration instruction near the error code table.

Display in Normal Operation



Battery charge status in percent remaining

Remaining range at current speed and battery status

GPS Calculated Ground speed

Power consumption in Watts

Other Indicators



Drive slowly: Is displayed when the battery capacity is less than 20%.

Charging: Is displayed when charging.



The GPS module integrated into the battery pack searches for satellite signals to determine the position and speed. If no GPS signal is received within 5 minutes the display switches in the second field from “remaining range at current speed” to “remaining time at current speed”. In addition, a clock icon is displayed. If the remaining duration is more than 10 hours it is indicated in whole hours. If it is less it is shown in hours and minutes.



This icon is displayed if the remote throttle must be placed in the central (stop) position. This is necessary before starting off.



Is displayed if the temperature of the engine or battery is too high. The motor automatically decreases the input power.

Error: If an error occurs the error icon and a two-digit code are displayed in the bottom field. The code shows the component causing the error and the error itself. You will find details about the error codes later in this manual.

Operating Elements

PYLON

The pylon is the lower motor unit that contains the motor and the electronic control system which generate the propulsion. Several protective functions are programmed into the pylon.

Protective Functions

1. Temperature protection: If the motor overheats, the motor control system reduces the output of the drive until a temperature equilibrium is established between generated and disposed heat. Above a critical temperature the motor stops and the display shows error code E02 or E08.

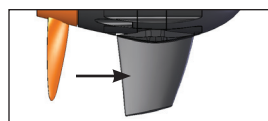
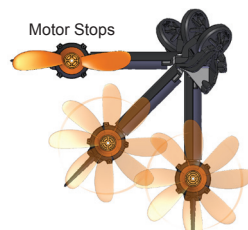
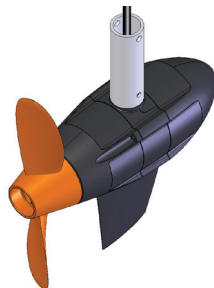
2. Blocking protection: If the propeller is blocked or stuck, the motor would normally consume too much power. In this case, the motor is switched off within a few hundredths of a second to protect the electronics, motor winding, and propeller. After removing the blockage you can switch the motor on again. If there is a blockage the display shows error code E05.

3. Cable break protection: If the connection cable is damaged, i.e., if the connection to the remote throttle, battery or motor is broken, the motor will stop or not start. An error code starting with E3 and containing another number is shown on the display.

4. Location sensor: The Torqeedo 403 has an integrated protective device that switches the motor off when it is beyond a particular slope (90°). This prevents the propeller from turning if the boat capsizes or tilts further.

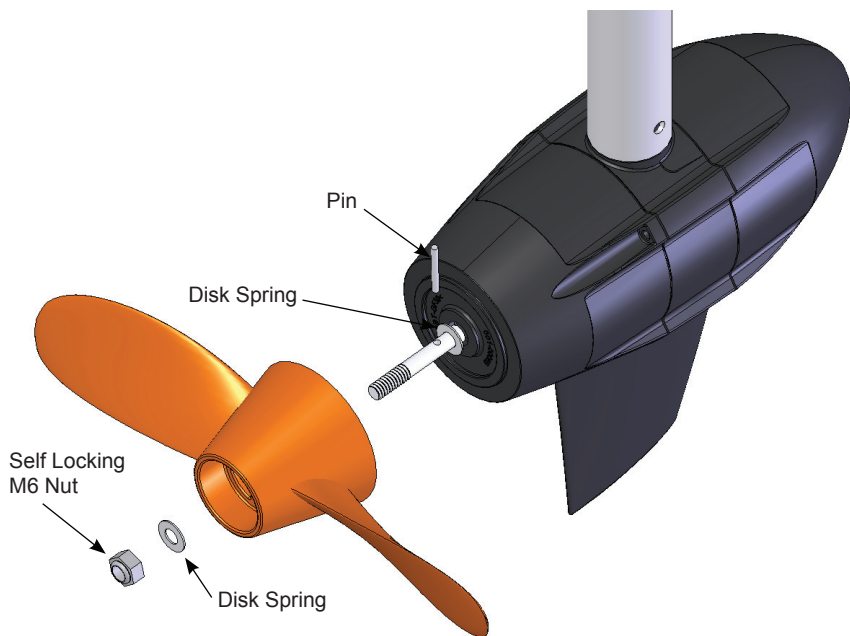
5. Throttle control: The propeller revolution change responds slowly to protect mechanical drive components and avoid short-term power peaks.

6. Fin: The fin supports steering movements and protects the propeller from hitting obstacles underwater.



Propeller Replacement

1. Disconnect the cable between the motor and battery.
2. Loosen and unscrew the central nut on the propeller.
3. Pull the propeller from the motor shaft.
4. Pull cylinder pin from the motor shaft and remove the disk spring from the motor shaft.
5. Connect the cable between the motor and battery. Allow the motor to run slowly and check whether the shaft is turning unevenly at the shaft sealing ring. Contact Torqeedo Service if the shaft is damaged or uneven.
6. Once again, disconnect the cable between the motor and battery. Place a disk spring onto the motor shaft. Note the direction of the disk spring: The inside rim of the disk spring must be in contact with the motor housing. Insert the new cylinder pin centrally to the motor shaft.
7. Place the propeller onto the motor shaft and turn the propeller so that the cylinder pin is aligned with the groove in the propeller.
8. Place a disk spring onto the motor shaft behind the propeller. Note the direction of the disk spring: The outside rim of the disk spring needs to be in contact with the propeller.
9. Tighten the central nut on the propeller using a 10mm socket wrench. **TIGHTEN THE NUT UNTIL IT IS SNUG!**



Troubleshooting and Care Instructions

Fault Codes		
Display	Cause	What to do
E02	Engine overheating	Motor can be used again after a short wait (about 10 minutes). Contact Torqeedo Service.
E03	Motor tilted during operation	Motor can be used again after tilting it down and pressing on/off.
E04	Motor put into operation while tilted	Motor can be restarted from the stop position after being tilted down.
E05	Motor/propeller blocked	Loosen blockage and turn propeller one revolution by hand.
E06	Voltage in motor too low	Low battery charging status. Motor can be used again slowly from the stop position.
E07	Motor Overcurrent	Continue at low output. Contact Torqeedo Service.
E08	Circuit board overheating	Motor can be used again after a short wait (about 10 minutes). Contact Torqeedo Service.
E21	Remote Throttle calibration defective	Re-Calibrate Throttle by: 1. Press the middle button for 10 seconds. The display will show "cal up". 2. Press remote throttle control to full gas then press the middle button. 3. The display shows "cal stp". Return remote throttle control to central position then press the middle button. 4. The display shows "cal dn". Press the remote throttle control to full reverse position then press middle button.
E22	Magnetic sensor defective	Re-calibrate (refer to E21)
E23	Value range false	Re-calibrate (refer to E21)
E30	Motor communication error	1. Check the motor cable's plug-in connection. 2. Check the motor cable for damage. 3. Check the fuse on the underside of the battery. If applicable replace the fuse. If the fuse is replaced, the information display will not show correct data until the battery is fully charged again.
E32	Remote throttle control communication error	Check the remote throttle control cable's plug-in connection. Check the cable.
E33	General communication error	Check the plug-in connections and cables. Switch the motor off and on again.
E41,42	Incorrect charging voltage	Check whether the power supply unit used has an output voltage between 10 V and 20V. If necessary contact Torqeedo Service.
E43	Battery empty	Charge battery. Motor can be used again slowly from the stop position if necessary.
E45	Battery overcurrent	Switch motor off and on again. The information display will not show correct data after this error occurred. The battery needs to be fully charged to reset the information system.

Fault Codes cont.		
Display	Cause	
E46	Battery operating temperature error	Battery cells outside operating temperature between -20°C and +65°C/ -4°F and +150°F. The motor can be used again when the temperature has stabilized.
E48	Charging temperature error	Charging will continue when the cell temperature is between 0°C and +45°C / +32°F and +115°F.
Other Error Codes	Defects	Contact Torqeedo Services and notify them of the error code.

Storage and care instructions

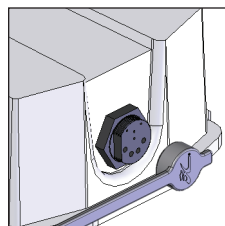
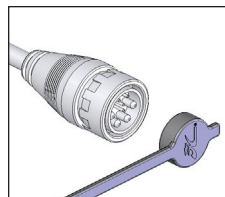
Corrosion protection

Materials were chosen with a high level of corrosion-resistance. All of the materials used in the evolve are, as with most leisure maritime products, classed as “seawater resistant”, not “seawater-proof”.

- After use you should always remove the motor from the water. The tilting mechanism can be used for this.
- After operation in salty or brackish water, wash all components in fresh water.
- Treat all cable connectors with contact spray (WD-40®) once a month.
- Check the cable regularly for damage.
- Do not bend the cable and tackle line around sharp edges.

Connector Caps

Included with this kit are caps that can cover all of the wire connectors. Placing the caps over the ends of the wires will prevent any water or debris from collecting in the electrical contact area when the ends are not connected together. **MAKE SURE THAT THE CAPS AND CONNECTORS ARE CLEAN AND DRY PRIOR TO INSTALLING OVER THE CONNECTORS.** The lanyards on the caps are for attaching them to features on your kayak or around the cables themselves.



Warranty

Warranty Registration

Your warranty registration card can be completed online and should be submitted to Hobie Cat Company within 30 days of the date of purchase. Please visit our website www.hobiecat.com and go to "Warranty Registration" under Support.

If you have problems with your evolve, contact your dealer first. If you need further assistance, contact Hobie Cat Company. To help process any warranty problems, it is important to complete your warranty card for our records.

Warranty Process

Adhering to the following warranty process is a prerequisite to the satisfaction of any warranty claim. Before dispatching any apparently faulty goods, it is imperative to coordinate the delivery with your Hobie dealer. If necessary, you can find Hobie Cat Company contact details on the back of this manual. We are unable to receive products which we have not been notified of and will therefore refuse delivery.

To obtain warranty services, within **30 days** of discovering the problem take your Hobie evolve, along with proof of purchase (sales receipt), to the authorized Hobie dealer from whom you purchased your evolve unless you have moved or are traveling. In that case, take it to the nearest authorized Hobie dealer.

For returning the motor to Hobie Cat Company, we recommend keeping the original Torqeedo packaging. If this is no longer available, packaging will be provided, but is not included in the warranty. ***Please note that Lithium Batteries are NOT TO BE SHIPPED without proper authorization and packaging provided by Hobie Cat Company or Torqeedo.***

Extent of Warranty

The warranty ends **two years** after the date the product was delivered to the final purchaser. Products that are used commercially or by public authorities - even if only temporarily - are excluded from this two-year warranty. In these cases, the statutory warranty applies.

Hobie Cat Company, Hobie Cat Australasia, Hobie Kayaks Europe and Torqeedo guarantee the final purchaser of a Hobie evolve powered by Torqeedo that the product is free from material and manufacturing defects during the period stated above. The manufacturer will indemnify the final purchaser for any expense for the repair of a material or manufacturing defect.

Hobie Cat Company decides whether defective parts are repaired or replaced. Distributors and dealers who repair Torqeedo motors have no authority to make legally binding statements on behalf of Hobie Cat Company or Torqeedo.

Normal wear and tear and routine servicing are excluded from the warranty.

This Warranty Does Not Cover

- Normal wear and discoloration
- Damage caused by abuse or failure to perform normal maintenance
- Damage caused by alterations or modifications
- Damage caused by hitting submerged objects or beaching without retracting the motor
- Transportation of parts to Hobie Cat Company or its dealers
- Any evolve used as a rental or placed in commercial services of any kind
- Any other consequential damages, incidental damages, or incidental expenses, including damage to property
- Damage caused by failure to follow procedures outlined in this manual
- Damage caused by storing the motor in the water (ex. on a mooring)
- Previous services or repairs were not carried out by firms authorized by Torqeedo, or non-original parts were used

Some states do not allow the exculsion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

Implied Warranty

Any implied warranties, including implied warranty of merchantable and fitness for a particular purpose, shall be no longer than the duration of this express warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

Hobie Cat Company makes no express warranties in addition to this Limited Warranty. Hobie Cat dealers have no authority to make any warranties on behalf of Hobie Cat Company in addition to or inconsistent with those stated herein.

To the extent any provision of this warranty is prohibited by Federal, State or Municipal law and cannot be preempted, it shall not be applicable. This warranty gives you specific legal rights. You may have other rights, which vary from state to state.

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