

# **TERROVA**

## **BOW-MOUNT TROLLING MOTOR**

Installation Instructions

# INTRODUCTION

## THANK YOU

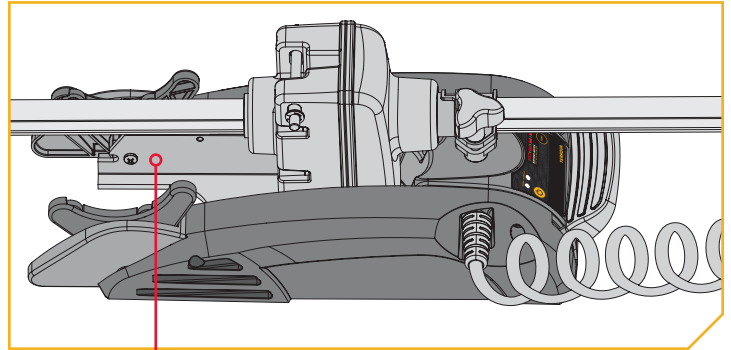
Thank you for choosing Minn Kota. We believe that you should spend more time fishing and less time positioning your boat. That's why we build the smartest, toughest, most intuitive trolling motors on the water. Every aspect of a Minn Kota trolling motor is thought out and rethought until it's good enough to bear our name. Countless hours of research and testing provide you the Minn Kota advantage that can truly take you "Anywhere. Anytime." We don't believe in shortcuts. We are Minn Kota. And we are never done helping you catch more fish.

## REGISTRATION

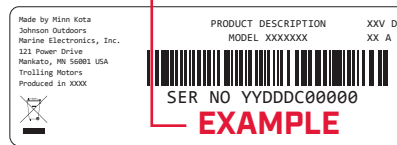
Remember to keep your receipt and immediately register your trolling motor on our website at [minnkota.johnsonoutdoors.com/us/register](http://minnkota.johnsonoutdoors.com/us/register).

## SERIAL NUMBER

Your Minn Kota 11-character serial number is very important. It helps to determine the specific model and year of manufacture. When contacting Consumer Service or registering your product, you will need to know your product's serial number.



**NOTICE:** The serial number on your Terrova is located inside the mount below the motor rests.



## MOTOR INFORMATION (For Consumer Reference Only)

Model: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Purchase Date: \_\_\_\_\_

Store Where Purchased: \_\_\_\_\_

**NOTICE:** Do not return your Minn Kota motor to your retailer. Your retailer is not authorized to repair or replace this unit. You may obtain service by: calling Minn Kota at (800) 227-6433; returning your motor to the Minn Kota Factory Service Center; sending or taking your motor to any Minn Kota authorized service center. A list of authorized service centers is available on our website, at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com). Please include proof of purchase, serial number and purchase date for warranty service with any of the above options.

Made for iPhone® 11 and iPhone X

For updated iOS, Humminbird® and Minn Kota® compatibility, visit [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com)



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# SAFETY CONSIDERATIONS

Please thoroughly read the user manual. Follow all instructions and heed all safety and cautionary notices. Use of this motor is only permitted for persons that have read and understood these user instructions. Minors may use this motor only under adult supervision.

## **WARNING**

You are responsible for the safe and prudent operation of your vessel. We have designed your Minn Kota product to be an accurate and reliable tool that will enhance boat operation and improve your ability to catch fish. This product does not relieve you from the responsibility for safe operation of your boat. You must avoid hazards to navigation and always maintain a permanent watch so you can respond to situations as they develop. You must always be prepared to regain manual control of your boat. Learn to operate your Minn Kota product in an area free from hazards and obstacles.

## **WARNING**

Never run the motor out of the water, as this may result in injuries from the rotating propeller. The motor should be disconnected from the power source when it is not in use or is off the water. When connecting the power-supply cables of the motor to the battery, ensure that they are not kinked or subject to chafe and route them in such a way that persons cannot trip over them. Before using the motor make sure that the insulation of the power cables is not damaged. Disregarding these safety precautions may result in electric shorts of battery(s) and/or motor. Always disconnect motor from battery(s) before cleaning or checking the propeller. Avoid submerging the complete motor as water may enter the lower unit through control head and shaft. If the motor is used while water is present in the lower unit considerable damage to the motor can occur. This damage will not be covered by warranty.

## **WARNING**

Take care that neither you nor other persons approach the turning propeller too closely, neither with body parts nor with objects. The motor is powerful and may endanger or injure you or others. While the motor is running watch out for persons swimming and for floating objects. Persons who lack the ability to run the motor or whose reactions are impaired by alcohol, drugs, medication, or other substances are not permitted to use this motor. This motor is not suitable for use in strong currents. The constant noise pressure level of the motor during use is less than 70dB(A). The overall vibration level does not exceed 2,5 m/sec<sup>2</sup>.

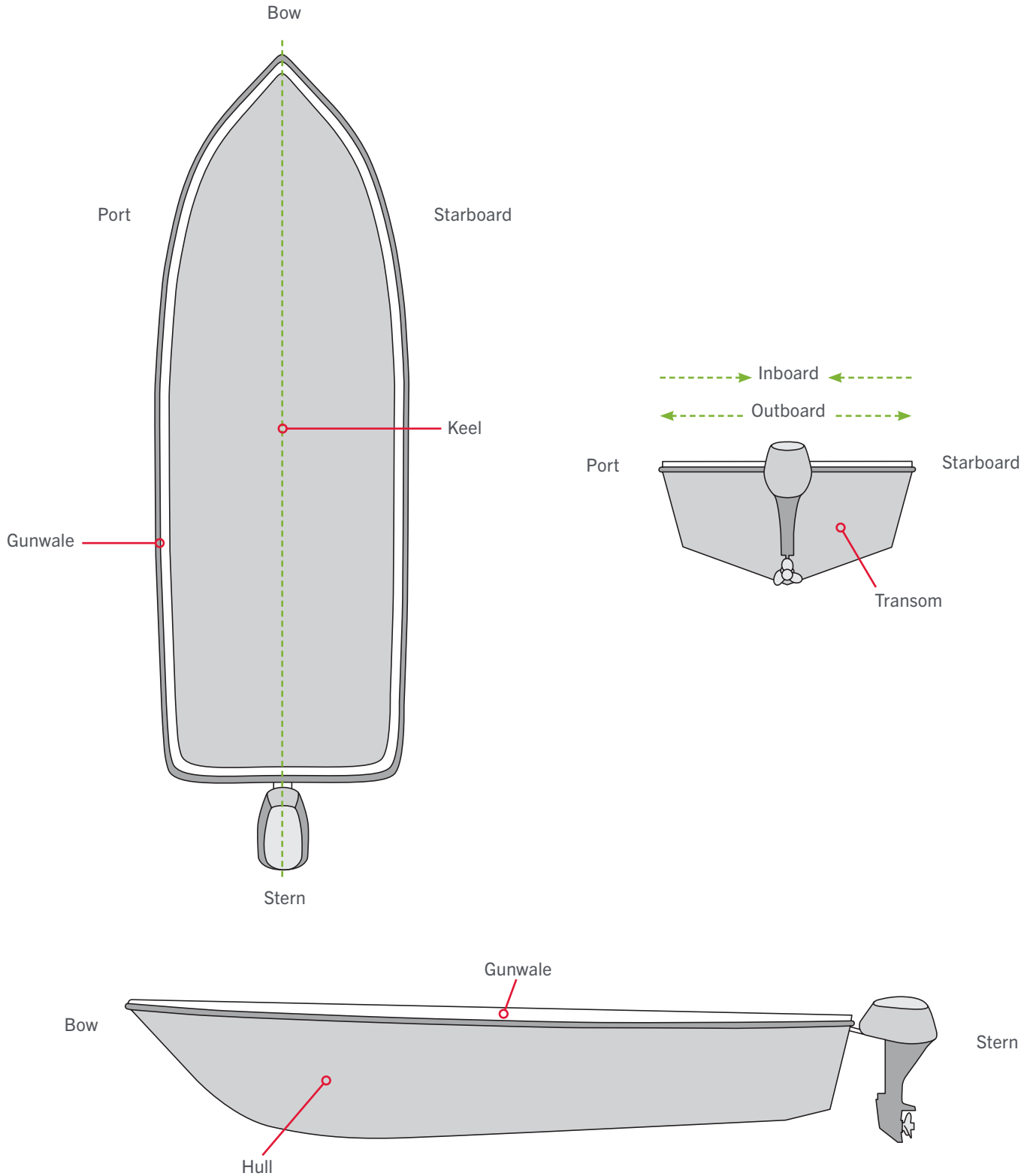
## **WARNING**

When stowing or deploying the motor, keep fingers clear of all hinge and pivot points and all moving parts. In the event of unexpected operation, remove power leads from the battery.

## **WARNING**

It is recommended to only use Johnson Outdoors approved accessories with your Minn Kota motor. Using non-approved accessories including to mount or control your motor may cause damage, unexpected motor operation and injury. Be sure to use the product and approved accessories, including remotes, safely and in the manner directed to avoid accidental or unexpected motor operation. Keep all factory installed parts in place including motor and accessory covers, enclosures and guards.

# KNOW YOUR BOAT





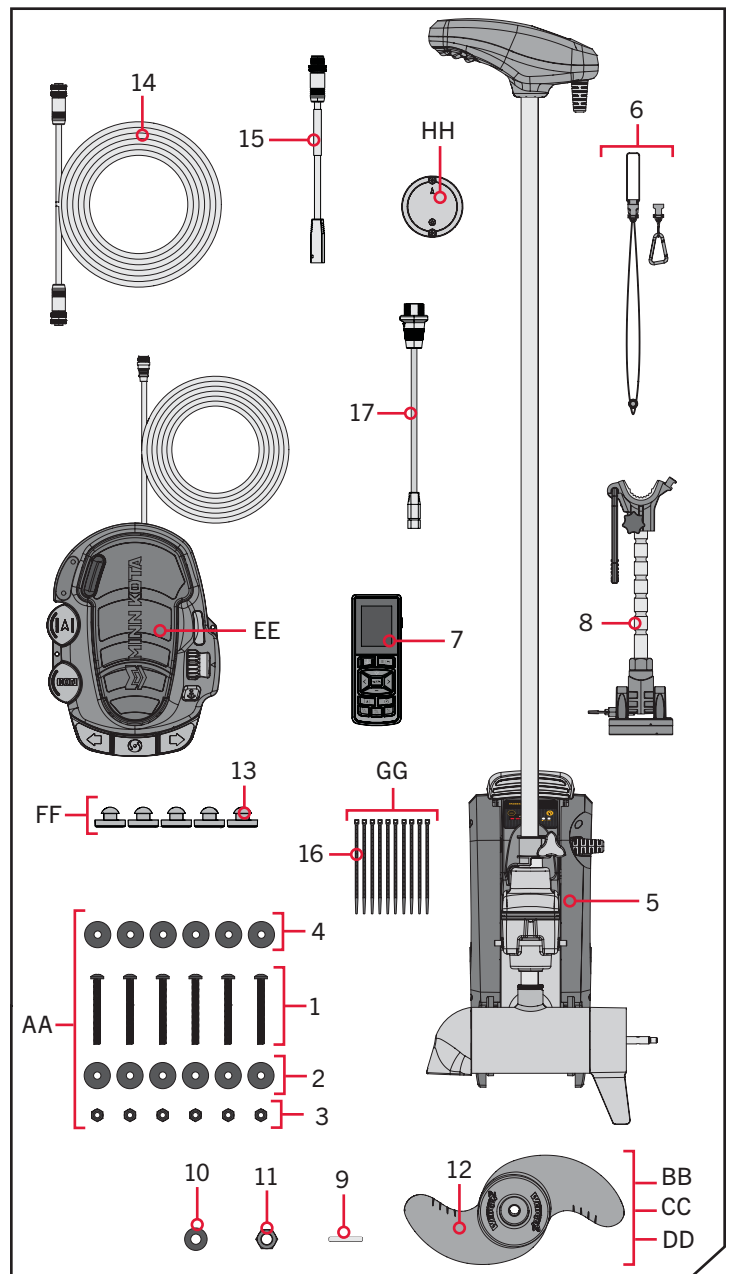
# INSTALLATION

## INSTALLING THE TERROVA

Your new Terrova comes with everything you'll need to directly install it to the boat. This motor can be directly mounted to the boat or coupled with a Minn Kota quick release bracket for ease of mounting and removal. For installation with a quick release bracket, refer to the installation instructions provided with the bracket. For compatible quick release mounting brackets and to locate your nearest dealer, visit [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com). To install the motor directly to the boat, please follow the instructions provided in this manual. Please review the parts list, mounting considerations and tools needed for installation prior to getting started. For additional product support, please visit [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

### INSTALLATION PARTS LIST

Item / Assembly	Part #	Description	Qty.
AA (Includes 1-4)	2994864	BAG ASSEMBLY - (BOLT, NUT, WASHERS)	1
1	2263462	SCREW-1/4 X 2" S/S PPH ADJT	6
2	2261713	WASHER-1/4 FLAT 18-8 SS	6
3	2263103	NUT-1/4-20 NYLOCK SS	6
4	2301720	WASHER-MOUNTING - RUBBER	6
5	✘	MOTOR ASSEMBLY	1
6	2390802	LANYARD w/CARABINER IP RMT U2	1
7	411690-1	TROLLING MOTOR REMOTE	1
8	2992371	STABILIZER, BWMT ES TM ASM *72"*	1
BB (Includes 9-12)	1378131	PROP IND 2091160 WDLS WDG II *55LB*	1
CC (Includes 9-12)	1378132	PROP IND 2331160 WDLS WDG II *80LB*	1
DD (Includes 9-12)	1378160	PROP KIT 2341160 112# WW2 *112LB*	1
9	2262658	PIN-DRIVE 1" X 3/16" S/S *55LB*	1
	2092600	PIN-DRIVE 1.06" LG (SS) *80LB* *112LB*	1
10	2151726	WASHER-5/16 STD (S/S) *55LB*	1
	2091701	WASHER-PROP (LARGE) *80LB* *112LB*	1
11	2053101	NUT-PROP,NYLOC (MED) 5/16 SS *55LB*	1
	2093101	NUT-PROP,NYLOC,LG, 3/8 SS *80LB* *112LB*	1
12	2091161	PROP-WW2 3 5/8" MACHINED *55LB*	1
	2331161	PROP-WW2 4" WELDED *80LB*	1
	2341161	PROP-WW2 4.5" WELDED *112LB*	1
EE	2994733	FT PEDAL ASM TRV 3 PM *DUAL SPECTRUM CHIRP* *BUILT-IN MEGA DOWN IMAGING*	1
FF (Includes 13)	2994859	BAG, ASY-TERROVA/V2, RUB BUMPERS	1
13	2325110	PAD, FOOT PEDAL	5
14	490384-4	CABLE, ETHERNET (M12-M12), 30'	1
15	490380-1	CABLE, ETHERNET PIGTAIL-700 HD	1
GG (Includes 16)	2996300	BAG ASM, TIE WRAPS, LOW PRO 4"	1
16	2206300	TIE_WRAP, LOW PROFILE 4"	10
HH	2996400	HEADING SENSOR ASSEMBLY	1
17	2994961	BAG ASM, CABLE,ADPTR, 490537-2 *MKR-MI-1*	1
▲	2327134	MANUAL, TERROVA 3 PM	1
▲	2327136	MANUAL-INSTLL GUIDE T3 PM	1
▲	2297165	MANUAL-DISCLAIMER,DWNLOAD INFO	1
▲	2294950	INSTRUCTIONS,OBN & REMOTE PAIR	1
▲	2207131	STANDARD QS SETUP GUIDE	1
▲	2377179	INSTR.SHEET, MKA-60 STBLZR *72"*	1
▲	2397110	MANUAL, iPILOT 4.0	1
▲	2397115	GUIDE-QCK REFERENCE IP 4.0	1



▲ Not shown on Parts Diagram. ✘ This part is included in an assembly and cannot be ordered individually.

# INSTALLING THE TERROVA

## MOUNTING CONSIDERATIONS

It is recommended that the motor be mounted as close to the centerline of the boat as possible. Make sure the area under the mounting location is clear to drill holes and install nuts and washers. Make sure the motor rest is positioned far enough beyond the edge of the boat. The motor must not encounter any obstructions as it is lowered into the water or raised into the boat when stowed and deployed. Consider a quick release or adapter bracket with the installation of your motor. To view a list of accessories, please visit [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).



View accessories available for your trolling motor at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

## TOOLS AND RESOURCES REQUIRED

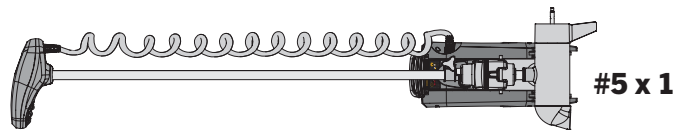
- #3 Phillips Screwdriver
- Drill
- 9/32" Drill Bit
- 7/16" Box/Open End Wrench
- 9/16" Box/Open End Wrench
- Pliers or Vice Grip
- A second person to help with the installation
- Flat-blade Screwdriver
- Awl or similar Marking Tool

## INSTALLATION

### INSTALLING THE TERROVA

1

#### ITEM(S) NEEDED



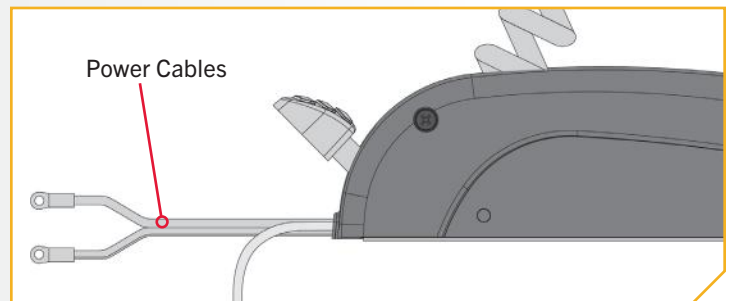
- Place the trolling motor (Item #5) on an elevated, level surface, such as a workbench or the tailgate of a pickup. The motor, as removed from the box, should be in the stowed position.
- Make sure the Power Cables are not connected to a power source or that the battery breaker, if equipped, is "off."



### WARNING

Make sure the motor is on a level surface and is not connected to a power source.

**NOTICE:** The trolling motor weighs approximately 65lb. Minn Kota recommends having a second person help with the installation.

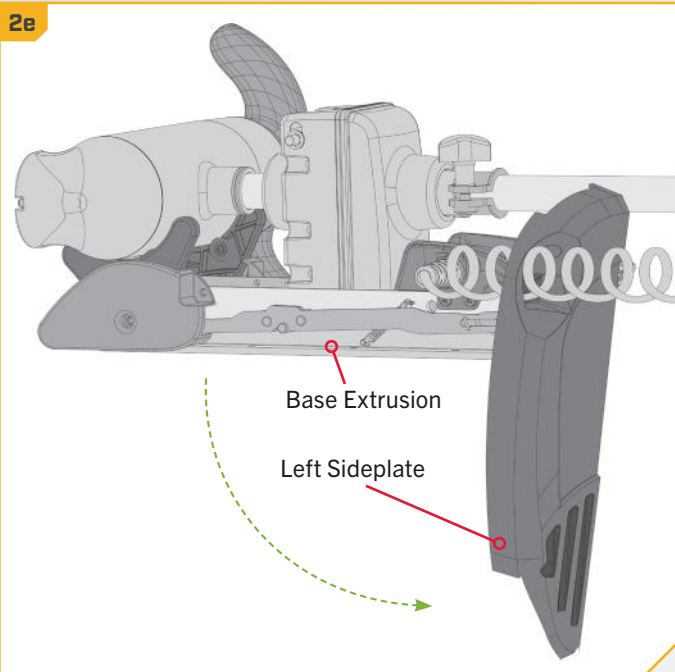


# INSTALLING THE TERROVA

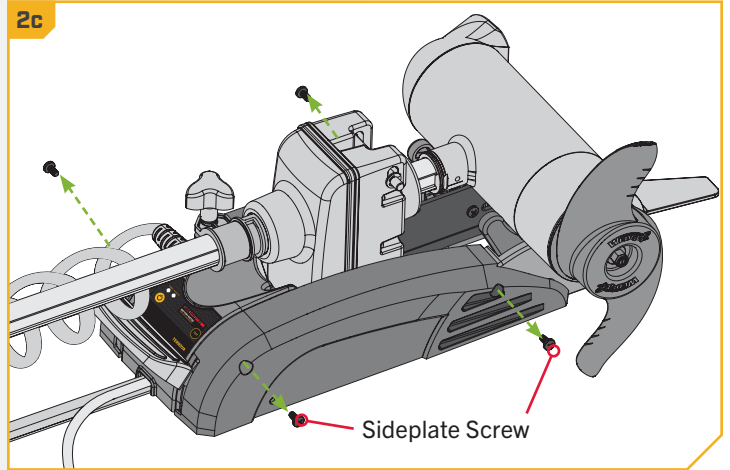
**2**

- c. Remove the four sideplate screws using a #3 Phillips Screwdriver. Two of these screws will be located on each side of the mount.
- d. Remove the Right Sideplate.
- e. Swing the Left Sideplate out and away from the Base Extrusion.

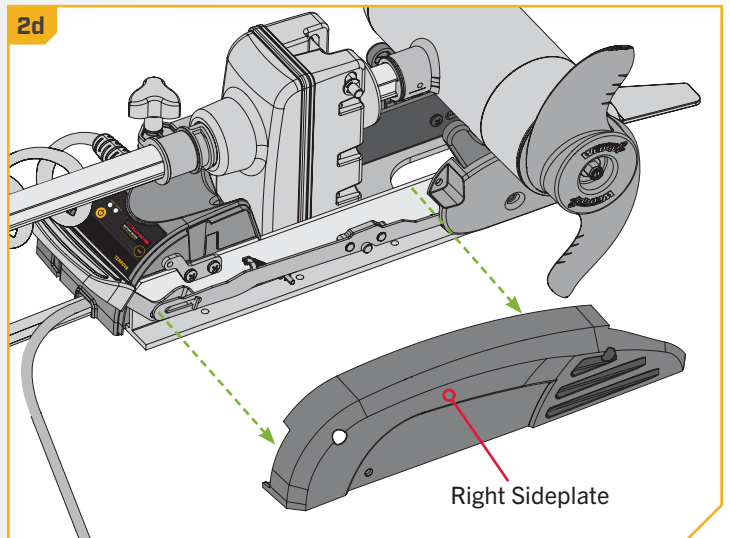
**2e**



**2c**

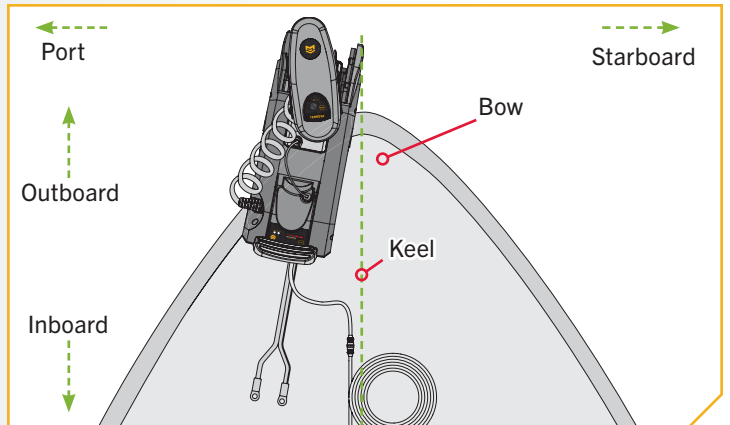


**2d**



**3**

- f. Review the mounting considerations at the beginning of the installation. Place the motor on the bow of the boat at the intended mounting location, as close to the centerline or keel as possible. The motor can be installed on either the Port or Starboard side of the boat, based on personal preference. Check placement with the motor in the stowed and deployed positions.



# INSTALLING THE TERROVA

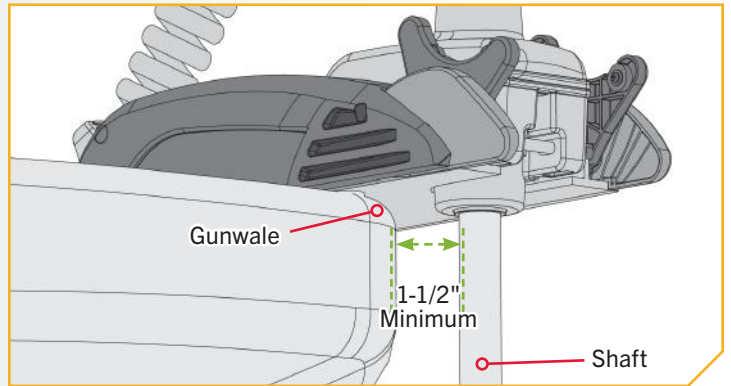
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### ITEM(S) NEEDED

- #4 x 6

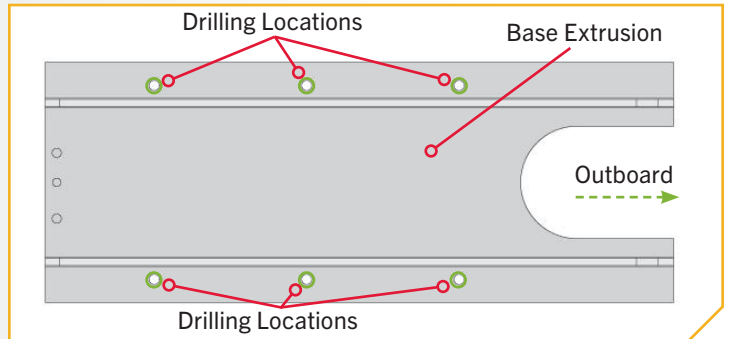
- g. When the motor is in the deployed position, make sure that the Shaft is 1-1/2" out past the Gunwale of the boat. The lower unit, when stowed and deployed must not encounter any obstructions.
- h. Check to be sure that the mount is level. Use the Rubber Washers (Item #4) provided to create a level surface if necessary.

**NOTICE:** The mounting surface for the Terrova must be flat. Rubber Washers may be used to shim the Base Extrusion flat before hardware is tightened.



## 5

- i. With the motor at the intended mounting location, take an Awl or similar tool and mark all six mounting holes in the Base Extrusion.
- j. Make sure the area under the mounting location is clear to drill holes and install nuts and washers. Slide the motor aside to drill the mounting holes.
- k. Drill through the boat deck using a Drill and a 9/32" Drill Bit on all six marked locations.



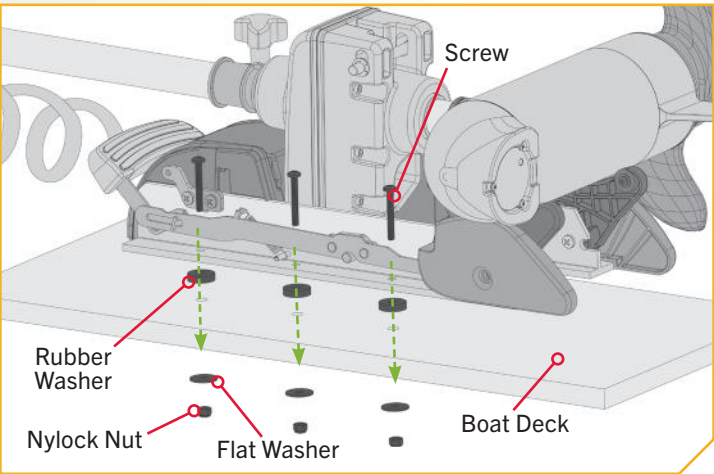
6

ITEM(S) NEEDED

- #2 x 6
- | #1 x 6
- #3 x 6
- #4 x 6

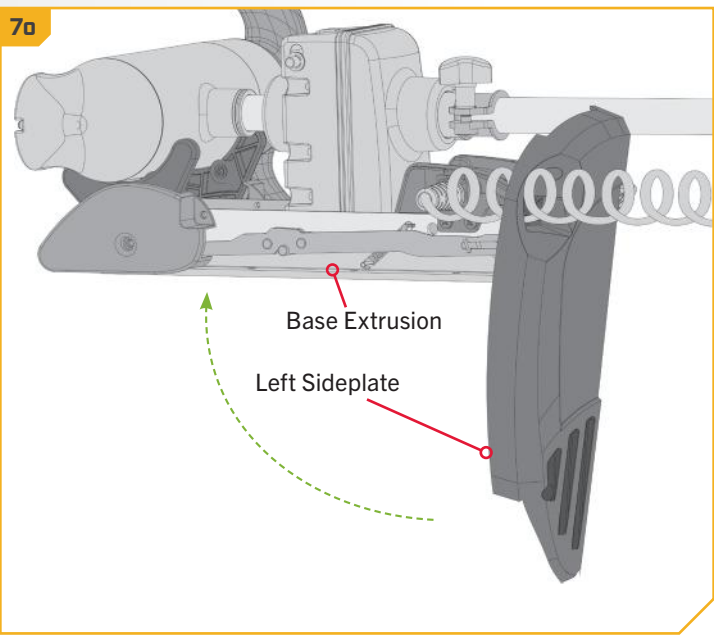
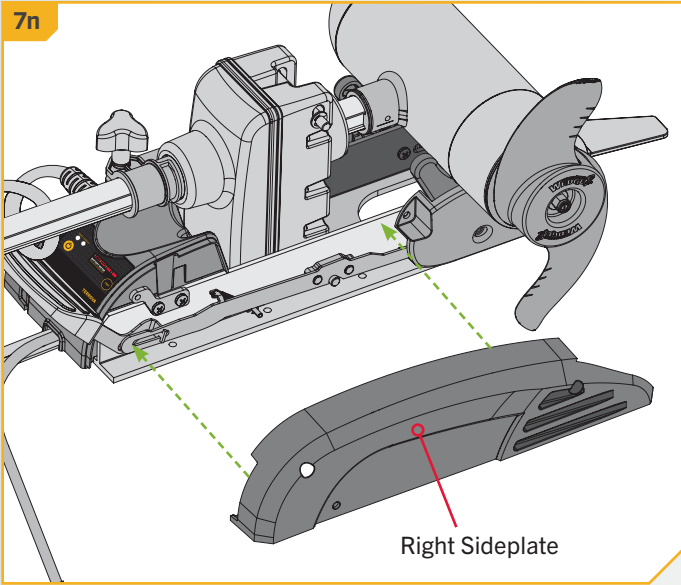
- i. Put a 1/4-20 x 2" (Item #1) Screw into each of the drilled locations. The Screw should pass through the Base Extrusion and the boat deck. If the Rubber Washers (Item #4) are used, they should sit between the Base Extrusion and boat deck. Make sure to secure the motor with screws on each side of the Base Extrusion.
- m. Place a Flat Washer (Item #2) and then a Nylock Nut (Item #3) at the end of each screw and secure with a 7/16" Box End Wrench. Make sure all hardware is secure.

**NOTICE:** To prevent seizing of the stainless steel hardware, do not use high speed installation tools. Wetting the screws or applying an anti-seize may help prevent seizing.



7

- n. Replace the Right Sideplate.
- o. Swing the Left Sideplate back into its correct position on the Base Extrusion.

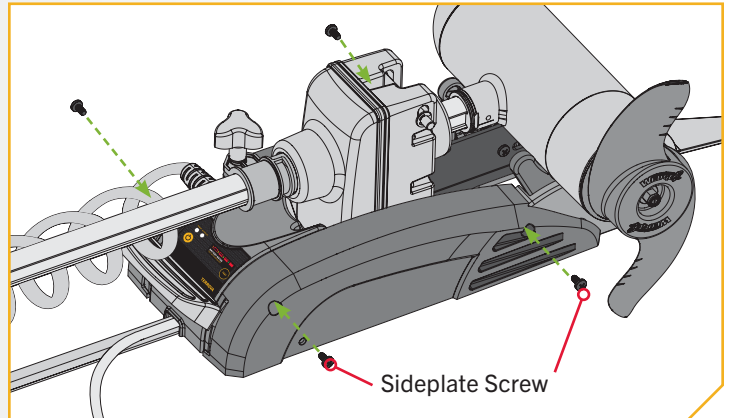




## POWERING ON THE WIRELESS REMOTE

8

- p. Replace the four sideplate screws using a #3 Phillips Screwdriver. Two of these screws will be located on each side of the mount.



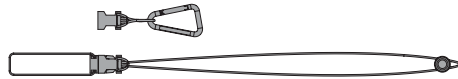
## › Powering on the Wireless Remote

1







### ITEM(S) NEEDED



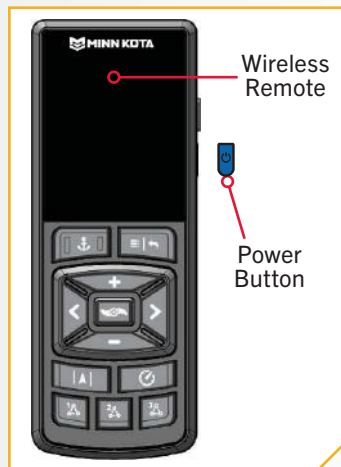
#7 x 1



#6 x 1

- Power on the trolling motor.
- To turn on the Wireless Remote (Item #7), press and hold the Power  button on the side of the Remote.
- A message will appear on the display screen. Read the disclaimer, then press the Steer Right  button to select "I Agree."
- The content on the display screen will populate. Remote functions to manually control the motor are now active, including Speed Up , Speed Down , Steer Left , Steer Right , and Prop On/Off.
- When the Advanced GPS Navigation system has obtained a minimum GPS signal strength of one bar, all remaining functions will become available.

**NOTICE:** Attaching the Lanyard (Item #6) to the Wireless Remote is optional.



**NOTICE:** The Wireless Remote comes from the factory paired to the Terrova.

**NOTICE:** A Remote Cradle accessory (1866675) can be purchased for mounting the Wireless Remote or attaching the Remote to a belt clip.



# INSTALLING THE FOOT PEDAL

## Installing the Foot Pedal

1

### ITEM(S) NEEDED

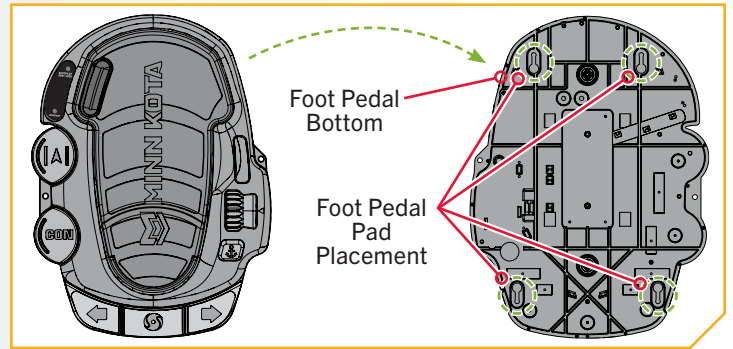
#13 x 4



#EE x 1

- Take the Foot Pedal (Item #EE) and turn it over. Put a Foot Pedal Pad (Item #13) in each of the pad locations.

**NOTICE:** Adding the Foot Pedal pads is optional. The pads are recommended when using the Foot Pedal on non-carpeted surfaces.

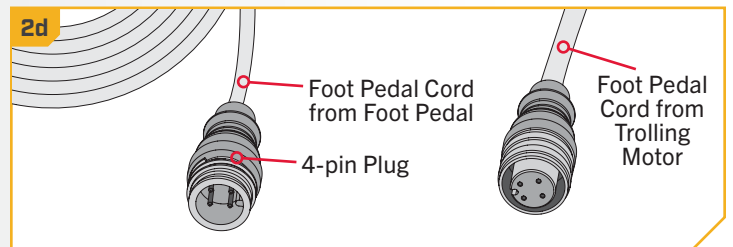
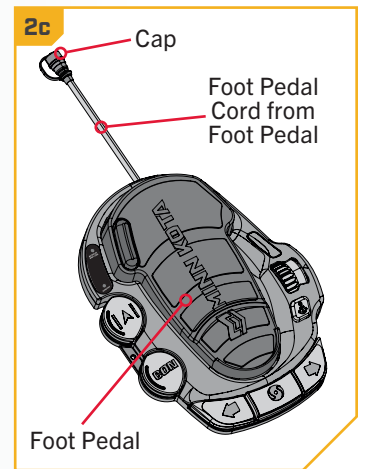
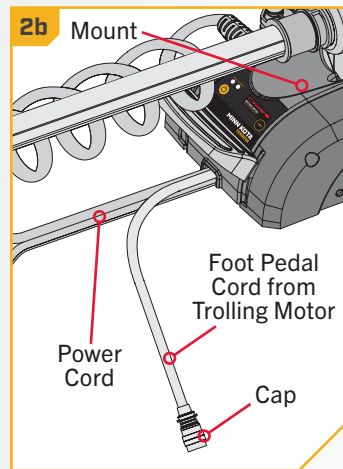


2

- Locate the Foot Pedal Cord that exits the Mount of the trolling motor, next to the Power Cord. Unscrew the Cap on the Plug.
- Locate the 4-pin Plug from the Foot Pedal and unscrew the Cap.
- Align the 4-pin Plug from the Foot Pedal with the Plug on the trolling motor. Firmly push the Plugs together. Secure the connection by rotating the collar on the Foot Pedal Power Cord in a clockwise direction.

**NOTICE:** The connectors are keyed to prevent reversed installation.

**NOTICE:** When the Foot Pedal Cord is not in use, ensure that the Cap is on and firmly secured.

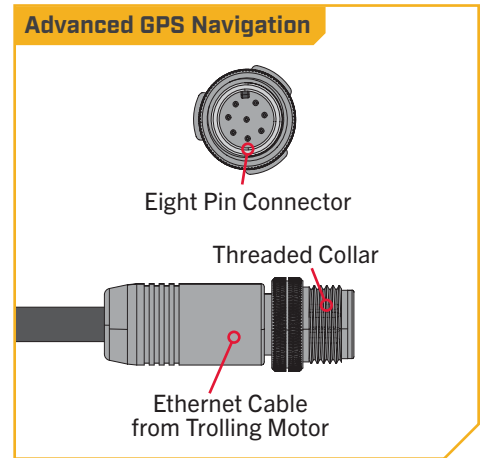
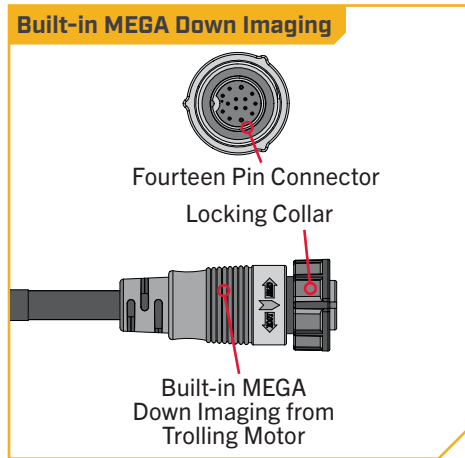
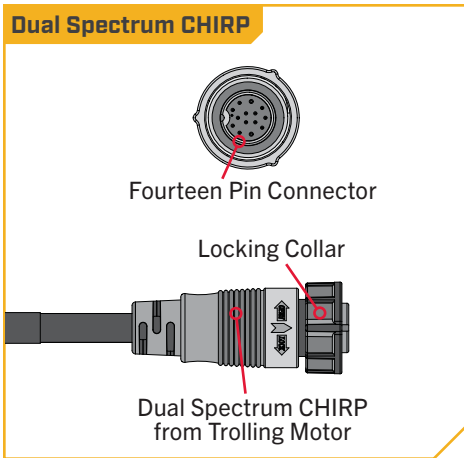


# IDENTIFYING TROLLING MOTOR FEATURES AND THEIR ASSOCIATED CABLES

## IDENTIFYING TROLLING MOTOR FEATURES AND THEIR ASSOCIATED CABLES

### Feature & Cable Identification

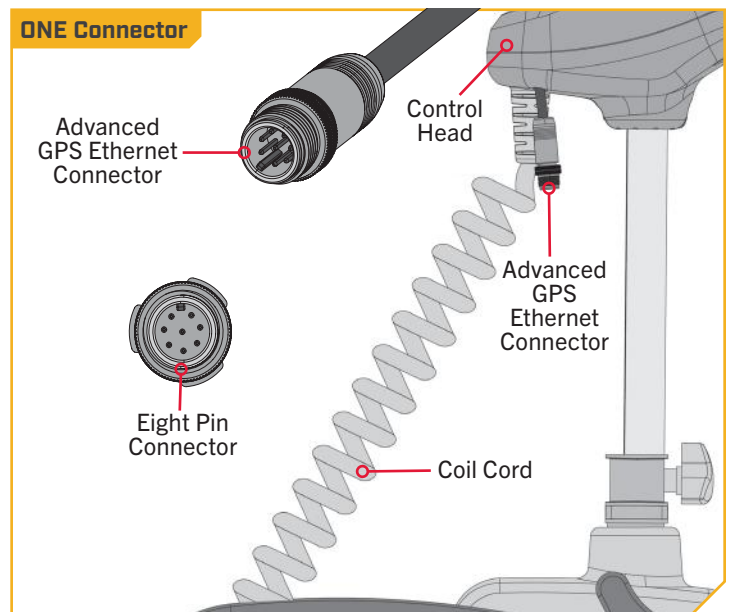
The Terrova is pre-installed with Advanced GPS Navigation - including the ability to connect via Ethernet to a Humminbird unit. It may also be installed with sonar, either Dual Spectrum CHIRP or Built-in MEGA Down Imaging. These features may be installed on their own or in combination with another feature. All of these features require Accessory Cables to be connected to an output device. The connectors are present on the trolling motor and have cables that exit below the Control Head or exit the Coil Cord at the base of the Mount. To better identify Accessory Cables present, refer to the diagrams that detail what the Dual Spectrum CHIRP, Built-in MEGA Down Imaging and Advanced GPS Navigation connectors look like.



### Identifying Connectors

If **ONE** connector is present below the Control Head, the trolling motor will be equipped with:

**Advanced GPS Navigation** - If Advanced GPS Navigation is pre-installed on your trolling motor, one Eight Pin Advanced GPS Ethernet Connector will exit the base of the Control Head and rest just below the Control Head next to the Coil Cord. If the Advanced GPS Navigation on the trolling motor will be used with a fish finder, an Ethernet Cable may be attached to the Advanced GPS Ethernet Connector below the Control Head. See the "Advanced GPS Navigation" section of this document for details on how to install the Advanced GPS Ethernet Connector to a Humminbird. If only one connector is present below the control Head, the motor is not equipped with sonar.

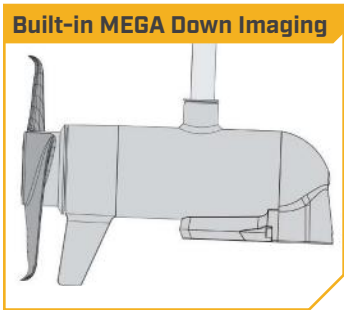
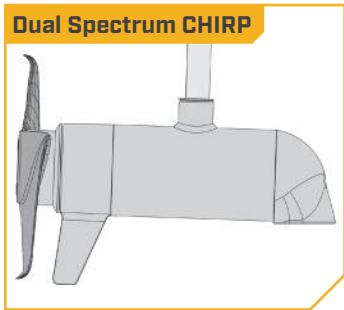
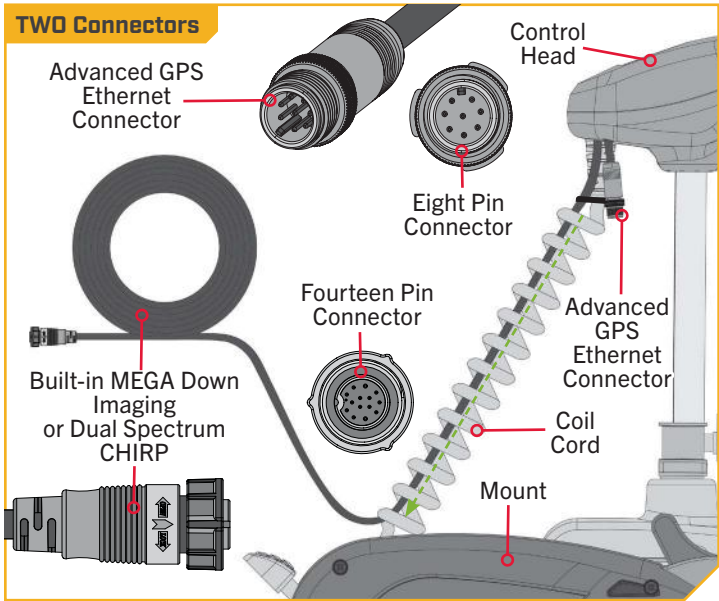


# IDENTIFYING CONNECTORS

If **TWO** connectors are present below the Control Head, the trolling motor will be equipped with:

**Advanced GPS Navigation & Dual Spectrum CHIRP or Built-in MEGA Down Imaging** - If Advanced GPS Navigation is pre-installed on your trolling motor, one Eight Pin Advanced GPS Ethernet Connector will exit the base of the Control Head and rest just below the Control Head next to the Coil Cord. If the Advanced GPS Navigation on the trolling motor will be used with a fish finder, an Ethernet Cable may be attached to the Advanced GPS Ethernet Connector below the Control Head. See the "Advanced GPS Navigation" section of this document for details on how to install the Advanced GPS Ethernet Connector to a Humminbird.

If Dual Spectrum CHIRP or Built-in MEGA Down Imaging is pre-installed on your trolling motor, one Sonar Accessory Cable will exit the base of the Control Head and run down the center of the Coil Cord. The end of the Cable will have a Fourteen Pin Connector. Motors with Dual Spectrum CHIRP or Built-in MEGA Down Imaging will also have a transducer in the Lower Unit. The appearance of the transducer will vary depending on sonar type.



# FEATURE & CABLE MANAGEMENT

## › Feature & Cable Management

### DUAL SPECTRUM CHIRP ›

Your trolling motor may be pre-installed with a transducer system featuring Humminbird's Dual Spectrum CHIRP. CHIRP stands for "Compressed High Intensity Radar Pulse." Dual Spectrum CHIRP is a 2D sonar transducer with a temperature sensor that is integrated into the lower unit of the trolling motor. Humminbird also utilizes a proprietary, best-in-class transducer designed and built to maximize fish detail, as well as coverage area. Dual Spectrum CHIRP scans the water for fish similar to the way the seek function on your truck's radio scans the airwaves for FM stations. By covering a wide range of frequencies, CHIRP produces more accurate, more detailed returns of fish, structure, and the bottom.

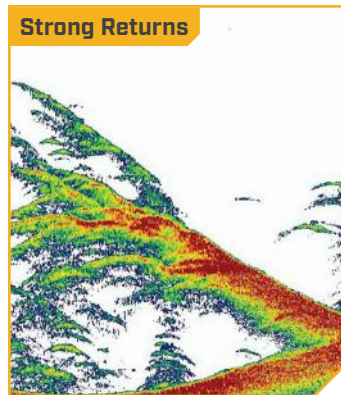
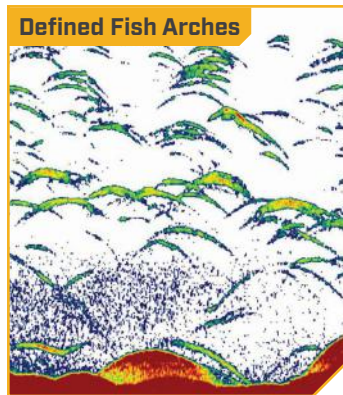
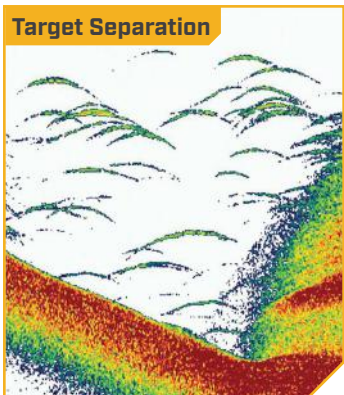
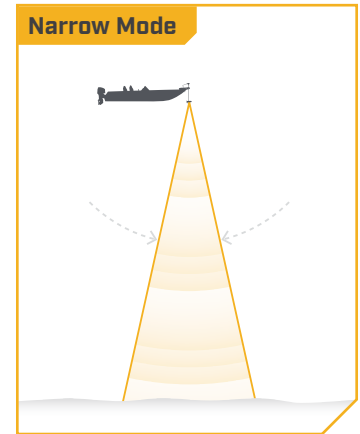
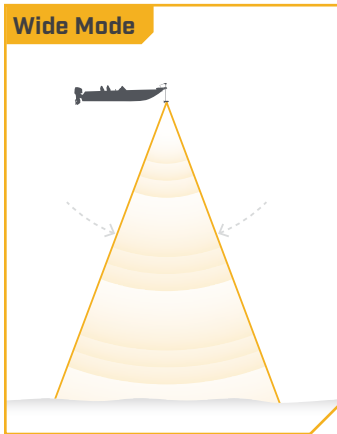
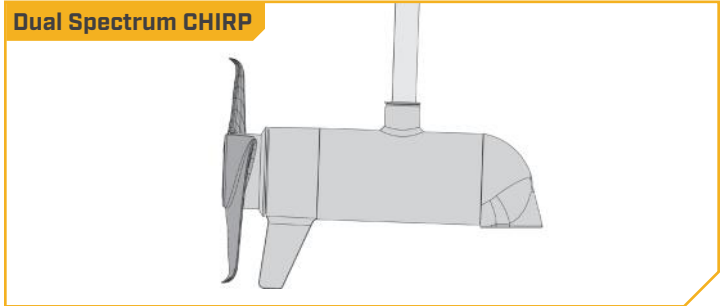
Humminbird's Dual Spectrum CHIRP gives you full spectrum capability, plus the power to select your own start and end frequencies by operating in two different modes. Wide Mode for maximum coverage and Narrow Mode for maximum detail. Wide mode allows you to search deep and wide. Is it used for watching your lure while vertical jigging, or gaining a more expansive view in shallow water. Narrow Mode is used to hone in on the small stuff that makes a big difference. Narrow Mode provides a precise perspective of the water below, helping you target individual fish, or identify fish hidden in structure and/or tight to the bottom.

Dual Spectrum CHIRP features:

**SUPERIOR TARGET SEPARATION** - Separating fish from their habitat is the name of the game. And now, you'll be able to tell the difference more easily between bait and game fish, and nearby structure and vegetation.

**CLEARLY DEFINED FISH ARCHES** - We've got bad news for your arch nemesis. Large game fish will show up on your screen as long, well-defined arches, for quick identification and accurate lure presentation.

**STRONG RETURNS WITHOUT NOISE** - Stop seeing things that aren't there. A high signal-to-noise ratio translates to better defined targets, less clutter and greater certainty that what you're looking at on-screen is legit.



The integrated design of the Dual Spectrum CHIRP transducer protects it in the lower unit of the trolling motor from underwater hazards and prevents tangles and damage to the transducer cables. In certain situations, air bubbles may adhere to the surface of the Dual Spectrum CHIRP transducer and affect the performance. If this happens, simply wipe the surface of the transducer with your finger.

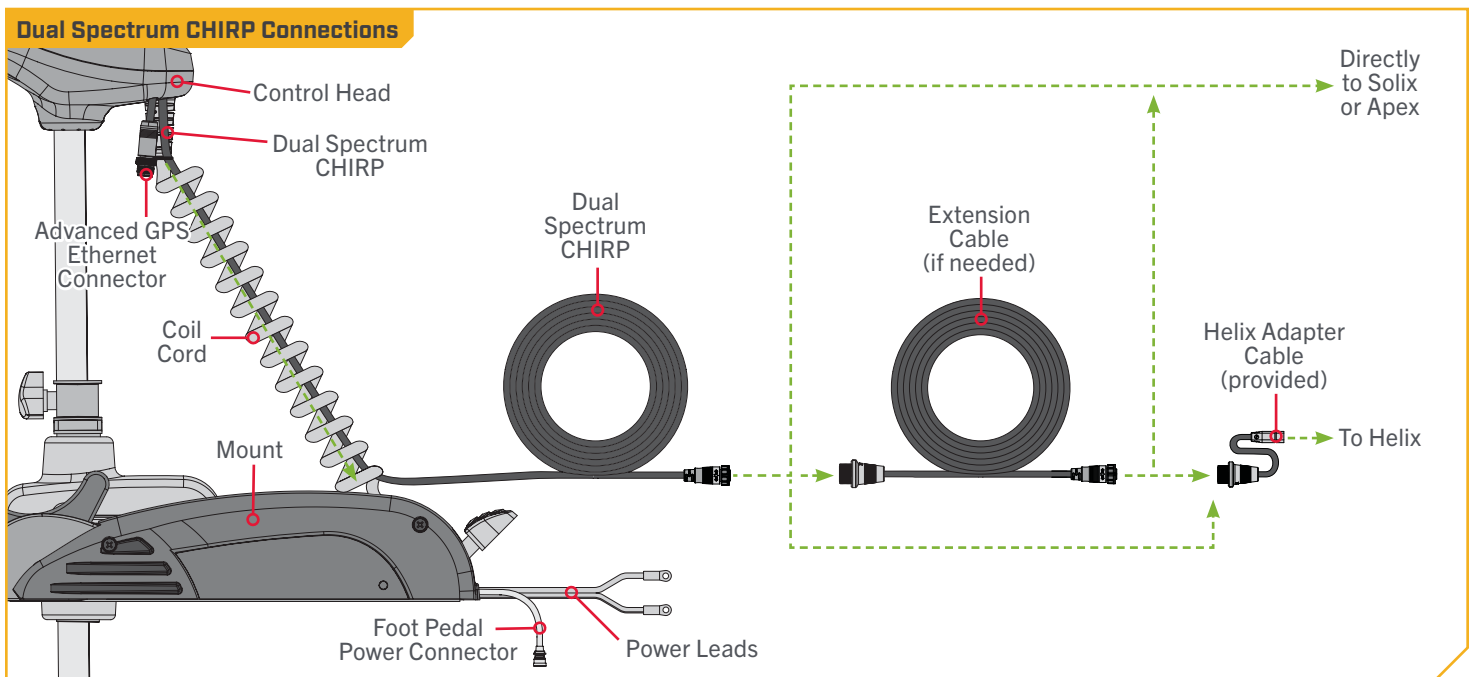
## › Considerations for Connecting and Routing Dual Spectrum CHIRP

If Dual Spectrum CHIRP is pre-installed on your trolling motor, one Dual Spectrum CHIRP accessory cable will exit the base of the Control Head and run down the center of the Coil Cord. Dual Spectrum CHIRP requires cables to be connected to an output device such as a Humminbird® fish finder. The Dual Spectrum CHIRP cable that exits the Coil Cord is "Apex and Solix Ready." Connecting the trolling motor equipped with a Dual Spectrum CHIRP transducer to a compatible fish finder gives you a 2D sonar view of what is happening directly below your trolling motor. To determine if your fish finder is compatible with Dual Spectrum CHIRP, please visit [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com) to check compatibility. The Dual Spectrum CHIRP cable from the trolling motor may be plugged directly into a Solix or Apex, directly into an Extension Cable or directly into a Humminbird® Helix Adapter Cable.

**EXTENSION CABLES** - The Dual Spectrum CHIRP cable from the trolling motor may not be long enough to reach your fish finder. If the cable length does not reach the desired fish finder installation location, extension cables are available. A 10-foot extension cable ([EC M3 14W10 - 10' transducer extension cable - 720106-1](#)) and a 30-foot extension cable ([EC M3 14W30 - 30' transducer extension cable - 720106-2](#)) are available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com). Both the 10-foot and 30-foot extension cables also come "Apex and Solix Ready." The Extension Cables may plug directly into a Solix or Apex or directly into a Helix Adapter Cable.

**HUMMINBIRD HELIX ADAPTER CABLES** - If connecting to a Humminbird® Helix fish finder, an adapter cable accessory is included that will allow the connection of any compatible Humminbird® Helix fish finder. The Helix adapter cable will plug directly into the Helix fish finder.

**OTHER FISH FINDER ADAPTER CABLES** - If connecting to other fish finders on the market, check for compatibility or any required adapter cables online at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).





# DUAL SPECTRUM CHIRP

All Dual Spectrum CHIRP Terrova motors are equipped with an internal bonding wire. Incorrect rigging will cause sonar interference and can damage your trolling motor, electronics, and other boat accessories. To minimize trolling motor interference, ensure that the fish finder and trolling motor are powered by separate batteries. Please refer to the "Battery & Wiring Installation" section of this manual for correct rigging instructions. Review the "Motor Wiring Diagram" section in the Terrova Owner's Manual, available online at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

The Dual Spectrum CHIRP cables are shielded to minimize interference. To protect this shielding, the cables should not be pulled tight against sharp angles or hard objects. If using cable ties, do not over-tighten. Any excess cable should be bundled in a loose loop of no less than 4" in diameter. The connection cable should be routed to the fish finder following Minn Kota recommendations on routing the cables to optimize mobility and maximize functionality. Follow the instructions below for completing all connections and then follow the instructions for "Securing Accessory Cables" to complete the output cable installation.

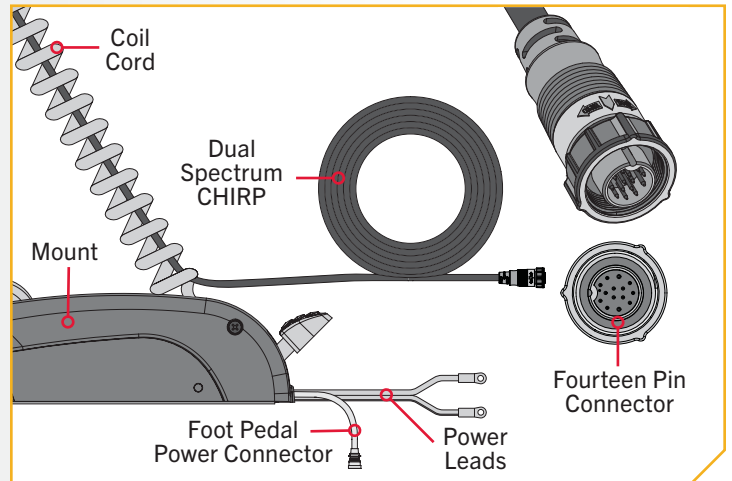
## CAUTION

Failure to follow the recommended wire routing for installed features, if equipped, may cause damage to the product and void your product warranty. Route cables away from pinch points or other areas that may cause them to bend in sharp angles. Routing the cables in any way other than directed may cause damage to the cables by being pinched or severed. Do not over-tighten the cable ties as it may damage the wires.

1

**NOTICE:** Your fish finder should be turned off until this procedure is complete.

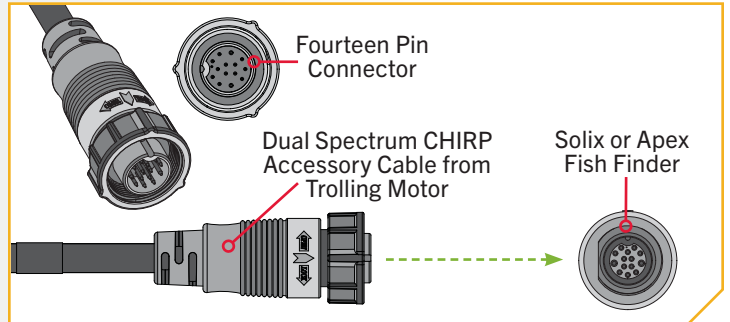
- a. Place the motor in the deployed position.
- b. Locate the Fourteen Pin Connector on the end of the Dual Spectrum CHIRP accessory cable. The cable will exit the base of the Control Head and run down the center of the Coil Cord.
- c. Determine if the Plug on the end of the Dual Spectrum CHIRP accessory cable will be attached directly to:
  - 1) a Humminbird® Solix or Apex fish finder,
  - 2) a Dual Spectrum CHIRP Extension Cable,
  - 3) a Helix Adapter Cable or a compatible fish finder adapter cable.





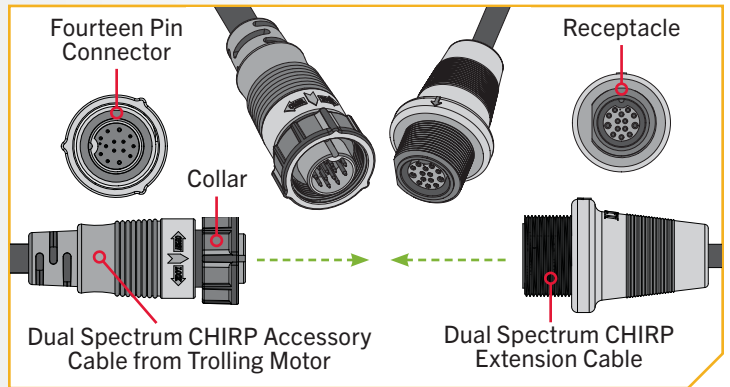
## 2

- d. If installing directly to a Solix or Apex, the connection will be flat on the back of the fish finder display.
- e. Align the pins on the Accessory Cable with the receptacle on the fish finder. Notice the keyed connectors. Tighten the Collar from the accessory cable to secure the connection. Once directly installed to the Solix or Apex, the connection is complete.



## 3

- f. If installing directly to a Dual Spectrum CHIRP Extension Cable, align the pins on the accessory cable with the receptacle on the extension cable. Notice the keyed connectors. Tighten the Collar from the accessory cable to secure the connection.
- g. If the Dual Spectrum CHIRP extension cable will be attached directly to a Humminbird® Solix or Apex, the connection will look exactly like the installation directly into a Humminbird Solix or Apex fish finder.



**NOTICE:** A 10-foot extension cable (EC M3 14W10 - 10' transducer extension cable - 720106-1) and a 30-foot extension cable (EC M3 14W30 - 30' transducer extension cable - 720106-2) are available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com).

# DUAL SPECTRUM CHIRP

## 4

### ITEM(S) NEEDED

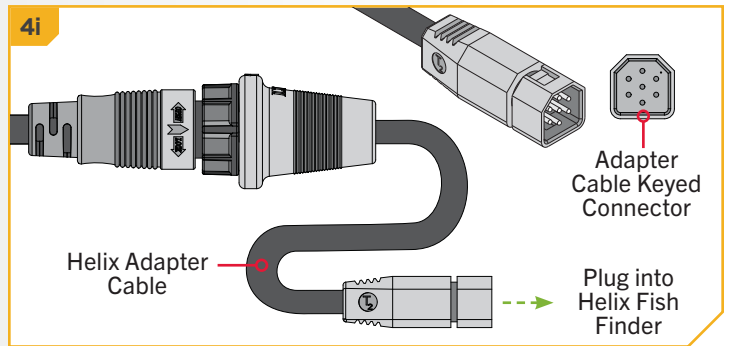
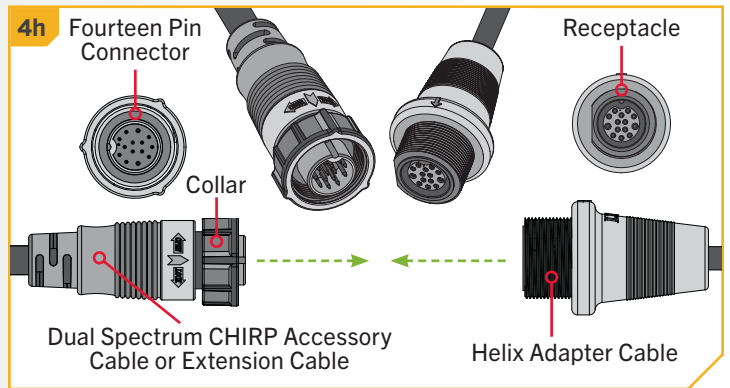


- h. If installing directly to a Helix Adapter Cable, align the pins on the accessory cable or extension cable with the receptacle on the Helix Adapter Cable (Item #17). Notice the keyed connectors. Tighten the Collar from the accessory cable or extension cable to secure the connection.
- i. If the Helix Adapter Cable will be attached directly to a Humminbird® Helix, plug it in the Helix Adapter Cable Keyed Connection on the back of the fish finder.

**NOTICE:** If connecting to other fish finders on the market, check for compatibility or any required adapter cables online at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

- j. If the trolling motor has more than one external connector for an output device, complete the connection for that specific output and then follow the instructions for "Securing Accessory Cables" to complete the output cable installation.

**NOTICE:** If unsure of what features the trolling motor may be installed with that require connection to an output device, please review the "Identifying Trolling Motor Features and Their Associated Cables" section of this manual.



## BUILT-IN MEGA DOWN IMAGING >

Built-in MEGA Down Imaging delivers nearly 3X the output of standard Side Imaging®, and takes fishfinding into the megahertz frequency for the very first time. It uses a razor-thin, high-frequency beam to create picture-like images of structure, vegetation and fish. With Humminbird MEGA imaging sonar built right into the trolling motor, you now have a crystal clear view of what's directly beneath the boat, without having to manage all of the cables that come with external transducers. The Built-in MEGA DI transducer is only available on new models equipped from the factory and cannot be added to an existing trolling motor.

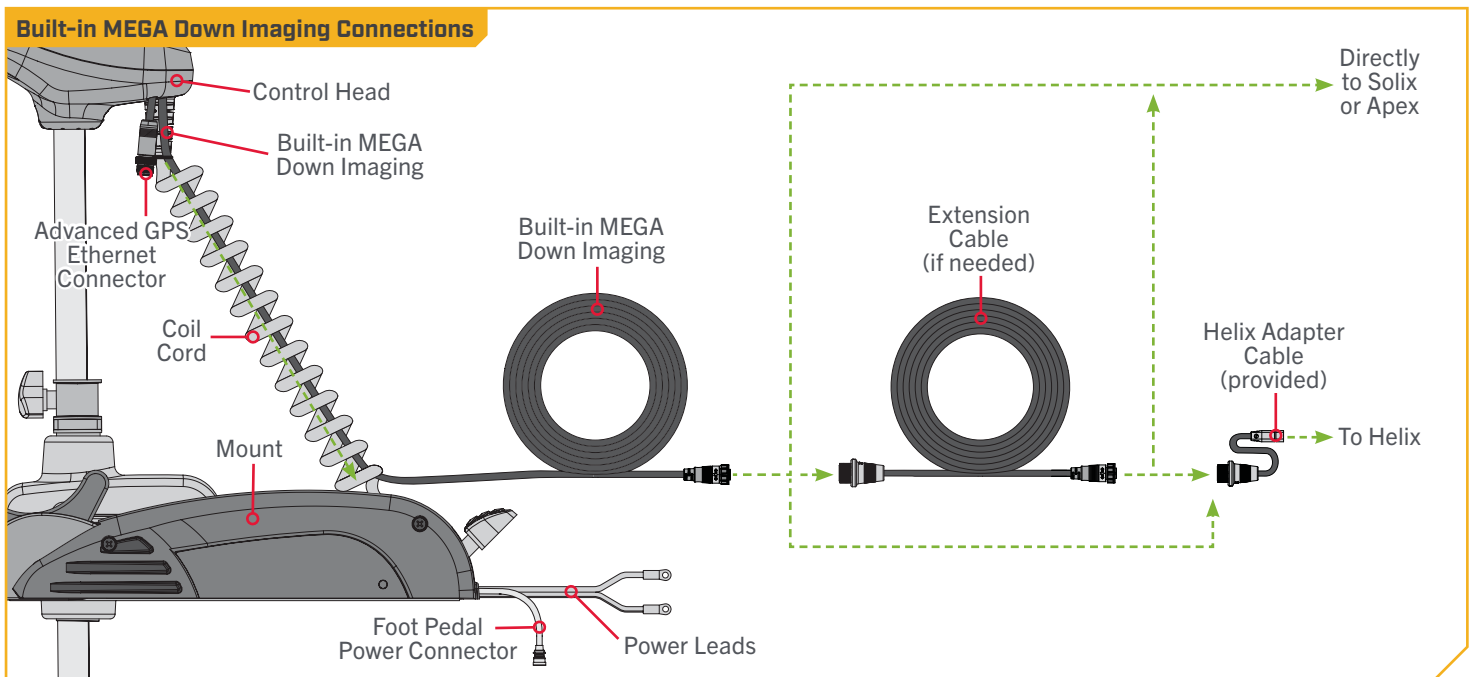
## > Considerations for Connecting and Routing Built-in MEGA Down Imaging

If Built-in MEGA Down Imaging is pre-installed on your trolling motor, one Built-in MEGA Down Imaging accessory cable will exit the base of the Control Head and run down the center of the Coil Cord. Built-in MEGA Down Imaging requires cables to be connected to an output device such as a Humminbird® fish finder. The Built-in MEGA Down Imaging cable that exits the Coil Cord is "Apex and Solix Ready." Connecting the trolling motor equipped with a Built-in MEGA Down Imaging transducer to a compatible fish finder gives you a 2D sonar view of what is happening directly below your trolling motor. To determine if your fish finder is compatible with Built-in MEGA Down Imaging, please visit [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com) to check compatibility. The Built-in MEGA Down Imaging cable from the trolling motor may be plugged directly into a Solix or Apex, directly into an Extension Cable or directly into a Humminbird® Helix Adapter Cable.

**EXTENSION CABLES** - The Built-in MEGA Down Imaging cable from the trolling motor may not be long enough to reach your fish finder. If the cable length does not reach the desired fish finder installation location, extension cables are available. A 10-foot extension cable ([EC M3 14W10 - 10' transducer extension cable - 720106-1](#)) and a 30-foot extension cable ([EC M3 14W30 - 30' transducer extension cable - 720106-2](#)) are available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com). Both the 10-foot and 30-foot extension cables also come "Apex and Solix Ready." The Extension Cables may plug directly into a Solix or Apex or directly into a Helix Adapter Cable.

**HUMMINBIRD HELIX ADAPTER CABLES** - If connecting to a Humminbird® Helix fish finder, an adapter cable accessory is included that will allow the connection of any compatible Humminbird® Helix fish finder. The Helix adapter cable will plug directly into the Helix fish finder.

**OTHER FISH FINDER ADAPTER CABLES** - If connecting to other fish finders on the market, check for compatibility or any required adapter cables online at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).



## BUILT-IN MEGA DOWN IMAGING

### CAUTION

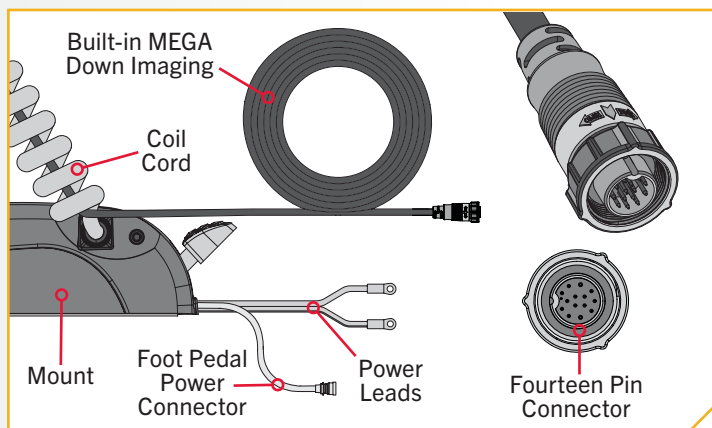
Failure to follow the recommended wire routing for installed features, if equipped, may cause damage to the product and void your product warranty. Route cables away from pinch points or other areas that may cause them to bend in sharp angles. Routing the cables in any way other than directed may cause damage to the cables by being pinched or severed. Do not over-tighten the cable ties as it may damage the wires.

**NOTICE:** You can only view Down Imaging with a MEGA DI or MEGA SI HELIX G2N, G3N or G4N Series model and a required adapter, or with any SOLIX or APEX Series model. The built-in transducer cannot supply MEGA Imaging to Humminbird models that do not already have the capability. If you have a G2/G2N, G3/G3N, G4/G4N HELIX that is not a MEGA SI or MEGA DI model, you will still get 2D Dual Spectrum CHIRP Sonar from the transducer. SOLIX G1 and HELIX G2 and G2N units need to be running the latest software update to view sonar from motors with Built-In MEGA Imaging. You can get the latest version of software for your fish finder on [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com). Built-In MEGA Imaging is not supported by HELIX G1 models or other brands of fish finders.

1

**NOTICE:** Your fish finder should be turned off until this procedure is complete.

- a. Place the motor in the deployed position.
- b. Locate the Fourteen Pin Connector on the end of the Built-in MEGA Down Imaging accessory cable. The cable will exit the base of the Control Head and run down the center of the Coil Cord.
- c. Determine if the Plug on the end of the Built-in MEGA Down Imaging Cable accessory cable will be attached directly to:
  - 1) a Humminbird® Solix or Apex fish finder,
  - 2) a Built-in MEGA Down Imaging Extension Cable,
  - 3) a Helix Adapter Cable or a compatible fish finder adapter cable.

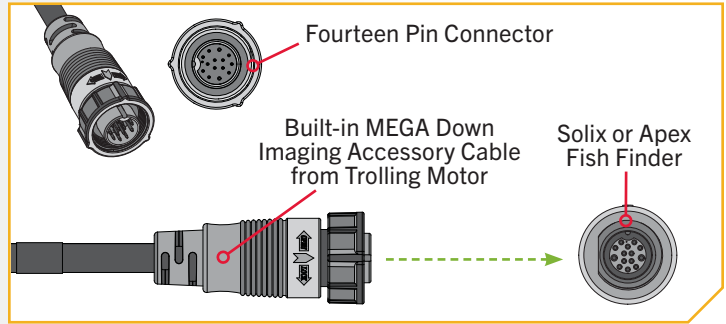


# BUILT-IN MEGA DOWN IMAGING



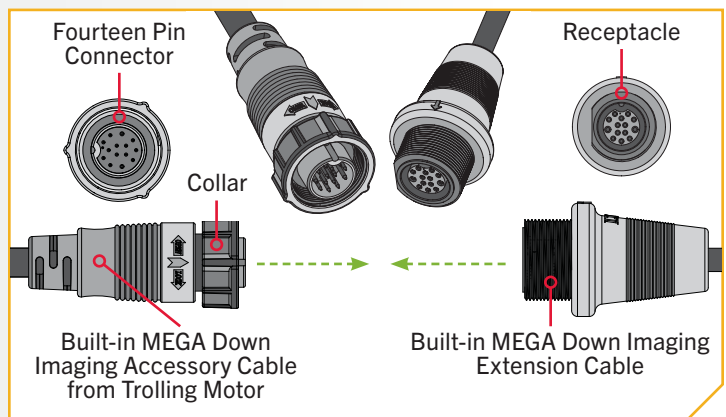
**2**

- d. If installing directly to a Solix or Apex, the connection will be flat on the back of the fish finder display.
- e. Align the pins on the Accessory Cable with the receptacle on the fish finder. Notice the keyed connections. Tighten the Collar from the accessory cable to secure the connection. Once directly installed to the Solix or Apex, the connection is complete.



**3**

- f. If installing directly to a Built-in MEGA Down Imaging Extension Cable, align the pins on the accessory cable with the receptacle on the extension cable. Notice the keyed connectors. Tighten the Collar from the accessory cable to secure the connection.
- g. If the Built-in MEGA Down Imaging Extension Cable will be attached directly to a Humminbird® Solix or Apex, the connection will look exactly like the installation directly into a Humminbird Solix or Apex fish finder.



**NOTICE:** A 10-foot extension cable (EC M3 14W10 - 10' transducer extension cable - 720106-1) and a 30-foot extension cable (EC M3 14W30 - 30' transducer extension cable - 720106-2) are available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com).



# BUILT-IN MEGA DOWN IMAGING

## 4

### ITEM(S) NEEDED

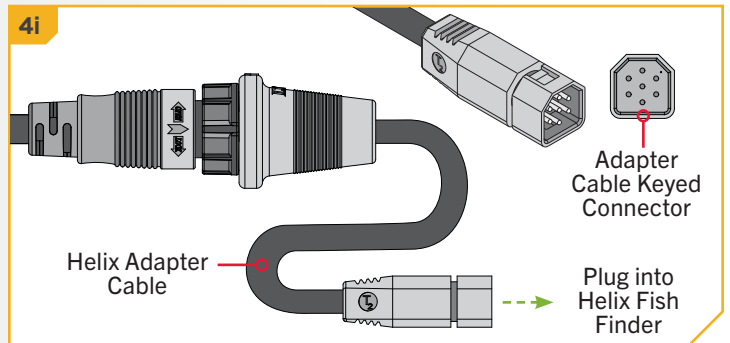
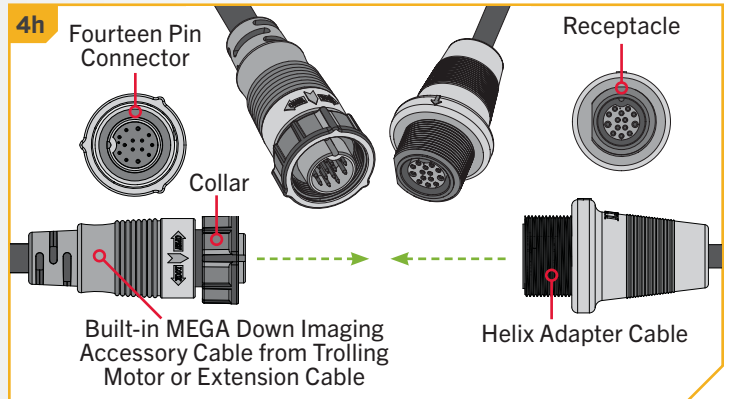


- h. If installing directly to a Helix Adapter Cable, align the pins on the accessory cable or extension cable with the receptacle on the Helix Adapter Cable (Item #17). Notice the keyed connectors. Tighten the Collar from the accessory cable or extension cable to secure the connection.
- i. If the Helix Adapter Cable will be attached directly to a Humminbird® Helix, plug it in the Helix Adapter Cable Keyed Connection on the back of the fish finder.

**NOTICE:** If connecting to other fish finders on the market, check for compatibility or any required adapter cables online at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

- j. If the trolling motor has more than one external connector for an output device, complete the connection for that specific output and then follow the instructions for "Securing Accessory Cables" to complete the output cable installation.

**NOTICE:** If unsure of what features the trolling motor may be installed with that require connection to an output device, please review the "Identifying Trolling Motor Features and Their Associated Cables" section of this manual.





## ADVANCED GPS NAVIGATION >

Your Minn Kota trolling motor and Humminbird fish finder communicate with each other to change the way you fish. Advanced GPS Navigation offers a large array of features including controlling speed, steering, Spot-Lock, and the ability to record and retrace paths on the water, all at your fingertips. To learn more about the GPS capabilities available with your new motor, please refer to the Advanced GPS Navigation Owner's Manual by visiting [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

The wireless remote and GPS controller make up the Advanced GPS Navigation system. A wireless remote comes paired to the controller from the factory. The GPS controller contains a very sensitive compass and is where all GPS satellite and remote signals are received. The GPS controller is located in the trolling motor Control Head and may be connected to a fish finder from a connection cable that exits the Control Head. If the Advanced GPS Navigation system will be used with a fish finder, the Ethernet link between the trolling motor and the fish finder should be connected.

## > Considerations for Connecting and Routing Advanced GPS Navigation

If Advanced GPS Navigation is pre-installed on your trolling motor, one eight pin Advanced GPS Ethernet Connector will exit the base of the Control Head and dangle just below the Control Head next to the Coil Cord. If the Advanced GPS Navigation on the trolling motor will be used with a fish finder, an Ethernet Cable will need to be attached to the Advanced GPS Ethernet Connector below the Control Head. Consider the distance between the trolling motor and the fish finder to determine how to complete the Ethernet connection.

**ETHERNET CABLES** - Minn Kota provides one 30 ft Ethernet cable (**AS EC 30E - 30' Ethernet Cable - 720073-4**) with every trolling motor equipped with Advanced GPS Navigation. The 30 ft Ethernet cable will accommodate a standard Ethernet connection for most installations to a Humminbird fish finder and is "Apex and Solix Ready". If the distance between the trolling motor and Humminbird fish finder is relatively small and a shorter cable is preferred, alternate cable lengths are available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com). These options include:

- 10 ft - (**AS EC 10E - 10' Ethernet Cable - 720073-2**)
- 15 ft - (**AS EC 15E - 15' Ethernet Cable - 720073-5**)
- 20 ft - (**AS EC 20E - 20' Ethernet Cable - 720073-3**)

Every length of Ethernet cable plugs directly into a Solix or Apex or directly into a Helix Adapter Cable.

**HUMMINBIRD HELIX ADAPTER CABLES** - Minn Kota provides one Helix Adapter Cable (**AS EC QDE - Ethernet Adapter Cable - 720074-1**) with every trolling motor equipped with Advanced GPS Navigation. If the Ethernet connection is being made between the trolling motor and any Humminbird® Helix fish finder, the Helix Adapter Cable should be used. The Helix Adapter Cable directly connects the Ethernet Cable to a Helix fish finder.

**ETHERNET EXTENSION CABLES** - If the 30 ft Ethernet cable provided with your trolling motor with Advanced GPS Navigation is not long enough to reach the fish finder, an Ethernet Extension cable should be used. The Ethernet Extension cable is available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com) and is available in a 30 ft length (**AS ECX 30E - 30' Ethernet Extension Cable - 760025-1**). The Ethernet Extension Cable will plug directly into any length of Ethernet cable.

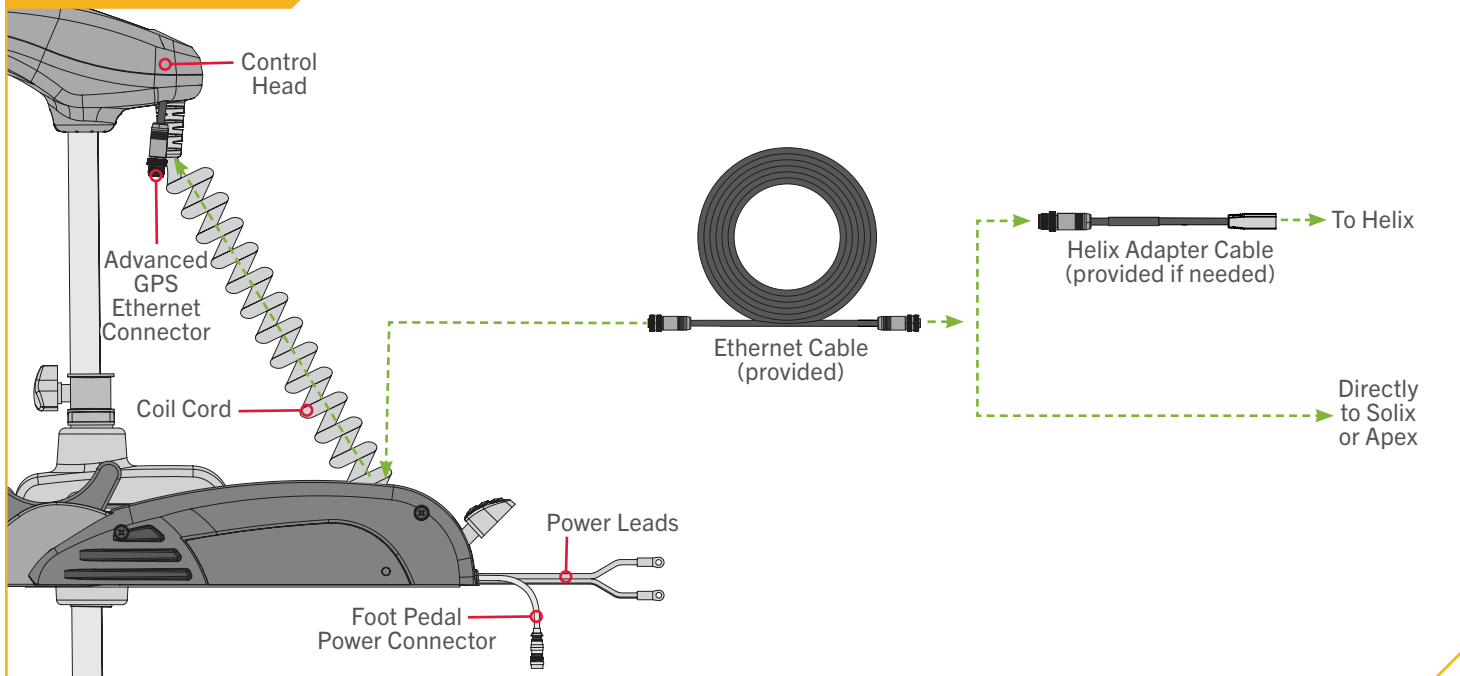
**NOTICE:** Minn Kota recommends routing the Ethernet Cable or Ethernet Extension Cable through the Coil Cord when making the Ethernet connection. The cables will be installed from the Mount to the Control Head through the Coil Cord and parallel to any Dual Spectrum CHIRP or Built-in MEGA Down Imaging Cable. Bypassing the Coil Cord when routing the Ethernet Cable or Ethernet Extension Cable is not recommended.

## CAUTION

Failure to follow the recommended wire routing for installed features, if equipped, may cause damage to the product and void your product warranty. Route cables away from pinch points or other areas that may cause them to bend in sharp angles. Routing the cables in any way other than directed may cause damage to the cables by being pinched or severed. Do not over-tighten cable ties as it may damage the wires.

# ADVANCED GPS NAVIGATION

## GPS Ethernet Connection

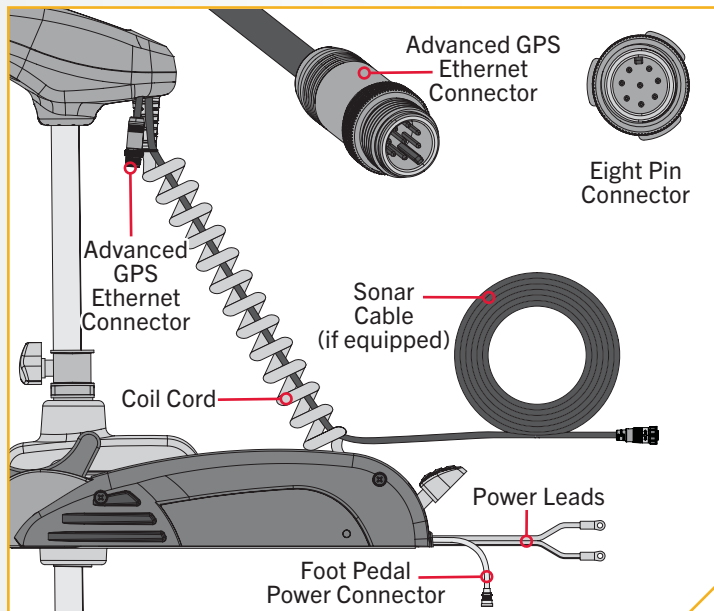


1

**NOTICE:** Your fish finder should be turned off until this procedure is complete.

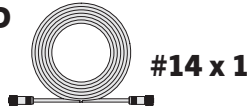
- Place the motor in the deployed position.
- Locate the Eight Pin Advanced GPS Ethernet Connector below the Control Head. The Advanced GPS Ethernet Connector will exit the base of the Control Head and will rest just below the Control Head next to the Coil Cord.

**NOTICE:** Terrova trolling motors with Advanced GPS Navigation may also be equipped with Sonar. Sonar is pre-installed from the factory and may be either Dual Spectrum CHIRP or Built-in MEGA Down Imaging. If equipped with Sonar, a Sonar Cable will be present below the Control Head and run through the center of the Coil Cord. Review the “Identifying Trolling Motor Features and Their Associated Cables” section of this document to identify and learn more about Sonar.



## 2

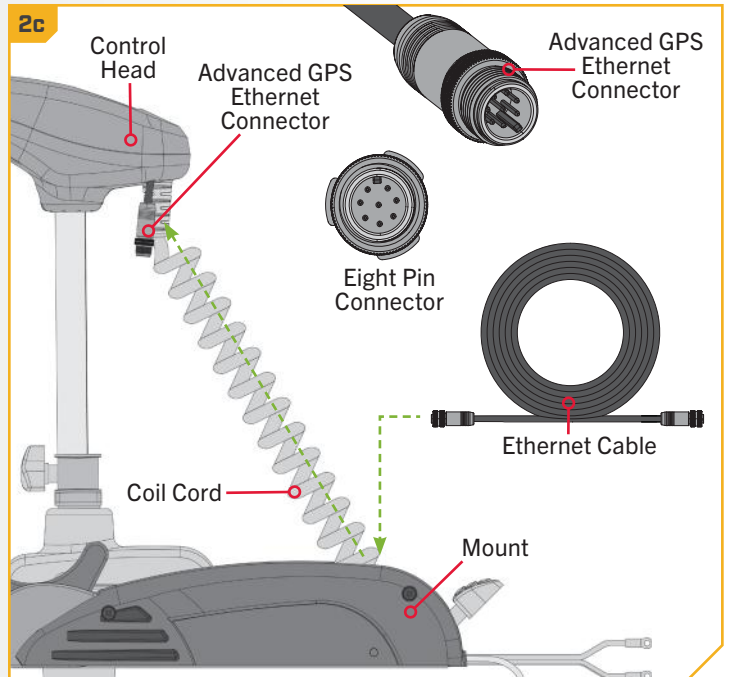
### ITEM(S) NEEDED



- c. Identify the keyed Receptacle on the Ethernet Cable (Item #14). It will be keyed to fit with the Eight Pin Advanced GPS Ethernet Connector below the Control Head.

**NOTICE:** The Ethernet Cable has a Receptacle for the Advanced GPS Ethernet Connector on both ends. Either end may be connected.

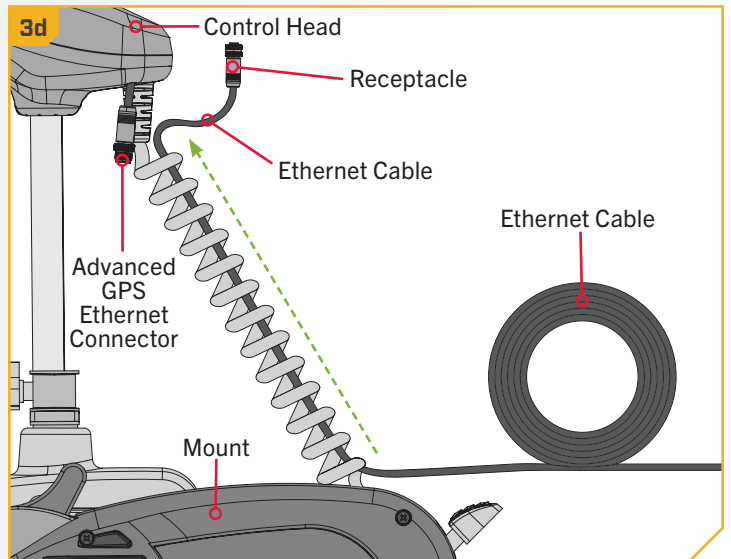
**NOTICE:** The 30' Ethernet Cable (AS EC 30E - 30' Ethernet Cable - 720073-4) is provided. Alternate cable lengths are available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com).



## 3

- d. If **NO Sonar is present**, take the Receptacle on the Ethernet Cable and run it through the center of the Coil Cord, starting at the end of the Coil Cord attached to the Mount and working up towards the Control Head. Allow enough slack in the cable to attach the Receptacle to the Advanced GPS Ethernet Connector.

**NOTICE:** Minn Kota recommends routing the Ethernet Cable through the Coil Cord when making the Ethernet connection. Bypassing the Coil Cord when routing the Ethernet Cable is not recommended.

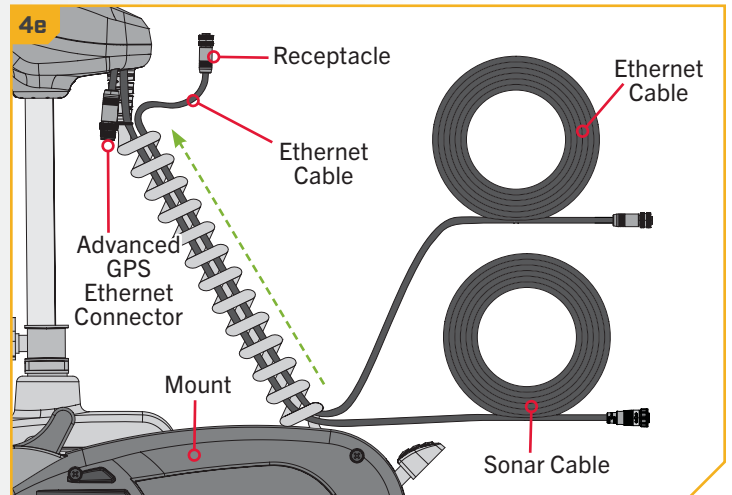


# ADVANCED GPS NAVIGATION

4

- e. If Sonar is present, take the Receptacle on the Ethernet Cable and run it through the center of the Coil Cord, starting at the end of the Coil Cord attached to the Mount and working up towards the Control Head. The Ethernet Cable should be parallel to the Sonar Cable. Allow enough slack in the cable to attach the Receptacle to the Advanced GPS Ethernet Connector.

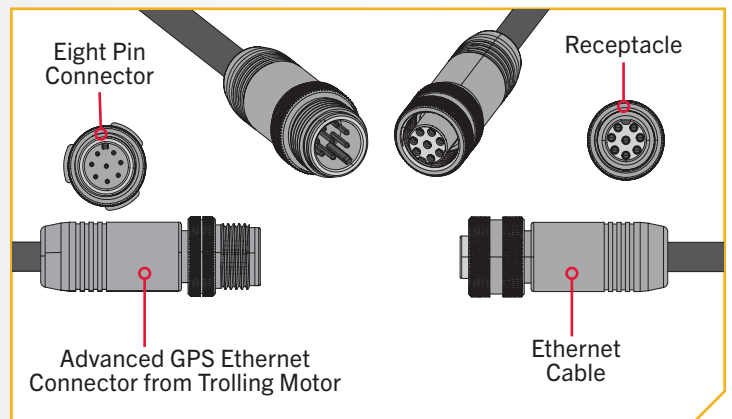
**NOTICE:** Minn Kota recommends routing the Ethernet Cable through the Coil Cord when making the Ethernet connection. The cable will be installed from the Mount to the Control Head through the Coil Cord and parallel to the Sonar Cable. Bypassing the Coil Cord when routing the Ethernet Cable is not recommended.



5

- f. To install the Ethernet Cable, align the pins on the Advanced GPS Ethernet Connector with the Receptacle on the Ethernet Cable. Notice the keyed connectors. Tighten the Collar from the Ethernet Cable to secure the connection.
- g. The Ethernet Cable will plug directly into a Solix or Helix Fish Finder or directly into a Helix Adapter Cable.
- h. If the trolling motor has more than one feature that requires connection to an output device, complete the connection for that specific output and then follow the instructions for "Securing Accessory Cables" to complete the Accessory Cable installation.

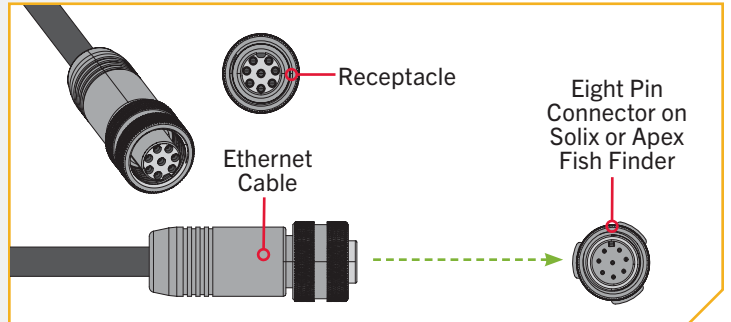
**NOTICE:** If unsure of what features the trolling motor may be installed with that require connection to an output device, please review the "Identifying Trolling Motor Features and Their Associated Cables" section of this manual.



**NOTICE:** A 30' Ethernet Extension Cable (AS ECX 30E - 30' Ethernet Extension Cable - 760025-1) is available from [humminbird.johnsonoutdoors.com](http://humminbird.johnsonoutdoors.com) and should be used if the standard 30' Ethernet Cable provided with the trolling motor is not long enough to reach the fish finder.

## 6

- i. If installing directly to a Solix or Apex, the connector will be flat on the back of the fish finder display.
- j. Align the Receptacle on the Ethernet Cable with the Eight Pin Connector on the Apex or Solix fish finder. Notice the keyed connectors. Tighten the Collar from the Ethernet Cable to secure the connection. Once directly installed to the Solix or Apex, the connection is complete.



## 7

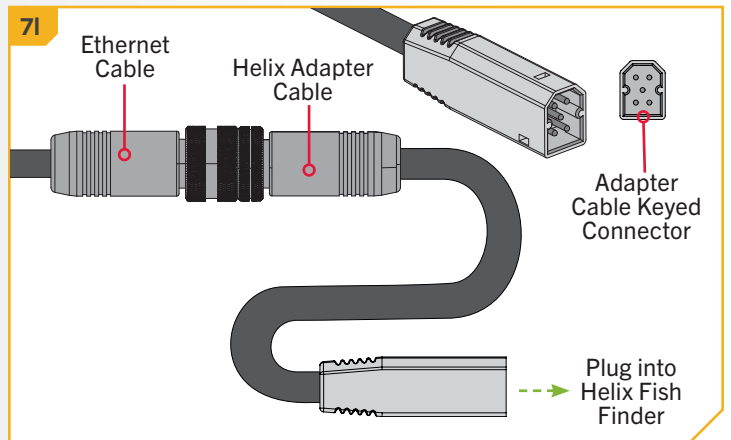
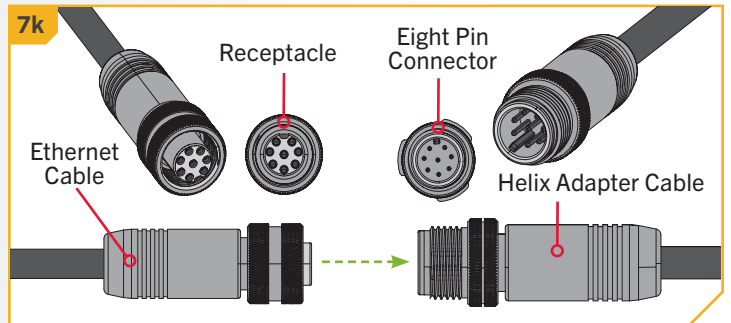
### ITEM(S) NEEDED



- k. If installing directly to a Helix Adapter Cable (Item #15), align the Receptacle on the Ethernet Cable with the Eight Pin Connector on the Helix Adapter Cable provided. Notice the keyed connectors. Tighten the Collar from the Ethernet Cable to secure the connection.

**NOTICE:** Minn Kota provides one Helix Adapter Cable (AS EC QDE - Ethernet Adapter Cable - 720074-1) with every trolling motor equipped with Advanced GPS Navigation.

- l. The Helix Adapter Cable directly connects the Ethernet Cable to a Helix fish finder. Locate the Helix Adapter Cable Keyed Connector on the back of the fish finder. Plug the Helix Adapter Cable into the back of the Helix fish finder to complete the connection.

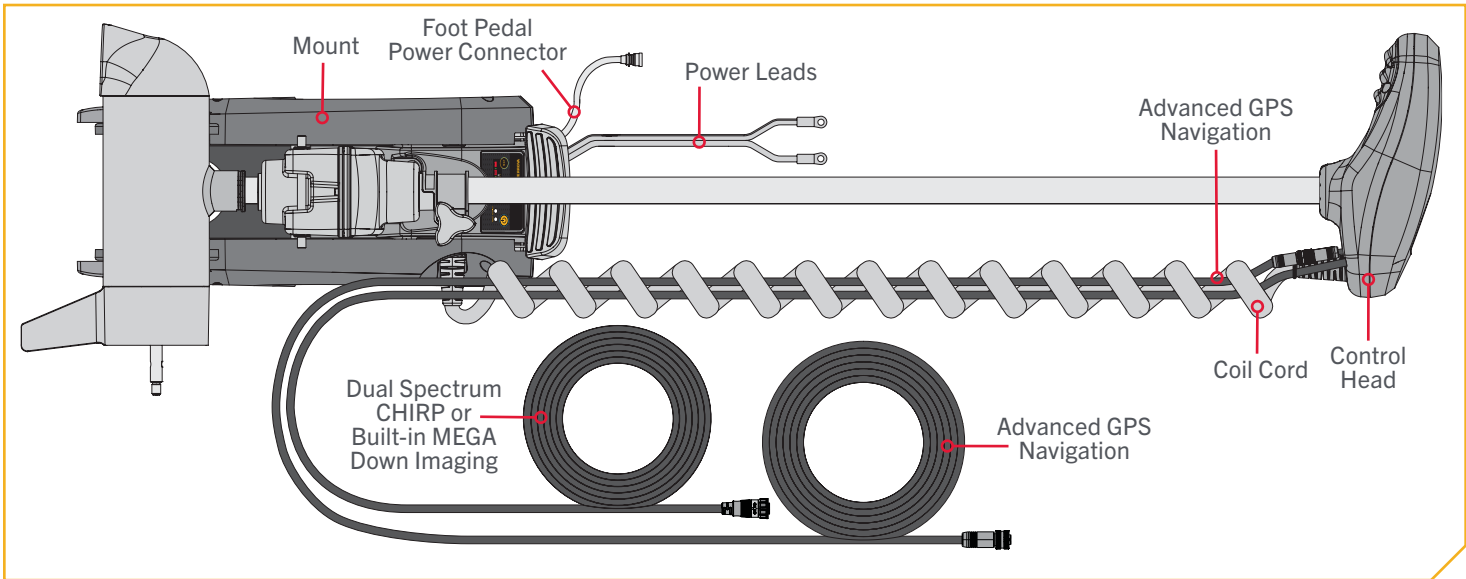


# SECURING ACCESSORY CABLES

## › Securing Accessory Cables

Before securing the cables, please review the "Identifying Trolling Motor Features and Their Associated Cables" section of this document. When identifying features, it is very important to secure the cables if **two** connections are present below the Control Head. If only one cable is present below the Control Head, securing the Accessory Cables is not necessary. All Accessory Cables that will be used on the trolling motor must be routed and all connections secured before completing the installation in this section. To review how feature cables should be routed and connected, please review the "Advanced GPS Navigation" and "Dual Spectrum CHIRP or Built-in MEGA Down Imaging" sections of this document.

**NOTICE:** If only one cable is present below the Control Head, this installation is not applicable.



## CAUTION

Failure to follow the recommended wire routing for installed features, if equipped, may cause damage to the product and void your product warranty. Route cables away from pinch points or other areas that may cause them to bend in sharp angles. Routing the cables in any way other than directed may cause damage to the cables by being pinched or severed. Do not over-tighten the cable ties as it may damage the wires.



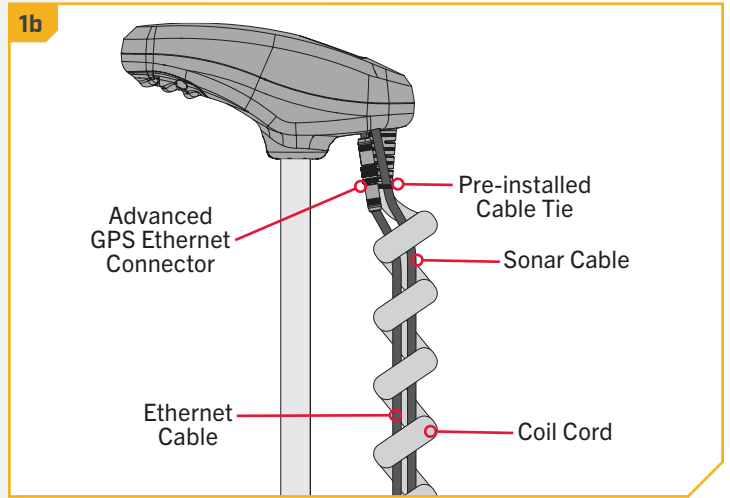
# SECURING ACCESSORY CABLES

1

- a. Place the motor in the stowed position. Confirm all Accessory Cables are connected to an output device as desired.
- b. To secure the Accessory Cables, the Sonar Cable and Ethernet Cable will be tied together inside the Coil Cord using Cable Ties. Ensure the Accessory Cables are parallel to each other inside the Coil Cord. Run the Accessory Cables from the Control Head to the Mount, keeping them straight and parallel the entire length.

**NOTICE:** The Sonar Cable comes from the factory secured to the Coil Cord with a pre-installed Cable Tie. Keep the pre-installed Cable Tie in place.

1b



2

## ITEM(S) NEEDED

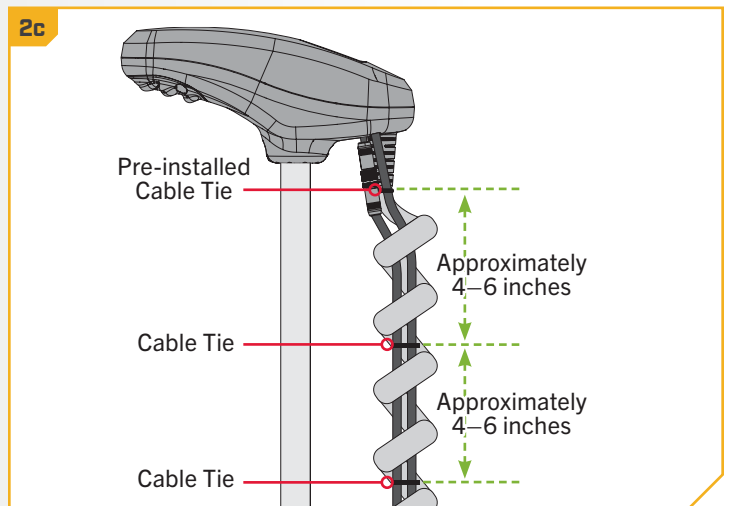
 #16 x 10

- c. Starting approximately 4–6 inches below the pre-installed Cable Tie, take a new Cable Tie (Item #16) and place it around the Sonar Cable and Ethernet Cable. **Do NOT capture the Coil Cord with the Cable Tie.** The Sonar Cable and Ethernet Cable should be secured together with the Cable Tie but float freely on the inside of the Coil Cord. Keep the pre-installed Cable Tie in place.

**NOTICE:** Do NOT secure the Accessory Cables to the Coil Cord. ONLY secure the Sonar and Ethernet Cables to each other using Cable Ties.

- d. Secure the Cable Tie around the Accessory Cables until it is fingertip tight. Do not over-tighten the Cable Tie as it may damage the Cables.

2c



## CAUTION

Do not over-tighten the Cable Ties as it may damage the wires.

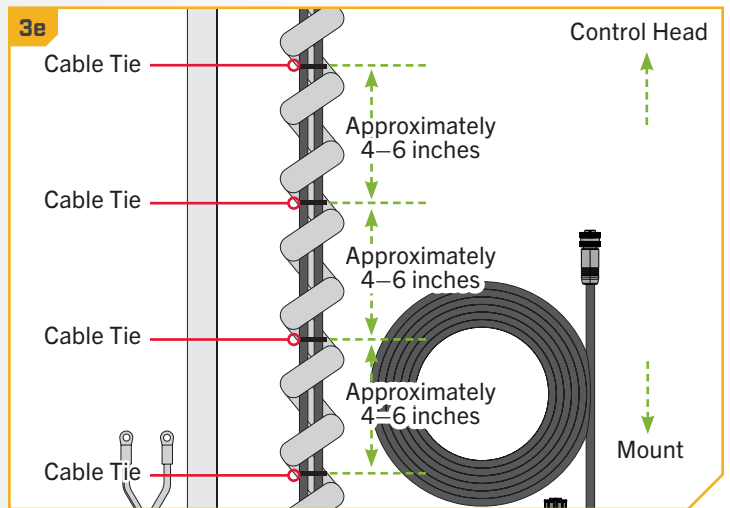
## SECURING ACCESSORY CABLES

3

- e. Follow the Accessory Cables from the Control Head to the Mount and place additional Cable Ties every 4–6 inches. The number of Cable Ties needed will vary depending on the length of the trolling motor Shaft.

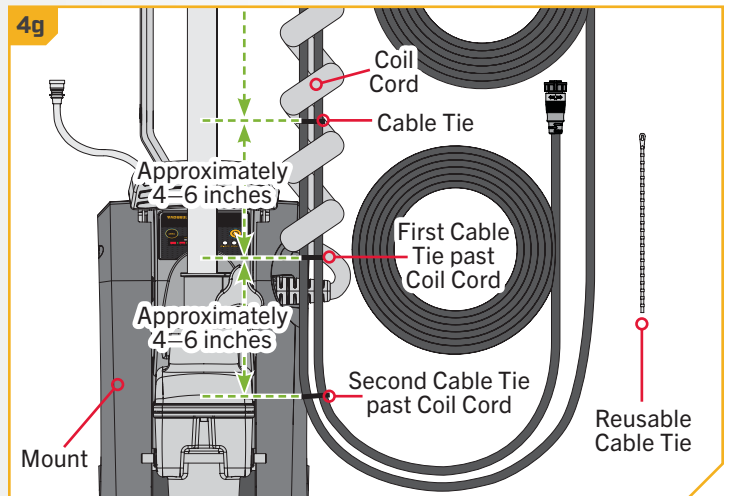
**NOTICE:** If additional Cable Ties are needed, a Cable Tie Bag Assembly (Part #2996300) is available from the Parts Ordering Portal at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

**NOTICE:** Secure the Cable Ties fingertip tight. It is recommended to have them **ONLY** tight enough so that they do not slide around on the Accessory Cables and hold the Cables together.



4

- f. Continue placing Cable Ties every 4–6 inches along the Accessory Cables until there are two Cable Ties in place past the end of the Coil Cord where it enters the Mount.
- g. Look at the placement of the Cable Ties and make sure that at least two Cable Ties are present on the Accessory Cables after they exit the Coil Cord. If no additional Cable Ties are needed, make sure to properly reconnect any Accessory Cables that may have been disconnected.
- h. Bundle any excess cable in a loose loop no less than 4" in diameter. The Reusable Cable Tie can be used to secure excess cable.



› Installing the Prop

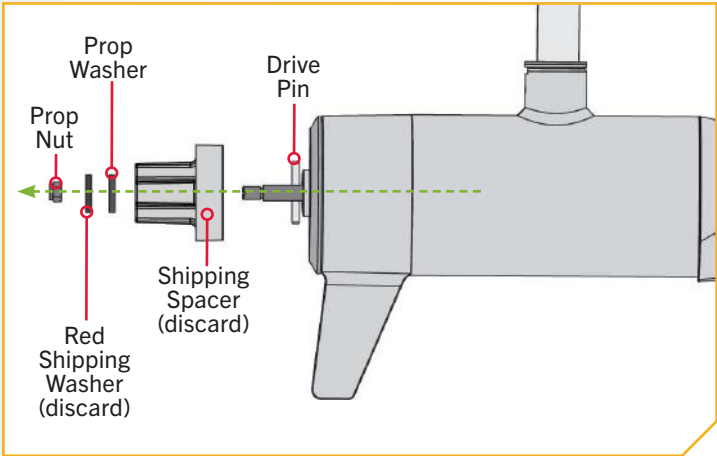
1

**⚠ CAUTION**

Disconnect the motor from the battery before beginning any Prop work or maintenance.

- a. While holding the Shipping Spacer with a pliers or vise grip, remove the Prop Nut, Red Shipping Washer, Prop Washer and Spacer, being careful not to lose the Drive Pin. Reuse the Prop Nut, Prop Washer and Drive Pin to attach the Prop.

**NOTICE:** The Shipping Spacer and Red Shipping Washer are for shipping purposes only and must be discarded. The Red Shipping Washer will rust if used to attach the Prop.

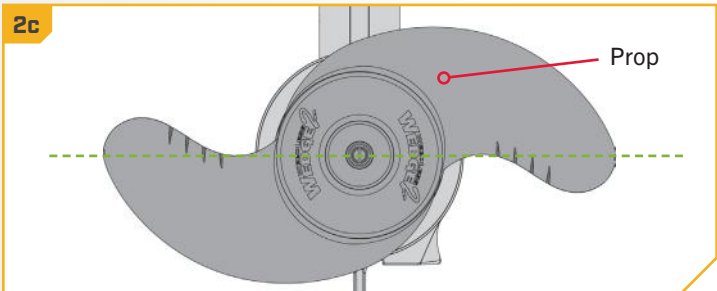
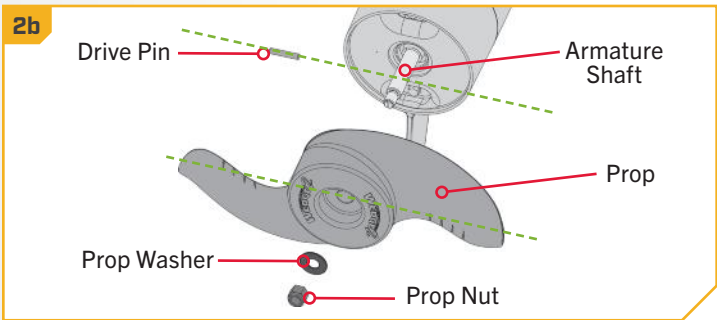


2

ITEM(S) NEEDED



- b. Take the Drive Pin (Item #9) and slide it through the Hole in the Armature Shaft. Position the Drive Pin horizontally by grasping the Armature Shaft and rotating it with the Drive Pin in place.
- c. Align the Prop (Item #12) so it is also horizontal and parallel with the Drive Pin. Slide the Prop onto the Armature Shaft and Drive Pin until it is seated against the lower unit.
- d. Install the Prop Washer (Item #10) and the Prop Nut (Item #11) onto the end of the Armature Shaft.



## INSTALLING THE PROP

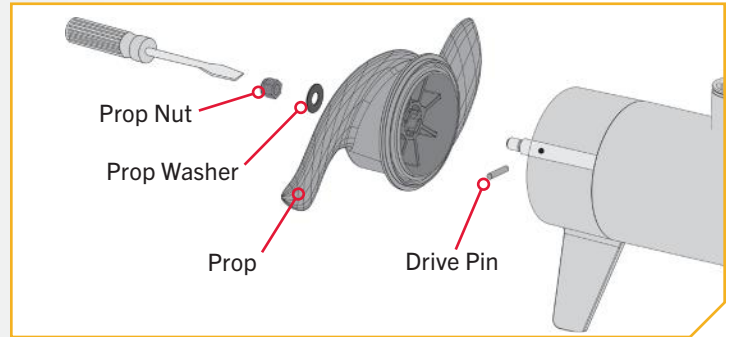
3

- e. Holding the end of the Armature Shaft with a Flat Blade Screwdriver, tighten the Prop Nut with a 9/16" Box End or Open End Wrench.
- f. Tighten the Prop Nut 1/4 turn past snug to 25-35 in-lbs.



### CAUTION

Do not over-tighten as this can damage the Prop.



# BATTERY & WIRING INSTALLATION

## BOAT RIGGING & PRODUCT INSTALLATION

For safety and compliance reasons, we recommend that you follow American Boat and Yacht Council (ABYC) standards when rigging your boat. Altering boat wiring should be completed by a qualified marine technician. The following specifications are for general guidelines only:

### CAUTION

These guidelines apply to general rigging to support your Minn Kota motor. Powering multiple motors or additional electrical devices from the same power circuit may impact the recommended conductor gauge and circuit breaker size. If you are using wire longer than that provided with your unit, follow the conductor gauge and circuit breaker sizing table below. If your wire extension length is more than 25 feet, we recommend that you contact a qualified marine technician.

### CAUTION

**An over-current protection device (circuit breaker or fuse) must be used.** Coast Guard requirements dictate that each ungrounded current-carrying conductor must be protected by a manually reset, trip-free circuit breaker or fuse. The type (voltage and current rating) of the fuse or circuit breaker must be sized accordingly to the trolling motor used. The table below gives recommended guidelines for circuit breaker sizing.

## CONDUCTOR GAUGE AND CIRCUIT BREAKER SIZING TABLE

This conductor and circuit breaker sizing table is only valid for the following assumptions:

1. No more than 2 conductors are bundled together inside of a sheath or conduit outside of engine spaces.
2. Each conductor has 105° C temp rated insulation.
3. No more than 3% voltage drop allowed at full motor power based on published product power requirements.

Motor Thrust / Model	Max Amp Draw	Circuit Breaker		Wire Extension Length				
		Amp	Minimum	5 feet	10 feet	15 feet	20 feet	25 feet
55 lb.	50	50 Amp	12 VDC	8 AWG	4 AWG	2 AWG	2 AWG	1 AWG
80 lb.	56	60 Amp	24 VDC	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG
112 lb.	52	60 Amp	36 VDC	8 AWG	8 AWG	8 AWG	6 AWG	4 AWG

**NOTICE:** Wire Extension Length refers to the distance from the batteries to the trolling motor leads. Consult website for available thrust options. Maximum Amp Draw values only occur intermittently during select conditions and should not be used as continuous amp load ratings.

#### Reference

United States Code of Federal Regulations: 33 CFR 183 – Boats and Associated Equipment ABYC E-11: AC and DC Electrical Systems on Boats

## SELECTING THE CORRECT BATTERIES

### SELECTING THE CORRECT BATTERIES

The motor will operate with any lead-acid, deep-cycle marine 12-volt battery/batteries. For best results, use a deep-cycle, marine battery with at least a 105 amp-hour rating. Maintain battery at full charge. Proper care will ensure having battery power when you need it, and will significantly improve the battery life. Failure to recharge lead-acid batteries (within 12-24 hours) is the leading cause of premature battery failure. Use a multi-stage charger to avoid overcharging. We offer a wide selection of chargers to fit your charging needs. If you are using a crank battery to start a gasoline outboard, we recommend that you use a separate deep-cycle marine battery/batteries for your Minn Kota trolling motor. For more information on battery selection and rigging, please visit [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com). Minn Kota trolling motors can run on Lithium-Ion batteries. However, they are specifically designed to run on traditional lead acid batteries (flooded, AGM or GEL). Lithium-Ion batteries maintain higher voltages for longer periods of time than lead-acid. Therefore, running a Minn Kota trolling motor at speeds higher than 85% for a prolonged period could cause permanent damage to the motor.

#### **WARNING**

Never connect the (+) and the (–) terminals of the same battery together. Take care that no metal object can fall onto the battery and short the terminals. This would immediately lead to a short and extreme fire danger.

#### **CAUTION**

Refer to “Conductor Gauge and Circuit Breaker Sizing Table” in the previous section to find the appropriate circuit breaker or fuse for your motor. For motors requiring a 60-amp breaker, the Minn Kota MKR-19 60-amp circuit breaker is recommended.

#### **CAUTION**

Please read the following information before connecting your motor to your batteries in order to avoid damaging your motor and/or voiding your warranty.

### ADDITIONAL CONSIDERATIONS

#### › Using Alternator Chargers

Your Minn Kota trolling motor may be designed with an internal bonding wire to reduce sonar interference. Most alternator charging systems do not account for this bonding wire, and connect the negative posts of the trolling motor batteries to the negative posts of the crank/starting battery. These external connections can damage connected electronics and the electrical system of your trolling motor, voiding your warranty. Review your charger’s manual carefully or consult the manufacturer prior to use to ensure your charger is compatible.

Minn Kota recommends using Minn Kota brand chargers to recharge the batteries connected to your Minn Kota trolling motor, as they have been engineered to work with motors that include a bonding wire.



## › Additional Accessories Connected to Trolling Motor Batteries

Significant damage to your Minn Kota motor, your boat electronics, and your boat can occur if incorrect connections are made between your trolling motor batteries and other battery systems. Minn Kota recommends using an exclusive battery system for your trolling motor. Where possible, accessories should be connected to a separate battery system. Radios and sonar units should not be connected to any trolling motor battery systems as interference from the trolling motor is unavoidable. If connecting any additional accessories to any trolling motor battery system, or making connections between the trolling motor batteries and other battery systems on the boat, be sure to carefully observe the information below.

The negative (-) connection must be connected to the negative terminal of the same battery that the trolling motor negative lead connects to. In the diagrams below this battery is labeled “Low Side” Battery. Connecting to any other trolling motor battery will input positive voltage into the “ground” of that accessory, which can cause excess corrosion. Any damage caused by incorrect connections between battery systems will not be covered under warranty.

## › Automatic Jump Start Systems and Selector Switches

Automatic jump start systems and selector switches tie the negatives of the connected batteries together. Connecting these systems to the “High Side” Battery or “Middle” Battery in the diagrams below and will cause significant damage to your trolling motor and electronics. The only trolling motor battery that is safe to connect to one of these systems is the “Low Side” Battery.

**NOTICE:** The internal bonding wire is equipped with a 3-amp fuse. Improper connections described above carrying in excess of 3 amps will blow this fuse and no further damage will be exhibited. If this occurs, RF interference from the trolling motor affecting sonar units and other electronics will be more significant. If the fuse is blown, the wiring error should be found and addressed prior to replacing the fuse. The replacement fuse should be 3 amps or less. An intact fuse does not imply correct rigging; significant damage can be done by incorrect wiring without approaching 3 amps of current.

# CONNECTING THE BATTERIES

## › 12-Volt Systems

1. Make sure that the motor is switched off (speed selector on “OFF” or “0”).
2. Connect positive ( + ) red lead to positive ( + ) battery terminal.
3. Connect negative ( – ) black lead to negative ( – ) battery terminal.

### **WARNING**

For safety reasons do not switch the motor on until the propeller is in the water. If installing a leadwire plug, observe proper polarity and follow instructions in your boat owner’s manual.

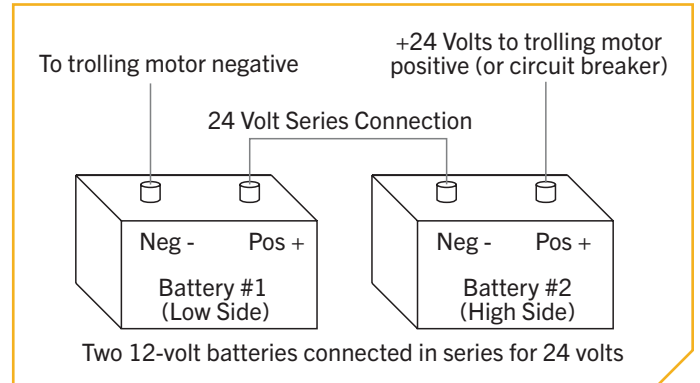
## CONNECTING THE BATTERIES IN SERIES

### CONNECTING THE BATTERIES IN SERIES (IF REQUIRED FOR YOUR MOTOR)

#### 24-Volt Systems

Two 12-volt batteries are required. The batteries must be wired in series, only as directed in the wiring diagram, to provide 24 volts.

1. Make sure that the motor is switched off (speed selector on “0”).
2. Connect a connector cable to the positive (+) terminal of battery 1 and to the negative (–) terminal of battery 2.
3. Connect positive (+) red motor lead to positive (+) terminal on battery 2.
4. Connect negative (–) black motor lead to negative (–) terminal of battery 1.



## WARNING

For safety reasons do not switch the motor on until the propeller is in the water. If installing a leadwire plug, observe proper polarity and follow instructions in your boat owner’s manual.

## WARNING

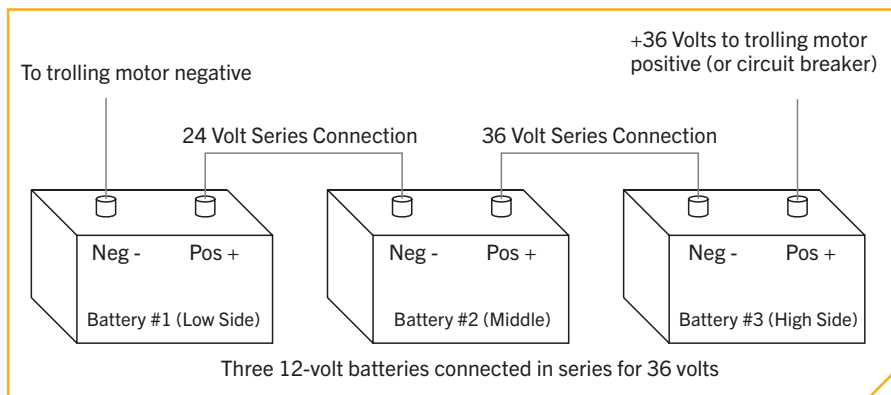
- For safety reasons, disconnect the motor from the battery or batteries when the motor is not in use or while the battery/batteries are being charged.
- Improper wiring of 24/36 volt systems could cause battery explosion.
- Keep leadwire wing nut connections tight and solid to battery terminals.
- Locate battery in a ventilated compartment.

## CONNECTING THE BATTERIES IN SERIES

### 36-Volt Systems

Three 12-volt batteries are required. The batteries must be wired in series, only as directed in the wiring diagram, to provide 36 volts.

1. Make sure that the motor is switched off (speed selector on "0").
2. Connect a connector cable to the positive (+) terminal of battery 1 and to the negative (-) terminal of battery 2 and another connector cable from the positive (+) terminal of battery 2 to the negative (-) terminal of battery 3.
3. Connect positive (+) red motor lead to positive (+) terminal on battery 3.
4. Connect negative (-) black motor lead to negative (-) terminal of battery 1.



### WARNING

For safety reasons, do not switch the motor on until the propeller is in the water. If installing a leadwire plug, observe proper polarity and follow instructions in your boat owner's manual.

### WARNING

- For safety reasons, disconnect the motor from the battery or batteries when the motor is not in use or while the battery/batteries are being charged.
- Improper wiring of 24/36 volt systems could cause battery explosion.
- Keep leadwire wing nut connections tight and solid to battery terminals.
- Locate battery in a ventilated compartment.

This completes the installation of your Terrova. A complete Owner's Manual can be downloaded at [minnkota.johnsonoutdoors.com](http://minnkota.johnsonoutdoors.com).

# RECOMMENDED ACCESSORIES

## › ON-BOARD & PORTABLE BATTERY CHARGERS

Stop buying new batteries and start taking care of the ones you've got. Many chargers can actually damage your battery over time – creating shorter run times and shorter overall life. Digitally controlled Minn Kota chargers are designed to provide the fastest charge that protect and extend battery life.



MK212PCL



MK210D



MK110PD

## › TALON SHALLOW WATER ANCHOR

Talon is the only shallow water anchor with up to 15' of anchoring depth, multiple anchoring modes, and control from the bow, transom, console, remote or mobile device.



### BUILT-IN WORK LIGHT

Lets you tie lines and work from the transom any time of day — or night. Includes both white and blue LED lights with three brightness settings.



### BLUETOOTH® CONNECTIVITY

Lets you control Talon from your mobile device and easily update it. Also opens up communication to other control options.



### UP TO 15' DEEP

Control more water and catch more fish with the first 15' shallow water anchor.



### MORE CONTROL OPTIONS

- Control Panel
- Wireless Remote
- Mobile App
- Wireless Foot Switch
- Humminbird® Connectivity
- Advanced GPS Navigation System Remote



## › MINN KOTA ACCESSORIES

We offer a wide variety of trolling motor accessories, including:

- 60-Amp Circuit Breaker
- Mounting Brackets
- Stabilizer Kits
- Extension Handles
- Battery Connectors
- Battery Boxes
- Quick Connect Plugs



minnkota.johnsonoutdoors.com    

Part #2327136

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