

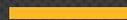


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2023 / 2024 NEW PRODUCT ASP PRESENTATION



Product Line



## FY24 MOTOR LINE-UP

# ELECTRIC-STEER / MULTI-SPECIES ANGLER

### FRESHWATER

#### ULTERRA



BRUSHED

#### QUEST



#### TERROVA



BRUSHED

#### QUEST



#### POWERDRIVE



BRUSHED

### SALTWATER

#### RIPTIDE INSTINCT



#### QUEST



#### QUEST

#### RIPTIDE TERROVA



BRUSHED



#### QUEST

#### RIPTIDE POWERDRIVE



BRUSHED

## FY24 MOTOR LINE-UP

# CABLE-STEER BASS ANGLER

### FRESHWATER

#### ULTREX



BRUSHED

#### QUEST



BRUSHED

#### FORTREX /MAXXUM



BRUSHED



BRUSHED

#### EDGE



BRUSHED



## FY24 MOTOR PRODUCT LINE

# NAMING CONVENTIONS

### SOFTWARE: AS SEEN IN OBN APP AND ON HUMMINBIRD

Graphic User Interface (GUI) Device Names	
New Device Name	Description
Minn Kota Controller 4.0	4.0 (Advanced GPS) Controller
Minn Kota Remote 4.0	4.0 (Advanced GPS) Remote
Ultrex 1.5	Ultrex 1.5 (BM) Motor Controller
Ultrex 2.0	Ultrex 2.0 (Quest) Motor Controller
Ulterra 2.0	Ulterra 2.0 (Quest) Motor Controller
Instinct 1.0	Instinct 1.0 (Quest) Motor Controller
PowerDrive 3.5	PowerDrive 3.5 (BM) Motor Controller
Terrova 2.5	Terrova 2.5 (BM) Motor Controller
Terrova 3.0	Terrova 3.0 (Quest) Motor Controller

### SERIAL NUMBER TAGS AND OTHER ABBREVIATIONS

Motor Naming Abbreviations (JDE/Serial Number Tag)			
DSC	Dual Spectrum CHRIP	MR	Micro Remote Included
MDI	MEGA Down Imaging	BLK	Black Saltwater Motor
MSI	MEGA Side Imaging	C	Carbon Shaft
WR	Wireless Remote Included	FP	Foot Pedal Control Only

Other Common Abbreviations			
BM	Permanent Magnet Brushed DC Motor	4.0	Adv. GPS Nav (IP 4.0)
BL	Brushless DC Motor		

# GOAL: SIMPLIFY PRODUCT OFFERING

- Streamline product lines to help consumers navigate, understand and select the right product for their needs
- Leverage and strengthen MK/HB brand connectivity
  - » New motors connect with HB right out of the box (Adapter Cables are included)
  - » Eliminate i-Pilot models; everything connects
  - » Streamline hand-held remote offerings
  - » Streamline mobile app offering
- Improve consumer brand experience by including required adapter cables with motor purchase



Product  
Features/Options

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## TROLLING MOTOR UPDATES

# BUILT-IN DUAL SPECTRUM CHIRP

## WHAT IS DUAL SPECTRUM CHIRP?

### What is CHIRP?

“Compressed High Intensity Radar Pulse”

### How is it different:

Unlike traditional 2D sonar CHIRP scans a wide range of frequencies that will detect more well-defined fish.

### More Pulses Mean More Detail:

CHIRP sonar fires off more sonar pulses than traditional 2D sonar. More pulses mean more detail and more clarity.

## WHAT BENEFITS DOES IT BRING?

### Target Separation:

Fish will appear more defined on the Humminbird unit due to the advanced target separation capabilities separating the fish return from the background habitat.

### Clearly Defined Fish Arches:

Big arches are not always what you are looking for. Large game fish will show up 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 ration translates to better-defined targets, less clutter, and greater certainty that what you are looking at on-screen is legit.

# TROLLING MOTOR UPDATES

## ADAPTER CABLES

### WHAT IS CHANGING?

#### Why do we have new adapter cables?

All motors are moving from US2 to DSC 2D sonar.

#### Compatibility with competitive fish finders

We will provide adapter cable options for competitive fish finders to provide generic compatibility for sonar/depth. We will not be qualifying them for full CHIRP capabilities.

#### Future of US2 and adapters

We will support but start to phase out US2 adapters.

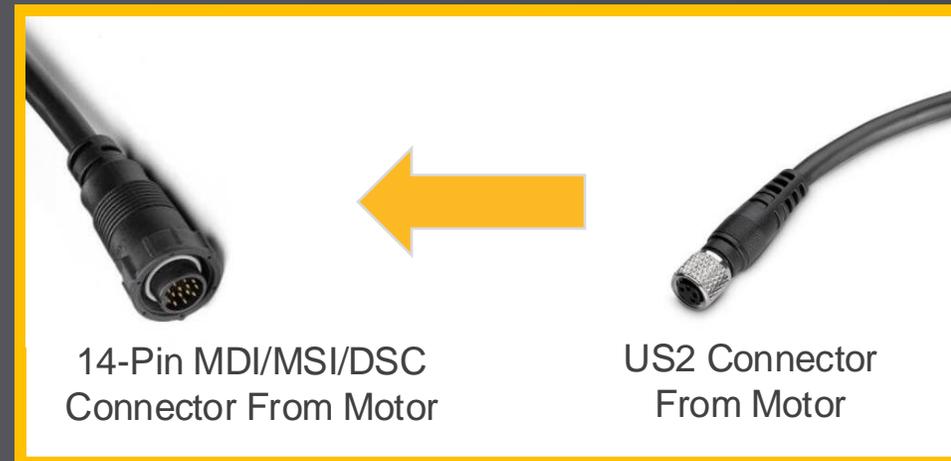
#### What cables will be included in box with motor

##### Included with Built-In MEGA DI and DSC motor models:

- (Qty 1) 490518-1 ~ CABLE, ADAPTER, TYPE 9/14 DI
- (Qty 1) 490537-2 ~ CABLE, ADAPTER, 30"-14P /7P
- (Qty 1) 720073-4 ~ CABLE, ETHERNET, 30'
- (Qty 1) 720074-1 ~ CABLE, ADAPTER, ETHERNET

##### Included with Built-In MEGA SI motor models:

- (Qty 1) 490537-2 ~ CABLE, ADAPTER, 30"-14P /7P
- (Qty 1) 720073-4 ~ CABLE, ETHERNET, 30'
- (Qty 1) 720074-1 ~ CABLE, ADAPTER, ETHERNET



14-Pin MDI/MSI/DSC Connector From Motor

US2 Connector From Motor

#### MINN KOTA / HUMMINBIRD ADAPTERS

Item	Compatibility
MKR-MI-1	MSI+, MDI+, HELIX 8-15 Models – DSC All Helix
MKR-MDI-2	MDI – HELIX 7 G2 / G3N Models

#### COMPETITIVE ADAPTERS

Description	DSC Item	US2 Item (reference)
LOWRANCE 7-PIN	MKR-DSC-10	MKR-US2-10
LOWRANCE 8-PIN (Triple Shot)	MKR-DSC-15	MKR-US2-15
LOWRANCE 9-PIN (Total Scan)	MKR-DSC-16	MKR-US2-16
GARMIN 4-PIN (Echo)	MKR-DSC-12	MKR-US2-12
GARMIN 8-PIN	MKR-DSC-14	MKR-US2-14

## TROLLING MOTOR UPDATES

# SIMPLIFYING WIRELESS REMOTES

### CURRENT REMOTE OFFERING



**COPILOT**  
277 4095



**MICRO**  
2994079



**I-PILOT**  
2994075



**I-PILOT LINK**  
2994076

### FY24 REMOTE OFFERING



**REMOTE CRADLE**  
1866675



**MICRO (MR)**  
2994175



**WIRELESS REMOTE (WR)**  
411690-1

- Wireless Remote**
- (4) Programable OBN Buttons
  - Light Weight
  - Simplified Keypad
  - Intuitive UI Design
  - Recessed Power Key
  - Non-Slip Grip
  - 2.1" MIP LCD Display (not touch screen)
  - Dims: 5.4" x 2.0" x 1.3"
  - (2) AA Batteries

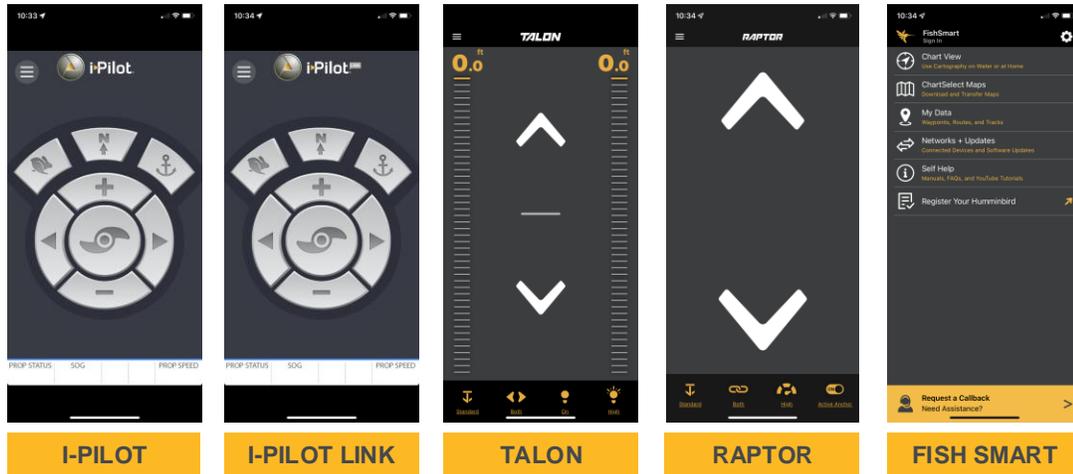
**Advanced GPS Navigation** is an integrated feature of these product families not an add-on or an accessory.

Advanced GPS (IP 4.0) is not backward compatible with legacy and BT i-Pilot Systems (2009-2023).

## TROLLING MOTOR UPDATES

# SIMPLIFYING MOBILE APPS

### CURRENT MOBILE APP OFFERING



- Current App: Limited functionality and individual by product
- Consumers do not want to download multiple apps
- Difficult to maintain multiple apps

### FY24 MOBILE APP OFFERING



- Existing apps will not be used on new Motors
  - Talon & Raptor apps will be phased out completely
- One-Boat Network app offers
  - Full trolling motor & anchor controls and settings
  - Full Humminbird and FishSmart features

## KEY ADVANTAGES OF THE ONE BOAT NETWORK APP

- Full Motor Controls including:
  - Stow/Deploy Ulterra
  - Motor/Heading Sensor Calibration Procedures
  - Read Error Codes (Quest Motors Only)
- Record Serial number of product so it is readily accessible
- Allows product registration from the app (North America Only)
- Request a callback (North America Only)
  - Feature provides Customer Service Agent with User Settings, Connected Device information,
- All Humminbird and Minn Kota information/controls in a single app.
  - Shallow Water Anchor and Motor Control and updates
  - Chart Select and Fishsmart functions including Fish Finder Updates

## TROLLING MOTOR UPDATES

# NEW NAVIGATION FEATURE: DRIFT MODE

### WHAT IS DRIFT MODE?

#### What problem are we solving?

Anglers continually fight environmental conditions to maintain a straight-line course heading and consistent speed.

#### How is Drift Mode the solution?

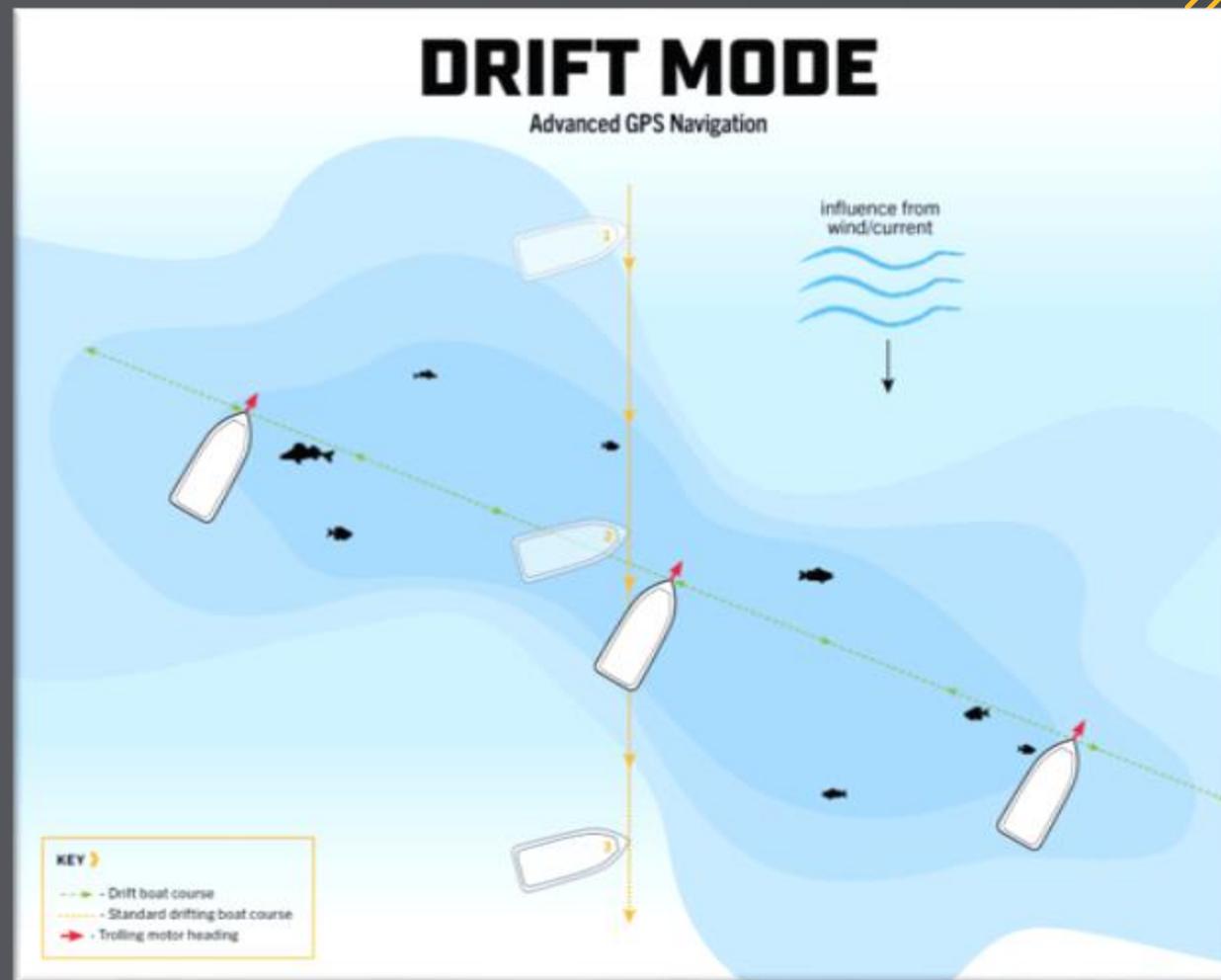
Drift mode will automatically engage Advanced AutoPilot and Cruise Control simultaneously to maintain boat control. Anglers will no longer need to depend on drift socks, kicker motors, or manual operation to control speed.

#### Can this be done today without Drift Mode?

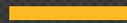
This can be done to a point with existing features, but it requires continual manual correction of speed. This new feature will slow the boat down if your set speed is less than the wind speed, which Cruise Control cannot do today.

#### How can it be activated?

Drift mode can be activated from the Humminbird interface, One-Boat mobile app, and from the wireless remote (remote will ship with OBN 1 button preprogrammed set to Drift Mode)



# QUEST Positioning



## TROLLING MOTOR UPDATES

# WHAT IS QUEST?

### QUEST Trolling Motors

Minn Kota will announce a new line extension for Ultrex, Terrova, Ulterra, and RT Instinct motors called QUEST. The new platform that will live alongside existing motors will utilize a brushless motor design and create a new technology platform for future technology development. We have taken the world's greatest trolling motors and redesigned them to outperform anything else for years to come.

### PHYSICAL ATTRIBUTES

- QUEST motors are **re-engineered** from the ground up
- **Larger & stronger mount** to accommodate extra thrust and torque
- **Carbon Fiber shafts** for enhanced durability
- New propellers ensure **peak performance and power efficiency**
- New **lift-assist assembly (Ultrex)** to make getting the motor in and out of the water **effortless**

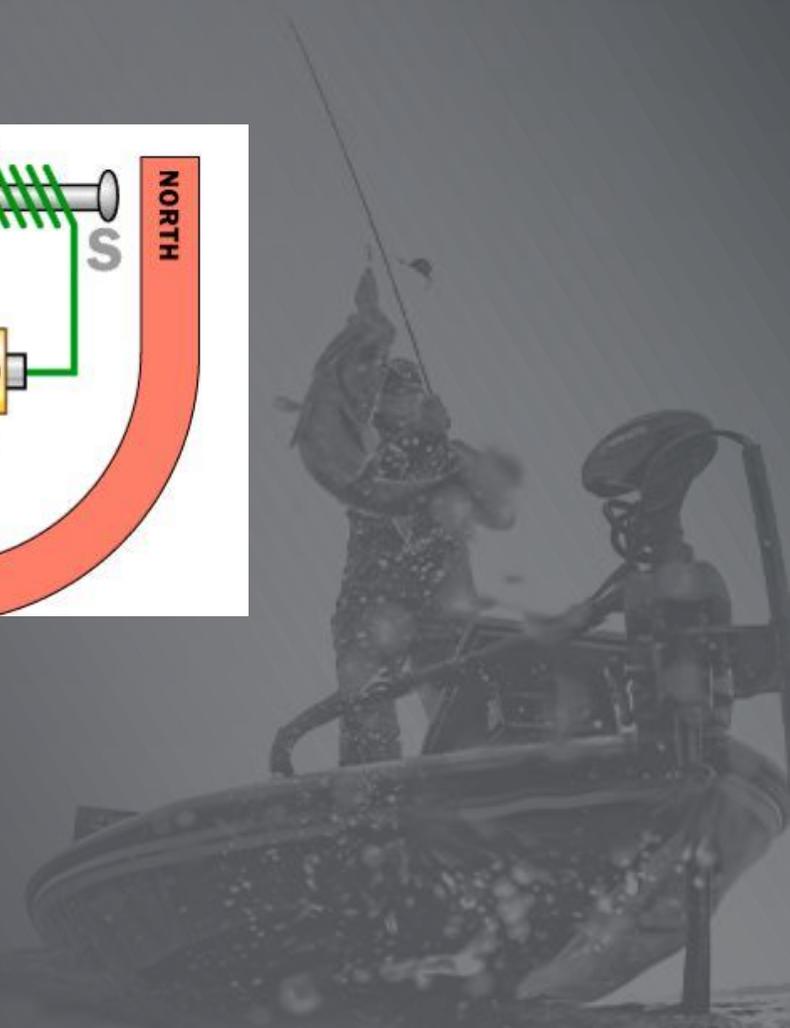
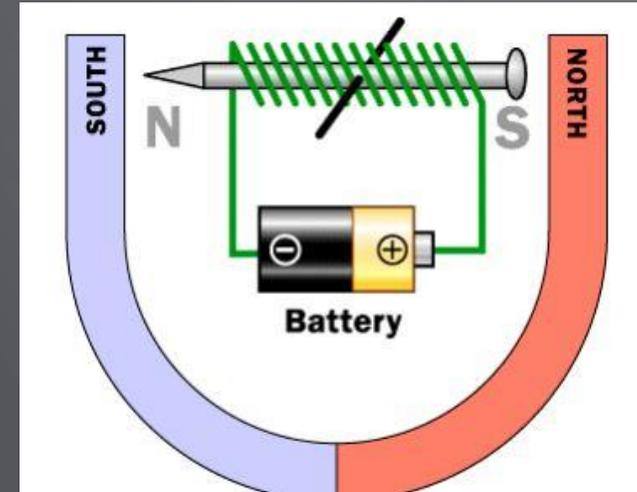
### TECHNOLOGY ATTRIBUTES

- New motor controller and software changes have made it the **most power-efficient motor** on the market
- New **battery monitoring system** for real-time monitoring of power and **automatic power saving mode** when batteries reach 20% charge
- Motor and software designs have made QUEST the **most powerful line of trolling motors ever**
- Includes new **updated GPS system** adding features and accuracy

# BASIC MOTOR THEORY

## ELECTROMAGNETISM

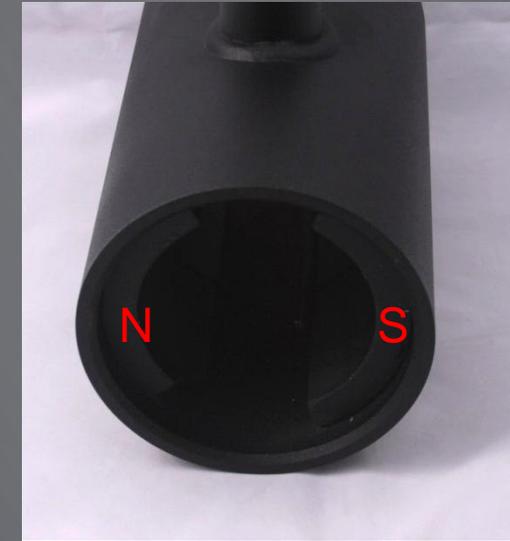
- An iron bar with wire wrapped around it will act as a magnet while electric current is flowing through the wire.
- The North and South Pole of this magnet is defined by the direction of the current.
- Like Magnetic poles repel each other, opposite magnetic poles attract each other.
- Switching the current in an electromagnet that is in the proximity of another magnet causes motion.
- This is the basis for basis of any electric motor.



# BRUSHED MOTORS

## PERMANENT MAGNET

- The Center Section is Permanently Magnetized.
- This Creates a static Magnetic Field that the Electromagnet of the Armature will Act against.



## COMMUTATION

- The Brushes Contacting the Commutator send current through a set of windings causing the Armature to become an Electromagnet
- The Armature moves due to the Magnetic Force
- The brushes contact with commutator changes direction of current in the armature windings maintaining magnetic fields in the proper polarity and position to continue movement.

## UNDERSTANDING MOTOR TECHNOLOGIES

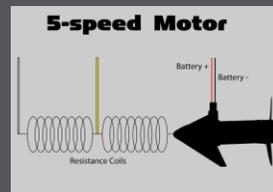
# BRUSHED MOTOR SPEED CONTROL

### VOLTAGE = SPEED CONTROL

- Because the switching is mechanical and automatic if voltage is coming in the motor will turn. The higher the voltage at the brushes the faster the motor spins. Speed control is a matter of reducing the voltage at the brushes

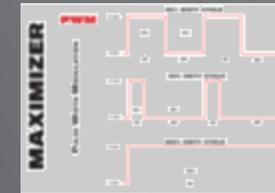
### 5 SPEED MOTOR

- Resistive Coils cause the voltage to be reduced at the brushes
- Most inexpensive way to control speed.
- Tapping the coil in multiple locations give some speed variation
- 👉 Speed Variation is limited
- 👉 Inefficient, much energy is lost as heat in the process of reducing the voltage.



### VARIABLE SPEED MOTOR

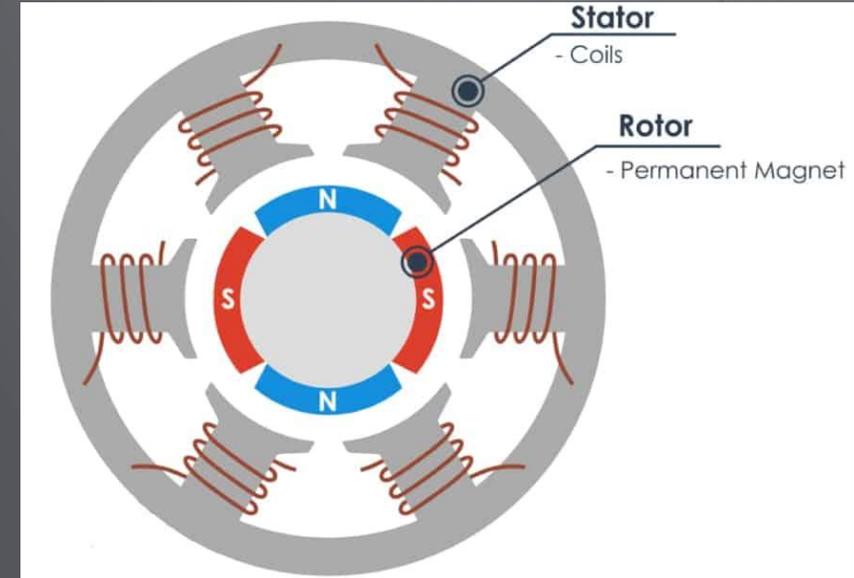
- Pulse Width Modulation, very rapid off/on cycling, percentage of cycles that are "on" sets the effective V.
- Infinitely variable speeds
- Very efficient means of voltage control
- 👉 More Expensive than resistive coils.



# BRUSHLESS MOTORS

## ROTOR, STATER, AND POSITION SENSING

- Brushless motors are essentially inside out brushed motors.
- The Rotor replaces the Armature and is permanently Magnetized.
- Stators are electromagnets in the motor center section
- The controller senses rotor position and “fires” stators based on desired operating speed.
- 👍 The rotor can be a more powerful magnet, making the motor more efficient.
- 👍 Direct speed control by the Inverter (“Controller in the diagram”) allows the same motor to be safely operated at full speed at different voltages.
- 👍 “Noise” both audible and electronic are more controllable.
- 👍 More expensive to produce and service.



# REDEFINING POWER

Thrust is an **important attribute** to consumers, and a key factor of the decision process.

However, thrust is only part of a **larger story** about the power and **capability of the motor**.

Reframing power to the consumer will allow a **broader conversation** about what the motor will allow the consumer to **experience on the water**.

## WHAT MAKES QUEST MOTORS DIFFERENT?

# KEY POINTS OF DIFFERENTIATION

1. **Motor Longevity:** Less contacting parts = less friction and wear = longer life
2. **Efficiency:** Battery power is utilized more efficiently = longer run time on a single charge (quantifiable value is TBD)
3. **Power:** Quest motors will be the most powerful motors series ever. Motor power is made up of multiple variants.
  - **Thrust:** Motors will have slightly more actual thrust
  - **Torque:** Considerably more torque means it will cut through weeds with ease and provide precise maneuverability even in extreme conditions.
  - **Prop:** New prop design balances better than ever weedless design with motor efficiencies.
  - **Construction:** A beefed-up motor mount, shaft, and pivot points to accommodate the increase in power.
4. **Quiet:** These motors are taking quiet operation to a new level.
5. **Real-time battery monitoring:** Check battery power levels while the motor is in use, real-time timer till the battery is drained, with a notification when battery power is reduced to 20%.
6. **Programmable foot pedal:** User-programable button on the foot pedal to keep the most used feature a tap away.
7. **Built-in MEGA Side Imaging:** Only available on Quest series motors.
8. **No Performance Loss:** As the battery voltage drops, there will be no loss in motor performance (similar to lithium battery operation)

## TROLLING MOTOR UPDATES

# QUEST/HUMMINBIRD BATTERY MONITORING

## BATTERY MONITORING DETAILS

### QUEST Battery Monitoring System

- Will only monitor trolling motor batteries
- Will display remaining battery life in 1% increments  
*(currently remote measures in 20%)*
- Will display remaining battery life and run-time to empty
- Battery life can be measured while the prop is on  
*(currently prop has to be off)*
- At 20% charge, a prompt will display to change to ECO mode
- Interface available on Humminbird unit only at this time



## TROLLING MOTOR UPDATES

# MOTOR ACCESSORIES



**CIRCUIT BREAKER 60A**

MKR-27 ~ 1865115



**LIFT-ASSIST CYLINDER**

*(CYLINDER ONLY)*

80-45" ~ 1854070  
80/112-52" ~ 1854071  
112-45" ~ 1854072  
115-45" ~ 1854073  
115-52" ~ 1854074

RESTORES LIFT ASSIST  
FOR ULTREX QUEST  
CUSTOMERS WITH  
ADVANCED HB SONAR  
ACCESSORIES

MEGA 360 & MEGA LIVE



**TM PLUG & RECEPTACLE**

MKR-28 ~ 1865120

ACCOMMODATIONS FOR  
HEAVIER (UP TO 1 AWG)  
WIRE RIGGING AS  
BRUSHLESS MAY  
REQUIRE



**TM REMOTE POWER SWITCH**

MKA-30 ~ 1865130  
*COMPATIBLE WITH QUEST  
SERIES ULTERRA,  
RT INSTINCT*

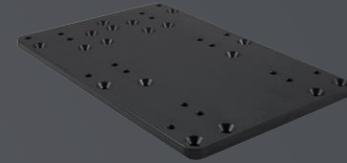
SPECIFICALLY  
ADVANTAGEOUS FOR  
RT INSTINCT / ULTERRA  
QUEST OWNERS WHO DO  
NOT WANT TO GO TO THE  
BOW TO TURN THEIR MOTOR  
ON OR OFF

## TROLLING MOTOR UPDATES

# MOTOR ACCESSORIES



MKA-57 ~ 1854057



MKA-58 ~ 1854058

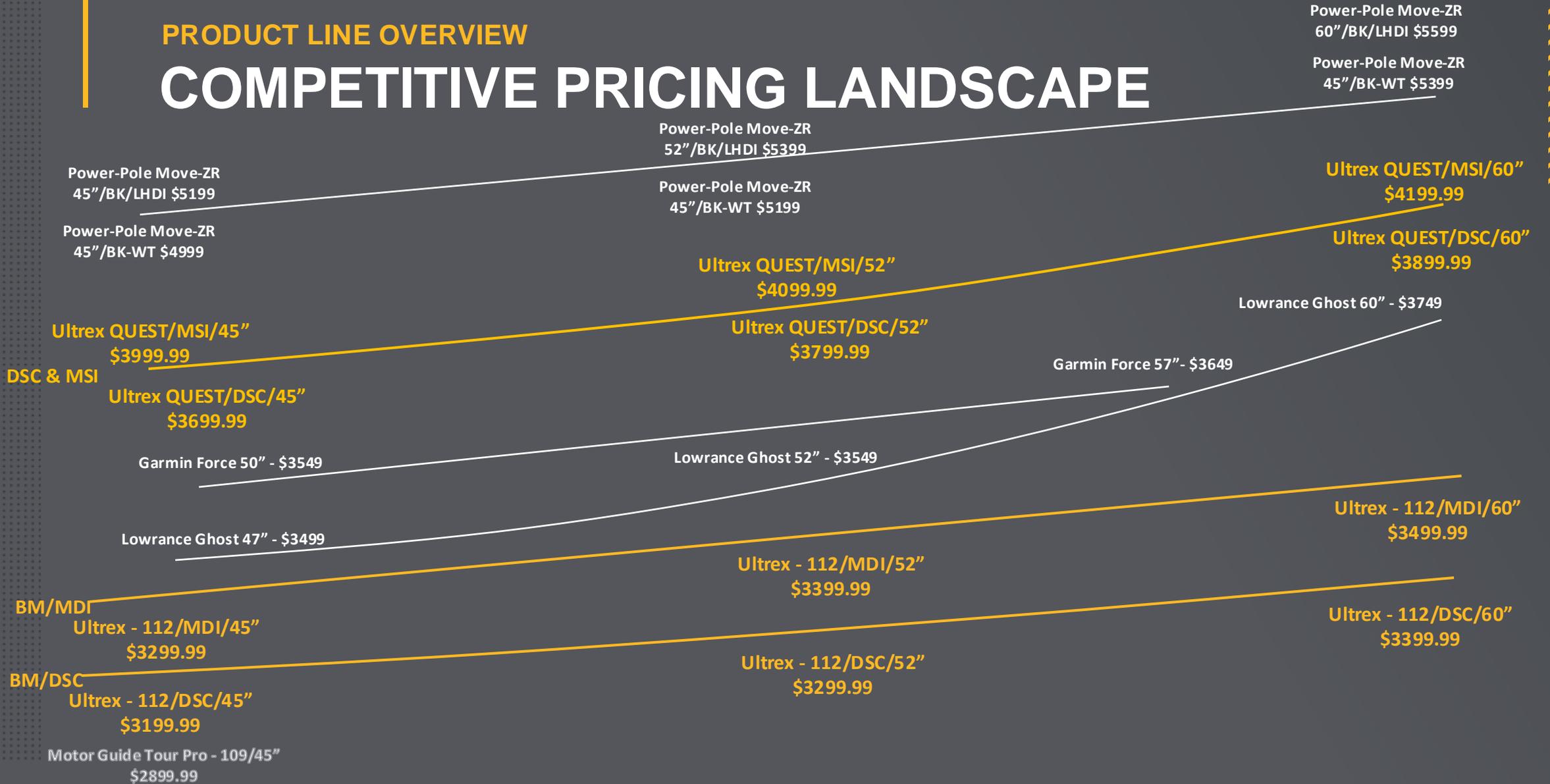


RTA-55 ~ 1854055

Item Number	Description	Ultrex	Ultrex Quest	Terrova	Terrova Quest	Riptide Terrova	Riptide Terrova Quest	Ulterra	Ulterra Quest	Instinct Quest	Notes
1854062	RTA-62 Composite QRB			X		X		X			Replaces 1854054
1854063	RTA-62 Composite QRB (Bulk)			X		X		X			Replaces 1854052
1854064	MKA-64 Composite QRB			X		X		X			Replaces 1854053
1854055	RTA-55 Heavy Duty Composite QRB				X		X		X	X	
1854056	MKA-56 Heavy Duty Composite QRB				X		X		X	X	
1854057	MKA-57 Aluminum Slide QRB				X		X		X	X	
1862042	MKA-61 Cable-Steer QRB (Short)	X	X								Replaces 1862014
1862052	MKA-62 Cable-Steer QRB (Long)	X	X								Replaces 1862016
1854058	MKA-58 Deck Reinforcement Plate				X		X		X	X	

## PRODUCT LINE OVERVIEW

# COMPETITIVE PRICING LANDSCAPE



## WHAT UPDATES HAVE WE MADE?

# POWERDRIVE & RIPTIDE POWERDRIVE

- 1. CoPilot:** CoPilot models are being obsoleted and replaced by GPS-enabled (4.0) models shipped with micro remote.\*  
- *Significant feature upgrade to base PowerDrive models.*
  - 2. i-Pilot:** i-Pilot models are being obsoleted and replaced by GPS-enabled (4.0) models that are fully compatible with Humminbird fish finder units. – *Simplifies product line and allows for PowerDrive motors to take advantage of Humminbird integration.*
  - 3. Adapters:** All adapters and cables needed to connect GPS-enabled models to Humminbird fish finders will be included in the box. – *Simplifies the consumer buying and rigging experience.*  
-Connectors included with DSC equipped motors: AS-EC-QDE, MKR-MI-1  
-Motors without Sonar include AS-EC-QDE
  - 4. Built-in 2D Sonar:** Universal Sonar 2 models are being obsoleted and replaced by models equipped with Dual Spectrum CHIRP (DSC). – *Provides better clarity to the built-in 2D sonar offering.*  
-Connectors will exist for connecting some competitor units to DSC, Humminbird Connectors are in box.
- ❖ **NOTE:** Foot Pedal and GPS control are still mutually exclusive, you cannot use a foot pedal on a motor with Advanced GPS Control

\*Two Riptide models will come standard with a full wireless remote and not the micro remote

## WHAT UPDATES HAVE WE MADE?

# TERROVA, ULTERRA, & ULTREX (BM)

- 1. ADVANCED GPS NAVIGATION:** i-Pilot models are being obsoleted and replaced by GPS-enabled (4.0) models that are fully compatible with Humminbird fish finder units. – *Simplifies product line and allows for PowerDrive motors to take advantage of Humminbird integration.* \*\*Heading Sensor is included, same heading sensor as BT IP/Link\*\*
- 2. Adapters:** All adapters and cables needed to connect GPS-enabled models to Humminbird fish finders will be included in the box. – *Simplifies the consumer buying and rigging experience.*
  - Connectors included with DSC equipped motors: AS-EC-QDE, MKR-MDI-2, MKR-MI-1
  - Motors without Sonar include AS-EC-QDE
- 3. Built-in Sonar:** Universal Sonar 2 models are being obsoleted and replaced by models equipped with Dual Spectrum CHIRP (DSC). – *Provides better clarity to the built-in 2D sonar offering.*
  - Built-in Mega Down Imaging will be available; Built-in Mega Side Imaging will not be offered in these models.
  - Humminbird Connectors are in box.
  - Connectors will exist for connecting some competitor units to DSC
- 4. Ultrex 1.5:** Ship with Micro Remote; most Ultrex Users do not want/use full Remote. Mount has larger Lift Assist Cylinder, Cylinder Replacement only will accommodate Humminbird Mega 360 and Mega Live Target Lock.
- 5. Terrova 2.5:** No lift Assist. Still Available in Riptide and Freshwater Models.
- 6. Ulterra 1.5:** RT Ulterra Obsolete.

# ULTREX QUEST

1. **Ultrix Quest** motors will be GPS-enabled models that are fully compatible with Humminbird fish finder units. – *Simplifies product line and allows for most Terrova motors to take advantage of Humminbird integration right out of the box.*  
*\*\*All Ultrix include Micro Remote MR, this matches the preference of most users, motors are compatible with the full remote WR\*\**
2. **Adapters:** All adapters and cables needed to connect GPS-enabled models to Humminbird fish finders will be included in the box. – *Simplifies the consumer buying and rigging experience.*
3. **Built-in 2D Sonar:** Universal Sonar 2 models are being obsoleted and replaced by models equipped with Dual Spectrum CHIRP. – *Provides better clarity to the built-in 2D sonar offering.*
4. **Built-In MEGA Side Imaging** – Only available on Quest models
5. **Most powerful Minn Kota** ever developed - thrust, torque, prop design, mount
6. Brushless motor technology – **more power, quieter operation, more run-time, dual 24V/36V**
7. **Integrated heading sensing** – Steering position tracking allows calculated heading using the Compass in the GPS Head
8. Motor shafts infused with **Carbon Fiber** - additional strength that still allows for flexibility
9. Props: Both the **weedless and high-efficiency props** will be included in the box

## WHAT UPDATES HAVE WE MADE?

# ULTREX QUEST

- ❖ **Cable Management Clips:** Manage the Ethernet and Sonar cables to prevent tangles and damaged wires.
- ❖ **Cam Lock Depth Collar:** Improved Depth Collar makes adjusting the height easy. Collar is anchored to the steering housing so it maintains the steering housing setting when the Ultrex is not attached to the mount
- ❖ **Coil Cord Cover:** The Coil Cord Cover is a Multi-Part design that does not require significant disassembly of the foot pedal to replace. It is also a stronger design making it less likely to break
- ❖ **Two Screw Mount Attachment:** Still very convenient the mount attachment is two screws to better distribute the additional power of the brushless lower unit

### What is the same:

- ❖ Steering Sensor Board
- ❖ Steering Cables
- ❖ Foot Pedal Rocker and Base



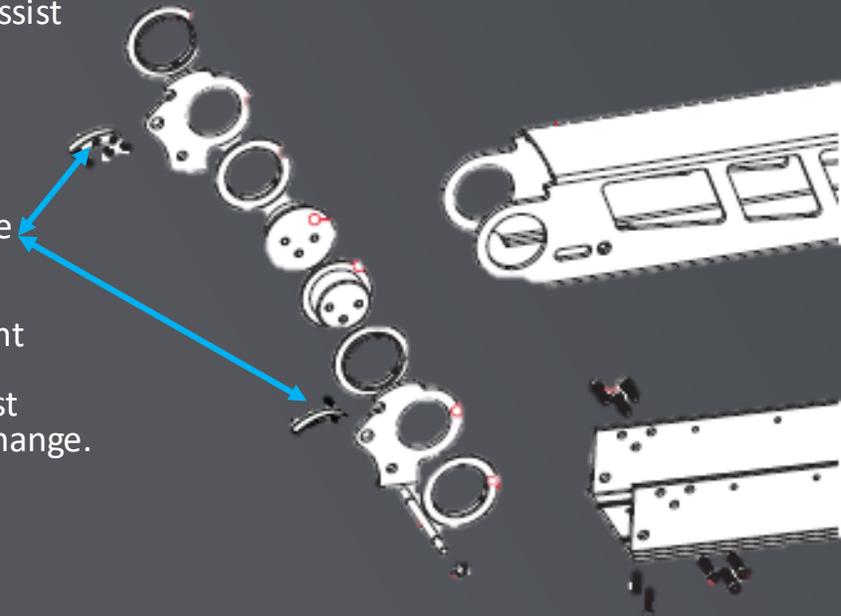
## WHAT UPDATES HAVE WE MADE?

# ULTREX QUEST

## QUEST MOUNT ASSEMBLY – DESIGNED FROM THE GROUND UP



- Dual cylinders assist on **Deploy** in addition to **Stow**  
**!!MOUNT UNDER PRESSURE STOWED AND DEPLOYED  
USE EXTREME CAUTION IF ACTUATING THE LATCH  
WITHOUT THE MOTOR INSTALLED!!**
- Stow Lift Cylinder upgradeable for restoring lift assist when using Mega 360 and Mega Live Target Lock
- Pivot Brackets reinforced with rear latch function separated from pivot function
- Wear Bars on latch body for additional service life
- 5/16" mounting hardware (compared to 1/4") to accommodate the additional Power and Weight
- When upgrading the lift assist only the **stow** assist cylinder is replaced, the **deploy** assist does not change.



## WHAT UPDATES HAVE WE MADE?

# RIPTIDE INSTINCT QUEST

1. **Riptide Instinct:** New family of auto stow/deploy motors specifically designed for harsh saltwater environments
2. **Most powerful Minn Kota** ever developed - thrust, torque, prop design, mount
3. Brushless motor technology – **more power, quieter operation, more run-time, dual 24V/36V**
4. **Integrated heading sensing** – Steering position tracking allows calculated heading using the Compass in the GPS Head
5. Motor shafts infused with **Carbon Fiber** - additional strength that still allows for flexibility
6. Upgraded Wireless Remote – GPS-enabled models will include a newly **redesigned wireless remote** that is smaller, lighter, and more functionality
7. Prop: Ships with a **high-efficiency prop** included in the box
8. Stabilizer: 72” and longer shaft models will include a **motor stabilizer kit** included in the box
9. **GPS-Enabled:** All Riptide Instinct models come standard with advanced navigation features and are fully compatible with Humminbird fish finder units.
10. **Adapters:** All adapters and cables needed to connect with Humminbird fish finders will be included in the box.



## AUTO STOW/DEPLOY DESIGN UPDATES

# RIPTIDE INSTINCT

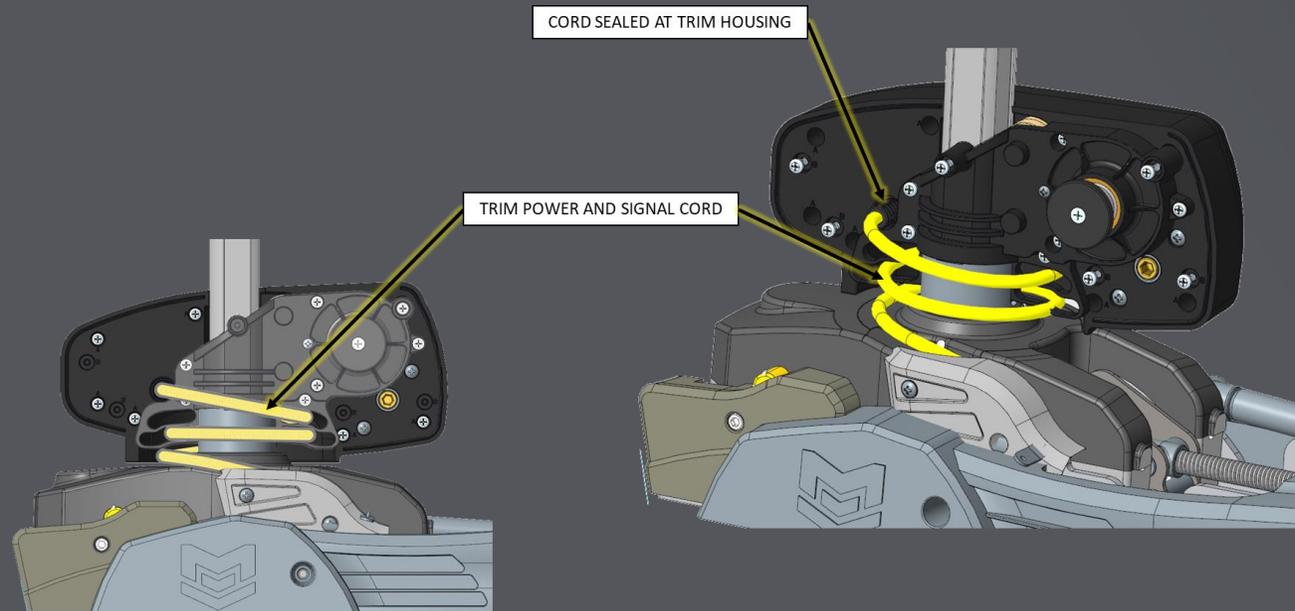
1. **Trim Module Slip Ring:** Replaced slip rings and wireless communication with a wired connection for better reliability
2. **Wireless Communication - Control Board and Trim Module:** Replaced with wired connection/communication
3. **Trim Housing Sealing:** Modular compartments for gear motor sealed separately from the belt and pulley using aluminum castings to ensure no saltwater comes into contact with the gear motor.
4. **Tilt Actuator:** Moved to center for even loading; wired connection to help with tilt during full extend
5. **Stow Sensor:** Redesigned mechanism with a more durable spring (torsion)
6. **Steering/Trim Resolution:** Added true position sensors for trim and steering even in the event of lost power
7. **Motor Control Board:** Now field updateable with software updates
8. **Control Box:** Sealing design improvements to keep water out
9. **Emergency Stow Process:** New simplified E-stow design in the event of power loss
10. **Error Detection and Reporting:** Improved error detection and reporting

## AUTO STOW/DEPLOY DESIGN UPDATES

# RIPTIDE INSTINCT QUEST

### Trim Module Communication

- To mitigate the risk of saltwater corrosion happening, a sealed and reliable direct wired connection between the control board, trim motor, and position sensor

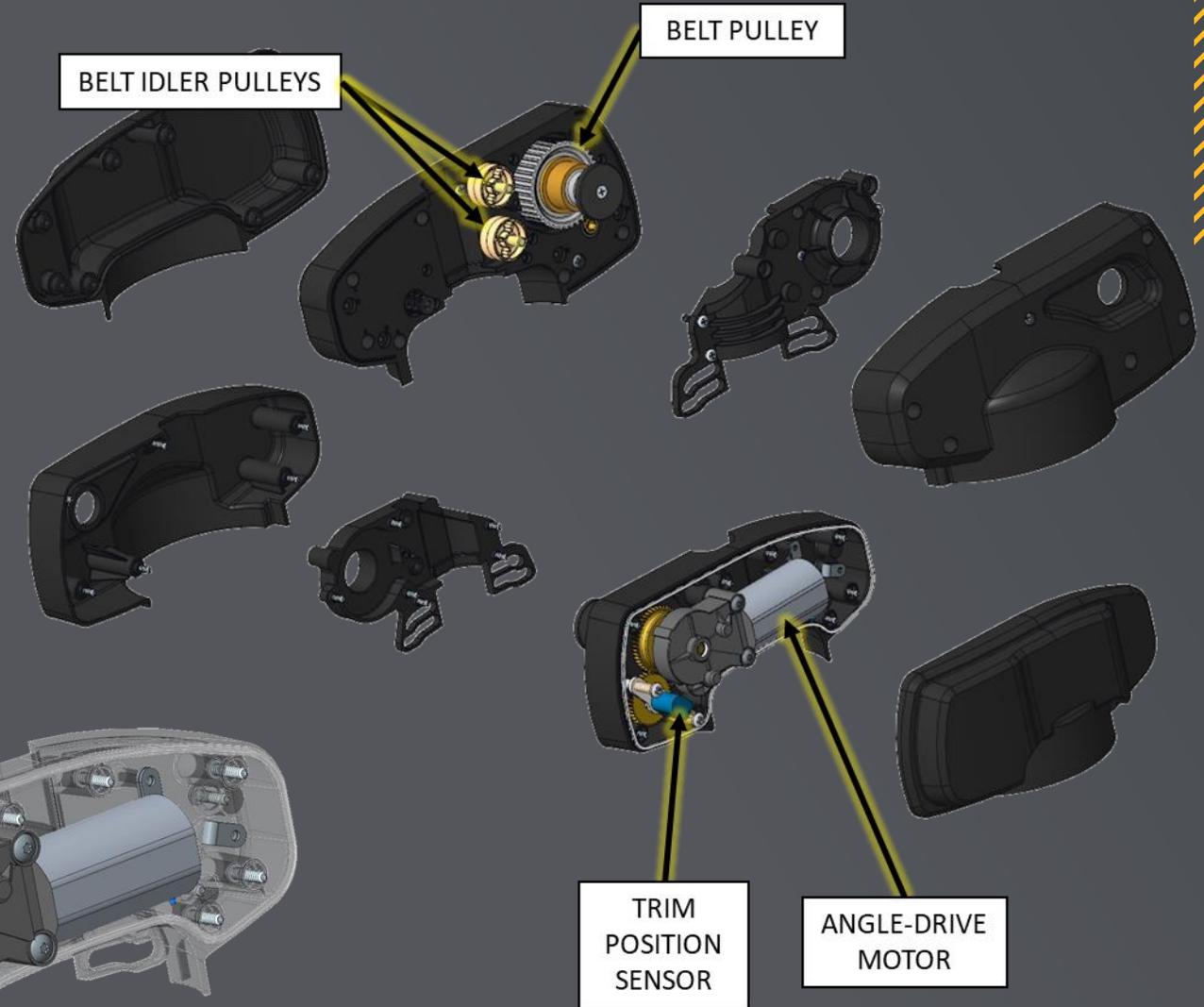
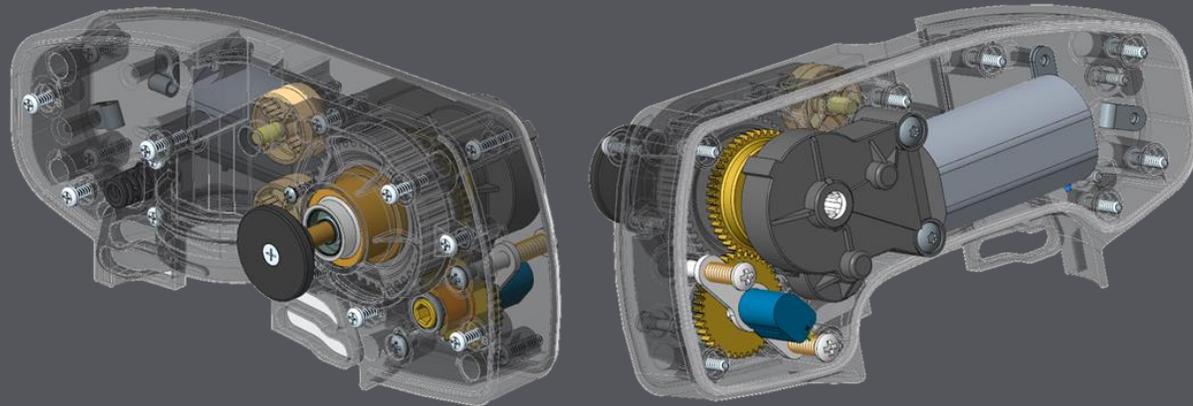


## AUTO STOW/DEPLOY DESIGN UPDATES

# RIPTIDE INSTINCT

### Trim Housing Sealing

- Motor and sensor are encased separately in a sealed housing away from saltwater exposure
- Sealing with machined cast aluminum housings
- Hard connection between trim housing and steering output tube bushing for rotation and radial loads
- Trim position sensor does not lose position with power off, loss of power, or manual trim release
- Manual trim release mechanism allows the stowing of the motor without power or the need for tools

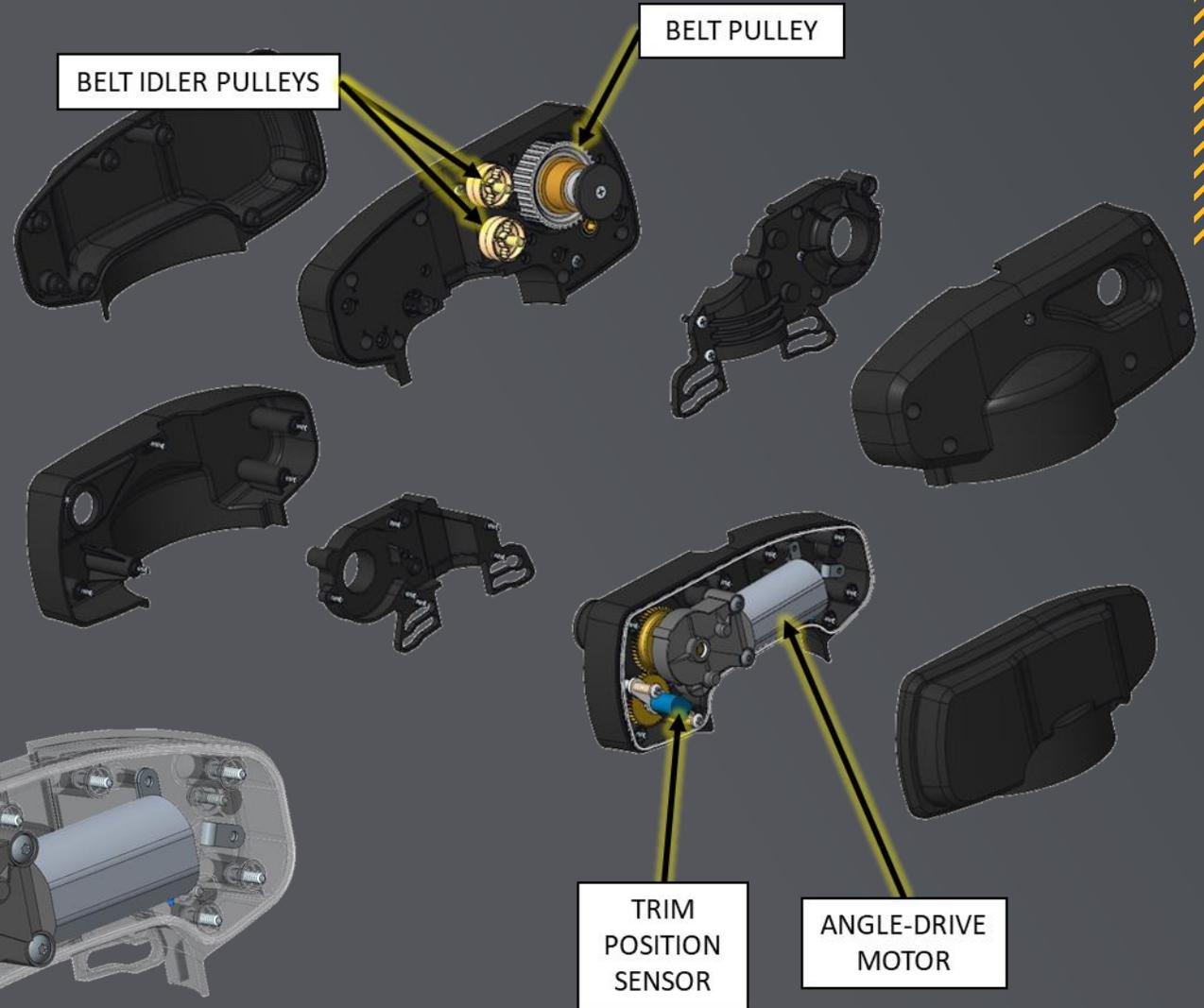
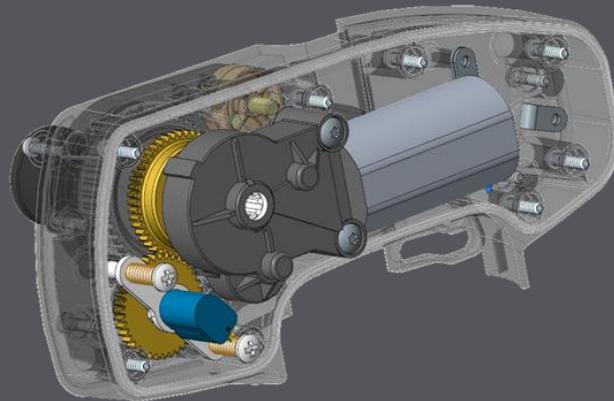
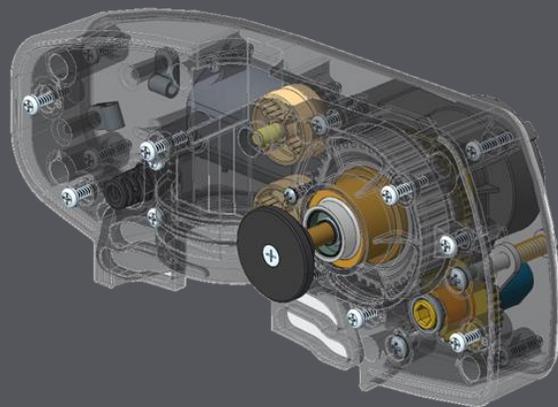


## AUTO STOW/DEPLOY DESIGN UPDATES

# RIPTIDE INSTINCT

### Trim Housing Repair

- The seal on the trim housing castings should never be broken. Motor, sensor and castings are to be replaced as an assembly.
- Removal of the plastic cover gives full access to the lift belt. Lift belt replacement will be significantly easier as compared to RT Ultra.

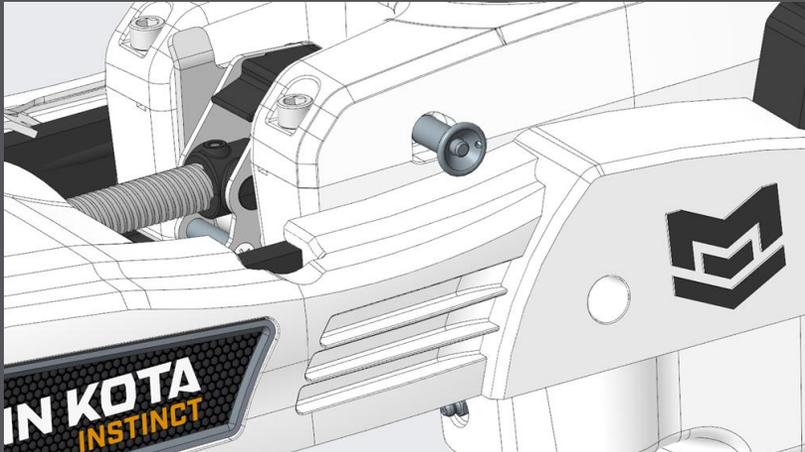
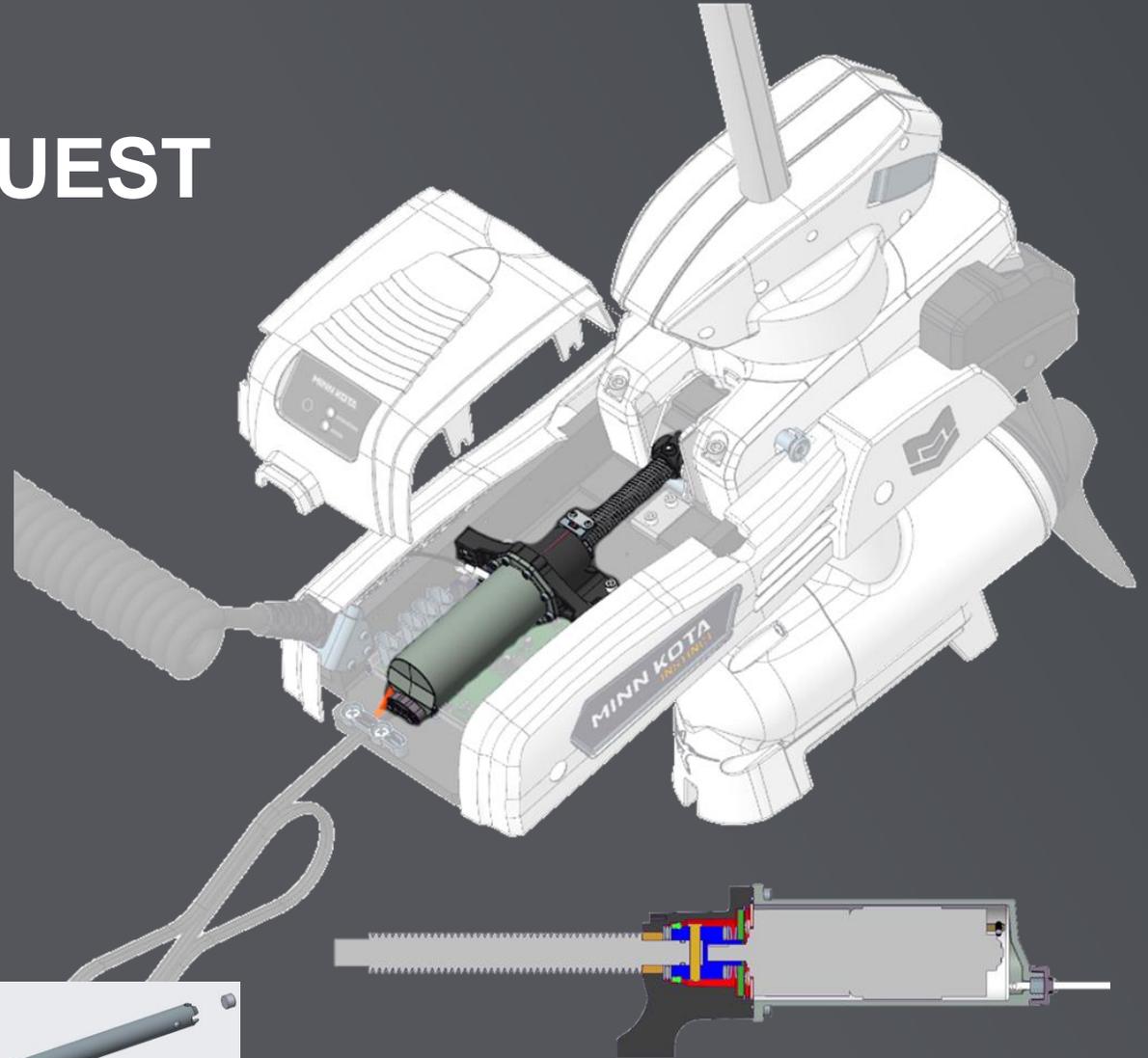


## AUTO STOW/DEPLOY DESIGN UPDATES

# RIPTIDE INSTINCT QUEST

### Tilt Actuator

- Tilt actuator moved to the center of motor for more even loading; wired connection will help with tilt during full extend
- Increased actuator size and shaft size for a more reliable design
- Additional sealing features in the drivetrain for reliability
- Manual tilt release pin allows the stowing of the motor without power or the need for tools

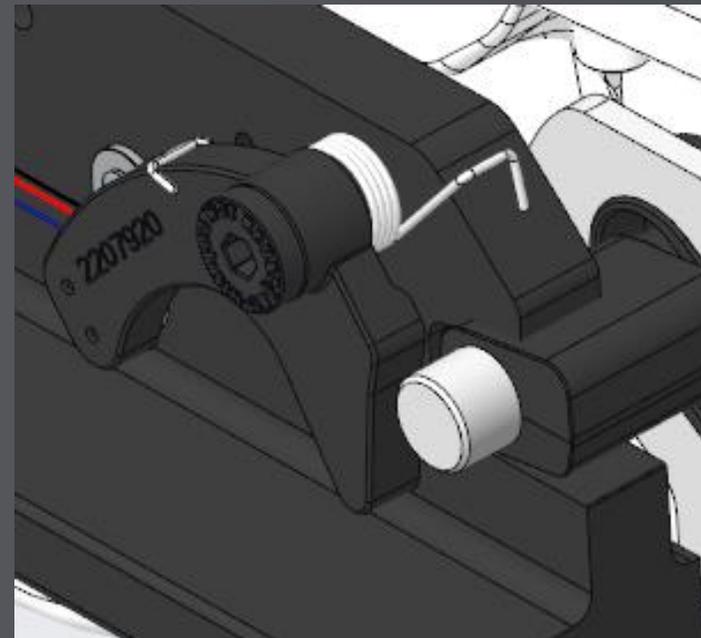
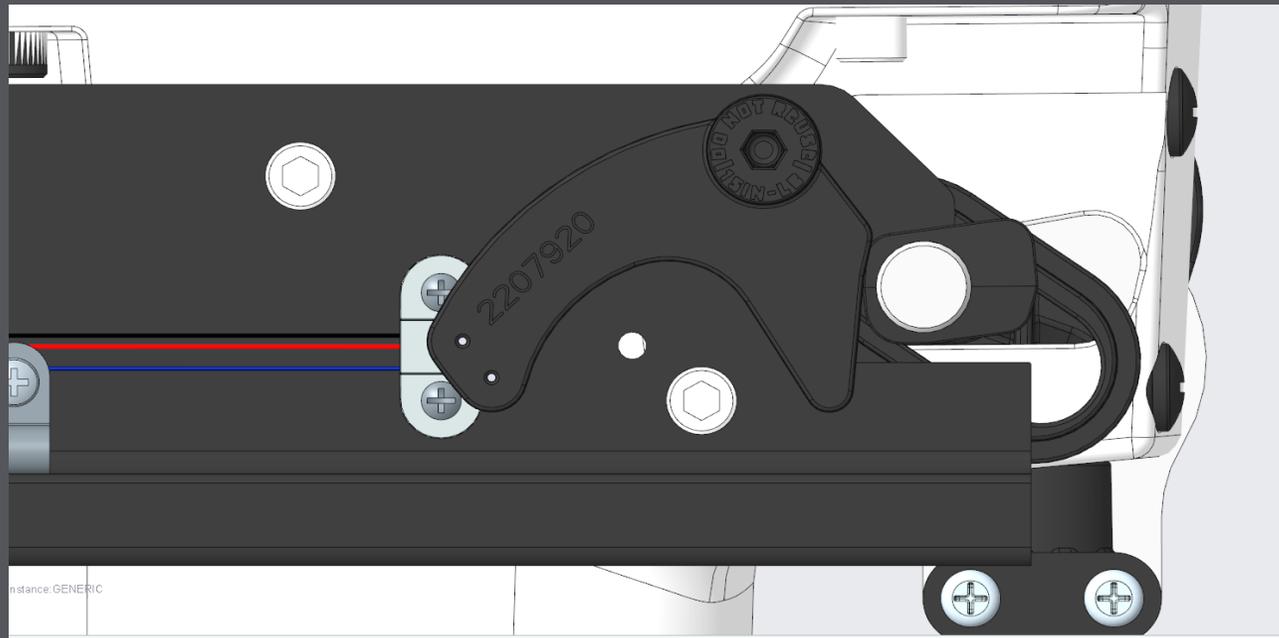
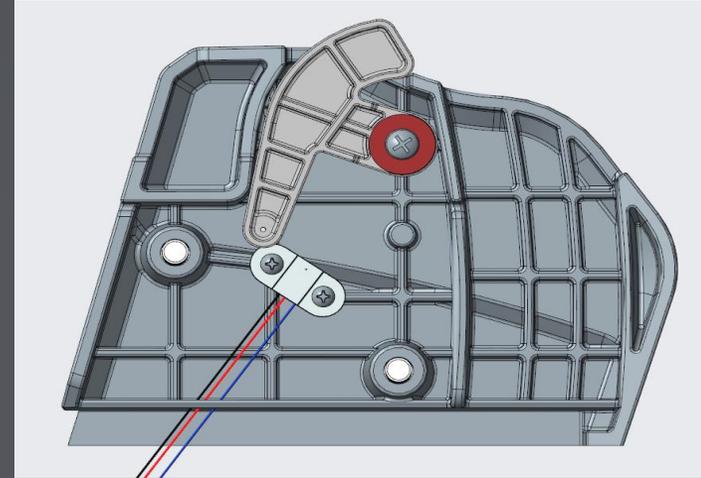


## AUTO STOW/DEPLOY DESIGN UPDATES

# RIPTIDE INSTINCT QUEST

### Stow Sensor

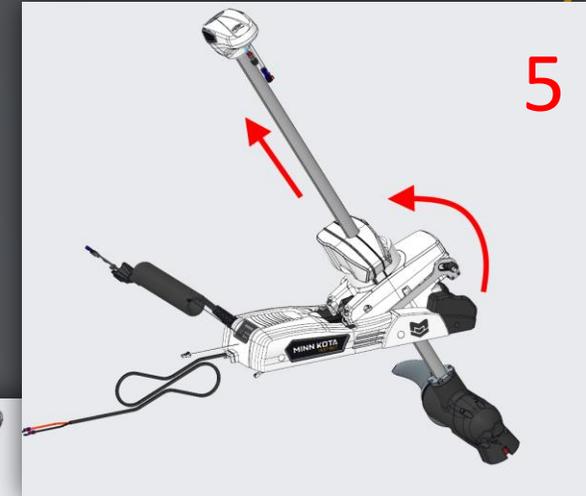
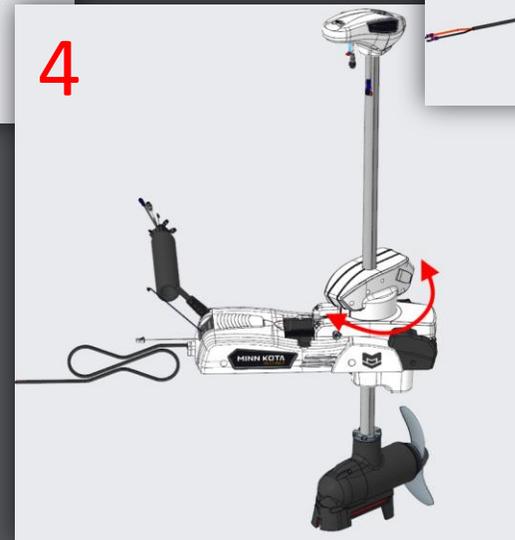
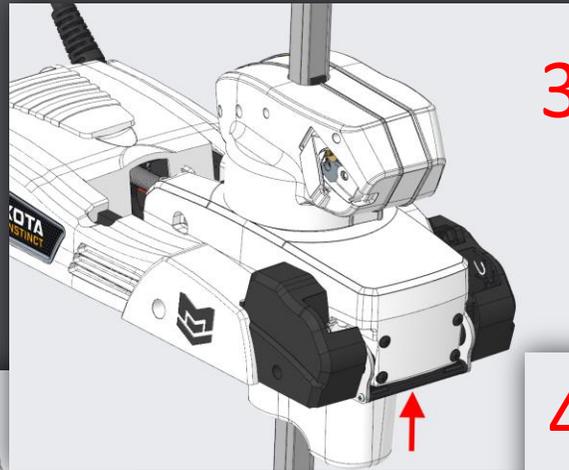
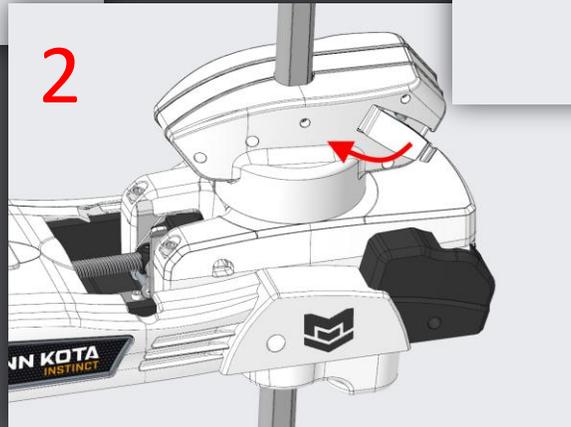
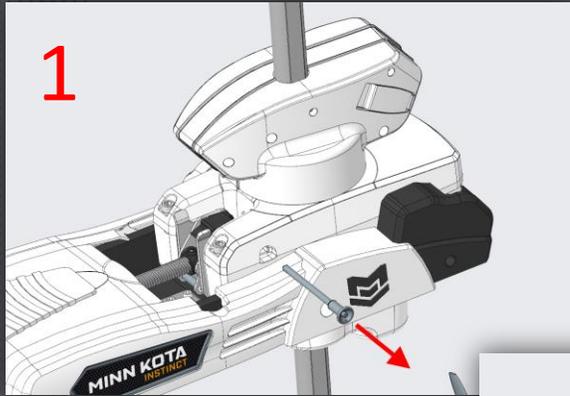
- Design improvement using a nylon bolt integrated into the pivot bushing to achieve superior corrosion protection
- Second magnet added to rotary arm to make the sensor more forgiving



## AUTO STOW/DEPLOY DESIGN UPDATES

# RIPTIDE INSTINCT QUEST

### E-Stow Procedure



# BIG BOAT & SALTWATER



## WHITE & BLACK MOTORS

QUEST Series Instinct motors will now be offered in both white and black versions built to the saltwater standard of construction



## CARBON FIBER SHAFT

QUEST Series motors with shaft lengths of 72" and longer will be constructed with carbon fiber built into the shaft to provide extra strength for these more powerful motors



## SHAFT LENGTH

Adding 100" shaft offerings to existing 72" and 87" models.

Instinct, Ulterra, Terrova

*\*Brushed 87" RT Terrova will be discontinued*

**The 100" Instinct is the standard Instinct, Ulterra, and Terrova Quest models are built to.**

- Steering position sensing will need to be programmed when replacing steering housings. (Same as Ulterra and Terrova)
- 72" and longer have additional coil cord management
- Instinct is available in Black, it is still a Saltwater ready motor in Black. It can be distinguished from Ulterra (freshwater) by the Instinct name and the Minn Kota Logo on the Decals being the gray monotone version of the logo instead of being yellow.



## Ulterra Quest features most of the same innovations and components as Instinct.

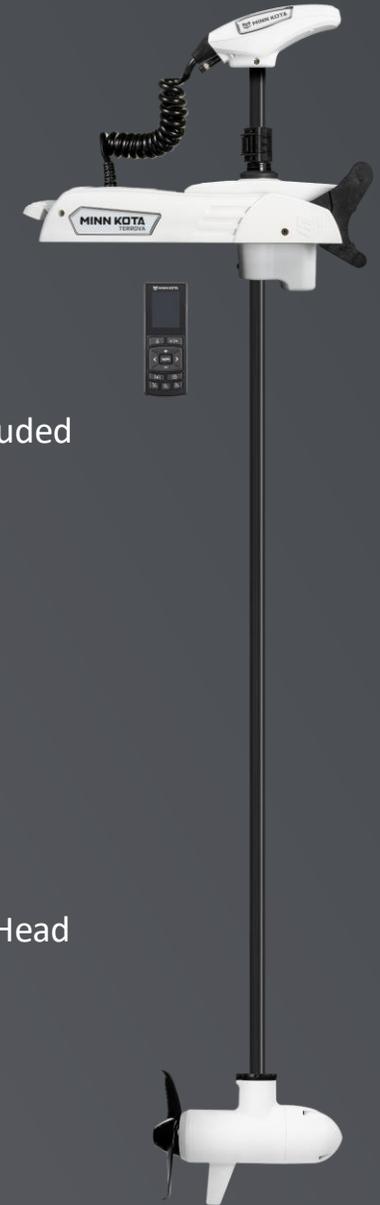
- Steering position sensing will need to be programmed when replacing steering housings. (Same as Ulterra and Terrova)
- 72" have additional coil cord management
- Different coatings may be used on some parts, but repair techniques will be the same as Instinct Quest.



## WHAT UPDATES HAVE WE MADE?

# TERROVA & RIPTIDE TERROVA

1. **Terrova Quest and Riptide Terrova Quest** motors will be GPS-enabled models that are fully compatible with Humminbird fish finder units. – *Simplifies product line and allows for most Terrova motors to take advantage of Humminbird integration right out of the box.*
2. **Adapters:** All adapters and cables needed to connect GPS-enabled models to Humminbird fish finders will be included in the box. – *Simplifies the consumer buying and rigging experience.*
3. **Built-in 2D Sonar:** Universal Sonar 2 models are being obsoleted and replaced by models equipped with Dual Spectrum CHIRP. – *Provides better clarity to the built-in 2D sonar offering.*
4. **Built-In MEGA Side Imaging** – Only available on Terrova Quest models
5. **Quest Models Only:** New models specifically designed for the harshest environments and fishing conditions.
6. **Most powerful Minn Kota** ever developed - thrust, torque, prop design, mount
7. Brushless motor technology – *more power, quieter operation, more run-time, dual 24V/36V*
8. **Integrated heading sensing** – Steering position tracking allows calculated heading using the Compass in the GPS Head
9. Motor shafts infused with **Carbon Fiber** - additional strength that still allows for flexibility
10. Longer Shafts – Addition of **100" shaft models** in the Riptide Terrova Quest family



All Terrova Quest and Riptide Terrova Quest are designed/built to the same standard as the 100" Shaft Riptide Terrova

- Steering position sensing will need to be programmed when replacing steering housings. (Same as Ulterra and Instinct)
- 72" and longer have additional coil cord management **Terrovas with the coil cord slider will have a "Stow Lock Collar" connected to the steering housing. The Stow Lock Collar will prevent accidental deployment same as sliding the depth collar down and locking it in.**



## TROLLING MOTOR UPDATES

# FEATURE LIST OVERVIEW

### QUEST SERIES MOTOR ONLY (BL)

- Heavy-duty platform construction from the ground up
- 24/36V dual voltage compatibility in a single motor
- Greater thrust and torque (*compared to MK brushed motors*)
- Quieter (*compared to MK brushed motors*)
- Longer shafts up to 100" (*reinforced with carbon fiber*)
- Ability to update QUEST Motor Controller software
- Physical One-Boat Network Button on the foot pedal
- Prop Stow Orientation - "Auto Park" (*Prop Left/Prop Right*)
- Straight Ahead on Deploy (*On/Off*)
- Motor LED Brightness Control
- Built In Heading Sensor
- ECO Mode (*Reduces max power by 20% to reduce overall current draw to aid in extending battery life*)
- Trolling Motor Battery Monitoring (*HB units, app, and Remote*)
- Error Codes (*Provides diagnostic codes to aid consumers and service centers in troubleshooting*)

### ADVANCED GPS NAVIGATION FEATURES (FORMERLY KNOWN AS I-PILOT)

- Four Physical One-Boat Network Button on remote
- Follow the Contour - Follow Shoreline (*VX Only*)
- Follow the Contour/Shoreline at the Vessel with Cursor (*VX Only*)
- Follow the Contour/Shoreline at Vessel with single button (*VX Only*)
- Follow the Contour Dodge (*VX Only*)
- Follow the Contour Jog (*VX Only*)
- Dodge Mode (*while in a navigation mode, the user can temporarily suspend or pause the nav mode to manually steer and then resume the suspended navigation mode*)
- Locked Heading AutoPilot Adjust (*Angular or Parallel Jog*)
- Drift Mode & Drift Mode Reverse
- Locked Course AutoPilot Adjust (*Angular or Parallel Jog*)
- Locked Course and Locked Heading Autopilot Reverse
- Motor Direction Indicator on MK Remote, App, and HB

## SUPPORT PLAN

# SERVICE AND REPAIR

### QUEST SERIES MOTOR ONLY

If any Quest motor requires service, do not initiate repair on the motor without contacting the ASC Hotline. Prior to contacting us ASP hotline email ([support@asplibrary.zendesk.com](mailto:support@asplibrary.zendesk.com)) please:

- Verify there is not a boat/power supply issue by checking the following.
  - Load test batteries
  - No loose or corroded connections between batteries and motor
- Check for error codes that the motor has displayed.
  - Error Codes can be read via full wireless remote or OBN App.

When contacting us, Include the serial number, error code information, and that you have verified the power supply in your email or call to the ASC Hotline.

Upon contact we will;

- Facilitate repair
  - Authorize a Warranty Claim for the motor.
  - Send return shipping label for evaluation of replaced parts.
- If Repair is not feasible, we will arrange credit on the motor to allow you to replace the motor to the consumer.
- Please retain components, we may request them back

### BRUSHED MOTORS (BM)

- Ultrex, Ulterra, Terrova, and Power Drive are similar enough that they are covered by the existing repair manual and should be treated the same as previously existing models
- As much as possible failed Advanced GPS Control components that have been replaced **should be returned for evaluation**
- Ultrex Mounts are quite different than prior Ultrex Mounts and Fortrex Mounts. Repair Parts will become available, but for at least a few months mount replacement should be expected.

## DIAGNOSTICS

# ERROR CODE READING

**Instinct 1.0**

- My Data
- Preferences
- Bluetooth
- System**

**System**

- About
- Diagnostic**
- Restore Defaults
- Update Software

**Diagnostic**

- Error Codes**
- Motor Battery Status
- Remote Battery
- Motor Heading
- Boat Heading

**Error Codes**

Refer to the manual for a list of all Error Codes.

Code
3.8

**Error Codes**

Refer to the manual for a list of all Error Codes.

No Error Codes

### To View Error Codes on the Remote

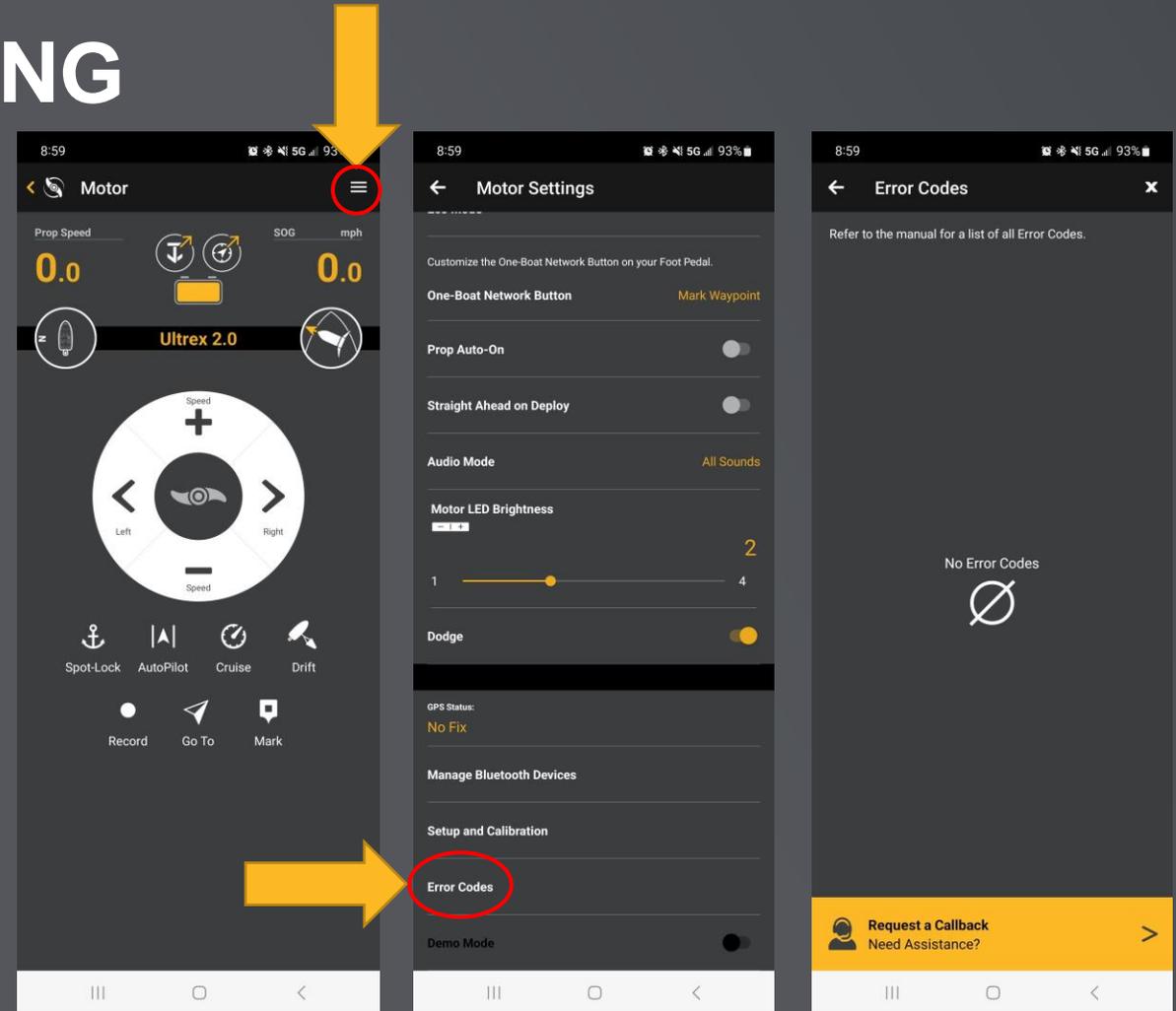
- Press Menu Twice
- Navigate to “System” → “Diagnostic” → “Error Codes”

## DIAGNOSTICS

# ERROR CODE READING

### To View Error Codes on the OBN App

- On the motor screen select the menu icon
- Scroll down to the bottom of the Menu
- Select “Error Codes”



## DIAGNOSTICS

# ERROR CODE READING

ERROR CODE	ERROR NAME	MOTOR EFFECT	ACTIONS
1.1	Battery voltage too high	LED flashes red. Lower unit turns off. Prop and steering are disabled.	Check voltage of batteries. If high, check for battery charger malfunction, or check if too many batteries are connected in series. Power cycle to reset.
1.2	Battery voltage too low	LED flashes red. Lower unit turns off. Prop and steering are disabled. Trim and steering are disabled (RT Instinct QUEST/Ulterra QUEST/Ulterra).	Check battery connection. Charge trolling motor batteries. Power cycle to reset.
1.3	Steering circuit failure	LED flashes red. Lower unit turns off. Prop and steering are disabled.	Power cycle to reset.
1.4	Lower unit over-heated	LED flashes red. Lower unit turns off. Prop and steering are disabled.	Lower unit needs to cool down. Power cycle to reset.
1.5	Excessive current to lower unit	LED flashes red. Lower unit turns off. Prop and steering are disabled.	Power cycle to reset.
1.6	Excessive current to lower unit when Prop is off	LED flashes red. Lower unit turns off. Prop and steering are disabled.	Power cycle to reset.
1.7	Pre-charge circuit failure	LED flashes red. Lower unit turns off. Prop is disabled. Steering is disabled on Terrova QUEST and Ultrex QUEST.	Power cycle to reset.
1.8	Stow/deploy horizontal sensors are reporting active at the same time	Prop, trim, steering and stow/deploy are disabled.	Service required; contact Minn Kota Authorized Service Center for service.
1.9	Small motor pre-charge failed	LED flashes red. Trim, steering, and tilt are disabled on Ulterra QUEST and RT Instinct QUEST.	Power cycle to reset.

## DIAGNOSTICS

# ERROR CODE READING

ERROR CODE	ERROR NAME	MOTOR EFFECT	ACTIONS
2.1	Over-current trip on lower unit/inverter	The inverter stops the motor.	Toggle the Prop after the fault is cleared.
2.2	Lower unit/inverter synchronization error	The inverter stops the motor.	Toggle the Prop after the fault is cleared.
2.3	Loss of communication to inverter	The inverter stops the motor.	A loss of communications may require a power cycle. If communication is not restored, contact Minn Kota Authorized Service Center for service.

## DIAGNOSTICS

# ERROR CODE READING

ERROR CODE	ERROR NAME	MOTOR EFFECT	ACTIONS
3.1	Steering position sensor communication error	Limited steering speed. No steering feedback. No Auto Park or Straight Ahead Deploy.	Try power cycle to reset. Contact Minn Kota Authorized Service Center for service.
3.2	Trim position sensor communication error	Reduced trim speed. Can only manually trim for 2 second intervals. No automatic stow or deploy.	Try power cycle to reset. Contact Minn Kota Authorized Service Center for service.
3.3	Loss of magnet from steering position sensor	Limited steering speed. No steering feedback. No Auto Park or Straight Ahead Deploy.	Try power cycle to reset. Contact Minn Kota Authorized Service Center for service.
3.4	Loss of magnet from trim position sensor	Reduced trim speed. Can only manually trim for 2 second intervals. No automatic stow or deploy.	Try power cycle to reset. Contact Minn Kota Authorized Service Center for service.
3.5	Stow/deploy sensor error	Prop turns off and stow LED turns off. Disables stow/deploy for RT Instinct QUEST/Ulterra QUEST.	RT Instinct QUEST/Ulterra QUEST: Check if actuator is stuck or if the magnet fell out. Terrova QUEST: If ramps flipped up while deployed, flip them back down. If sensors are damaged, contact Minn Kota Authorized Service Center for service.
3.6	Deploy and horizontal sensors reporting active at same time	Prop, trim, steering, and stow/deploy are disabled.	Sensor is damaged. Contact Minn Kota Authorized Service Center for service.
3.7	Emergency release pin sensor is reporting inactive	Prop and stow/deploy process are disabled.	Sensor is damaged. Contact Minn Kota Authorized Service Center for service.
3.8	End-of-Travel/Foot Pedal sensor reporting active at same time	Steering is not active.	Sensor is damaged. Contact Minn Kota Authorized Service Center for service.

## DIAGNOSTICS

# ERROR CODE READING

ERROR CODE	ERROR NAME	MOTOR EFFECT	ACTIONS
3.9	Foot pedal pressure sensor failure	Steering is not active from the foot pedal.	Sensor is damaged. Contact Minn Kota Authorized Service Center for service.
3.10	Stow/lever sensors reporting active at the same time	Prop off and stow LED is off. Steering could be limited.	Sensor is damaged. Contact Minn Kota Authorized Service Center for service.
3.11	Stow/deploy/lever sensor reporting active	Prop off and stow LED is off. Steering could be limited.	Sensor is damaged. Contact Minn Kota Authorized Service Center for service.
3.12	Steering calibration values are out of range	Steering range is limited.	Contact Minn Kota customer service or Authorized Service Center to perform steering calibration.

## DIAGNOSTICS

# ERROR CODE READING

ERROR CODE	ERROR NAME	MOTOR EFFECT	ACTIONS
4.1	Steering motor exceeds current limit	Steering time-outs will occur if current limit can be maintained or until torque on shaft is reduced.	Re-initiate steering by steering left or right.
4.6	Trim motor exceeds current limit	Disables trim.	Reinitiate trim by trimming in opposite direction.
4.8	Tilt motor exceeds current limit	Stops stow/deploy.	Auto-cleared. Re-initiate stow or deploy.