MINN KOTA®

AUTHORIZED SERVICE PROVIDER MANUAL

TALON REPAIR MANUAL

BT TALON 8’, 10’, 12’, 15’ - 2018-PRESENT

3 STAGE TALON 8’, 10’, 12’ - 2014-2017

2 STAGE TALON 6’, 8’ - 2011-2015

Revised 11 March 2025

NOTES

ATTENTION

Authorized Service Provider Locator

Minn Kota has over 1000 Authorized Service Providers, equipped to properly repair your Minn Kota Product. Repairs completed by Authorized Service Providers receive a 90-day warranty which covers the parts and labor of the necessary repair if the paid repair fails. Purchased parts have no warranty and cannot be returned. For additional details on Minn Kota parts warranty, see https://minnkota.johnsonoutdoors.com/us/support/warranty. Johnson Outdoors Marine Electronics, Inc. disclaims all warranties, express and implied, except for those set forth at the above link.

Notice: You should only use this guide if:

1. The motor has no factory warranty. Improperly performing many of the operations suggested in this guide may void any remaining factory warranty on your Minn Kota product. If the product is within the factory warranty, the product should be delivered to an Authorized Service Provider for Repairs.
2. You have verified correct voltage and amperage to the product. This means more than just checking voltage. The deep cycle batteries must have been load tested and all connections must have been inspected and are clean and tight. Bad deep cycle batteries or loose or corroded connections may not prevent a voltmeter from obtaining a correct reading and those conditions may prevent your Minn Kota product working properly.
3. You have a complete understanding of and access to the necessary tools including a VOM/Volt Ohm Meter/Multi-meter, an Amp Meter capable of approximately 0.1 amp accuracy and reading up to 60 amps DC, and basic hand tools.

⚠ CAUTION!

Always wear safety glasses and gloves. Disconnect all power to the Minn Kota product before beginning any work or maintenance. Johnson Outdoors Marine Electronics, Inc. is not responsible for any damage due to improper rigging or installation. If you do not have the skills, experience, and tools to perform the listed operations, seek the help of a Minn Kota Authorized Service Provider.

⚠ CAUTION!

Read all product manuals, service instructions and warnings carefully before beginning and determine whether you understand and are prepared to complete the operation. Minn Kota Technical Support staff are not able to assist beyond the included instructions. Attempting these repairs and then taking the product to an Authorized Service Provider may result in additional time for them to diagnose and repair disassembled products (which will increase the cost of repairs).

Buy Parts Online Minn Kota and Cannon Parts available at https://motors.johnsonoutdoors.com.

Table of Contents

TOOLS

RECOMMENDED TOOLS

Specialty Tools

- Rivet Tool
- 1/2” Bolt
- 1/8” Punch (Longer than typical)
- Hook Shaped Pick
- RotorClip A200 Applicator Tool
- RotorClip A170 Applicator Tool
- Heat Gun

QR Link to Video showing Talon Tools

NOTICE: While not common, these tools are widely available, and are not provided by Minn Kota.

Recommended Specialty Tools

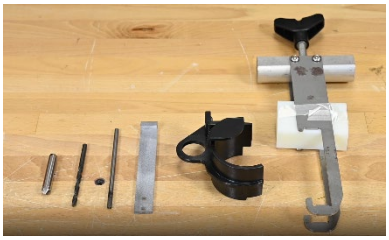
Common Hand Tools

- #2 Phillips Screwdriver
- Fish Tape or Stick
- 9/16” Open End Wrench
- Utility Knife
- Drill, 1/8” Drill Bit (Jobber’s Length preferred)
- Pliers
- 5/32” Allen Wrench

TALON TOOL KITS

2888885 TALON SPECIAL TOOLS KIT (BT)

- 2378885 PULLER-EXT.CBL TENSIONER BT
- 2378886 DRILL BIT, 13/64”
- 2378887 TRANSFER PUNCH, 13/64”
- 2378888 COUNTERSINK 82 DEGREES 3/8”
- 2378893 CLIP-SPOOL,WRP DRUM TALON TOOL
- 2378895 TEMPLATE-EXTRUSION,INNER,TALON
- 2378896 TEMPLATE, TENSIONER DRILLING
- 2378897 TEMPLATE OUTER T2
- 2378898 TEMPLATE, INNER 3RD, T3



2888885 Talon Special Tools

NOTICE: Templates in Red are paper templates for building service supports

2888891 TALON SPEC.TOOLS KT,3-STG Sub to 2888885, Same except for puller arms

2888890 TALON TOOL KIT (2-STG) (N/A) -- Unavailable beginning 2017

- 2378890 PLIERS-PULLEY, TALON TOOL
- 2378891 HOLDER,PULLEY PLIERS, TAL (N/A)
- 2378892 SLIDE,2ND STAGE,TALON TOOL
- 2378893 CLIP-SPOOL,WRP DRUM,TALON TOOL
- 2378894 TEMPLATE-EXTRUSION,OUTER,TALON
- 2378895 TEMPLATE-EXTRUSION,INNER,TALON

SPECIFICATIONS

BT TALON 2018 – PRESENT

Identifying Features:

Remote is Black with 4 Buttons
Worklight integrated into the Top Cover
Curved front edge of the Talon
5 lights Depth Indicator Lights
(Control board is programmed to length)
4 button Control Bezel (Up, Down, Mode, Light)

Models:

Lengths: 8', 10', 12', 15' (8' Discontinued 2024)
Colors: Silver/Clear w/Black, Silver/Clear w/White, Black
10'/12' only: Red, Blue, White (Blue Discontinued 2024)

Overall Length (retracted):

8': 41.5" **10':** 49.5" **12':** 57.5" **15':** 69.5"

Extension Cable Length (inside of ferule to inside of ferule, +/- .25"):

8': 224.75" **10':** 268.00" **12':** 308.00" **15':** 367.00"

Retraction Cable Length (inside of ferule to inside of ferule, +/- .25"):

8': 132.00" **10':** 183.38" **12':** 183.38" **15':** 228.00"

Weight:

8': 38# **10':** 43# **12':** 47# **15':** 55#

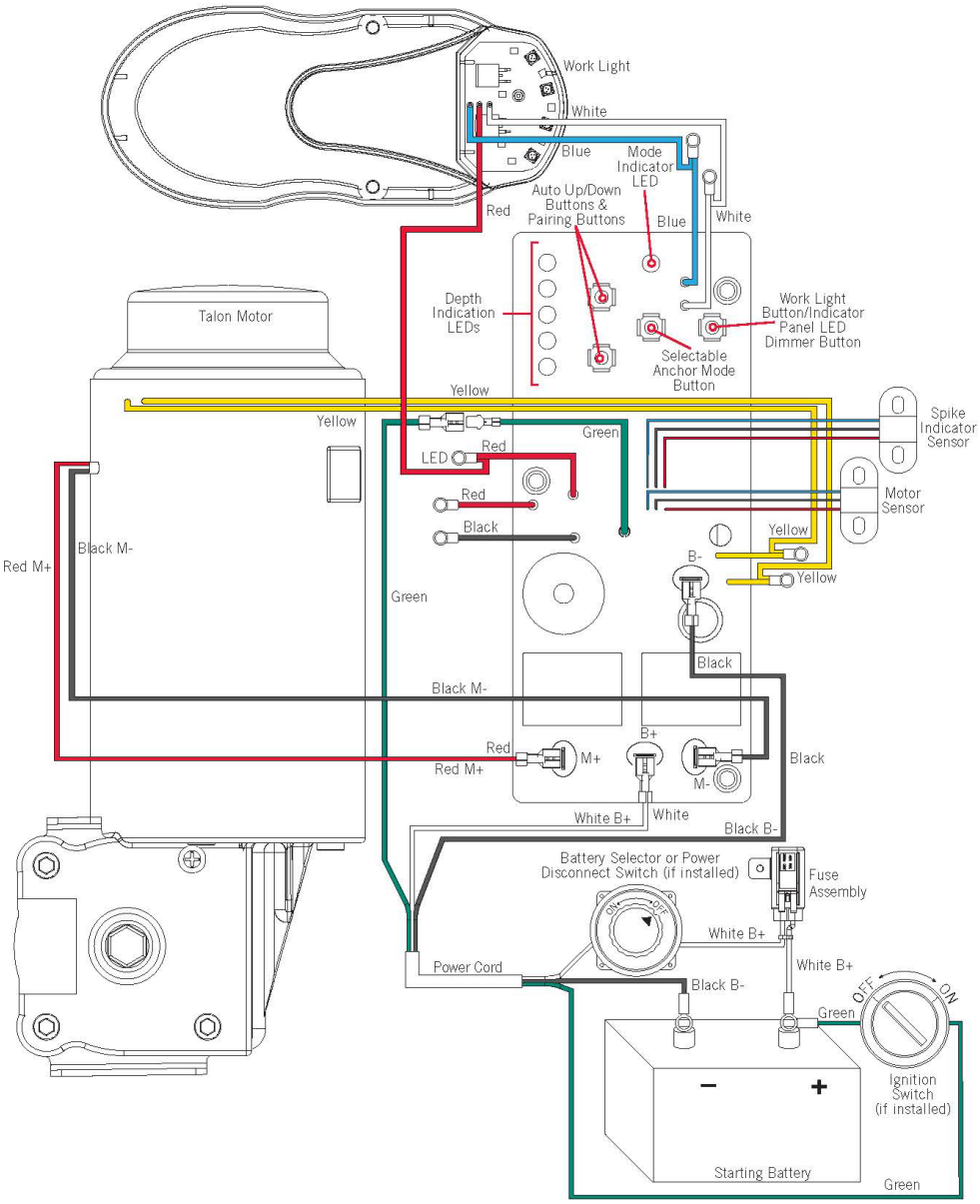
Warranty:

5 Years Mechanical and Electrical
Lifetime Spike Warranty

Wiring Diagram

TALON

The following Motor Wiring Diagram applies to all Talon models.

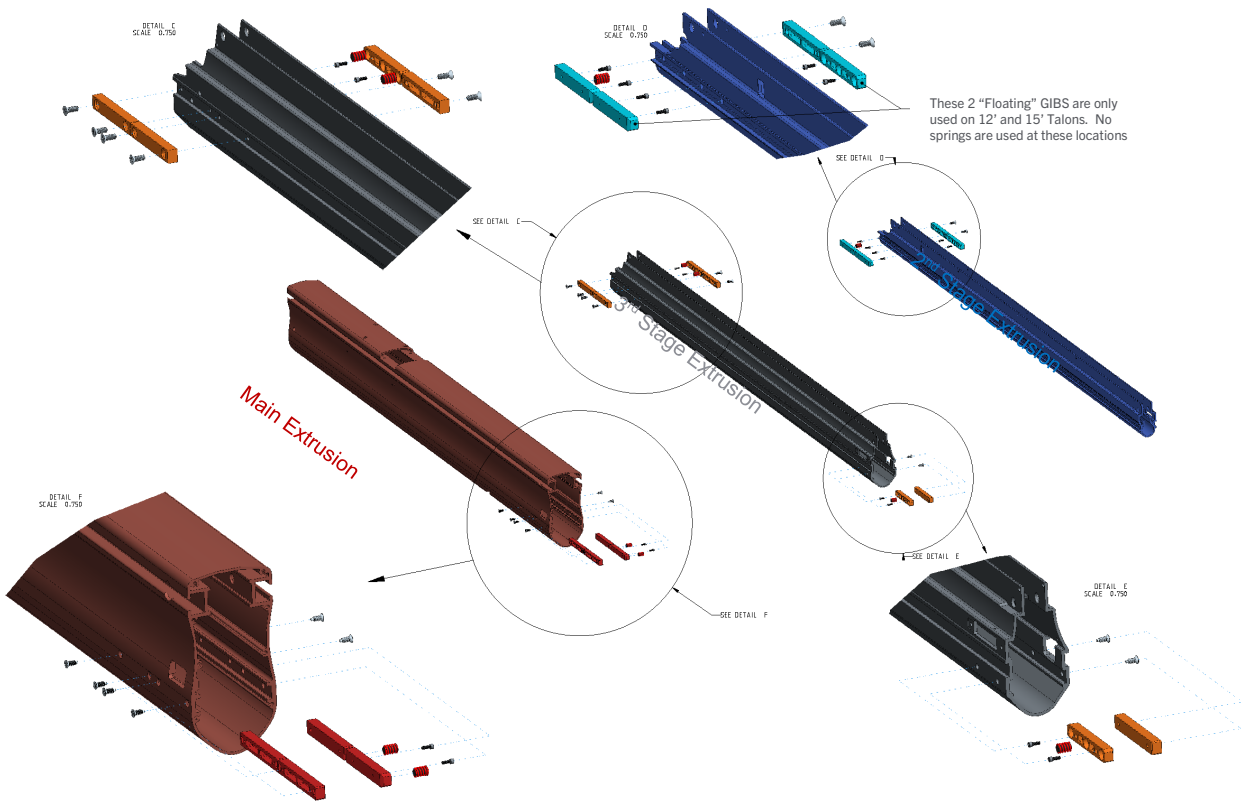


Videos:

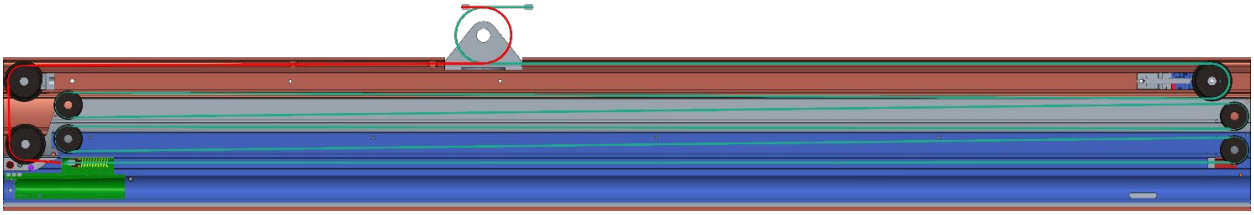
Control Board Removal

Control Board Installation

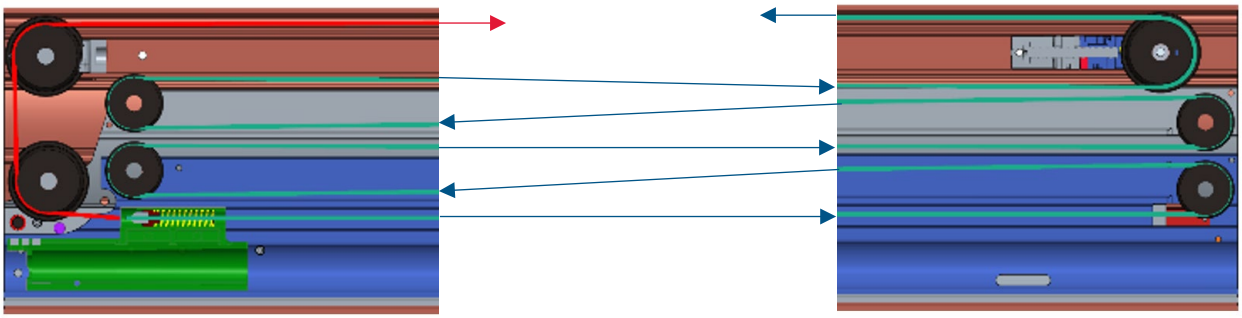
Control Board Depth Programming



GIB (Gliding In-Line Bearing) Map. 2nd Stage in Blue, 3rd Stage in Gray/Yellow, Main Extrusion in Red



Cross Section to show Cable Routing (Talon cut in half down the midline, viewed from the side). Spike Piston Green, 2nd Stage Blue, 3rd Stage Gray, Main Extrusion Red. Retractions Cable Red, Extension Cable Teal.



Close up of top and bottom, Connecting Arrows show Cable direction away from Spike Piston/to Wrap Drum

3 STAGE TALON 2014 – 2017

Identifying Features:

White, 2 button remote
6 Depth indicator lights on board
4 visible on 8' models,
2 blacked out by decal
5 visible on 10' models,
1 blacked out by decal
All 6 visible on 12' models
3 button Control Bezel (Up, Down, Mode)

Models:

Lengths: 8' (2015-2017), 10', 12'

Colors: Silver/Clear w/Black, Silver/Clear w/White, Black
Red, Blue, White, Camo

Overall Length (retracted):

8': 41.5" **10':** 49.5" **12':** 57.5"

Extension Cable Length (inside of ferule to inside of ferule, +/- .25"):

8': 218.75" **10':** 262.00" **12':** 310.00"

Retraction Cable Length (inside of ferule to inside of ferule, +/- .25"):

8': 132.00" **10':** 184.75" **12':** 184.75"

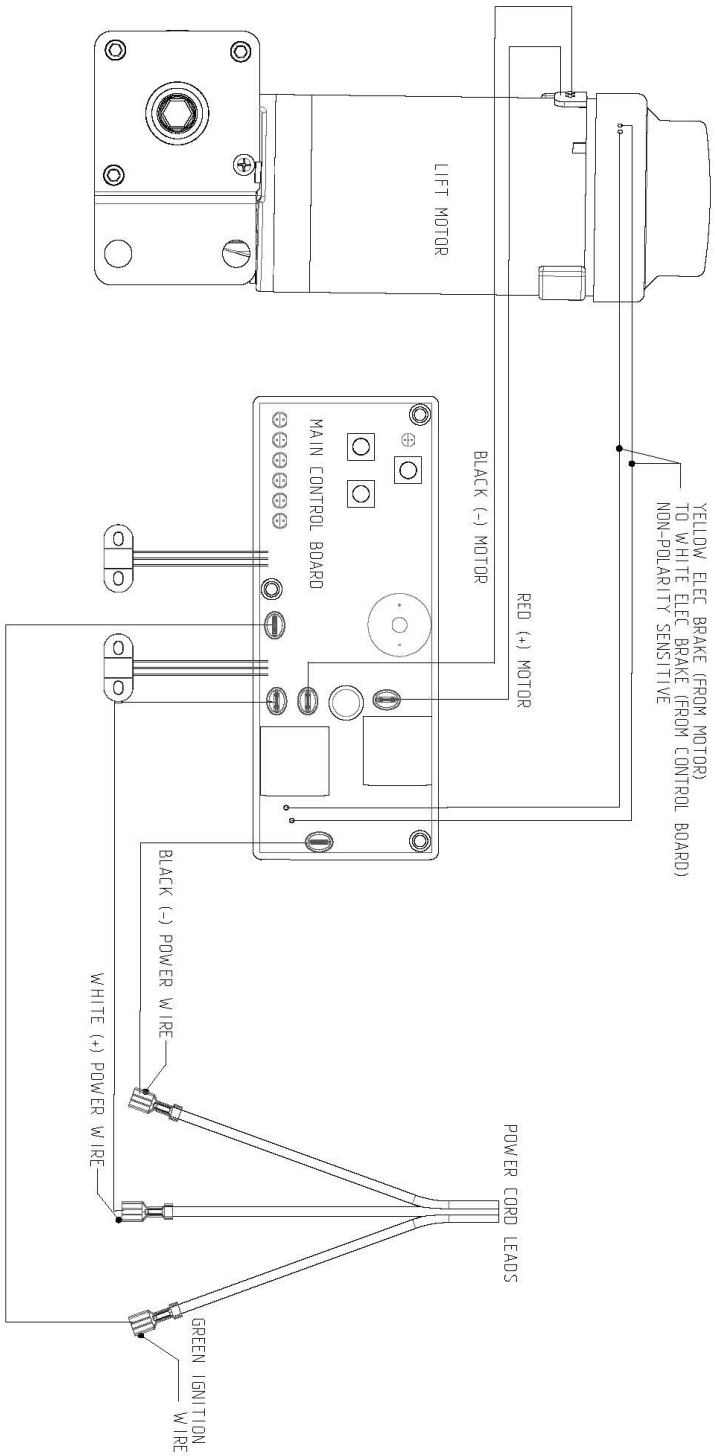
Weight:

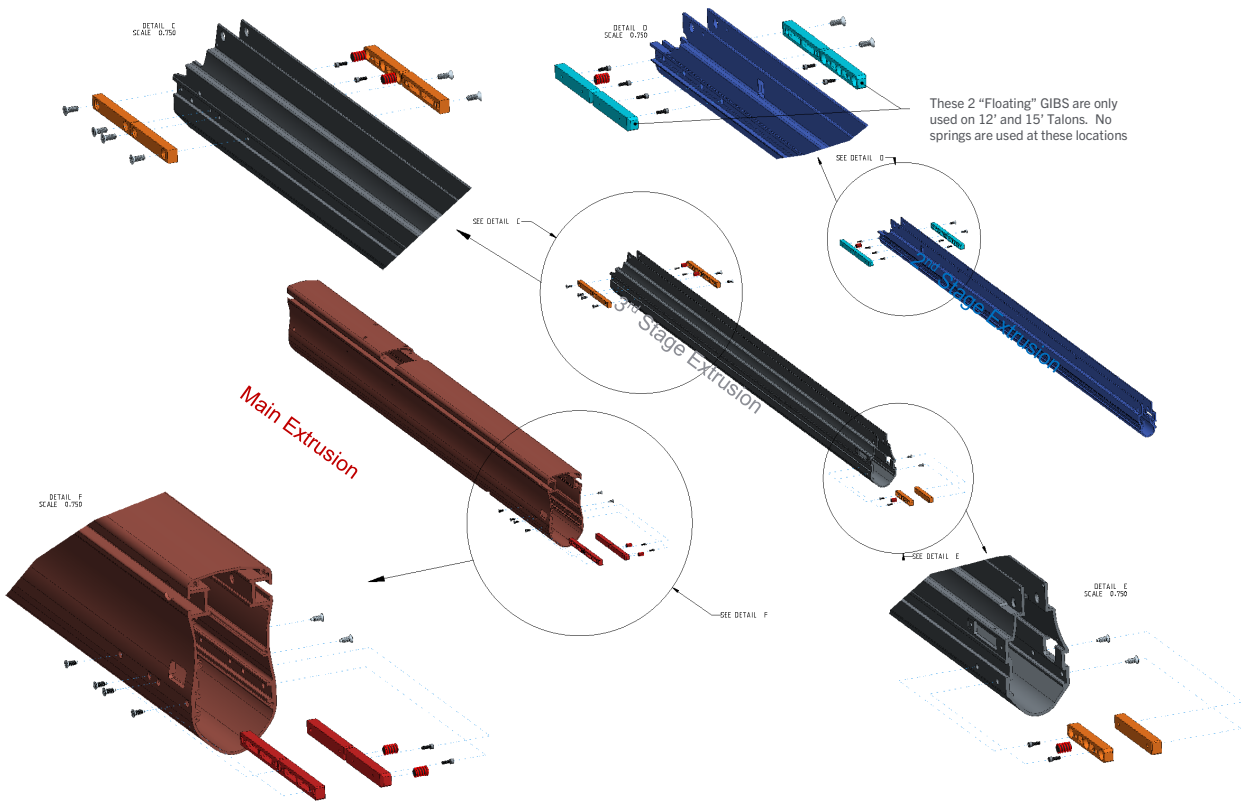
8': 38# **10':** 43# **12':** 47#

Warranty:

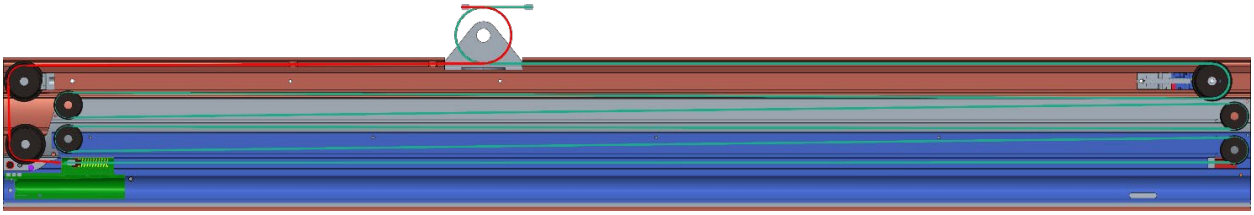
Lifetime Spike Warranty
Serial number Prior to M275MK
2 Year Mechanical and Electrical
Serial number M275MK and after
5 Year Mechanical
2 Year Electrical

Wiring Diagram

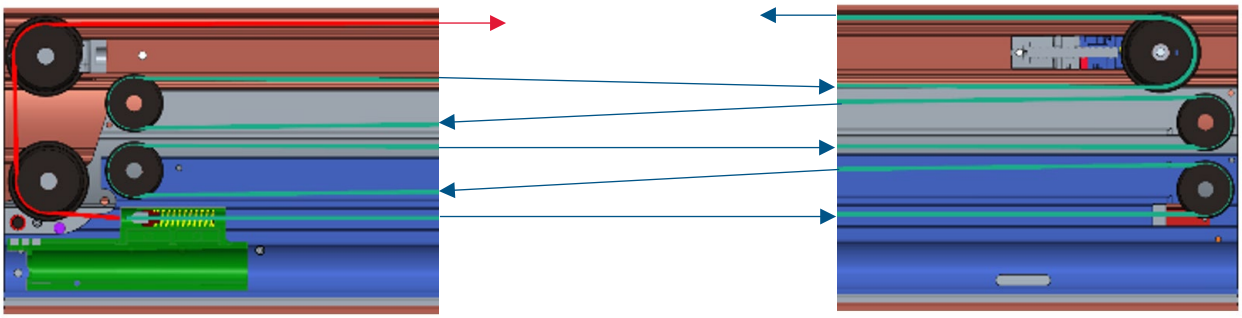




GIB (Gliding In-Line Bearing) Map. 2nd Stage in Blue, 3rd Stage in Gray/Yellow, Main Extrusion in Red



Cross Section to show Cable Routing (Talon cut in half down the midline, viewed from the side). Spike Piston Green, 2nd Stage Blue, 3rd Stage Gray, Main Extrusion Red. Retractions Cable Red, Extension Cable Teal.



Close up of top and bottom, Connecting Arrows show Cable direction away from Spike Piston/to Wrap Drum

2 STAGE TALON 2011 – 2015

Identifying Features:

Motor and Control Bezel at the top of the unit.
White, 2 button remote
8 Depth indicator lights on board
6 visible on 6' models, 2 blacked out by decal
All 8 visible on 8 models
3 button Control Bezel (Up, Down, Mode)

Models:

Lengths: 6', 8'
Colors: Silver/Clear w/Black, Silver/Clear w/White

Overall Length (retracted):

6': 42" **8':** 57"

Extension Cable Length:

6': 173.09" **8':** 221.09"

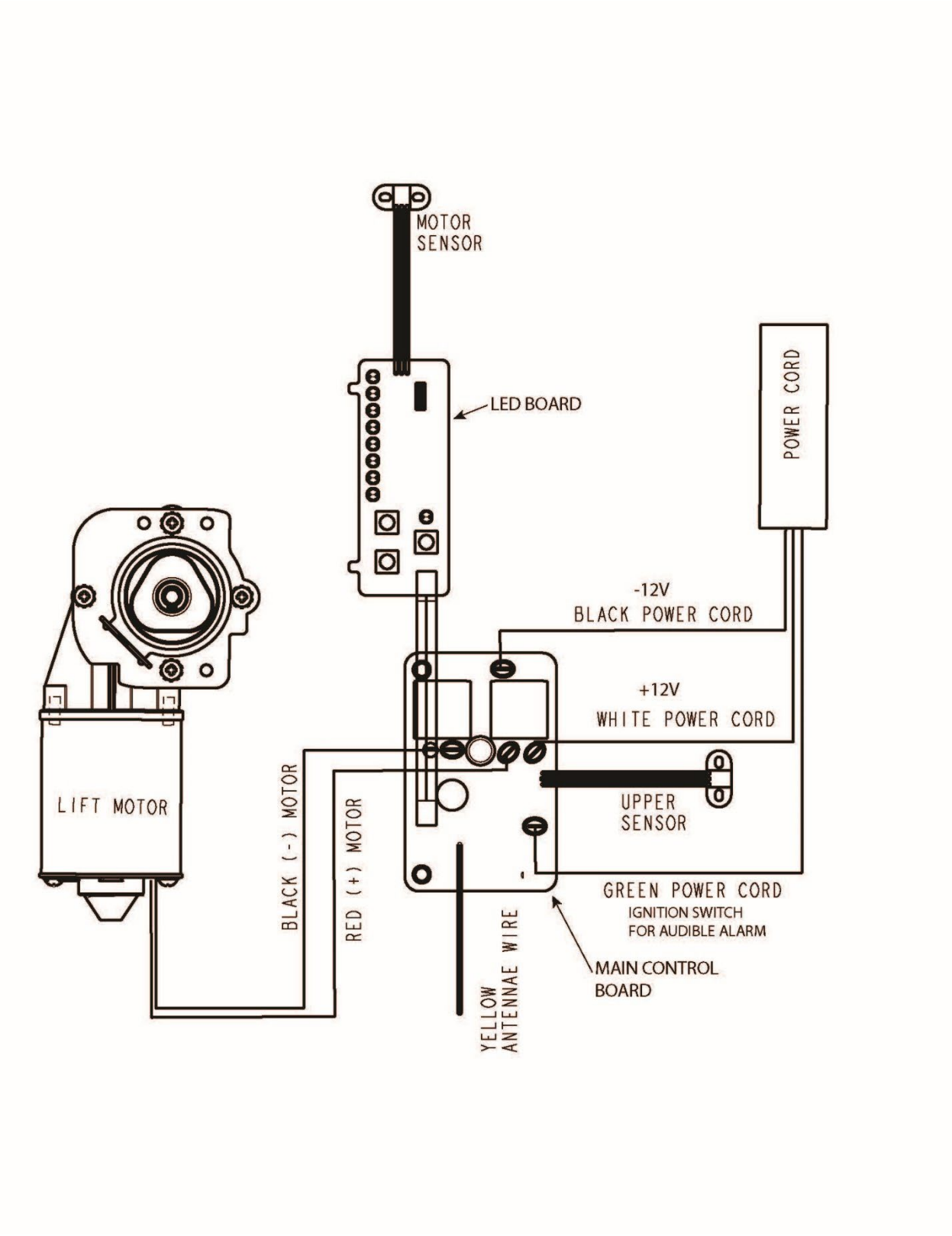
Retraction Cable Length:

6': 106.90" **8':** 106.90"

Warranty:

Lifetime Spike Warranty
Serial number Prior to M275MK
2 Year Mechanical and Electrical
Serial number M275MK and after
5 Year Mechanical
2 Year Electrical

Wiring Diagram



3 STAGE TALONS CASES (BT AND PRIOR GENERATION)

CASE I. Paint / clear coat on the three-stage Talon's main extrusion is peeling off in large pieces or the main extrusion has been damaged in some way.

CAUSE: Paint / clear coat peeling can be due to a paint/clear coat adhesion problem caused by improper cleaning, preparation, or processing of the extrusion at the supplier. In other instances it can be caused by improper mounting and positioning of the talon on the boat. Structural damage of the Talon extrusion can be caused by striking an underwater obstruction or hitting a low overhead object such as a garage door or bridge. Whatever the cause for the paint / clear coat issues or damage, replacement of the main extrusion will be required.

CORRECTIVE ACTION: To replace the Talon's main extrusion the Talon must be partially disassembled so that the spike, second, and third stage assembly of the talon can be removed as a complete assembly and then be installed in the new main extrusion. For how-to, see **3 STAGE TALON DISASSEMBLY/REASSEMBLY INSTRUCTIONS** beginning on page **26**

CASE II. The Talon does not fully extend or drive the spike into the bottom with adequate force to hold the boat, the Talon motor continues to run, and a loud clicking noise can also be heard.

CAUSE: The wrap drum "hard stop" that engages the wrap drum drive hub is sheared off and/or the torsion spring inside the wrap drum is damaged/destroyed.

CORRECTIVE ACTION: The damaged wrap drum assembly will need to be removed and replaced with p/n 2777915 (wrap drum, torsion spring, and drive hub assembly).

See **3 STAGE TALON DISASSEMBLY/REASSEMBLY INSTRUCTIONS** beginning on page **26** for additional clarification

STEP 1. With the Talon retracted and supported by the bench top fixture use a #2 Phillips head screwdriver to remove the top cover and the right and left motor housings. use care

NOTICE: Observe the type and length of the screws and their locations for reassembly. The four screws that hold the top cover in place are #8-18 x 1" long, the four (4) screws that go in to the left motor housing are #8-18 x 1 ½", and the screws that attach the housing to the main extrusion are #8-32 x 1" and #8-32 x 5/8 inch side. Installing an incorrect screw may damage the extrusion and prevent Talon function.

NOTICE: With 3 Stage Talons prior to BT models, when removing the switch bezel to avoid losing the three switch buttons on the Talon control board. The button stems are not fixed to control board. If a button is lost it can be replaced part number 2373715

STEP 2. To confirm that the wrap drum is damaged, connect the Talon to a 12-volt power source (white wire to the + positive and black wire to the - negative). With the Talon properly supported in a bench top fixture press the DOWN button. Observe the motor shaft, wrap drum drive hub, and

wrap drum. If the motor shaft and drive hub are turning but the wrap drum is not turning, the initial diagnosis is correct. The wrap drum assembly needs to be replaced. Note: close examination of the wrap drum "hard stop" would also confirm this.

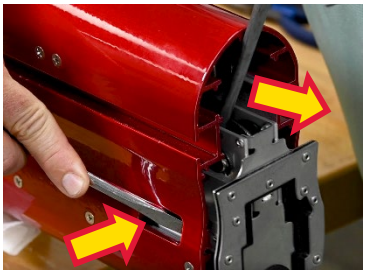
Wrap Drum Stop

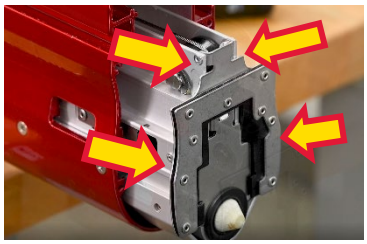

Damaged Torsion Spring

STEP 3. Disconnect the Talon from the power source and proceed with disassembly by removing the external e-ring from the end of the motor shaft (side opposite the motor). Next, remove the black plastic wrap drum spacer located on the motor shaft between the wrap drum and wrap drum mount. With the spacer removed the wrap drum can be slid to the right (away from the motor) to expose the wrap drum drive pin. Remove the pin.

STEP 4. Use a flat blade screwdriver or small prybar to remove the water shield. Using the bottom edge of the third stage as a fulcrum applying firm pressure as close to the rivets as possible will unseat the rivets without damage to any part of the Talon. Support the water shield in a vice or clamp to drill out the rivets. If slightly bent hammering on a flat surface will straighten the water shield.

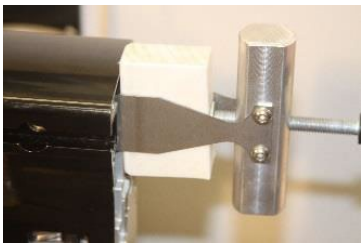

Pry Water Shield Off


Depress Latch, Pry Out Stage


Drill out Four Rivet Heads

STEP 5. Remove the Second Stage Wiper from the bottom of the third stage extrusion. To access the four (4) pop rivets that hold the Wiper in place you must have the third stage extended a short distance out of the bottom of the main extrusion. To do this depress the third stage latch while using a screwdriver to pry the third stage out. Use a 1/8" drill bit to remove the heads of the four (4) rivets in order to remove the shield. With the Water Shield and 2nd Stage Wiper removed, the Extension Cable Tensioner located at the bottom end of the Main Extrusion can easily be seen.

NOTICE: First generation 3 Stage Talons, Serial Number Prior to O325MK00401 will have a fixed pulley instead of a Tensioner. See SB10022015 for update information.


Tensioner Tool In Use

The Extension Cable Tensioner Assembly in place by four flat head Phillips screws located about five (5) inches up from the bottom end of the main extrusion. Use the tensioner tool (included with Special Tools kit p/n 2888885) to hook the upper end of the cable tensioner. Once the tool is engaged on the tensioner insert the Support Block and tighten the screw on the tool until snug. The tensioner is now supported by the tool so it is safe to remove the four (4) screws that retain the lower cable tensioner. Once the screws are remove gradually relax tension on the tensioning tool to relieve the cable tension.

STEP 6. The next step is to remove the motor. Remove the fasteners from the motor bracket (Three (3) Phillips Head Screws on BT Talon, Two (2) 9/16" Nuts on Prior Generation 3 Stage Talon) then slide the motor assembly out of the damaged wrap drum. Be sure to note the location and position of the two (2) bronze bushings in the wrap drum mount for proper placement when reassembling the Talon.

STEP 7. With the motor and shaft assembly removed, and tension on the cables released, the cables can be unwrapped from the damaged wrap drum. Start with the extension cable on the right end of the drum (side opposite the motor). When the Talon is retracted the cable will only have about one wrap on the drum. To remove the cable end from the drum push the cable stop back to remove it from the pocket in the wrap drum. Next, unwrap the retraction cable and remove the cable end from the drum.

Wrap Drum/Hub Preload

STEP 8. Remove the tie wrap from the replacement wrap drum. (The replacement wrap drum is shipped with the torsion spring and wrap drum drive hub assembled and pre-loaded. The tie wrap is used to hold everything together while in the pre-loaded condition). When "pre-loaded" the wrap drum drive hub stop will be on the clockwise side of the wrap drum hard stop. Use care not to disengage the pre-loaded hub from the spring and wrap drum).

STEP 9. Insert end of retraction cable in the left (motor) side of the wrap drum and rotate wrap drum to wind retraction cable tightly on to the left side of the wrap drum. Slip the wrap drum cable clip on to the wrap drum to hold the cable in place. The "tail" end is to be inserted in the the drum first, the ball end into the pocket second, then tension applied to the cable to seat it in the pocket.

NOTICE: If cables are too loose on the wrap drum, the spring-loaded cable tensioner at the bottom of the main extrusion will not be compressed. If too tight or too many turns of the cable on the wrap drum you will be unable to pull the spring-loaded cable tensioning assembly down far enough to insert the four (4) screws that hold the tensioning assembly in place. Add or remove turns of the cable, as needed, to achieve correct cable tension.

Step 10. Insert the end of the extension cable into the retaining pocket on the right side of the wrap drum and wrap about one and a half (1 ½) turns of this cable around the wrap drum depending on the amount of the retraction cable wound on to the wrap drum.

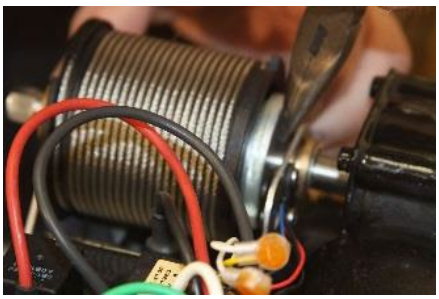
STEP 11. With the cables wrapped smoothly and evenly in place, position the wrap drum between the two sides of the wrap drum Bracket. Make sure that the two (2) bronze bushing are in place in the mount, then insert the motor shaft from the left side, through the bushing, then the wrap drum/cable assembly, through the second bushing, and out the right side. Install the fasteners securing the Motor Assembly. Slide the wrap drum assembly to the right to expose the hole in the motor shaft for the wrap drum drive pin. Insert the drive pin (tip for reassembly: a little grease on the pin will help to hold it in place), align the slot in the wrap drum drive hub with the pin and then slide the wrap drum assembly back to the left to engage the pin. Next, install the black plastic wrap drum spacer between the wrap drum and the right side of the wrap drum mount. (Note that the spacer has a relief cut on one side to clear the end of the bronze bushing.) Use care to make sure that the white nyliner bearing is in place when installing the spacer, then install the external e-ring that goes on the far right end of the motor shaft.

STEP 12. Using the tensioning tool (p/n 2378889) pull the tensioning assembly (p/n 2773630) down into place to install the four (4) #8-16 x ½" Phillips flathead screws that hold the assembly in place. Note: before installing screws take a moment to check that the cables at the top and bottom are properly routed and are centered in the idler pulleys.

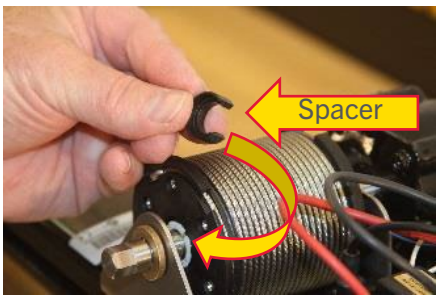
STEP 13. At this point power can be re-connected and the Talon tested. If the Talon now functions properly complete the procedure by re-installing the top cover, motor covers, main extrusion shield, and third stage water shield.

CASE III. The Talon motor can be heard running but the Talon spike, second, and third stages do not extend or retract.

CAUSE: This may be due to the Wrap Drum Spacer either coming off or breaking. This allowed the Wrap Drum Assembly to shift to the right (away from the motor) and the Wrap Drum Hub has disengaged from the Drive Pin. As a result the motor runs but the wrap drum does not turn and the extension/retraction cables do not unwind/wind up.



Example of a Disengaged Hub



Spacer Removed for Visibility

CORRECTIVE ACTION: Remove the left and right motor housing covers, noting the where used location, type, and length of the screws for reassembly. Lift the switch bezel off of the control board. With the housings and bezel removed, examine the wrap drum assembly. The wrap drum assembly should be almost centered in the wrap drum mounting bracket and a black plastic spacer should be visible between the side of the wrap drum and the mounting bracket on the right side (side away from the motor). If the wrap drum not centered or the black spacer is missing or broken check to see if the driveshaft pin is missing. If the driveshaft pin is missing attempt to locate it (it may have fallen into the main extrusion). If the driveshaft pin cannot be found, replace it.

NOTICE: On 1st Generation 3 Stage Talons (non-BT) the button stems are not permanently attached to the control board. Take care when lifting the switch bezel off to avoid losing them. If any are missing they can be ordered, p/n 2373715

Verify the wrap drum drive hub and torsion spring are properly preloaded as noted in PART 11 – WRAP DRUM ASSEMLBY on Page **39**. Align the drive pin slot of the drive hub with the driveshaft pin inserted through the motor driveshaft. Slide the wrap drum assembly toward the motor and install the black plastic spacer (p/n 2371537 wrap drum spacer) between the wrap drum and mounting bracket.

NOTICE: The spacer has a relief cut on one end to clear the end of the bronze bushing in the mounting bracket.

Connect the Talon to a 12 volt power source to test for proper extend/retract function. If okay, reinstall the switch bezel and motor housing covers to complete the repair.

CASE IV. The Talon makes a grinding noise when extending/retracting may bind up and partially extend/retract when in use. The manual retraction procedure may also be unusable.

CAUSE: Binding and noise like this is most likely cables either crossing or having jumped off of a pulley. Remove the covers and inspect the all of the pulleys to be certain the cables are centered on the pulley and the cables aren't crossed on the wrap drum. If this occurs during reassembly of a Talon pay close attention to the pulley at the top of the 3rd Stage.

NOTICE: BT Talons, 10' and 12' Models, made prior to U168MK01202 may exhibit slack at full extension that could allow crossing at the wrap drum. See MSB20200620 "BT Cable Kit Change" for more information.

NOTICE: First Generation 3 Stage Talons prior to S/N O325MK00401 Did not include an extension cable tensioner. See SB 10022015 For more information.

CORRECTIVE ACTION: Replace the cables and any other missing or damaged parts. Cable replacement requires a complete disassembly and reassembly of the Talon.

CASE V. When attempting to deploy, the Talon does not extend or extends a short distance out the bottom of the second stage then stops.

CAUSE: This issue can be due to mud, sand, or grit getting in to the second stage extrusion and wedging between the spike and the spike isolator.

CORRECTIVE ACTION: The mud, sand, or grit must be removed or flushed out in some way to allow the spike to extend. Tapping on the end of the spike with a rubber mallet or hammer to push it up into the second stage can be effective or the top cover of the Talon can be removed to allow the extrusion and spike to be flushed with freshwater to remove the foreign material that is restricting spike extension. Once the spike is fully extended the second stage latch should release and the second stage extrusion will extend. With the extension of the second stage the spike isolator can be removed. Use a long shank 1/8" pin punch to drive out the p/n 2372654 1/8" x 1 ¼" spring pin that holds the spike isolator in place. With the spike isolator removed the second stage extrusion be further flushed with water to remove the mud, sand, or grit that can restrict deployment of the Talon.

NOTICE: Early production BT Talons with a serial number range of R118MK##### to S213MK00051 are more prone to debris packing than other Talon units. See Service Bulletin SB20180801 for more details.

CASE VI. Talon spike and second stage will extend but the third stage extrusion will not come out of the bottom of the main extrusion.

CAUSE: The third stage latch is not releasing and because of this the third stage cannot extend. The third stage latch is visible in the 11/16" x 1 3/8" rectangular window located on the lower left side (motor side) of the main extrusion. The p/n 2372201 latch is a black plastic flipper about ½" wide by 1 ¼" long. A flat stainless steel leaf spring is used to rotate the end of the third stage latch when an opening at the upper end of the second stage extrusion passes the latch and allows the latch to rotate and release the third stage extrusion. If the spring is damaged the latch will not release.

CORRECTIVE ACTION: The p/n 2372748 third stage latch spring, and, if damaged, the p/n 2377201 latch, must be replaced. To expose the latch and spring connect the Talon to a 12 volt power source, press the DOWN button, once approximately one (1) foot of the spike has extended press the DOWN button again to stop the Talon then disconnect it from the 12 volt power source. The third stage latch can be released by pushing in on the end of the latch (visible in the 11/16" x 1 3/8" rectangular window in the lower left side of the main extrusion) while prying/pulling out the second stage wiper assembly that is attached to the third stage extrusion. When the third stage latch and spring are exposed they can be inspected for damage and replaced as needed. The spring is held in place with a pulled rivet. To remove the rivet spin off the head of the rivet with a 1/8" drill bit and portable drill. Use and 1/8" pin punch to drive out the rivet shank (be sure to recover/remove the rivet shank from inside the third stage extrusion). Check to make sure that the latch is free to move and is not damaged. The latch is held in place with a 1/8" x 7/8" pin that is knurled on one end. Drive the pin out from the plain (unknurled) end with a small 1/16" or 3/32" pin punch. With the pin removed the latch can be removed for further inspection or replacement. Reinstall/replace the latch and secure it with the knurled 1/8" diameter pin. Make certain that the

latch moves freely, then install the flat, p/n 2372748, latch spring securing it in place with one of the p/n 2378601 pulled rivets. Connect the Talon to a 12 volt power source and test retract/extend the Talon to check for proper function.

CASE VII. The depth indicator LEDs on the Talon control panel do not function or some LEDs do not display when the Talon is deployed.

CAUSE: This may be caused by the sensor on the wrap drum bracket being installed incorrectly, damaged wires between that sensor and the control board, the magnets in the wrap drum drive hub having been lost, or a malfunctioning control board.

CORRECTIVE ACTION: Inspect the wires running from the control board to the sensor, if damaged replaced the damaged area with a good splice. Verify that the sensor is installed correctly, the sensor has a raised face with some white lettering on it, this face should protrude into the window in the wrap drum bracket and be pointed toward the wrap drum hub (since this sensor is between the motor assembly and the wrap drum bracket it may be necessary to remove the Motor Assembly to accurately view the sensor. The sensor is activated by two magnets installed in the wrap drum hub, inspect the wrap drum hub and verify that these magnets are in place. If at this point the cause has not been addressed it can be assumed the control board is malfunctioning and will need to be replaced.

CASE VIII. The second stage wiper assembly, attached to the third stage extrusion, has "peeled" apart at the front or leading edge of the wiper and torn off a portion of the bottom plate that retains the rubber portion of the assembly.

CAUSE: Damage to the leading edge of the wiper assembly is caused by water pressure against the leading edge of Talon. If this occurs on a BT Talon or a 1st Generation 3 Stage Talon with the updated wiper the Talon is mounted too low and should be raised.

NOTICE: On first generation 3 Stage Talon to correct this issue an additional row of four (4) rivets was added to the wiper assembly to better secure and prevent the force and pressure of the water damaging the retainer plate when the boat is traveling at high speed. This is an automatic update for all early production 10' and 12' Talons, units with serial numbers earlier than O183MK#####.
The new wiper assembly, p/n 2884618, has thirteen (13) rivets compared to the nine (9) rivets for the old assembly.

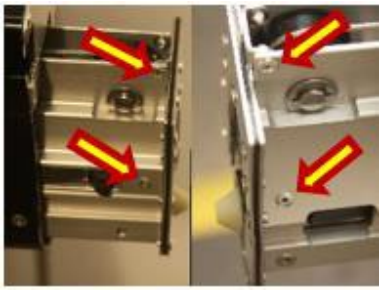
Examples of 1st Generation 3 Stage Talon Wiper Assemblies (Updated version on left)

CORRECTIVE ACTION: To replace the old or damaged wiper assembly the Talon third stage extrusion must be extended a few inches out the bottom of the main extrusion. This can be done by connecting the Talon to a 12 volt power supply and pressing the DOWN button on the Talon, to stop the Talon at the desired position press the DOWN button again or disconnect the 12 volt power source. Locate the four (4) pulled rivets that hold the wiper assembly in place at the bottom end of the third stage extrusion. Spin off the heads of the pulled rivets with a 1/8" drill bit and portable drill. Drive out the rivet shanks with a 1/8" pin punch and remove the wiper assembly and the punched out shanks from the third stage. Install the new wiper assembly and secure it in place with four (4) of the p/n 2378601 rivets. Connect the Talon to the 12 volt power source and test retract/extend to verify proper function to complete the repair procedure.

CASE IX. Talon squeaks/whistles while deploying/retracting, specifically while the second stage is in motion (quiet at start and end of process to deploy to full length, noise only in the middle of the deploy process).

CAUSE: Noise while the second stage is in motion can be caused by resonance between the second stage wiper and the second stage, slight irregularities in the rubber of the wiper are responsible for these noises.

CORRECTIVE ACTION: Replace the second stage wiper; see Case VIII for detailed instructions.



Rivet Locations

CASE X. Noise during deploy not associated with second stage wiper or cable issues. Squeaks, grinds or whistles at various points in the deploy cycle.

Cause: Various noises can be associated with the slide GIBs. Grit caught on or having caused wear on a GIB may result in noise when the supported surfaces are in motion. If the screw that retains a fixed GIB has backed out the head of that screw will grind against the opposing surface making noise. Floating GIBs may resonate through the spring and pins that locate them if they do not move freely along the surface they support.

Corrective Action: Identify which stages are in motion while noise is present. With the Talon supported in a location it can be fully extended connect the Talon to proper 12 volt power supply and press the DOWN button and listen as the Talon extends. Press the UP button to retract the Talon, listen again as the Talon comes in. If noise is only present at the end of the Deploy and Retract cycles replace all of the GIBs between the Main Extrusion and third stage assembly; if the noise is present earlier in the Deploy/Retract cycle replace all of the GIBs. To access all of the GIBs associated with the third stage assembly follow **3 STAGE TALON DISASSEMBLY/REASSEMBLY INSTRUCTIONS** beginning on page **26**.

CASE XI. Talon squeaks or creaks while anchored with no unusual noises during extension or retraction.

CAUSE: The moving part associated with the "Wave Absorption" feature is primarily the torsion spring inside the wrap drum. If there is excessive squeaking while anchored it is most likely the case that the grease layer on the torsion spring is inadequate, either due to wearing off or inadequate application originally.

CORRECTIVE ACTION: Follow the instructions from Case II to access the wrap drum. At Step 7 inspect the wrap drum and hub stops, if any damage is present you will need to replace the wrap drum assembly and continue following the instructions from Case II. If no damage to hub or wrap drum stops use a pliers to grip the hub lift it clear of the wrap drum stop and relieve the pressure on the torsion spring, lift the hub off of the torsion spring and lift the torsion spring out of the wrap drum. Liberally apply marine grease to the surface of the torsion spring and the ears on end of the torsion spring. Replace the torsion spring in the wrap drum engaging the ear of the spring in the slot at the bottom of the wrap drum. Place the hub assembly on the wrap drum engaging the top ear of the torsion spring in the slot in the hub. Firmly grab the hub assembly with the pliers and lift the stop on the hub over the wrap drum stop to preload the spring. Continue following the instructions from Case II using the original wrap drum assembly instead of a replacement.

CASE XII. Talon is connected to a proper 12 volt power supply and polarity is correct (positive to white wire, negative to black) but does not deploy, on "DOWN" button press 1 or more clicks may be heard from the control board, but no movement from the Talon occurs.

CAUSE: The 3-stage Talon uses an electric brake to lock the motor in position when power is not applied to the motor leads. You will notice that there are four (4) wires going to the motor, two (2) are for the electric brake and two (2) are for the motor brush leads. Voltage (12 Volts) must be applied first to the brake leads and then to the motor brush leads for the motor to run. The brake leads are connected to the control board with two (2) 3M Quick Connectors. If the connectors are not making a good connection the brake cannot be electrically released for normal operation or for the manual stow process.

CORRECTIVE ACTION: As always check for proper voltage (12 volts) and polarity (black wire to battery negative, white wire to battery positive) at the Talon battery leads. Remove the motor housings and switch bezel. Locate wire connections, (two (2) yellow wires from the motor connected to two (2) wires from the control board (White on first generation 3 stage Talon, Yellow on BT Talon)). Cut/remove the 3M connectors, then strip the insulation from the wires going to the motor. Apply 12 volts to the brake wires (these are not polarity sensitive); an audible "click" should be heard as the brake is released/voltage is applied. With power applied to the Talon battery leads and to the brake leads the Talon motor can be tested by pressing the DOWN button if the Talon is retracted or pressing the UP if the Talon is extended.

NOTICE: If the motor has been removed from the Talon it can be direct tested by applying 12 volts to the red and black leads (while 12 volts is applied to the brake leads). The motor should run freely, reversing the polarity at the motor leads will change the direction of motor rotation.

After verifying motor and brake function, reconnect the leads to the board and test. If motor and brake tested okay but Talon still does not deploy see Case V for mud/sand/grit issues or Case IV for cable twist, tangle or off Pulleys issues.

CASE XIII. Talon will extend and retract with "DOWN" and "UP" buttons on the control panel but will not respond to commands from the Talon remote transmitter

NOTICE: The 3M connectors can be replaced or eliminated. If eliminated, make a good soldered splice and shrink tube connection.

CAUSE: Talon Remote is not "learned" to the main board, battery in the remote is dead or has low voltage, the Talon DOWN button on the remote is not being pressed twice in quick succession, low or inadequate power getting to the Talon main control board, the RF antenna on the main control board is not properly routed, or the Talon main control board is bad and needs to be replaced. (There is a video of this procedure in Service Videos/Talon Service Videos folder titled 3 Stage Talon Control Board and Motor Replacement.mp4.)

NOTICE: Corrosion in the fuse holder can affect power to the Talon; remove the fuse and inspect it to verify it is clean.

CORRECTIVE ACTIONS: Verify proper voltage and polarity at the white and black Talon Battery leads (positive 12 volts to the white wire, negative 12 volts to the black wire). Press the Mode Button on the Talon Control Panel, the mode light will change with each button press when 12 volts and proper polarity are being supplied to the Talon control board. Test the remote battery. On BT Talon use a nickel or quarter to turn the battery door ¼ turn counter clockwise and then remove the battery door; on 1st generation three stage Talons remove the four (4) screws that hold the remote together. The battery is a three (3) volt Lithium coin cell #CR2032. It can be tested with a volt/ohm meter and should read above 2.8 volts. Replace battery if necessary and reassemble the remote using the four (4) screws that were removed. If voltage checks okay or new battery was installed, but the remote still will not pair/learn, the main board may be faulty; attempt to Pair/Learn a known good remote correct to the Talon to the Talon, if the known good remote functions the original remote is bad and needs to be replaced. If no response with a known good test remote, regarding 1st generation 3 stage Talons, suspect antenna wire routing. Remove motor housing covers and switch bezel to check antenna wire routing. The antenna should be laying on top control board somewhat around the switch bezel. If all check okay suspect a problem with the RF receiver in the main control board and the board will need to be replaced. If Talon responds to the remote with a series of quick beeps when the UP button is pressed on the remote, but does not extend when the DOWN button is pressed, verify that the button is being pressed twice within a ½ second to initiate extension.

CASE XIV. Talon is stuck in the down position, and the depth of deployment LEDs are not lit

CAUSE: The LED lights not being on indicates a loss of power.

NOTICE: The motor brake is engaged unless 12 volts is applied to it, it is not possible to manually retract a Talon with complete power failure.

CORRECTIVE ACTION: Verify that the Talon power leads are still securely connected to the 12 volt power supply/battery. Check the resettable fuse, if tripped, reset. Remove the fuse and inspect for corrosion, clean or replace as necessary to provide a good connection. Verify the 12 volt source is still good (load test the battery). Inspect the power lead for any damage; replace as necessary. Remove the left and right motor housings and the switch bezel; check the connection of the power leads to the main control board.

CASE XV. Talon makes an "error" tone the Talon completes retraction. The "Learn"/Pair Function does not function. On BT Talon one depth indicator light remains lit when fully retracted.

Cause: The magnets located in the upper end of the spike piston are missing, the upper end of the spike piston is broken, the wires going to the upper sensor are pinched, damaged, or cut, or the spike is not fully retracting due to sand, grit, or other obstructions limiting the upward travel of the spike/spike piston assembly.

CORRECTIVE ACTION: Remove the #8-18 x 1" Phillips pan head screws that hold the top cover in place. Visually inspect the three wires (blue, red and black in color) that connect the upper sensor to the main control board. If any wires are found to be pinched damaged or cut they can be spliced, soldered and heat shrink sealed to repair the damage. Examine the upper end of the spike piston or take a quick look at the spike to see if the spike is extending out the bottom of the main extrusion. If sand, grit or any other foreign material is visible when looking down into the Talon from the top it must be flushed out with water or shop air. If spike is fully retracting but problem still exists take a close look at the upper end of the spike piston to make certain that the three (3) magnets are in place. The three magnets are bright chrome plated, 3/16" in diameter and are easily visible in the upper end of the spike piston. If they are missing or the upper end of the spike piston is broken, the Talon must be completely disassembled as described in the **3 STAGE TALON DISASSEMBLY/REASSEMBLY INSTRUCTIONS** beginning on page **26** to replace the p/n 2991545 spike piston assembly w/magnets.

CASE XVI. Talon Deployment Notification Alarm does not work/emit a warning tone to indicate the spike is down when attempting to move from one location to another

CAUSE: The green warning/ignition wire is not connected, has been disconnected, or is not connected to a switched connection point that applies +12 volts from the Talon battery/Boat's starting battery to the green wire when the engine start switch is turned on.

CORRECTIVE ACTION: Verify that the green wire in the three (3) conductor battery power cord lead is connected to a starting switched connection point that applies +12 volts from the Talon/starting

battery to the green wire when the ignition system is switched on to start the boat engine. This can be tested by using a VOM to read voltage across the green wire's connection point and battery negative post. The alarm can also be direct tested for proper function by deploying the Talon a short distance out, stopping the extension by pressing the DOWN button on the control panel, then connecting the green wire directly to the Talon Battery's positive post. The warning alarm should sound for a short time and then turn off. If the warning tone cannot be heard when direct tested the beeper on the board is faulty and the board will need to be replaced.

CASE XVII. Work Light on BT Talon does not function as expected.

STEP 1. Inspect the connections between the control board and the work light assembly. The wires should be fully inserted in the Scotchlok connector and the ends should be even and near the top edge. If any of theconnections are not fully secure cut the old connector out and replace the connection. The butt splice must be sealed, soldering the connectors and sealing with a glue filled heat shrink is acceptable, but the preferred connector is p/n 2040340.

STEP 2. If inspecting the connectors does not find a suspected issue direct test the light assembly. To do this you will need to cut the connectors off and strip the insulation from the ends of the wires attached to the light assembly.

A. Connect the Red wire to the +/12v connection from your power supply/battery.

B. Connect the White wire to the -/ground connection from your 12-volt power supply/battery.
- Observe the lights, the White LED should be illuminated at full brightness.

C. Disconnect the White wire and connect the Blue wire to the -/ground.
- Observe the lights, the White LED should be illuminated at full brightness.

D. If either connection pattern did not work as listed above, replace the LED assembly; if the LEDs illuminated properly then replace the Talon Control Board.

3 STAGE TALON DISASSEMBLY/REASSEMBLY INSTRUCTIONS

NOTICE: The QR Codes are links to a video for that Part of the Disassembly/Reassembly Process.

NOTICE: In addition to these step by step written instructions videos are available within "Service Provider Materials" on the Parts and Warranty Portal.

PART 1 - COVER REMOVAL

1. Use #2 Phillips Screwdriver to remove the screws securing the Motor Covers. (4) #8-16 X 1.5" screws secure the Right Motor Cover to the Left Motor Cover, (2) #8-32 X 1.0" secure the Right Motor Cover to the Main Extrusion, and (1) #8-32 X 1.0" and (1) #8-32 X 5/8" screws secure the Left Motor Cover to the Main Extrusion.

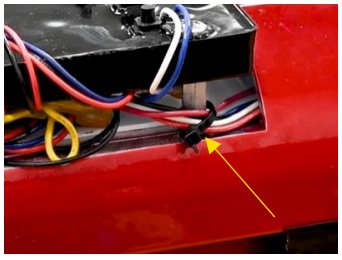
Right Motor Cover and Screws

Left Motor Cover and Screws

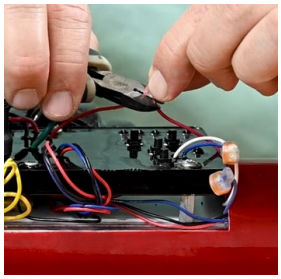
NOTICE

Inserting a #8-32 X 1.0" in a location that takes SCREW-#8-32 X 5/8" will prevent deployment of the Talon, Damage the 3rd Stage Extrusion and may damage the Main Extrusion.

2. Lift the Control Panel off of the Control Board.
3. Cut the Cable Management Zip Tie so the wires are free.


Cable Management Zip Tie

4. Remove the Worklight Assembly
    a. Remove the two #8-18 X 1" Screws that secure the Worklight.
    b. Use a Side-Cutter to clip the Worklight's wires at the Control Board as close to the Scotchlok Connectors as possible. The Worklight Wires are the Red, White and Blue ones near the top of the Control Board


Clip the Worklight Wires

NOTICE: If the wires between the Control Board and the Connector is too short to install a new connector after repair leave the existing connector and cut the wires a few inches up from the existing connectors.

    c. Pull the Worklight wires out of the Extrusion and set the assembly aside until reassembly.

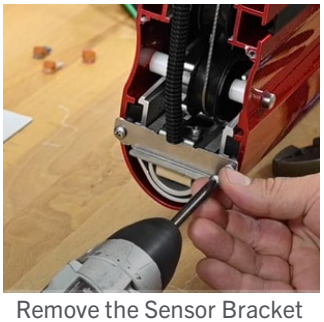
NOTICE: See the Wiring Diagram for the Talon you are working on for details regarding the location and function of the wires going to the Control Board

NOTICE: BT Talons include plastic inserts in the mounting tracks between the top of the Talon and the Motor Covers. These inserts prevent whistling when the boat is travelling at speed and must be reinstalled prior to completing the repair.

PART 2 - CONTROL BOARD AND MOTOR REMOVAL

1. Remove the Channel Divider
2. Remove the (2) #8-18 X 1" Screws Securing the Sensor Bracket for the Home Position Sensor to the Main Extrusion, take care to keep track of the (2) 1/8" Spacers between the Bracket and Main Extrusion.

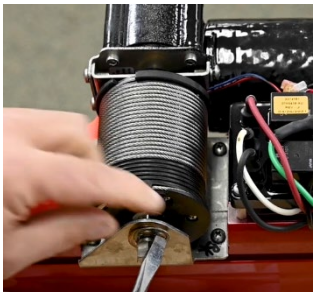

Pull The Channel Divider

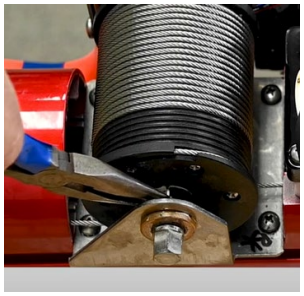

Remove the Sensor Bracket


Note the 1/8" Spacers

3. Remove the Motor Assembly.
    a. Remove the outer E-Clip from the end of the Motor Assembly's Drive Shaft.
    b. Use a Needle-Nose Pliers to remove the Wrap Drum Spacer, Set the jaws of the Pliers against the Spacer on either side opening of the spacer the push down on the

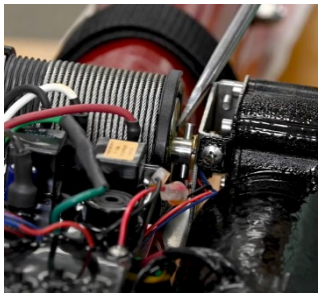
Pliers popping the Spacer off of the Motor Drive Shaft.

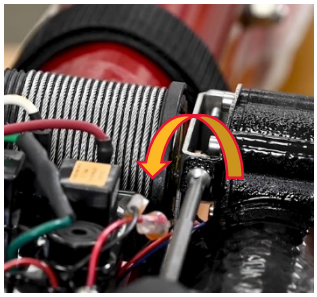

Remove the E-Clip

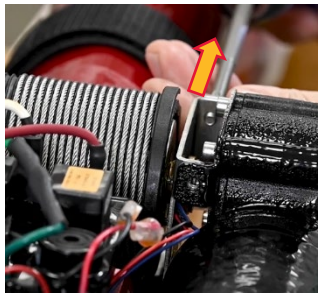

Remove the Wrap Drum Spacer


Wrap Drum Spacer

c. Pry against the Wrap Drum Hub with a Flat Blade Screwdriver to free the Drive Pin, then Remove the Drive Pin.
d. Remove the (3) #10-32 X 1/2" Screws that secure the Motor Assembly to the Motor Bracket.

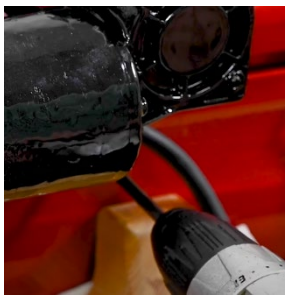

Remove the Drive Pin


Remove the Top Motor Screw

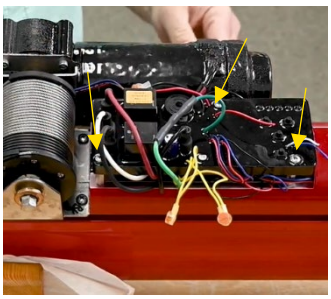

Remove the (2) Bottom Motor Screws

NOTICE: If performing Motor or Control Board Replacement, not further accessing the internals of the Talon, this is the ideal time to install the Spool Clip from your Talon Tool Kit to Maintain the Preload on your Wrap Drum Assembly. The Preload on the Wrap Drum is critical if it is lost additional disassembly will be required to reinstate the Preload. The lobe of the spool clip goes over the hub; this prevents the hub from disengaging the from the wrap drum.

e. Remove the #8-32 X 5/8" that retains the P-Clip Strain Relief for the Power Cord.
f. Remove the (3) #8-32 X 3/4"Screws that secure the Main Control Board to the Standoffs.

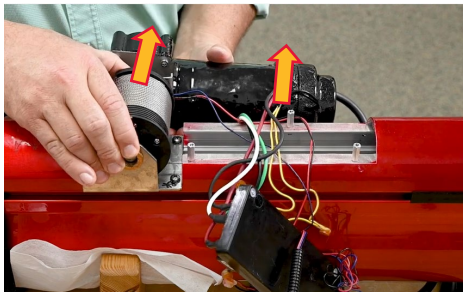

Remove the P-Clip


P-Clip

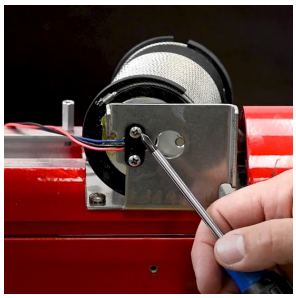

Remove the Control Board Screws

g. Lift the Main Control Board away from the Extrusion and set it aside.
h. Feed the Home Position Sensor, attached to its bracket, from the top of the Talon to the opening for the Control Board and Motor Assembly.
i. Pull the Motor Assembly Away from the Main Extrusion, Wrap Drum and Wrap Drum Bracket. Make Note of the Bushing Locations to make sure they are reassembled correctly.

Control Board Set Aside/Feed Sensor Assy


Remove the Motor Assembly

j. Remove the two #6-32X1/4" Screws retaining the Rotation Sensor to the Wrap Drum Bracket.


Remove the Screws from the Sensor

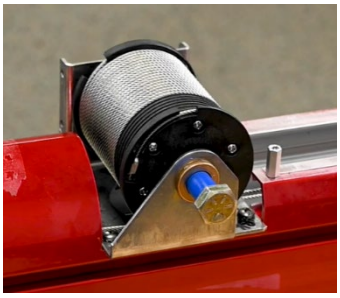

Note the correct Sensor Orientation

NOTICE: The lettering of the Rotation Sensor Faces the Wrap Drum Hub, the raised surface of the sensor engages in the window of the Wrap Drum Bracket. It is critical to install this correctly on reassembly.

PART 3 - SHIELD & WIPER REMOVAL

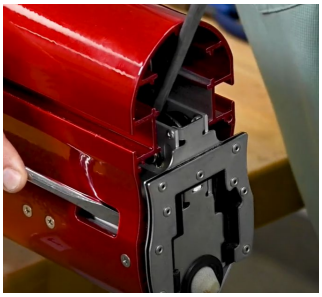
1. Position a 6” Long ½” Bolt or Rod through the Wrap Drum and Wrap Drum Bracket in place of the Shaft of the Motor Assembly to allow smooth movement of the inner stages as you continue disassembly.
2. Use a Flat Blade Screwdriver or small Prybar to pull the Water Shield off of the Main Extrusion. Use a Vise or other Support to safely remove the Rivets by drilling

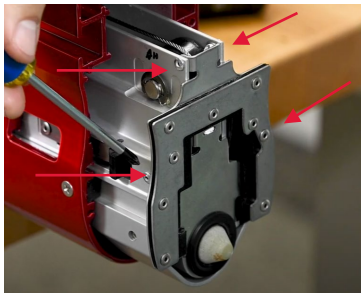
them out.


Bolt Placed to Aid Access to Talon Interior


Pry off Water Shield

3. Use a small flat blade screwdriver to depress the 3rd Stage Latch while Prying against the lower pulley of the 3rd Stage to extend the 3rd Stage a few inches out of the Main Extrusion.
4. Drill out the heads of the (4) Rivets that affix the 2nd Stage Wiper to the 3rd Stage Extrusion, remove the wiper and retrieve any rivet slugs that may be left behind.


Extend 3rd Stage Out


Rivets to be drilled out


Clean Out Debris

PART 4 - RELIEVE CABLE TENSION & UNROUTE CABLES

1. Begin with the stages of the Talon pushed up flush with the bottom of the Main Extrusion.
2. Feed the Talon Tensioner Tool into the Talon with the open side of the tool up and at an angle that has the front of the tool in contact with the Third Stage Extrusion and the back of the tool as high as is reasonable.
3. When the back end of the opening in the tool reaches the bottom of the Tensioner Assembly rock the front of the tool up, pull the tool back hooking the Tensioner in the tool, slide the tensioner tool block into place and tighten the screw on the Tensioner Tool until it is snug against the block.


Talon Prepped


Inserting Tensioner Tool


Tensioner Supported on Tool

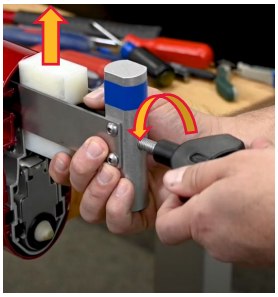
4. Remove the (4) #8-16 x 1/2" Screws that hold the Extension Cable Tensioner in Place.

NOTICE

Keep the (4) #8-16 x 1/2" Screws separate/with the Tensioner throughout disassembly/reassembly, it is very difficult to see the difference between the Tensioner screws and GIB screws, using a Tensioner Screw in place of a GIB screw will damage the Talon.

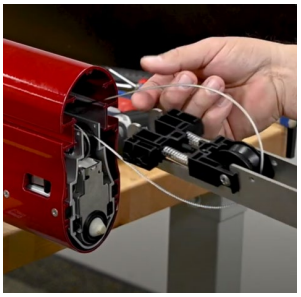
5. Relieve the Tension on the Cables by turning the screw in the Tensioner Tool counterclockwise then once loose enough remove the block from the tool.
6. Disconnect the Cables from the Wrap Drum.


Remove Tensioner Screws

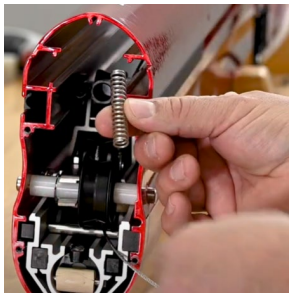

Loosen Tool Screw then Remove Block


Remove Cables

7. Pull the Tensioner Tool and Extension Cable Tensioner out of the bottom of the Talon, the Extension Cable will come out with the Tensioner.
8. Pull the Retraction Cable out of the top of the Talon.
9. Remove the Retraction Cable Tensioner and Spring.


Remove Extension Tensioner


Remove Retraction Tensioner

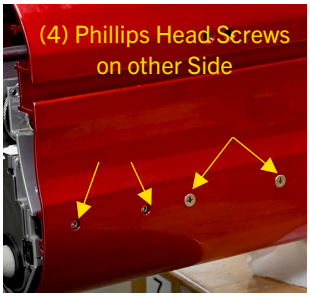

Retraction Tensioner Spring

PART 5 - REMOVE 3RD STAGE & INNER FROM MAIN EXTRUSION

1. Remove the screws that retain the GIBs at the bottom of the main extrusion. These Screws are (2) #4-40 X 5/16" Socket Head Cap Screws that will require a 5/32" Allen Wrench to remove and (6) #8-18 X .437" which will be removed with a #2 Phillips Screwdriver.
2. Use a flat blade screwdriver to push down on the third stage latch and pry the third and second stages out as a unit with a larger screwdriver or prybar.
3. Pull the Third Stage Assembly out of the Main Extrusion. When the Assembly is almost out the GIBs attached to the top of the Third Stage will stack up on the GIBs at the bottom of the Main Extrusion and push them out. As the GIBs come out the bottom one on the Left

side of the Talon (your right as you are looking at it from the bottom) has 2 Springs that are facing out, you'll want to catch those as they come out as they may release a long distance if not caught directly. The top GIB on the Third Stage assembly on that same side is also spring loaded, the Springs in this case are between the GIB and the Third Stage, so keeping pressure on that GIB as it come out will prevent any fly-aways.

4. Set the Main Extrusion aside and place the Third Stage Assembly in the appropriate holder to continue Disassembly.



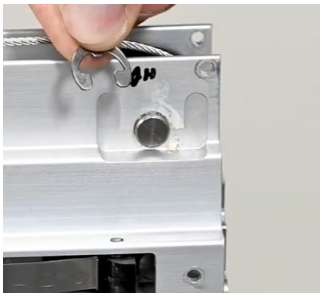
Remove Screws

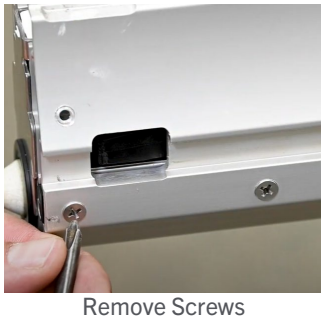

Pry Out 3rd Stage Assembly


Catch Springs During Removal

PART 6 - 2ND STAGE SPIKE & CABLES TEAR DOWN

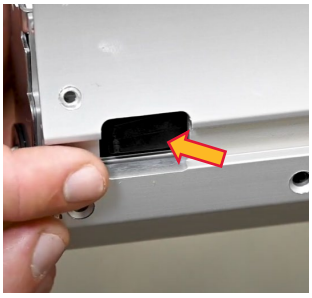
1. Remove the pulleys at the top and bottom of the Third Stage by removing (1) E-Clip from each and sliding the Pulley Pin from the Extrusion
2. Remove the screws that retain the GIBs at the Bottom of the Third Stage. These are (2) #8-18 X .437" on the left side and (2) #4-40 X 5/16" on the right side. The Floating/Spring Loaded GIB is on the opposite side as compared to the GIBs at the bottom of the Main Extrusion.


Remove Upper and Lower Pulley


Remove Screws


Remove Screws

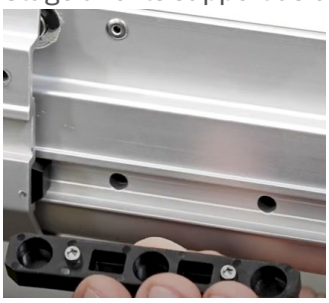
3. Begin advancing the 2nd Stage and Spike out of the 3rd Stage Extrusion by pushing in on the 2nd Stage Latch and pushing the 2nd Stage Extrusion down/out from the top.
4. As the 2nd Stage is pulled out of the 3rd the spring loaded GIBs will be on the Talon's right side. One spring in the center pocket of the lower floating GIB.

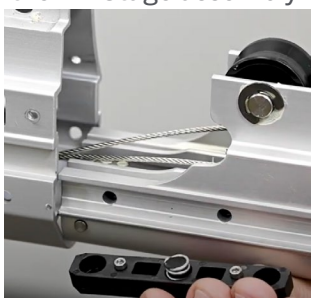

Depress the 2nd Stage Latch

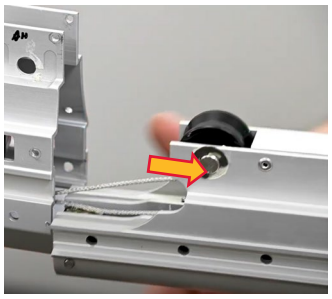

Advance the Second Stage out of the 3rd


Catch Springs During Removal

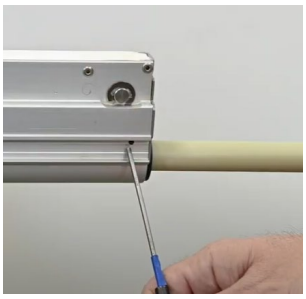
5. On 12' and 15' Models there will be two "free floating" GIBs that are next to come off of the 2nd Stage, these are floating GIBs with the #4-40 cap screws installed and no springs.
6. Last there will be a spring loaded floating GIB on the Talon's Right side and a Fixed GIB on the Talon's Left side.
7. Finish removing the 2nd Stage and Spike Assembly from the 3rd Stage Extrusion. Set the 3rd Stage and its support aside, place the 2nd Stage assembly in its holder.

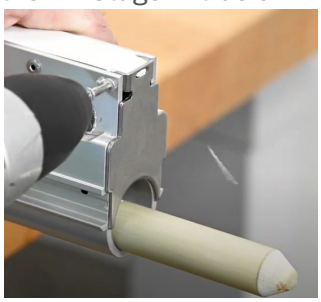

Catch the Free-Floating GIBs

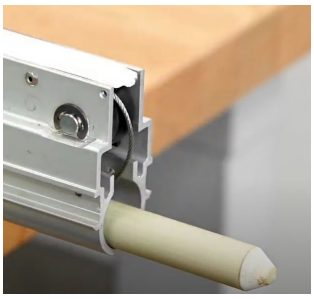

Catch the Floating GIB w/Spring


Separate the 2nd Stage from 3rd

8. Remove the Spike Isolator; use a 1/8" Punch to drive the retaining pin out of the second stage extrusion then pull the Spike Isolator Bushing out of the 2nd Stage Extrusion.
9. Use a Drill and 1/8" Drill bit to drill out the heads of the rivets retaining the debris shield.
10. Remove the Debris Shield from the 2nd Stage Extrusion.

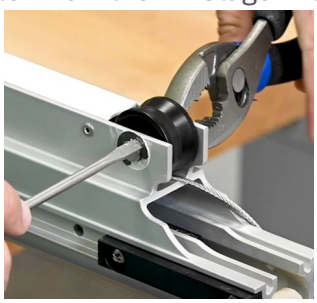

Drive out the retaining pin


Drill out the Rivets


End of the 2nd Stage w/out Isolator & Shield

11. Remove one E-Clip from the Lower Pulley Pin, then remove the Pulley Pin and Pully from the bottom of the 2nd Stage Extrusion.
12. Remove one E-clip from the Upper Pulley Pin (stabilizing the pin with a pliers makes this task easier). Then remove the Pin and Pulley from the top of the 2nd Stage Extrusion.
13. Remove the Spike and Spike Piston from the 2nd Stage Extrusion as an assembly.


Remove the Lower Pulley


Remove the Upper Pulley


Remove the Piston/Spike Assembly

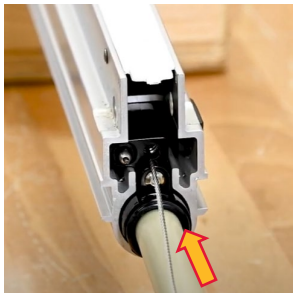
14. At this point the Talon is disassembled. If changing cables make note of Cable Position (the Retraction Cable exits the top of the Piston and is the significantly shorter cable) and orientation (the Piston end of the cable has no tail and the rounded point is away from the body of the cable, the flat is toward the body of the cable and engages the cable keeper.)

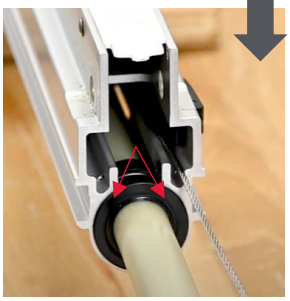
PART 7 – ASSEMBLE 2ND STAGE

1. Route the Retraction Cable through the 2nd Stage Extrusion. Place the end of the cable in the track on the right side of the Talon (your left) and feed it to the top of the 2nd Stage Extrusion.
2. Following the retraction Cable continue Feeding the Piston/Spike Assembly into the 2nd Stage Extrusion.

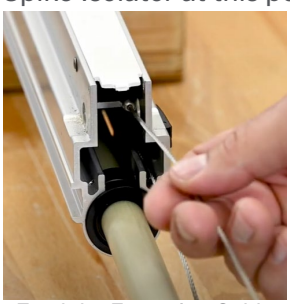
NOTICE: If you allow the cable down along one side of the spike, then pick it up on the other, you'll wrap the cable around the spike and the Talon will not operate once fully assembled. This will not prevent completion of assembly, and will require a full tear down to correct. Place the Spike Isolator to prevent "lassoing"/wrapping the spike.

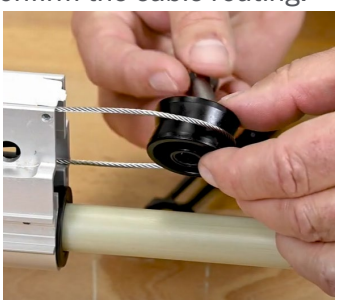

Feed the Retraction Cable

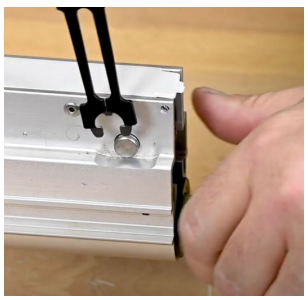

Feed the Piston/Spike


Place the Isolator to Prevent Cable Wrap

3. Begin feeding the extension cable into the 2nd Stage Extrusion. The Extension Cable feeds above the "shelf" that is above the Spike in this orientation, through the cavity that is enclosed by the Debris Channel on one side and 2nd Stage extrusion on the other 3 sides.
4. Stop feeding the retraction cable with enough of a loop left to install the lower pulley.
5. Once the pulley is inside the loop slide the pulley into the 2nd Stage Extrusion and install the Pulley Pin. Verify the pulley slid straight in, the retraction cable comes from the Spike Piston, Wraps around the Pulley from the bottom to the top, then proceeds into the tunnel formed by the Debris Channel to the Top of the Second Stage. You may want to remove the Spike Isolator at this point to confirm the cable routing.

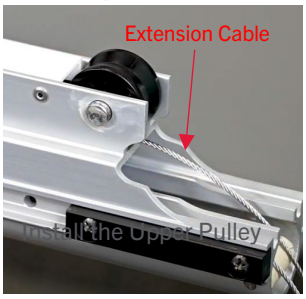

Feed the Extension Cable


Position the Lower Pulley


Install the Lower Pulley

6. Place the upper pulley so it is above the extension cable and install the Pulley Pin. Double check that all four E-Clips are fully engaged on the Pulley Pins.

7. Bring the extension cable over the pulley back toward the bottom of the Second Stage.
8. Tape the cable to the face of the Debris Channel to maintain the cable position during the next steps.



Install the Upper Pulley


Route the Extension Cable

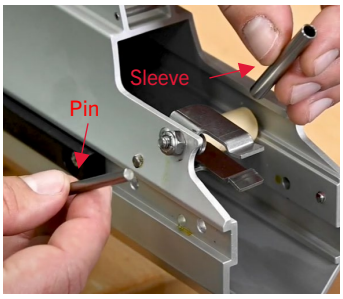

Temporarily Secure the Extension Cable

PART 8 – INSERT 2ND STAGE INTO 3RD

1. Verify the Spreader Sleeve is in position located on the slip pin that is retained by the GIBs at the top of the 3rd Stage.

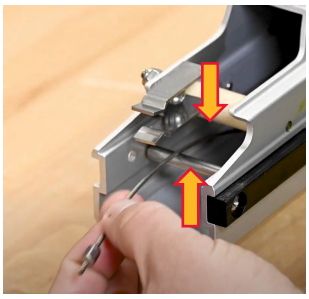
NOTICE: A dab of grease applied to the pin will keep the pin and sleeve from falling out of the 3rd Stage prior to completing assembly.

2. Feed the retraction cable (exiting the top of the 2nd Stage assembly currently) throught the 3rd Stage Extrusion from the bottom to the top. At the top of the 3rd Stage make certain the cabe lis routed between the bumper and the sleeve, if the cable is not routed correctly at this point the Talon will not operate correctly and wxill require a complet tear down to correct.

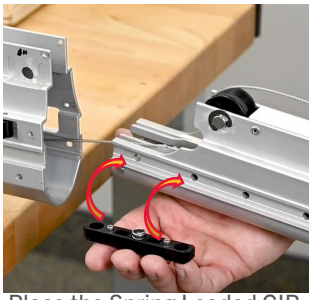


Install the Spacer Sleeve


Spacer Sleeve Installed


Cable Exits between the Pins

3. If the fixed GIB at the top of the 2nd Stage was removed for any reason reinstall it. Place one Spring Assembly in the center pocket of a floating GIB that has 2 cap screws installed in it.
4. Align the cap screws with the two holes closest to the top of the 2nd Stage. Sandwiching the spring between the GIB and the 2nd Stage Extrusion squeeze the assembly so the heads of the cap screws go into the holes.
5. Aline the GIBs with the groove in the 3rd Stage extrusion, feed the 2nd Stage assembly a couple inches into the third stage assembly.
6. If the Talon is a 12' or 15' unit place the two Free-Floating GIBs, no springs, heads of the cap screws inside the pair of holes below the top Spring Loaded GIB and Fixed GIB; 8 and 10' Models do not include Free Floating GIBs. Slide the second stage up until only a few inches hang out of the 3rd Stage Extrusion.


Place the Spring Loaded GIB


Start the 2nd Stage Assembly into the 3rd


Place the Free Floating GIBS

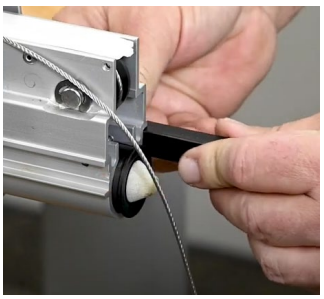
7. Place 1 Spring in the center pocket of a Floating GIB that does not have cap screws installed in it. Place the closed/flat side of this Floating GIB facing the 2nd Stage Extrusion and the Spring facing out. The Tail of the Spring must not be at the middle of the GIB, it is centered it might catch on the holes the Cap Screws ride in; pointing the Tail so it is out will make it grind less as the GIB is inserted. Depressing the Spring Insert the GIB until the bottom edge of the GIB is flush with the Bottom of the 3rd Stage Extrusion.
8. Use a 3/32" Allen Wrench to install the cap screws into the Floating GIB. Tighten until the screw heads make contact with the GIB body, The screws are acting as guide pins, they do not require extra tightening.
9. Position the closed face of the fixed GIB facing the 2nd Stage Extrusion. Slide the Fixed GIB up the GIB track until the bottom of the GIB is flush with the bottom on the of the 3rd Stage Extrusion. Use a #2 Phillips Screwdriver to install two flat head/counter sunk screws to secure the GIB.

NOTICE

Make sure the Screws installed in the GIB are not the longer Screws that should be set aside for installing the Extension Cable Tensioner. Tensioner Screws will damage the GIB and may Damage Extrusions.

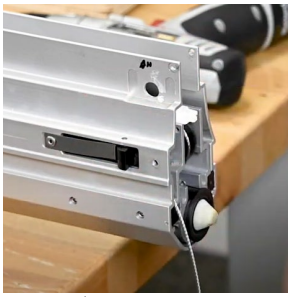

Slide the Lower Floating GIB In


Install the Cap Screws


Install the Lower Fixed GIB

10. Push the 2nd Stage the rest of the way into the 3rd Stage.
11. Install the Lower Pulley, place it such that the extension cable comes from below the pulley, over the top of the pulley and continues to the top end of the 3rd Stage.
12. Install the upper Pulley. Lay the Cable down the Channel of the 3rd Stage, Place the upper Pulley above it and install the Pulley Pin. Route the Extension Cable back to the bottom of the Talon, leaving the whole length of the retraction cable at the top of the Talon. Take a

moment here to verify that all 4 E-Clips are fully Installed.

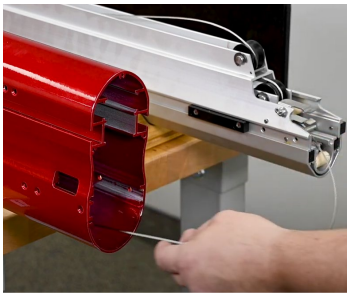

Push the 2nd Stage fully into the 3rd


Install the Lower Pulley


Install the Upper Pulley

PART 9 – INSERT 3RD STAGE ASSEMBLY INTO MAIN EXTRUSION

1. Feed the Retraction Cable to the top of the Main Extrusion.
2. Place two Springs in the outer pockets of a Floating GIB that has the Cap Screws pre-installed in it. Align the heads of the Cap Screws with the holes near the top of the 3rd Stage Extrusion and Squeeze the Floating GIB into place.
3. Line the GIBs attached to the 3rd Stage up with the tracks in the Main Extrusion and Slide the 3rd Stage into the main Extrusion until only a few inches of the 3rd Stage are left out of the main extrusion.


Feed the Retraction Cable into the Main Extrusion


Align the Floating GIB at the Top of the 3rd Stage


Insert the 3rd Stage Assembly into the Main Extrusion

4. On the Talon's Left (your Right looking up from the bottom with the Talon in the support fixture) position one Fixed GIB in the GIB track with the closed surface facing the 3rd Stage Extrusion, then slide it into the Main Extrusion.
5. Also on the Talon's Left Place 2 Springs in a floating GIB without screws installed in it, Closed Face of GIB facing the 3rd Stage Extrusion, Springs Facing Out/ toward the Main Extrusion. Make sure the Spring tails are not at the midline of the GIB and push the Floating GIB into the Talon until the bottom of the GIB is flush with the Bottom of the Main Extrusion.
6. Use a #2 Phillips Screwdriver to install 2 Flathead/countersunk Screws in the Fixed GIB then use a 3/32" Allen Wrench to install 2 Cap Screws in the Floating GIB to function as guide pins.


Position a Fixed GIB


Position the Spring Loaded GIB


Install the Screws

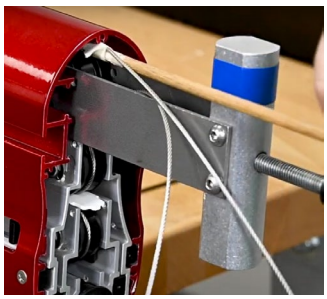
7. On the Talon's Right side (your left looking at the Talon in the fixture from the bottom) position the final two fixed GIBs with the closed face toward the 3rd Stage Extrusion and slide them up until the bottom of the bottom GIB is flush with the Edge of the Main Extrusion.
8. Use a #2 Phillips Screwdriver to install the flathead screws that retain the Fixed GIBs.


Position Fixed GIBs


Install the Screws

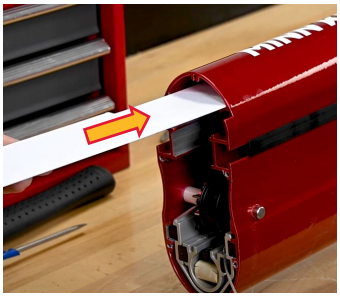
9. With the Tensioner captured in the Tensioner Tool, route the Extension Cable from the bottom of the Tensioner Tool out the Top, Slide the Tensioner in the Tensioner Tool into the main Extrusion.
10. Use a dowel or other "stick" to feed the Extension Cable from the Bottom of the Talon up to the Wrap Drum Holder


Slide the Tensioner Into Place

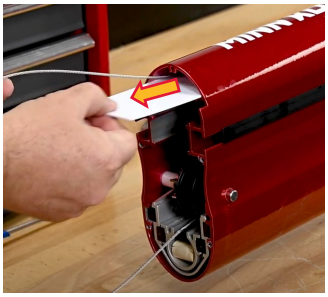

Fish the Extension Cable to the Talon's Center

PART 10 – FINISH ROUTING CABLES

1. Slide the Divider into place temporarily. (Using it as a guide for the Cable at this time).
2. Route the retraction Cable above the Divider, to the Middle.
3. Remove the Divider to allow the Retraction Cable to fall to its proper location.


Position the Divider

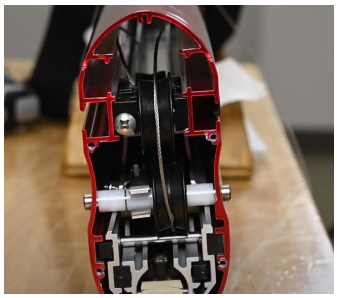

Insert the Cable


Remove the Divider

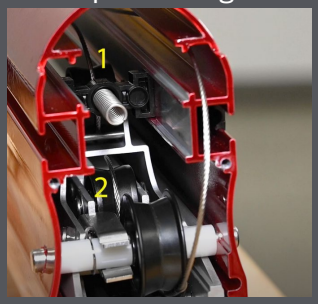
4. Place the Upper Tensioner Spring in the pocket of the support.
5. Place the Upper Tensioner/Pulley onto the Spring. The screw goes to the Talon's Left, the side away from the Motor Assembly.


Position the Spring

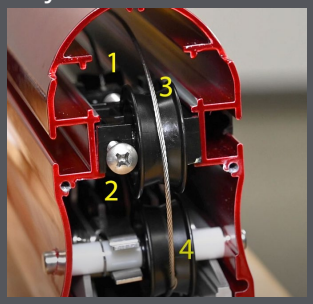

Place the Tension Assembly


Top View

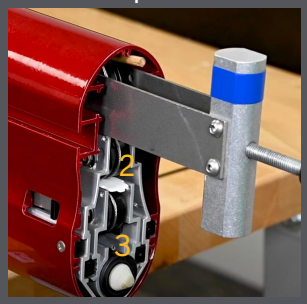
NOTICE: At every point where tension is added to the cables verify that all of the pulleys have the cable routed directly down the middle of the pulley, if a cable has fallen off of a pulley re-center it before proceeding. There are 3 Pulleys at the bottom of the Talon, 4 at the top.



Top w/out Tensioner



Top with Tensioner



Bottom

PART 11 – WRAP DRUM ASSEMLBY

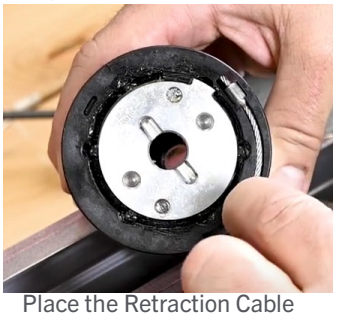
1. The lobes of the Wrap Drum Spring engage slots. Looking into the Wrap Drum engage the slot on the far end when positioning the spring in the wrap drum.
2. Engage the slot of the Hub on the close spring lobe.
3. Grip the Hub with a Needlenose Pliers, keeping the spring engaged rotate the Hub Clockwise past the Wrap Drum Stop.


Wrap Drum and Spring


Hub Showing Hub Slot


Hub Preloaded

4. Place the end of the Retraction Cable into the pocket on the Hub Side of the Wrap Drum Assembly.
5. Wrap the cable onto the Wrap Drum by turning the Wrap Drum and guiding the cable into the grooves of the Wrap Drum. The amount of Wrap Drum covered by cable will vary by length of the Talon.
6. Insert the end of the Extension Cable in the cable pocket opposite of the hub and apply one wrap of Extension Cable onto the Wrap Drum.


Place the Retraction Cable


Lay the retraction cable in the grooves

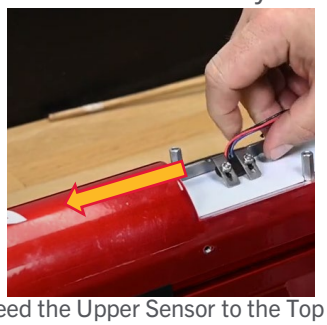

Place the Extension Cable

7. Apply the Spool Clip from the Talon Tool Kit to keep the Cables installed and the Hub Preloaded.

PART 12 – CONTROL BOARD AND MOTOR INSTALLATION

1. Place the Channel Divider. The ledges of the divider rest against the standoffs for the Control Board.
2. Set the home position sensor, attached to its bracket, on the channel divider then feed it to the upper end of the Talon.
3. Set the Control Board in place, Do Not Screw it Down yet.

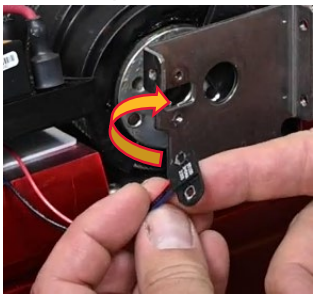
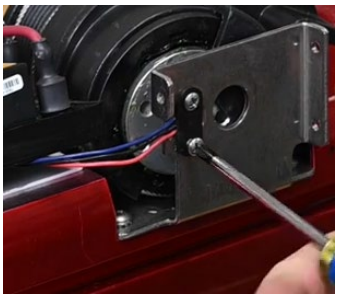
Place the Channel Divider

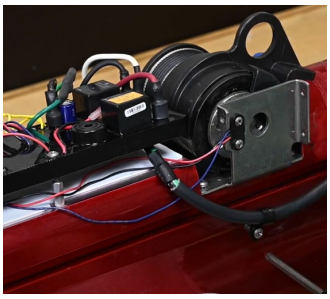

Feed the Upper Sensor to the Top


Set the Control Board in Place

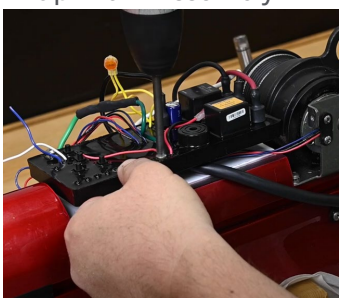
4. Route the Wrap Drum Sensor under the Control Board and to the Wrap Drum Bracket.

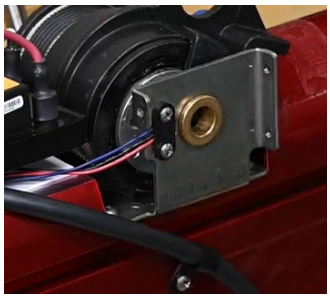
5. Apply a dab of red Loctite to the screws and secure the sensor in place. The writing on the Sensor faces the Wrap Drum Hub; the raised surface of sensor being inserted into the window of the wrap drum bracket.
6. Route the Power Cable under the Control Board, and install the P-Clip. The Screw retaining the P-Clip must be one of the shorter Machine Screws.

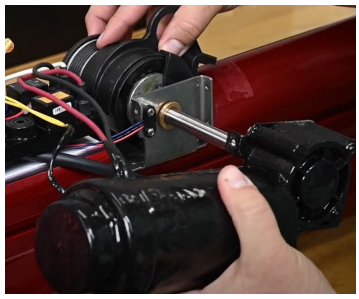


Install the Position Sensor, Writing Toward the Hub Assembly


Install the Leadwire P-Clip

7. Secure the Control Board to the Control Board Standoffs. Be careful to not pinch any wires while installing the screws.
8. Install the Bronze Bushing in the Motor Side of the Wrap Drum Bracket.
9. Insert the Motor Assembly shaft through the Bronze Bushing then through the Hub and Wrap Drum Assembly.


Install the Control Board Screws

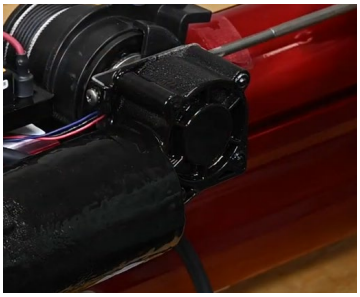
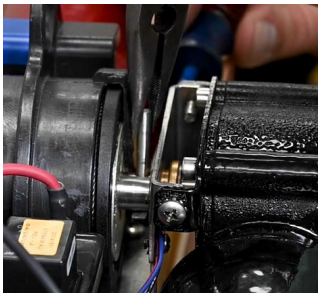
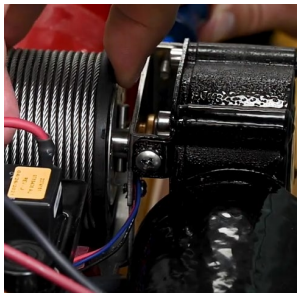

Install the Motor Side Bushing


Slide the Motor Shaft into Place

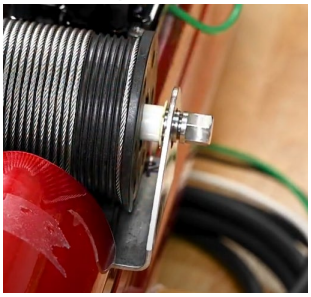
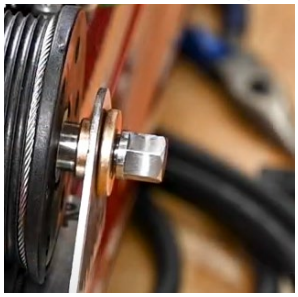
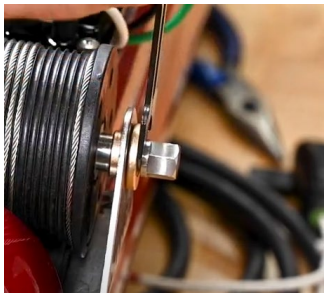
10. Install the 3 Screws that secure the Motor Assembly to the Wrap Drum Bracket.
11. Position the Drive Pin. Gripping the Pin with a Needlenose Pliers will make it easier to get it into the tight space between the Wrap Drum and the Wrap Drum Bracket, positioning a screwdriver below the shaft will prevent it from falling though the Shaft.

> **NOTICE:** To get the slot in the Hub to align with the Drive Pin you can extend the spike, the wrap drum should be relatively easy to rotate in the direction that extends the spike, once fully retracted it is impossible to turn the wrap drum any further in the direction of retraction. The pin and slot may just miss alignment in the direction of retraction, when that happens it is necessary to extend the spike ½ turn of the wrap drum or around 4” to align the pin and slot.

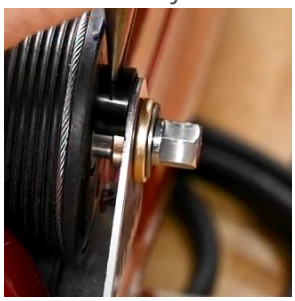
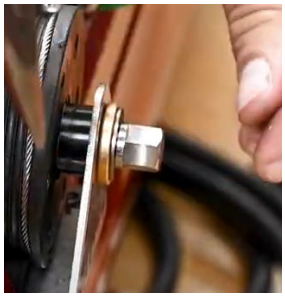
12. Remove the Spool Clip then Slide the Wrap Drum Assembly toward the Motor Assembly engaging the Hub on the Drive Pin.

13. Make sure the Nylon Bushing is fully in the Wrap Drum Assembly.
14. Insert the Bronze Bushing opposite the Motor.
15. Install the E-Clip opposite Near the End of the Motor Shaft. (If the Motor Side E-clip was not installed prior to inserting the motor, install the E-Clip now also.)

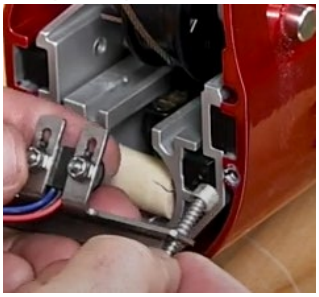




16. Note the cavity in the Wrap Drum Spacer. That Cavity will be away from the Motor Assembly toward the Bronze Bushing.
17. Push the Spacer with the cavity oriented towards the bushing and wedge it between the Wrap Drum and the Wrap Drum Bracket.
18. Push the Space down onto the Motor Assembly Shaft.

19. Start a screw through the Bracket for the Home Position Sensor. Put the 1/8” spacer onto that screw and start it into the Main Extrusion
20. Repeat that process on the other side. Then tighten both screws.

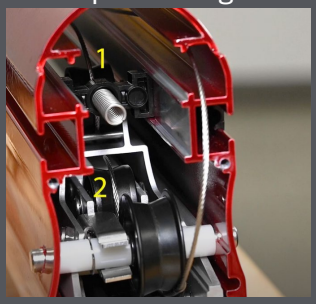
21. Keep the protective Wire Loom next to the Sensor.

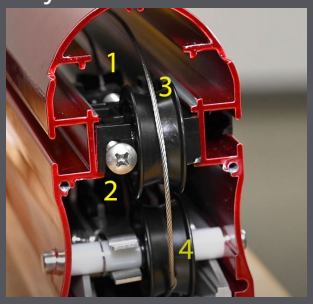


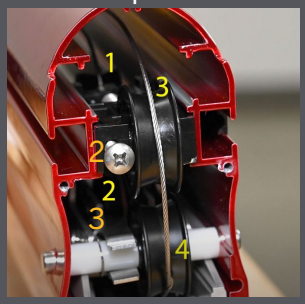
PART 13 – TENSION CABLES

1. Recheck that the cables are centered on each of the pulleys in the Talon, four Pulleys at the top of the Talon, three at the bottom. Pull back on the tensioner tool enough slid the tensioner block into place.

NOTICE: At every point where tension is added to the cables verify that all of the pulleys have the cable routed directly down the middle of the pulley, if a cable has fallen off of a pulley re-center it before proceeding. There are 3 Pulleys at the bottom of the Talon, 4 at the top.

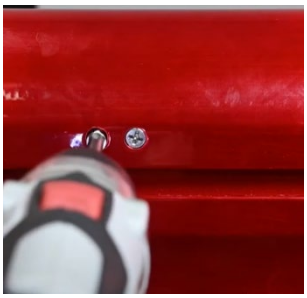






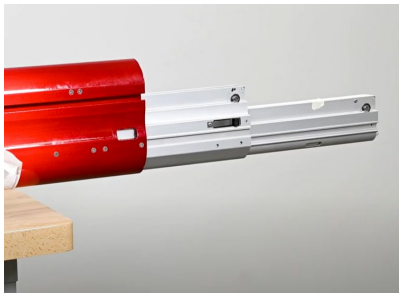
2. Turn the screw of the Tensioner Tool clockwise until the screw holes of the Extension Cable Tensioner align with the countersunk holes in the Main Extrusion of the Talon.
3. Once the holes are aligned install the four screws for the tensioner (2 on each side).





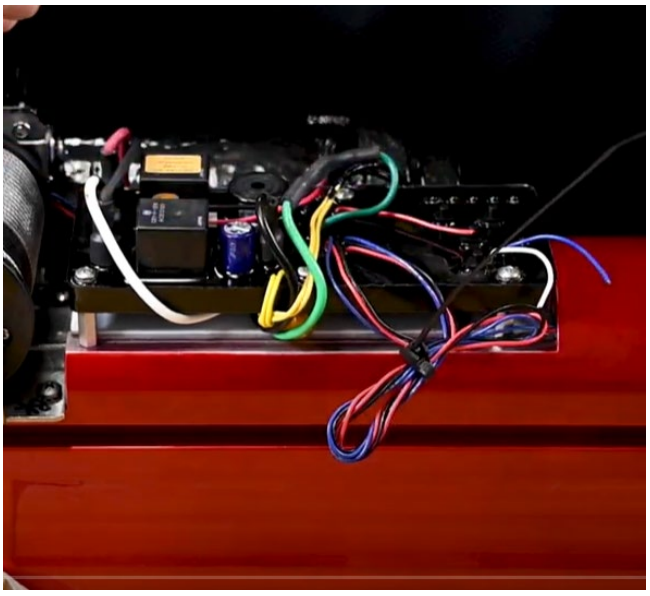
4. Remove the tensioning tool by turning the screw counterclockwise until the tensioning block can be removed, remove the tensioning block, push the tool further into the Talon slightly, tip the tool down to disengage it from the tensioner and slide the tool out.
5. Connect Power and test the Talon for operation, making sure it fully extends and retracts. After testing extend the Talon until the third stage exits the main extrusion pausing the Talon as soon as that happens. Retract the Talon, pausing shortly before the second stage is fully inside the third stage (as in the right image below). This has the Talon ideally positioned for installing the covers. Disconnect power again.



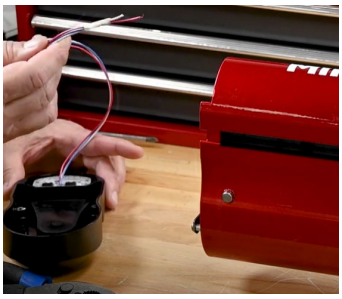


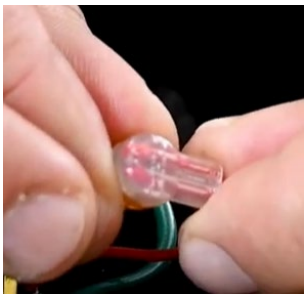
PART 14 – INSTALL COVERS

1. Position all of the control board wires so they will not be pinched when installing the convers. Tuck wires under the control board where possible, use a zip tie to secure the excess sensor wire so it is secure and will not block button operation or get pinched by the covers.



2. Install the worklight/top cover. Fish the wires for the worklight down the channel to the control board. Position the work light at the top of the Talon and install the two screws that secure the worklight assembly to the top of the Talon. Use 2040340 Scotchlock connectors to connect the Red wire from the worklight to the red wire from the Control Board, the white wire from the worklight to the white wire from the Control Board, and the blue wire from the worklight to the blue wire from the Control Board.





3. Install the left side cover, make sure the screw boss toward the top of the cover extends beyond the wires that are tucked under the control board. Secure the cover to the main extrusion with two of the longer machine screws.
4. Place the control bezel. Tuck the left side of the bezel under left side cover that was installed in the previous step and maneuver it to drop into place over the buttons and lights of the Control Board. At this point recheck that all wires are securely tucked and will not get pinched by the screws/screw bosses.
5. Place the Motor Cover so that it capture the right side of the control bezel and the leadwire exits through the “mouse-hole” at the bottom of the cover. Secure the cover to the main extrusion with two machine screws, the shorter screw goes toward the top of the cover, the longer screw toward the bottom. Using a long machine screw in that top location will damage the Talon, make certain it is the shorter screw in this position. Once both covers are secured to the Main Extrusion install the 4 long thread-cutting screws to secure the covers to each other, installing them through the Left Side Cover into the Right Side Cover.



2 STAGE TALON CASES

CASE I. The spike doesn't deploy with the remote or the AUTO DOWN button on the control panel. (The lift motor is not running/cannot be heard.)

Step 1. Check to ensure that the proper 12 volts are supplied to the Talon.

Step 2. Pressing and holding the Auto Up button on the Talon control panel. A steady beep tone should be heard.

A. If no tone is heard, check all electrical connections for security, then test/check any fuses or circuit breakers in the Talon battery leads/power delivery system for continuity.

A-1. Check battery voltage (12-volts required) and make sure that proper polarity is supplied to the white (B+) and black (B-) Talon battery leads.

A-2. Remove Talon top cover and check security of white and black battery leads at the Talon control board. (**Note:** these leads should be heat shrink covered. Be sure to cover and secure the leads with the glue-filled heat shrink tubing if they are disconnected / reconnected for any reason.)

A-3. Check for proper voltage and polarity at the white and black leads at the control board. If proper voltage and polarity is present but still no beep tone is heard when Auto Up button is pressed and held the board is faulty and needs to be replaced.

B. If the steady beep tone is heard when the Auto Up button on the control panel is pressed and held, proper voltage and polarity is being provided to the Talon.

B-1. Remove the Talon top cover to expose the control board. Locate the red (motor +) and black (motor -) leads.

B-2. Disconnect the red and black Talon motor leads. Apply 12 volts directly to the motor leads (+12 volts to the red lead and -12 volts to the black lead). The Talon spike should extend. Reverse polarity to retract the spike.

a. If the motor fails to run when power is supplied directly to red and black leads the motor is defective and needs to be replaced.

b. If the motor ran at **Step B-2** the Talon control board has no output to the motor. The control board is defective and needs to be replaced. Step-by-step control board replacement instructions (with pictures) are included with each replacement board.

CASE II. When the Talon UP/DOWN buttons are pressed the Talon motor can be heard running, but the spike and second stage extrusion do not move or they do extend but the motor continues to run even though the spike has hit bottom or is fully extended.

Cause: Either the Talon drive clutch is slipping, the e-ring that holds the wrap drum in place on the wrap drum drive shaft pin has come off allowing the wrap drum to shift or move off center in the main extrusion and disengage the drive pin, or the wrap drum hub and torsion spring inside the wrap drum have been damaged or broken. (**Note:** the wrap drum/e-ring issue generally applies to Talon units built prior to s/n L154MK00088.)

Step 1. Remove the four Phillip's pan head screws the hold the Talon top cover in place.

Step 2. Visually inspect the Talon wrap drum position. It should be centered in the Talon main extrusion.

A. If it has shifted toward the side opposite the motor the e-ring (p/n 2373005) has come off, and the wrap drum is no longer engaging the drive pin.

B. If the wrap drum is centered in the main extrusion go to **Step 5**.

Step 3. Check to see if the drive shaft pin (p/n 3392640) is in place. If it is missing from the drive shaft it may have fallen to the bottom of the main extrusion. Remove the bottom plate of the Talon main extrusion to check for the pin. If not found, replace with a new pin. Line up the slot in the motor-side of the wrap drum with the drive pin and move the wrap drum back in to place on the drive shaft making sure that the white wrap drum bearing stays in place. Slip a new e-ring (p/n 2373005) in to the drive shaft e-ring groove to retain the wrap drum.

Step 4. Connect the Talon to a 12-volt power source and check for proper function. If it tests okay reassemble, as required.

Step 5. Connect the Talon to a 12-volt power source. Press the UP and DOWN buttons (depending on whether the Talon spike/second stage is extended or retracted), and observe the drive clutch assembly for slippage. (**Note:** for ease of visibility use a marker to draw a line across the clutch drive coupler, p/n 2370813, and the clutch back, p/n 2372230.)

A. If the drive coupler rotates with the motor, but the clutch back slips then replace clutch assembly with latest clutch, p/n 2772232. Test for proper operation.

B. If the clutch is not slipping, but the cable wrap drum is not rotating when the Talon motor is running then the wrap drum hub or the torsion spring inside the wrap drum is broken/damaged and needs to be replaced. This will require replacing the wrap drum, wrap drum hub, and torsion spring assembly, p/n 2777910. (See sections 4 and 7 of the 2 Stage Talon Disassembly/Reassembly videos in the Service Videos folder/Talon Service Videos folder for the wrap drum replacement procedure.) Test for proper operation.

CASE III. When trying to deploy the Talon, the spike will extend but the second stage does not.

Cause: The second stage latch is not releasing due to the latch being damaged or the spike/spike piston is not fully extending due to mud or debris in the lower part of the second stage extrusion.

Step 1. Remove the four #8-18 x 1 inch stainless steel Phillip's pan head screws that hold the bottom cover plate to the main extrusion. (**Note:** the second stage latch catches on this plate to prevent it from extending until the spike is fully extended. With the plate removed the second stage can extend with the spike.)

Step 2. Connect the Talon to a 12-volt power source and with the Talon laying on its side (motor/control board side up) press the DOWN button on the Talon to extend the spike and second stage extrusion to expose the slotted window located about 5 inches up from the bottom of the second stage. (See location slotted window in the pictures in **Case XII**.) To stop the second stage press the UP button when it is extended about 8-10 inches. Disconnect power to the Talon.

Step 3. Inspect the bottom end of the second stage for mud or debris. If necessary remove the spike isolator retaining pin and the spike isolator. If mud or debris is noted it may be restricting the travel of the spike piston preventing the release of the second stage latch. If no mud or debris is noted proceed to **Step 6**.

Step 4. Remove mud/debris, if present, and thoroughly flush/clean the lower portion of the second stage by flushing it with fresh water.

Step 5. Prior to reassembly check to make certain that the spike piston will fully extend. (**Note:** when the spike piston is fully extended the spike retaining pin will be visible in the slotted window of the second stage). Reconnect power and press the UP button on the Talon cover. Cycle the Talon up and down a few times to verify that the spike piston is fully extending. Then reassemble the Talon, as required.

A. Retest with bottom plate installed on the main extrusion to verify proper function and extension of the second stage.

Step 6. While holding back on the main extrusion, grasp the second stage and pull it out from the main extrusion about 4-5 inches. When doing this the second stage latch should move. It should pop out when the second stage is pulled out and move back in when the second stage is slid back in. If it does not move and no mud or debris is restricting the spike piston, the second stage latch is broken or jammed and needs to be replaced.

Step 7. With the second stage extended and pulled down use a 1/16" or 3/32" pin punch to remove the latch retaining pin. (**Note:** this pin is knurled at the outer end and will be driven toward the "open" side of the second stage.) With the pin removed the black plastic latch pin and spring can be slid up in to the second stage in order for the bottom end of the latch to clear the edge of the rectangular latch window. The latch can then be removed through the latch window. When removing the latch note the pocket for the latch spring. If the spring is not

in place check to see if it is in the extrusion. (It may have been lost when the latch was broken or jammed.) The new latch, p/n 2887205, includes a new spring and retaining pin.

Step 8. When installing the new latch, place the spring in the pocket in the latch and then insert the latch/spring in to the rectangular latch window. The spring will need to be slightly compressed to slide in place against the inside wall of the second stage extrusion. Slide the latch and spring up in to the extrusion to allow the bottom end of the latch to clear the edge of the latch window then slide the latch back in to place to install the retaining pin. Use care to align the holes in the latch and extrusion and slip the retaining pin in to place. Drive the knurled end of the pin into the extrusion using a ¼ inch punch. The end of the pin should be flush with the extrusion when fully seated.

Step 9. Manually slide the second stage extrusion in and out of the main extrusion while observing the latch. It should be pulled in when the spike piston is at the bottom of the second stage and up back out when the second stage is manually pulled out of the main extrusion.

Step 10. After verifying latch movement reassemble the Talon as required, install bottom cover plate, connect to power and test for proper operation.

CASE IV. The second stage extends without pressing the DOWN button while the boat is underway.

Cause: This is a second stage latch malfunction (it is not catching on the bottom plate of the main extrusion). See CASE III. When trying to deploy the Talon, the spike will extend but the second stage does not. on page 48 for second stage latch service.

CASE V. When trying to stow the Talon, the second stage retracts, but the spike does not.

Step 1. Suspect that the retaining roll pin is not centered in the piston and is catching the slotted window opening in the second stage extrusion. (Talon units prior to M285MK00210 used a roll pin that could back out while the later versions used a set screw.) (See location of roll pin/set screw and slotted window in the pictures in **Case XIV**.)

A. Use a 1/8" diameter pin punch and a small hammer to remove the roll pin, then replace it with the new p/n 2383454 set screw to retain the spike in place of the roll pin. (Do not attempt to punch out the set screw as this will damage the spike piston.)

CASE VI. The depth indicator LEDs on the Talon control panel do not function or some LEDs do not display when the Talon is deployed.

LED failure or malfunction indicates that either the control panel switch/LED board is defective and needs to be replaced or the magnets in the clutch assembly are missing/corroded.

Step 1. Inspect the clutch magnets to ensure they are in place. If missing/corroded then replace the clutch, as needed, and retest for proper operation.

Step 2. Remove the Talon top and bottom covers from the unit and remove the LED/ control panel board from the bottom cover.

Step 3. Carefully cut the glue-filled shrink tube in order to disconnect the battery, ignition alarm, and motor wires from the control board. Remove the screws that attach the board sensors and main control board to the Talon unit.

Step 4. Install the new control board. Refer to the wiring diagram included with the new board assembly. Be sure to use the glue-filled shrink tubes (included with the control board assembly) on the white and black battery leads, the green ignition alarm wire, and the red and black Talon motor wires when the new board is installed. **Note:** the LED board is attached to the main Talon control board by a ribbon cable. Both boards must be replaced and are included with the Talon control board assembly, Minn Kota p/n 2994046. Step-by-step control board replacement instructions (with pictures) are included with each replacement board.

Step 5. Install the new control panel switch/LED board in the bottom cover. Use care to make sure that the buttons on the control panel switches are in and stay in place on the board when it is installed! Loss of the button(s) will result in no switch actuation at the Talon control panel.

Step 6. Re-attach the bottom and top covers on the Talon unit and test unit for proper LED display and function.

CASE VII. Talon is stuck in the down position, and the depth of deployment LEDs are not lit.

Step 1. Check any fuses/circuit breakers in the Talon electrical system. Replace or reset, as required, to restore power.

Step 2. Check battery voltage and all electrical connection, plugs, etc… for security and condition. Correct any problems found.

Step 3. If problem persists and Talon must be retracted, a manual retraction is possible. Remove the black plastic cap plug from the end of the exposed Talon drive shaft located on the upper left-hand side of the unit. Use a 7/16” socket and ratchet handle to turn the shaft clockwise to return the Talon spike and inner extrusions.

Step 4. If manual retraction was necessary, see **CASE I. The spike doesn’t deploy with the remote or the AUTO DOWN button on the control panel. (The lift motor is not running/cannot be heard.)** for further trouble-shooting and repair.

CASE VIII. Talon is stuck in the down position, and the depth of deployment LEDs are lit.

Step 1. If a series of 3 triple beeps is heard when the Up button is pressed, the Retraction Alarm is being activated. The Retraction Alarm protects the Talon motor by interrupting power to the motor when the lift capacity of the motor is exceeded or if it takes more than 10 seconds to retract the Talon spike. This can occur if the spike is deeply buried in a soft, muddy bottom or if there is excessive side load on the spike due to strong current or high winds.

A. To free the spike, carefully shift the boat forward and back using the main engine's power. Then attempt to raise the Talon anchor by pressing the Auto Up button. If the Talon anchor cannot be retracted normally, see **CASE VII. The depth indicator LEDs on the Talon control panel do not function or some LEDs do not display when the Talon is deployed.** on Page for the manual retraction procedure. (**Note:** the Retraction Alarm can also be triggered by low voltage to the Talon unit as this can slow the speed of retraction to more than 10 seconds.)

CASE IX. The Talon will deploy with the AUTO DOWN button, but will not deploy with the remote.

Step 1. Make certain that the remote "Down" button is being pressed and released twice within ½ second to deploy the Talon spike.

Step 2. Make certain that the remote is "learned" to the Talon anchor.

A. Press and hold the Auto Up button on the Talon control panel. A steady beep tone should be heard. Press either button on the remote while holding the Auto Up button. A series of 3 beeps will be heard to confirm that the remote has been learned.

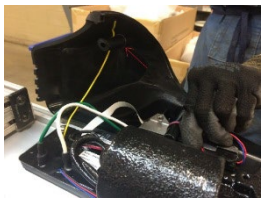
B. If 3 beep tones were not heard at **Step 2A** check the battery in the remote. (A good CR2032 battery will have between 2.8 and 3.3 volts.) If battery checks okay, remote is faulty and needs to be replaced.

CASE X. The Talon remote seems to be losing "range" / must be close to the Talon unit to function.

Step 1. Check the voltage of the battery in the remote. A good CR2032 battery will have no less than 2.8 volts. (New battery will have 3.3 volts or slightly higher.)

A. Replace battery as needed.

Step 2. Check the antenna location. The yellow antenna wire should be affixed to the long screw boss on the bottom cover with o-ring (p/n 3394605) to maintain its position.



CASE XI. Talon makes a grinding noise when deploying or retracting.

NOTE: A grinding noise is indicative of silt, sand, or other debris build up inside or between the Talon outer extrusion, inner extrusion, and spike.

Step 1. Use a garden hose and fresh water to flush out the inside of the Talon unit. Use the wash out port in the Talon top cover for this purpose. (**NOTE:** if the Talon is being used in salt water, flushing / rinsing out the unit periodically with fresh water is recommended to prevent salt build up.)

CASE XII. After installing a new circuit board in a Talon unit, and with the spike and 2nd stage fully retracted, a steady beep tone is NOT heard when the Talon is pressed and held down to learn the remote.

(See Miscellaneous Information, "To learn a new remote ID").

Cause: Either the spike piston is not fully retracting, the magnets in the spike piston are missing or damaged, the Hall Sensor/Upper Sensor is not properly positioned on the Sensor Bracket, or you have no power at the main control board.

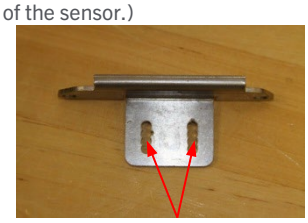
Step 1. Remove the four #8-18 x1 inch screws that hold the Talon top cover in place, then remove the top cover.

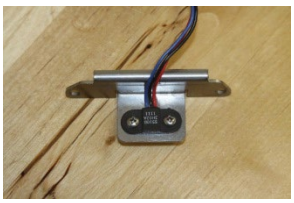
A. Check voltage at **B+** and **B-** terminals on main control board. If 12-volts is present go to **Step 2.** If not, correct power/wiring issue and retest.

Step 2. Examine the upper end of the Talon 2nd stage extrusion and spike piston. The upper end of the 2nd stage should be level or even with the top of the main extrusion and the spike piston should be pulled up against the white rubber bumper at the top of the 2nd stage extrusion.

A. If the 2nd stage and spike piston are as described above, remove the upper sensor bracket and check to make sure that all three of the magnets in the spike piston are in place (not rusted, corroded, or missing). If damage or missing the spike piston will need to be replaced. (See the 2 Stage Talon Disassembly/Reassembly videos in the Service Videos/Talons Service Videos folder.)

B. If magnets are all in place and spike piston is properly positioned, reposition hall sensor/upper sensor on sensor bracket and reinstall bracket. (See pictures below for proper placement of the sensor.)





The stop sensor must be placed in these 2nd set of holes.

C. Connect the Talon to the 12-volt power source and retest for the steady beep tone when the "UP" button on the Talon is pressed and held. If the steady tone is not heard, replace the main control board.

CASE XIII. Retracted Talon Runs when the up button is pressed/Does not enter learn mode or emit a solid tone.

CAUSE: The clutch is probably slipping and home position sensor is not functioning properly. See **CASE XII. After installing a new circuit board in a Talon unit, and with the spike and 2nd stage fully retracted, a steady beep tone is NOT heard when the Talon is pressed and held down to learn the remote.** on Page **52.** If Case XII is not the cause suspect a slipping clutch, see **CASE II. When**

the Talon UP/DOWN buttons are pressed the Talon motor can be heard running, but the spike and second stage extrusion do not move or they do extend but the motor continues to run even though the spike has hit bottom or is fully extended. on Page **47**

CASE XIV. The Talon main extrusion, mounting bracket, bottom cover plate, and/or screws-fasteners exhibit signs and evidence of electrolysis.

Electrolysis will differ from corrosion, mineral deposits, or salt build up in that electrolysis results in pitting, decomposition, and loss of material from aluminum extrusions and stainless steel fasteners from the water line down. Electrolysis occurs when a positive DC current is passed through the Talon in the water to ground/negative.

Note: if electrolysis has gone unnoticed for some time and the damage/decomposition is severe contact Minn Kota for assistance and direction. If electrolysis is slight and can be addressed by replacing the fasteners, mounting bracket, or bottom cover plate do so after correcting the cause/source of the electrolysis.

Step 1. Remove the screws that hold the top and bottom cover in place and then remove the covers.

Step 2. Examine all wires for pinching, cuts in the insulation, abrasion, or bare conductors. Correct, as needed. Pay particular attention to the red, black, and blue wires going to the hall effect sensors. These wires pass over or around sharp edges on the Talon extrusion and can become damaged as a result.

Step 3. Reposition the wires, as needed. If necessary protect or cover them with glue-filled shrink tube, tape, or liquid electrical tape to insulate the conductor and prevent contact with the Talon extrusion.

Step 4. Test for potential electrolysis issues by checking for positive DC voltage across the talon main extrusion to the Talon battery negative wire or post. Connect the Talon to a 12-volt power source and with your V.O.M. (multi-meter) set to read DC voltage touch the red (positive) probe to the Talon extrusion and the black (negative) probe to the Talon battery negative wire or post. No voltage must be noted.

MISCELLANEOUS INFORMATION

BLUETOOTH PAIRING

To Clear the Memory

1. Retract the anchor if it is not already retracted.
2. Disconnect the power cable white power lead from the battery.
3. Press and hold the Auto UP switch on the Talon.
4. While continuing to press the Auto UP switch, reconnect the power cable white power lead to the battery.
5. A long tone will be heard, continue to hold the UP switch until the tone stops.
6. Release the Auto UP switch. An error tone will be emitted.
7. Leave the Talon connected to power another 30 seconds, then cycle power.
8. All BT Devices including remotes and other Talons are now erased from the Talon's memory.

To Pair Two Talons

1. Clear the memory on both Talons
2. Put one Talon into Pair mode:
    a. Press and hold both the Up and Down Buttons until the depth indicator lights begin scrolling.
    b. Release the Up and Down Buttons
3. Go to the other Talon and put it into Pair Mode.
4. If the Talons "Time Out" as indicated by an Error Tone, repeat Steps 2 and 3, If you here 3 quick beeps this will be your indication that the Talons have paired to each other.
5. After Pairing to each other the Mode Light on both Talons should start blinking green, push the up button on the Right/Starboard Talon to set it as the Right/Starboard Button. After pushing the up button the Mode Light on that Talon will illuminate Solid Green for a couple seconds, the other Talon will have the Mode Light Solid red for the same duration.

Pair Remotes to Talons

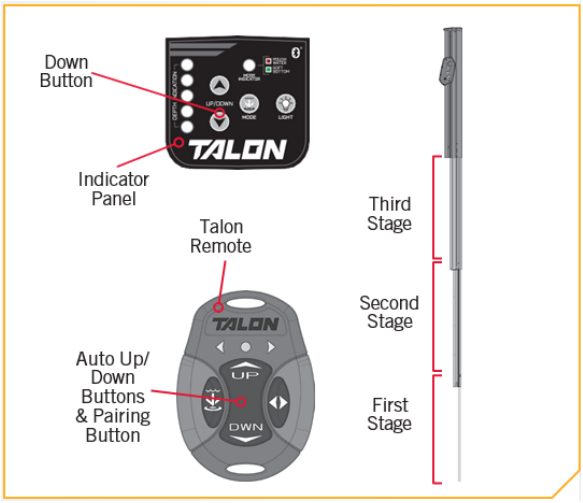
1. If intending to Control 2 Talons Pair the two Talons prior to Pairing Remotes.
2. Press and hold the Up and Down Buttons to put the Talon(s) into Pair Mode (this can be done on either Talon when pairing to two Talons). When the Depth Indicator Lights begin scrolling the Talon(s) are in pair mode.
3. Once the Talon(s) are in Pair Mode Press and Hold the Up and Down Buttons on the Remote to be Paired, when the indicator light (Left, Mode, Right) begin scrolling the remote is in pair mode.
4. When the Talon emits 3 quick beeps paring is complete. If the Talon "Times out" as indicated by and error tone repeat steps 2 and 3.

BLUETOOTH TALON SPIKE REPLACEMENT

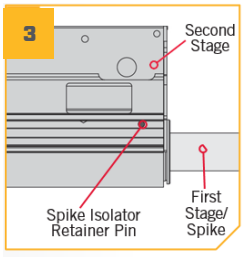
In order to replace the Spike, you must have enough room to extend the entire First Stage and the beginning of the Second Stage of the Talon. Determine if you have room to replace the Spike in the vertical position. If there is not enough space to replace the Spike in the vertical position, it may be required to remove the Talon from the Mounting Bracket. The Talon Tilt Bracket (1810222) is an accessory available to make this process easier. With this accessory, you don't have to remove the Talon from the mount to replace the Spike as it allows the Talon to be rotated into a horizontal position.

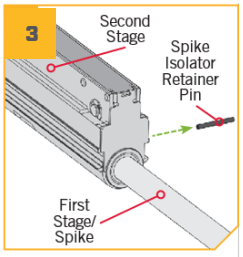
Tools Required:

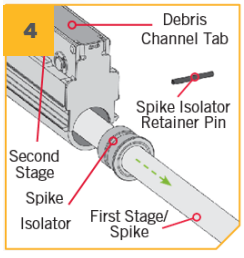
- Pin Punch 1/8"
- Hammer
- 3/32" Allen Wrench

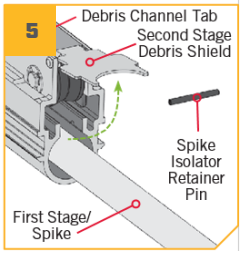


1. Press the Down button on the Indicator Panel or the Down button on the Remote to extend the Spike out so that the Second Stage begins to exit the bottom of the Talon. This may require removing the Talon from the Mounting Bracket, and laying it horizontally or on a flat surface.
2. Once extended, remove the Talon from the Power Source.
3. Locate the Spike Isolator Retainer Pin in the Second Stage of the Talon. Carefully remove the Retainer Pin using a Pin Punch and Hammer.
4. Set the Spike Isolator Retainer Pin aside for later use, in reassembly. Slide the Spike Isolator along the Spike, away from the Second Stage.
5. Gently pivot the Second Stage Debris Shield up out of the way to access the Spike Retainer Screw. The adjacent plastic Debris Channel Tab will bend slightly, but can be tapped back into place with a small hammer after the Spike is replaced.





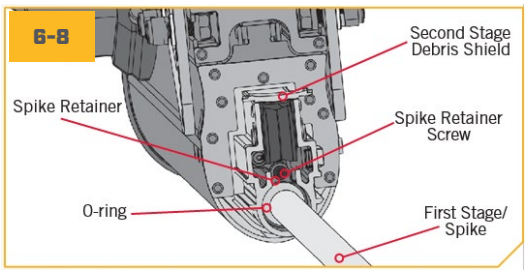


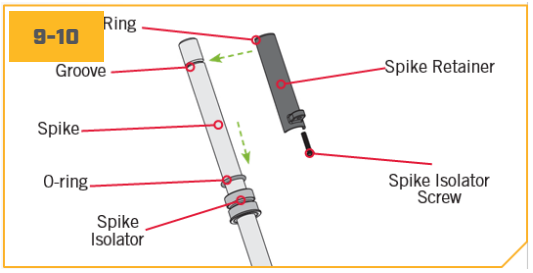


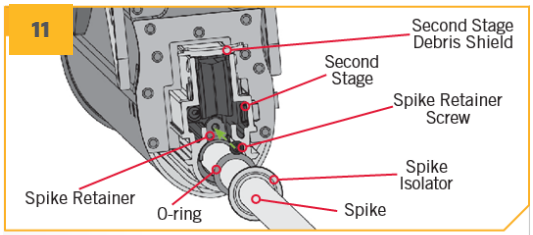
NOTICE: It is normal to experience cosmetic changes in the appearance of the Debris Channel Tab during this procedure.

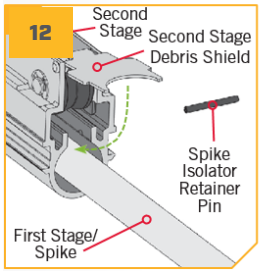
6. Locate the Spike Retainer Screw and remove it using a 3/32" Allen Wrench.

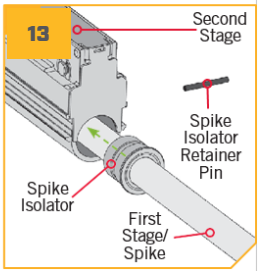
7. Once removed, the Spike should pull free from the Second Stage along with the Spike Retainer and an O-ring that is in place around the Spike. The Spike Retainer is the piece that the Spike Retainer Screw was just removed from.
8. Discard the Spike and O-ring that were just removed. Keep the Spike Retainer and Spike Retainer Screw for reassembly.
9. Take the new Spike and locate the groove along one end. Slide the new Spike Isolator and then O-ring onto the Spike on the end where the groove is located. Slide them down so they are 5 to 6 inches past the end of the Spike.
10. Locate the raised ring on the inside curve of the Spike Retainer and align it with the groove at the end of the Spike. Place the Spike Retainer on the Spike so that it is keyed in place by aligning the raised ring and groove.
11. Slide the assembly back into the Second Stage and replace the Spike Retainer Screw in the Spike Retainer using a 3/32" Allen Wrench.
12. Once the Screw is secure, close the Second Stage Debris Shield.
13. Push the O-ring and Spike Isolator towards the Second Stage and until they are in position against the Spike Retainer and Second Stage Debris Shield.











LEGACY REMOTE

To Learn a New Remote ID:

NOTICE: Legacy remotes strictly transmit, if multiple Talons have learned a remote ID they will all respond to that remote. The 4 Button remote is 2 Transmitters in the same housing, the intention is for each transmitter to be paired to one Talon.

NOTICE: The Legacy Foot Switch Accessory is 3 Transmitter IDs, when you press the mode button it cycles between the three transmitters (left, right, both, as indicated by the LEDs on the foot switch). Proper setup requires setting to Left, learning that to the Left/Port Talon, setting to Right and Learning to the Right/Starboard Talon, the Both and Learning to Each Talon Individually.

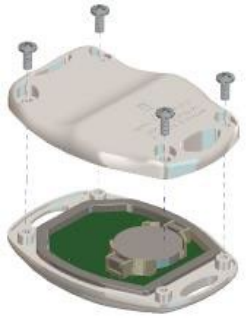
1. Retract the anchor if it is not already retracted by pressing the Auto UP switch.

2. After the anchor has retracted, press and hold the Auto UP switch on the Talon. A steady tone will be heard.
3. While continuing to press the Auto UP switch, press the UP button on the new remote one time.
4. A series of 3 beeps will be heard, indicating the new remote has been learned.
5. Release the Auto UP switch on the Talon after the 3 beeps begin.

To Erase All Stored Remote IDs (this may require assistance from a second person):

1. Retract the anchor if it is not already retracted.
2. Disconnect the power cable white power lead from the battery.
3. Press and hold the Auto UP switch on the Talon.
4. While continuing to press the Auto UP switch, reconnect the power cable white power lead to the battery.
5. A series of fast beeps will be heard and then a long steady tone.
6. Release the Auto UP switch after the long steady tone has begun. All remote IDs are now erased.

Remote Battery Replacement



1. Make sure hands are clean, dry and static free. Discharge any static electricity by touching a metal object that is grounded.
   *Static electricity can damage the circuit board.
2. With the remote upside down, remove the four case screws.
3. Remove the bottom cover.
4. Carefully remove the old battery from the battery holder and replace with a new one. The batteries snap in and out of the battery holder.
5. Install the new battery with the positive (+) side facing up away from the circuit board. Use a name brand CR2032 lithium coin cell battery.
6. Replace back cover and reinstall case screws. Do not over tighten case screws as this will damage the remote enclosure.

LEGACY SPIKE REPLACEMENT

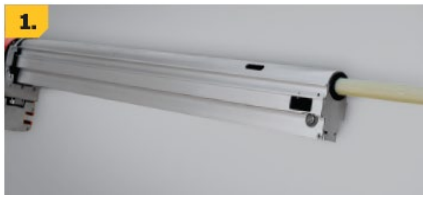
Any 2 Stage Talon, Legacy 3 Stage Talon (Excludes BT Talon)

TOOLS REQUIRED: Pin Punch 1/8”, Allen/Hex Key 2mm, Hammer

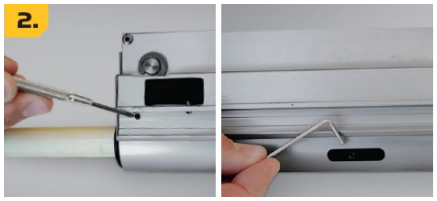
(There is a video of this procedure in the Service Videos/Talon Service Videos folder titled 3 Stage Talon Spike Replacement.mp4.)

1. Extend the spike out so that the second stage begins to exit the bottom of the anchor. This may require removing the anchor from the mounting bracket, and laying the

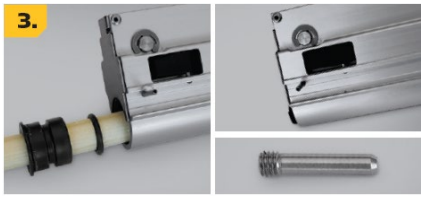
anchor horizontally or on a flat surface.



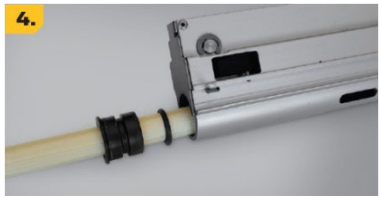
2. You will need to remove two (2) retainer pins in order to replace the spike. First remove the spike isolator restrainer pin, and slide the spike isolator out from the bottom of the second stage. Next, remove the spike retainer pin.



3. Remove the spike from the anchor. (You will not need to retain the O-ring from the spike you are replacing. The new spike will include a replacement O-ring.)



4. Place the new spike into position along with the replacement O-ring. When the spike is fully seated into the anchor, the O-ring should be slid up to the face of where the spike is held. Be sure to align the retainer groove on the spike with the retainer pin hole.



5. Slide the spike isolator up the spike and into the second stage. Carefully replace the spike isolator retainer pin.

6. Carefully replace the spike retainer pin, making sure the ends of the pin are recessed on both sides.