

Foot-Control, Cable Steer Models with a Control Board

(Non-Ultrex models, Ultrex has a separate repair manual.)

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LIFT-ASSIST WARNING

WARNING: The gas assist lift mechanism in these models are under HIGH SPRING PRESSURE when the motor is in the deployed position. DO NOT remove the BowGuard 360™ assembly from the mount without disconnecting one end of the gas spring. Failure to do this can create a condition where accidental pulling of the rope may cause the mount to spring open rapidly, striking anyone or anything in the direct path!

Case I. Motor fails to run in either the continuous (CON) or the momentary (MOM) mode. *This Case applies to motors with the magnetic on/off reed switch system.*

Case II. With speed selector in the 10-100% setting, motor runs in CON (continuous) mode, but not in MOM (momentary) mode when the push button is depressed. *This Case applies to motors with the magnetic on/off reed switch system.*

Case III. With speed selector in the 10-100% setting and the MOM/CON switch in the MOM position, motor runs when the momentary push button is not depressed. *This Case applies to motors with the magnetic on/off reed switch system.*

Case IV. Motor fails to run. *This Case applies to motors with the older-style, mechanical on/off (momentary) switch in the foot pedal.*

Case V. Motor runs at full speed when switched “on” regardless of the speed selector dial setting. Motor will also run at full speed even when the speed selector control is at “0” or “off”.

Case VI. If motor runs in MOM and CON modes but customer states that the motor starts, stops, or changes speed as the foot pedal is rocked forward and backward (to steer) the potentiometer leads may be at fault.

Case VII. Motor runs fine, but steering is loose/soft or does not function.

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Fortrex:

To disconnect one end of the gas spring, follow the instructions below:

Step 1. With the mount in the stowed position, locate the upper cylinder pin.

Step 2. Using two Phillips screwdrivers, remove one of the Phillips flat head screws.

Step 3. Remove pin from outer arm by sliding thru the arm.

Step 4. Now it is safe to deploy the motor and remove the motor assembly.



Fortrex Diagram

Phillips screw

REMOVAL OF THE BOWGUARD:

WARNING: The gas assist lift mechanism in this unit is under HIGH SPRING PRESSURE when the motor is in the deployed position. DO NOT remove the BowGuard assembly from the mount without disconnecting one end of the gas spring.

1. Disconnect one end of the gas spring. see page 6 for instructions.
2. Place the motor in the deployed position.
3. Remove the 5/16" cap screw and lock washer located on the top of the bowguard, in front of the pull rope.
4. Lift motor/Bowguard assembly straight up until bowguard is free from mount.

NOTE: Rope and latch bar should never be pulled with the motor removed as the assembly is under HIGH PRESSURE.

5. **To re-assemble:** Align the key ways on the inside of the bowguard with the ends links on the mount. Lower the assembly straight down until seated Re-install the 5/16" cap screw and washer and tighten.

WARNING

MOVING PARTS CAN CRUSH OR CUT

•GAS ASSIST LIFT MECHANISM IS UNDER PRESSURE

•DISCONNECT GAS SPRING BEFORE REMOVING MOTOR FROM MOUNT

•DO NOT PULL ROPE UNTIL GAS SPRING IS DISCONNECTED

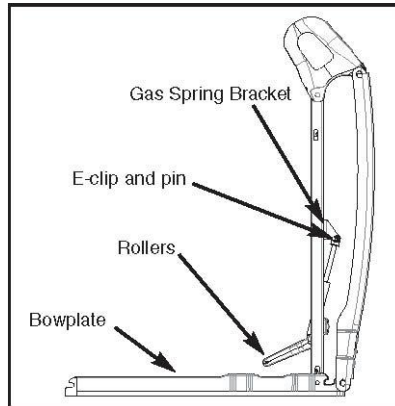


Allen Screw

Maxxum Pro:

To disconnect one end of the gas spring, follow the instructions below:

- Step 1.** Open mount to approximate position as shown and hold there. Make sure the yoke assembly roller end does not contact bowplate.
- Step 2.** Remove the e-clip and pin attaching the gas spring to the bracket shown.
- Step 3.** Lower the mount back to the deployed position.
- Step 4.** Now it is safe to remove the pins attaching the BowGuard assembly.
- Step 5.** To re-assemble, attach the BowGuard while mount is in the deployed position. Open mount as shown and reattach gas spring to bracket.



REMOVAL OF THE BOWGUARD:

WARNING: The gas assist lift mechanism in this unit is under HIGH SPRING PRESSURE when the motor is in the deployed position. DO NOT remove the BowGuard assembly from the mount without disconnecting one end of the gas spring.

1. Place the motor in the deployed position.
2. Remove the top pin followed by the bottom pin.
NOTE: When the bottom pin is removed, the stop lever rotates to prevent the latch pin assembly from traveling.

Rope and latch pin assembly should NEVER be pulled as the assembly is under HIGH SPRING PRESSURE.

3. To reassemble:
 - Align the mounting holes for the lower pin.
 - Install lower pin, making sure it passes through the stop lever.
 - Align and install upper pin.

WARNING

MOVING PARTS CAN CRUSH OR CUT

- GAS ASSIST LIFT MECHANISM IS UNDER PRESSURE
- DISCONNECT GAS SPRING BEFORE REMOVING MOTOR FROM MOUNT
- DO NOT PULL ROPE UNTIL GAS SPRING IS DISCONNECTED



Stop Lever

NOTE NEVER INSTALL UPPER OR LOWER PINS WITHOUT BOWGUARD / MOTOR ASSEMBLY

This Case applies to motors with the magnetic on/off reed switch system.

Case I. Motor fails to run in either the continuous (CON) or the momentary (MOM) mode.

- Step 1.** Check to ensure proper voltage and check polarity at battery (red +, black -). Inspect all battery connections, trolling motor plug (if installed), and any butt splice connections in battery lead wire. Double check position of the MOM/OFF/CON switch (NOTE: In the CON position the speed selector must be in the 10-100% setting for the motor to run. In the MOM mode the speed selector must be in the 10-100% setting, and the momentary ON/OFF switch on the foot pedal must be depressed for the motor to run.)
- Step 2.** Remove the control box cover. Disconnect the red and black motor leads and connect 12 volts to these leads. (This applies to 12, 24, or 36 volt models.)
- A.** If motor runs, reconnect motor leads and proceed to **Step 3**.
 - B.** If motor does not run, the problem is in the motor lower unit. Disassemble and check lower unit for voltage at the brushes, water in lower unit, worn brushes, faulty brush springs, or an open or shorted armature. Repair/replace parts as necessary. Test motor for proper operation.
- Step 3.** If motor ran when the control board was bypassed, remove the aluminum foot pedal base plate (held in place with screws) to expose the main control board. Check to ensure that all wires are securely attached to the proper main control board terminals. (Consult appropriate wiring diagram for the motor being serviced.) Check for corroded connections.
- A.** With power applied to the battery leads, using a V.O.M. verify appropriate voltage and proper polarity are present at the battery B+ and B- terminals on the main control board. Make corrections, as needed.
 - B.** If proper voltage and polarity are found at **Step 2A**, remove aluminum cover plate covering the MOM/OFF/CON switch wire connections. Disconnect wire leads to switch and test switch for continuity.
 - B-1.** If no continuity is found, the switch is faulty and needs to be replaced.
 - B-2.** If continuity is found across the switch, reconnect the wires in their proper locations and proceed to **Step 3C**.
 - C.** With power applied to the battery leads, using a V.O.M. test output across main control board motor + and motor - (M+ and M-) terminals. (NOTE: Place MOM/OFF/CON switch in the CON mode and the speed selector in the 10-100% range for this test.)
 - C-1.** If no output is noted across the M+ and M- terminals, the control board is faulty and needs to be replaced. (There is a video of this procedure in the Service Videos/Motors Service Videos folder titled *Fortrex or Maxxum Control Board Replacement*.)
 - C-2.** If output is found across the M+ and M- terminals, test for output at the red and black motor leads in the control box. If no output is noted at the red and black leads, the problem is in the wiring harness from the foot pedal to the control box. Repair/replace as needed, and test motor for proper operation.

This Case applies to motors with the magnetic on/off reed switch system.

Case II. With speed selector in the 10-100% setting, motor runs in CON (continuous) mode, but not in MOM (momentary) mode when the push button is depressed.

- Step 1.** Check to ensure the reed switch is properly positioned in the reed switch clip. (Remove the push button/magnet assembly, P/N 2993702, to visually check this.) The tip of the reed switch, (reed switch is a small plastic cylinder with two wires attached), should be flush with the recessed area of the reed switch clip. Re-position reed switch if required.
- Step 2.** Check push button/magnet assembly to ensure the small magnet rod on the underside of the push button is in place. (On motors with the new ON/OFF magnetic reed switch, a small rod magnet is used to activate the reed switch.)
- A.** If the magnet is missing from the push button assembly, replace P/N 2993702 (for the round push button) or P/N 2993705 (for the D-shaped push button), and test motor for proper operation.
 - B.** If the reed switch and magnet are in place, and the magnet is in close proximity to the reed switch when the push button is depressed, but the motor still does not run then the reed switch is faulty requires replacement kit P/N 2884019. (Instructions are included in this kit.)

This Case applies to motors with the magnetic on/off reed switch system.

Case III. With speed selector in the 10-100% setting and the MOM/CON switch in the MOM position, motor runs when the momentary push button is not depressed.

Step 1. Check to ensure the reed switch is properly positioned in the reed switch clip. Remove the push button/magnet assembly, P/N 2993702, to visually check that the reed switch is approximately 1/32" below the top of the reed switch clip. (The reed switch is a small black plastic cylinder with two wires attached.) Carefully reposition the reed switch slightly deeper into the clip so it is farther away from the magnet in the underside of the push button. Test motor for proper operation.

This Case applies to motors with the older-style, mechanical on/off (momentary) switch in the foot pedal.

Case IV. Motor fails to run

- Step 1.** Check to make sure that the MOM/OFF/CON switch is not in the OFF position. Check to ensure proper voltage and check polarity at battery (red +, black -). Inspect all battery connections, trolling motor plug (if installed), and any butt splice connections in battery lead wire.
- Step 2.** Check to insure that all wires are securely attached to the proper control board terminals. (Consult appropriate wiring diagram for the model being diagnosed.) Check for any corroded connections.
- Step 3.** Remove the control box cover. Disconnect motor leads and connect 12 volts across red and black motor leads. (This applies to 12, 24, or 36-volt models.)
- A.** If motor runs, reconnect motor leads and proceed to **Step 4**.
 - B.** If motor does not run, the problem is in the motor lower unit. Disassemble and check lower unit for voltage at the brushes, water in lower unit, worn brushes, faulty brush springs, or an open or shorted armature. Repair/replace parts as necessary. Test motor for proper operation.
- Step 4.** If motor being serviced is not working in the CON position, go to **Step 5**.
If motor being serviced is not working in the MOM position, go to **Step 6**.
- Step 5.** With battery leads connected to power source and MOM/OFF/CON switch in the CON position, connect V.O.M. leads to battery (-) leadwire and the battery (+) lead/terminal at main control board. (Consult appropriate wiring diagram for motor being diagnosed.)
- A.** If voltage is present, replace main control board. (There is a video of this procedure in the Service Videos/Motors Service Videos folder titled *Fortrex or Maxxum Control Board Replacement*.)
 - B.** If no voltage is noted, check MOM/OFF/CON switch for continuity across center terminal to continuous terminal (wire going directly to main control board).
 - C.** If no continuity, replace MOM/OFF/CON switch. Test motor for proper operation.
- Step 6.** With battery leads connected to power source and MOM/OFF/CON switch in the MOM position, connect V.O.M. test leads to the battery (-) leadwire and the battery (+) lead/terminals at the main control board with ON/OFF switch depressed. (Consult appropriate wiring diagram for the model being diagnosed.)
- A.** If voltage is present, replace main control board. (There is a video of this procedure in the Service Videos/Motors Service Videos folder titled *Fortrex or Maxxum Control Board Replacement*.)
 - B.** If no voltage is present, test foot pedal ON/OFF switch for continuity with momentary ON/OFF switch depressed.
 - B-1.** If no continuity is noted, replace foot pedal ON/OFF switch. Test for proper operation.

Case V. Motor runs at full speed when switched "on" regardless of the speed selector dial setting. Motor will also run at full speed even when the speed selector control is at "0" or "off".

Cause: This is an indication of a control board failure requiring replacement of the control board assembly. However, if the board was just replaced and the new board being tested is found to be running at full speed when switched "on", the cause could be the inadvertent reversal of the black battery negative (B-) wire and the black motor negative (M-) wire. If these two wires are accidentally reversed when installing the replacement board the motor will run at 100% (full power) when switched "on". If this occurs, re-check the wiring by comparing it to the diagram included with the replacement control board. Correct any wiring mistakes and re-test the motor for proper operation.

Corrective Action: The corrective action for the motor running at full speed when switched “on” is replacement of the main control board assembly located in the footpedal, base extrusion, or control box (depending on the model being repaired). Be sure to follow the wiring diagram and any special instructions for the board installation that are included with the replacement control board. Test run the motor to confirm proper operation.

Case VI. If motor runs in MOM and CON modes but customer states that the motor starts, stops, or changes speed as the foot pedal is rocked forward and backward (to steer) the potentiometer leads may be at fault.

Step 1. Remove the control board and potentiometer from foot pedal base.

Step 2. Connect power leads directly to control board (consult appropriate wiring diagram for correct voltage, polarity, and terminal locations). You should hear the relay on the control board click when the power leads are connected to the board.

- A. Connect a test light (or a known good motor) to the control board motor output terminals. With potentiometer shaft turned clockwise to its stop, the test light (or motor) should be off.
- B. As the potentiometer shaft is rotated clockwise, the test light (or motor) should start to light (or run) and increase in brightness (or speed) as you continue to turn the potentiometer shaft clockwise to the switch stop.
- C. If the test light (or motor) is intermittent as the potentiometer shaft is turned clockwise OR as the 3-conductor lead connected to the potentiometer is flexed near the potentiometer end, the potentiometer leads are broken, and the control board needs to be replaced. (There is a video of this procedure in the Service Videos/Motors Service Videos folder titled *Fortrex or Maxxum Control Board Replacement*.)

Case VII. Motor runs fine, but steering is loose/soft or does not function.

Step 1. Remove control box cover and inspect cable conduit bracket where it attaches to the control box.

- A. If conduit bracket is loose or control box attach point is broken, repair/replace parts as needed.
- B. If conduit bracket and control box check out fine, inspect steering cables.
 - B-1** Tighten steering cables by turning adjusting screw at foot pedal clockwise. Turn counter-clockwise to loosen steering cables.
 - B-2** If steering cable core(s) are broken, replace steering cables).
- C. Inspect screws at upper bearing race /pinion gear assembly. Screws may have backed out or sheared off. Replace parts, as needed. Loctite screws in place. (Later versions utilize an upper bearing race assembly with 4 screws, while earlier version just used 2 screws.)