



Controller Replacement Kit

2010-11 Pro Force Debris Blower

Model No. 121-2812

Form No. 3372-980 Rev A

Installation Instructions

Installation

1. Disconnect the negative battery cable first and then disconnect the positive battery cable.
2. Disconnect the wire harness connectors from the receiver (Figure 1).

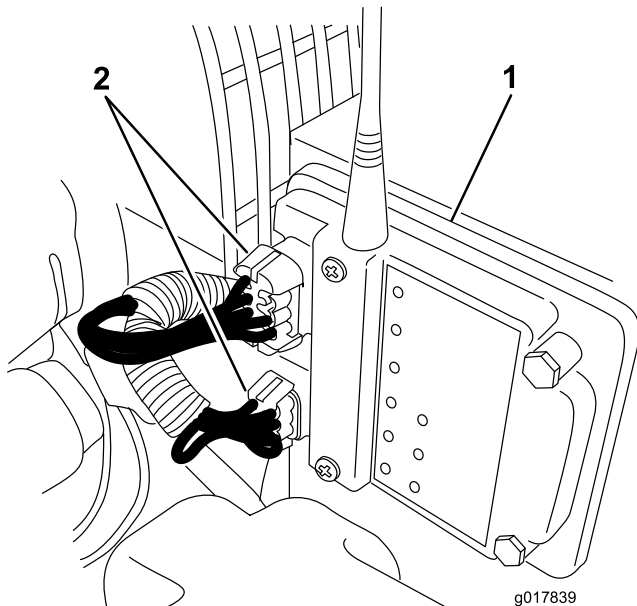


Figure 1

1. Receiver 2. Wire harness connectors

3. Remove the (3) screws and nuts securing the receiver to the blower frame (Figure 1). Remove the receiver.
4. Position the new receiver onto the frame aligning its right mounting hole with the upper right mounting hole used to mount the old receiver (Figure 2).

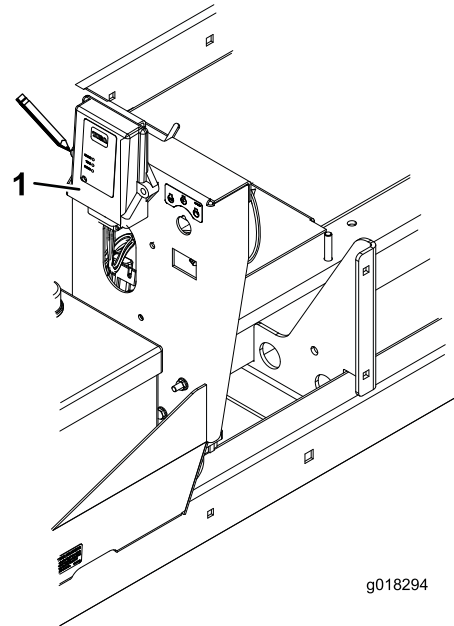


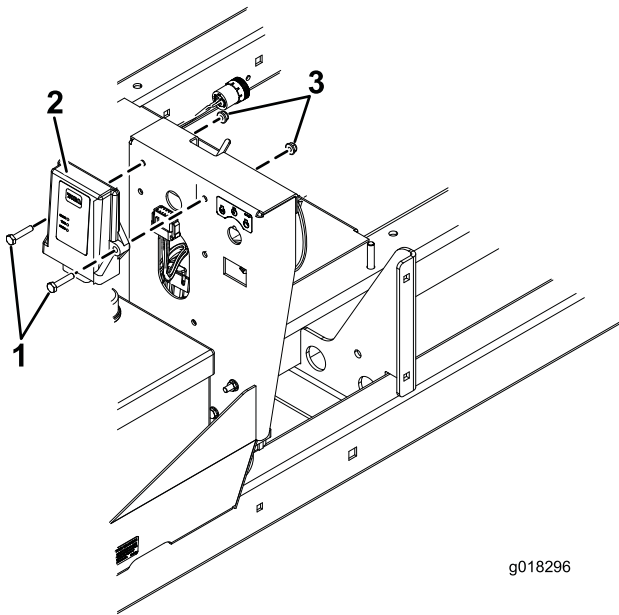
Figure 2

1. Receiver

5. Using the left hole in the new receiver as a template, locate, mark and drill a .281 inch (.713 cm) diameter hole in the frame (Figure 2). Make sure the wireless controller is level.

Note: The holes, described in steps 8 and 10, may also be drilled at this time, if desired.

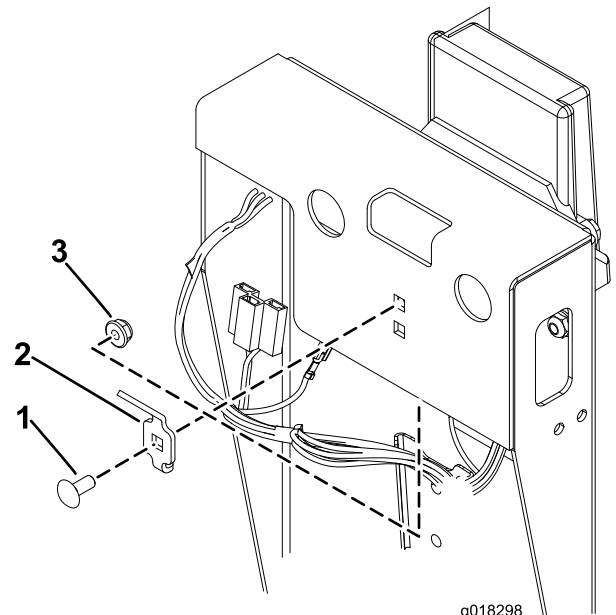
6. Mount the new receiver to the front of the frame with (2) 1/4 x 1-1/4 inch screws and 1/4 inch flange nuts (Figure 3).



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Figure 3

1. Screw, 1/2 x 1-1/4 inch
2. Receiver
3. Flange nut, 1/4 inch

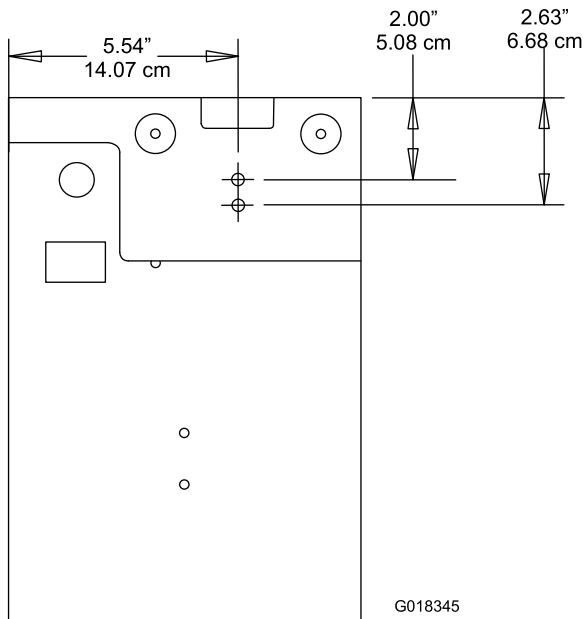


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Figure 5

1. Carriage screw, 1/4 x 5/8 inch
2. Transmitter mount
3. Flange nut, 1/4 inch

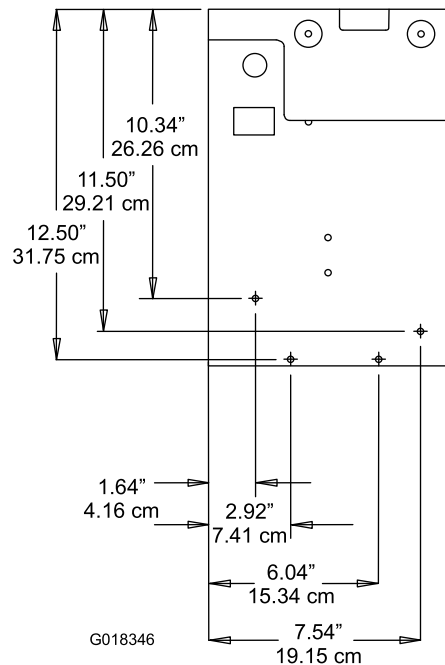
7. Disconnect the remainder of the wire harness connections and remove the harness from the machine.
8. Using the dimensions shown in Figure 4, locate, mark and drill (2) .281 inch (.713 cm) diameter holes in the frame (Figure 4).



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Figure 4

10. Using the dimensions shown in Figure 6, locate mark and drill (4) .281 inch (.713 cm) diameter holes in the frame.



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Figure 6

9. Install the transmitter mount to the back of the frame with a 1/4 x 5/8 inch carriage screw and a 1/4 inch flange nut (Figure 5). Insert the bottom of the mount into the bottom hole.

11. Mount the (4) relays to the back of the frame with (4) 1/4 x 3/4 inch screws and 1/4 inch flange nuts.

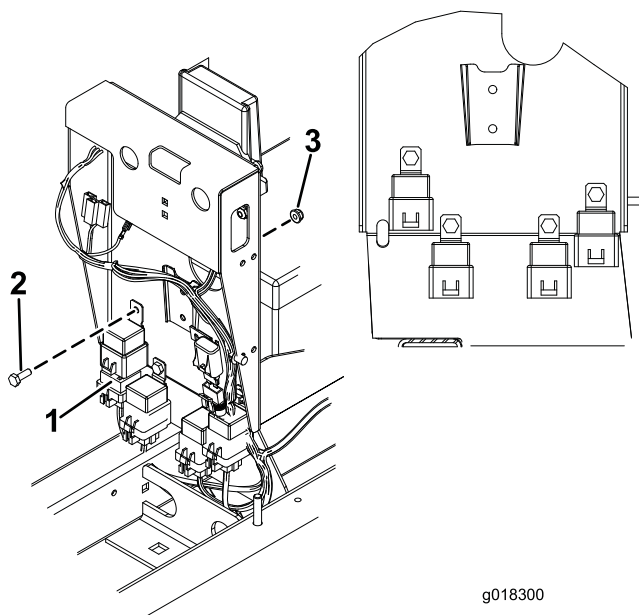


Figure 7

1. Relay (4)
2. Screw, 1/4 x 3/4 inch
3. Flange nut, 1/4 inch

12. Route, secure and connect the new wire harness to the machine.
13. Store the new transmitter on the transmitter mount when it is not in use.
14. Connect the positive battery cable first and then connect the negative battery cable.
15. The handheld and base unit should be associated. If not, refer to Associate Remote Control and Base Unit in the Maintenance Section.

Operation

Controls

Engine Stop

Press the Engine Stop button to stop the engine (Figure 8).

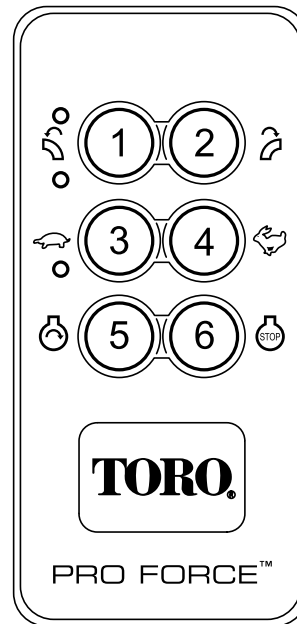


Figure 8

1. Rotate nozzle left
 2. Rotate nozzle right
 3. Decrease blower output
 4. Increase blower output
 5. Engine start
 6. Engine stop
- (Pressing 3 and 4 together returns engine to idle)

Engine Start

After completing the starting sequence, press the Engine Start button to start the engine (Figure 8). Refer to Starting the Engine for the starting sequence.

Nozzle Direction

Press the right or left button to rotate the nozzle to the desired direction (Figure 8).

Engine Speed

Press the Fast (rabbit) or Slow (turtle) button to increase or decrease the speed of the engine (Figure 8).

Starting and Stopping the Engine

Starting the Engine

⚠ WARNING

ROTATING PARTS CAN CAUSE SERIOUS PERSONAL INJURY

- Keep hands and feet away from the machine when it is running.
- Keep hands, feet, hair, and clothing away from all moving parts to prevent injury.
- NEVER operate the machine with covers, shrouds, or guards removed.

1. Blower must be attached to the tow vehicle before it can be started.
2. Move the choke control to the ON position before starting a cold engine.

Note: A warm or hot engine may not require choking. After engine starts, move choke control to off position.

3. Rotate the engine ignition key to the “START” position and quickly release it to the “ON” position (Figure 9). This wakes up the receiver.

Note: If the key was left in the on position for an extended time, move the key to the off position before proceeding to the starting procedure.

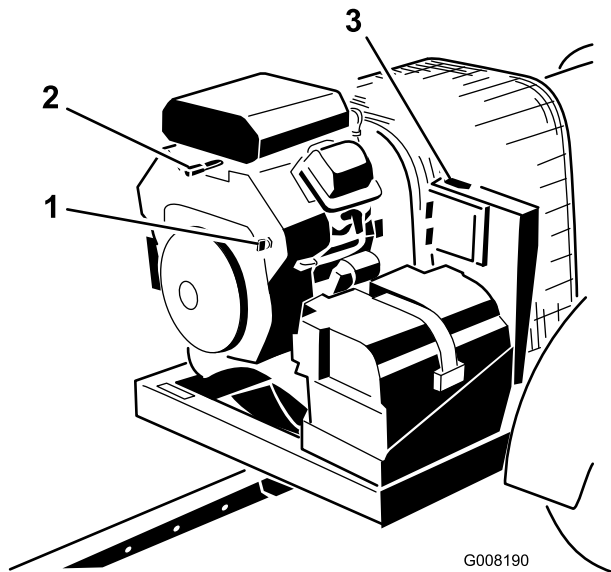


Figure 9

- | | |
|--------------------|---------------|
| 1. Ignition switch | 3. Hour meter |
| 2. Choke control | |

4. Engine Start will only become energized by pressing the Start button while the Engine Start Enable Condition is active. The Engine Start Enable Condition becomes active only when the following Engine Start Enable Sequence has been performed (Figure 10).

- Press the START button.
- Then, press the rotate left button.
- Then, press the rotate right button.
- Then, press and hold the START button until the engine starts.

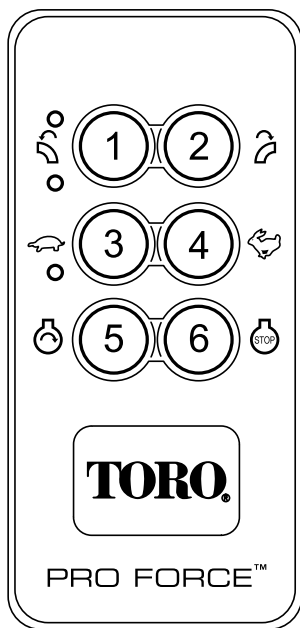
Note: There is a time limit of 3 seconds between each button press. If the next button in the sequence is not pressed within 3 seconds of the last button press, the sequence is aborted and must be started from the beginning.

Note: If any button other than the next appropriate button in the sequence is pressed the sequence is aborted.

Note: If the Start button is not pressed within 25 seconds after pressing the Rotate Right button, or any other button is pressed in this period, the Engine Start Enable Condition expires.

Note: Engine Start Enable Condition persists for 25 seconds after pressing the Rotate Right button allowing momentary activation of Engine Start by pressing the Start button. Pressing the Start button does not extend this time period—the maximum length of time that the Start Relay Control can be active is 25 seconds from pressing the Rotate Right button. The Start button can be pressed multiple times while Engine Start Enable Condition is active. After the Engine Start Enable Condition expires, the Engine Start Enable Sequence must be performed again in order to energize the Start Relay Control with the Start button.

Note: If the sequence is aborted or the Engine Start Enable Condition expires, normal functionality of the Rotate Right and Left buttons will return to control the Chute Motor.



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Figure 10

1. Rotate nozzle left
2. Rotate nozzle right
3. Decrease blower output
(Pressing 3 and 4 together
returns engine to idle)
4. Increase blower output
5. Engine start
6. Engine stop

Important: Do not engage starter for more than 10 seconds at a time. If engine fails to start allow 30 second cool-down period between attempts. Failure to follow these instructions can burn out starter motor.

5. After the engine starts, move the choke control to the off position. If the engine stalls or hesitates, move the choke back to the ON position for a few seconds, then set the engine speed to the desired setting. Repeat this as required.

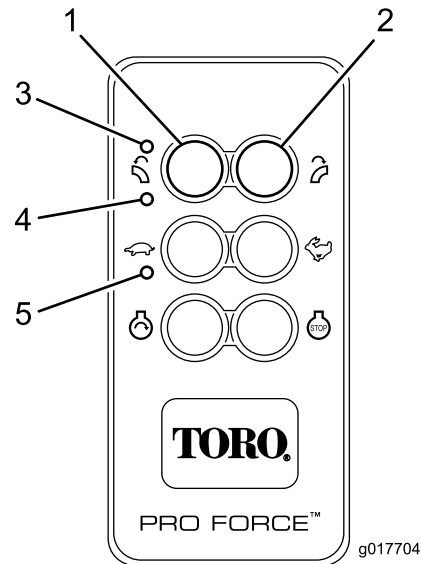
Stopping the Engine

1. Decrease the engine speed midway between the slow and fast positions.
2. Let the engine idle for 20 seconds.
3. Press the STOP button on the remote control.
4. If leaving the machine, rotate the key to the OFF position and remove it from the engine (Figure 9).

Start, Stop and Inactivity Time out

The remote control activates (powers up) when any push button is pressed. Blinking TX and RX

LEDs indicate that the remote control is alive and communicating with the base unit. To conserve battery power, the remote control stays active for approximately three (3) seconds before automatically shutting down unless there is button activity within the three second limit. When the unit times out and powers down, all remote control LED activity stops (Figure 11). Pressing any button will reactivate the remote control.



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Figure 11

1. Associate
2. Disassociate
3. TX
4. RX
5. LINK

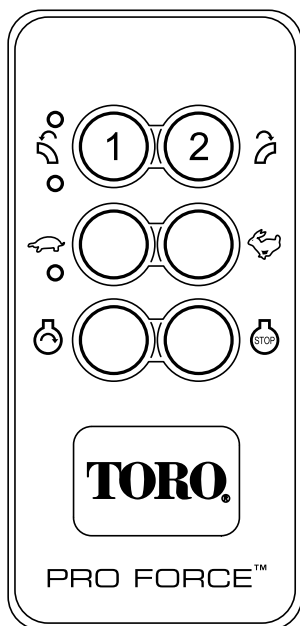
Power Save Mode

The base unit will revert to Power Save Mode — until a power cycle occurs — if the base unit is active for more than 2.5 hours without communication from the remote control. Power Save Mode is a low current state of the base unit. In Power Save Mode, the base unit will not communicate with the remote control, will not activate outputs, and will not generally function as normal.

- When in the time-out mode the engine will not run (or will quit running) and the remote control will not control any function.
- To wake controller in time-out mode, turn the key switch to the OFF position and then turn the key switch to the start position momentarily (engine will turn over).
- To avoid controller time-out during operation, use the remote control to rotate the chute or change the engine speed at least every 2.5 hours.

Adjusting the Nozzle Direction

The direction of the nozzle opening can be changed from right to left by pressing the appropriate button on the remote control (Figure 12).



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Figure 12

1. Nozzle direction, left
2. Nozzle direction, right

Maintenance

Associate Remote Control and Base Unit

Important: Make sure to read the entire procedure before attempting the Association process.

The remote control must establish communications with the base unit before the system can be used. The remote control is associated to the system base unit before leaving the factory. This is done using the Associate procedure. In situations where it is necessary to re-establish remote control-to-base unit communications (example: introducing a new or spare remote control to an existing base unit), the following Associate procedure must be performed.

Note: Associating the remote control to a different base unit will disassociate that remote control from the original base unit.

1. Remove power from the base unit.
2. Stand near the base unit in unobstructed, clear line-of-sight with the remote control in hand.
3. Simultaneously press and hold the Associate and Disassociate buttons. TX lights steady Green.
4. Continue to hold both buttons until the LINK LED begins flashing Amber.

Note: If the flashing LINK LED goes solid, the Association procedure is aborted and must be started anew to establish the communication link.

5. When the LINK LED flashes Amber, release the two buttons. All three LEDs flash allowing two (2) seconds for the operator to perform the next step.

Note: If the next button press is not performed within two seconds, the Association procedure is aborted and must be started anew to establish the communication link.

6. Press and hold the Associate button. The RX LED goes out, the TX LED lights steady green, and the LINK LED lights steady amber.
7. Apply power to the base unit while continuing to hold the Associate button.

The remote control and base unit begin to establish a communication link while the Associate button is held. Once the process is complete, the Amber LINK LED remains solid, the RX LED stops flashing Red and the TX LED lights steady Green (button being held) until the button is released, upon

which time TX begins flashing Green indicating that the remote control is transmitting.

8. Release the Associate button.

RX extinguishes and TX flashes Green for a brief time and then it too goes out.

The system is ready for use with that particular remote control.

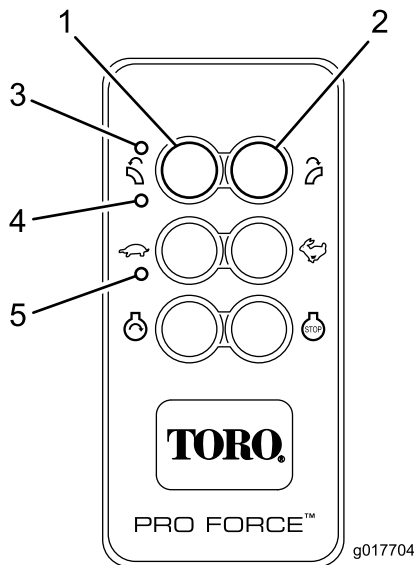


Figure 13

- | | |
|-----------------|---------|
| 1. Associate | 4. RX |
| 2. Disassociate | 5. LINK |
| 3. TX | |

3. If replacing expired batteries, remove the old batteries and install three fresh size AAA batteries. Be sure to position the batteries as shown in Figure 14.
4. Replace the compartment cover and tighten the four Phillips screws. These screws should not be over-tightened, but they should be tight enough to assure the gasket provides a proper seal.

Note: Be sure to observe proper polarity when placing batteries in the remote control battery compartment.

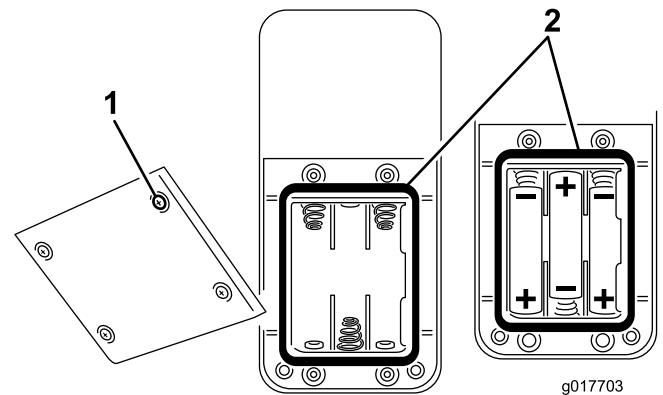


Figure 14

- | | |
|----------------|-------------------|
| 1. Cover screw | 2. Sealing gasket |
|----------------|-------------------|

Electrical Maintenance

Important: Before welding on the machine, disconnect the controller and the negative cable from the battery to prevent damage to the electrical system.

Remote Control Battery Installation/Change

Remote control units are powered by three size AAA batteries. When installing batteries, be sure to observe proper polarity as marked on the inside of the compartment to avoid damaging the unit. To replace or install batteries in the remote control:

1. Remove the four small Phillips screws from the Battery Compartment cover and lift the cover from the remote control.
2. If installing batteries in an empty battery compartment, install three fresh size AAA batteries. Be sure to position the batteries as shown in Figure 14.

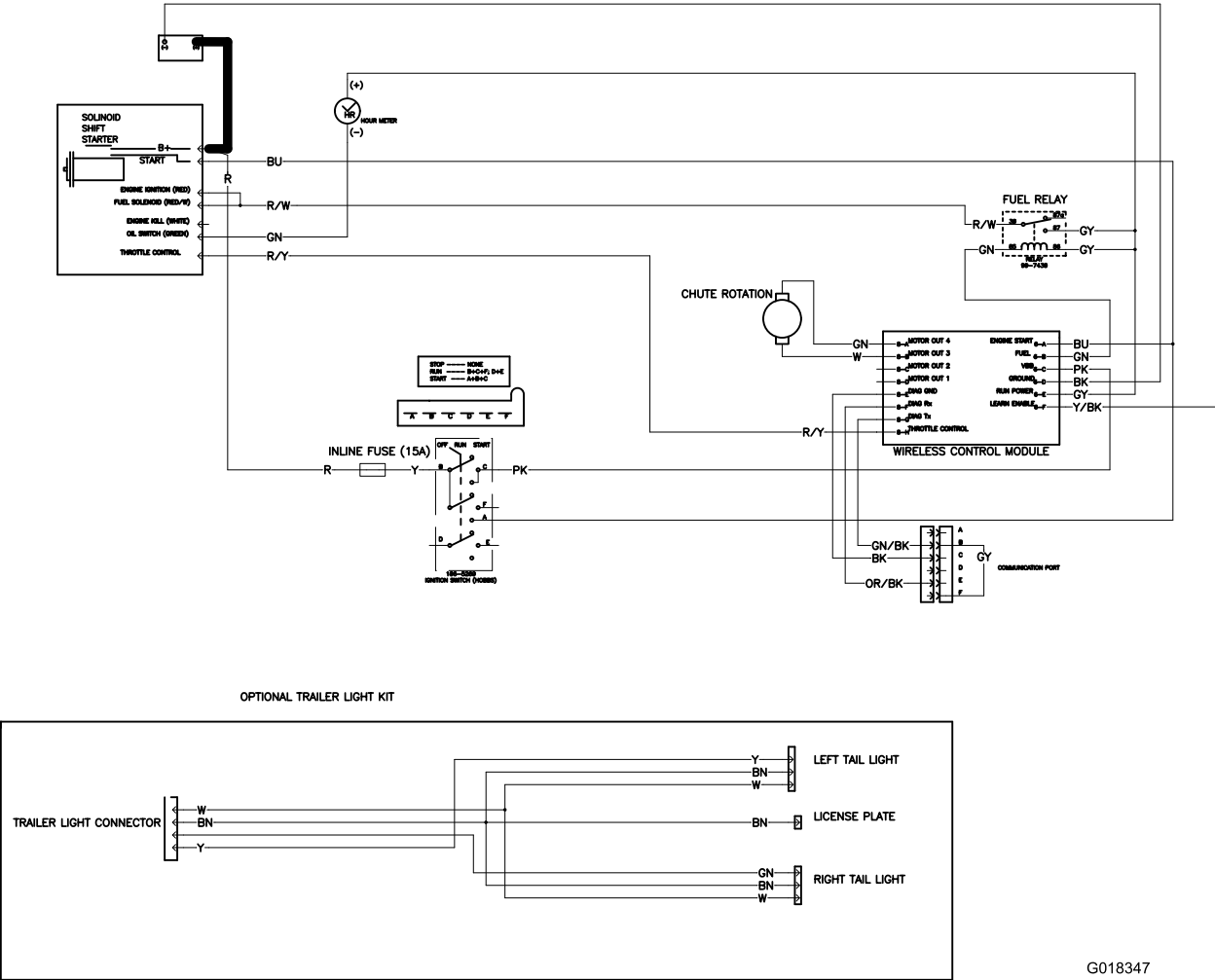
Fuse

A 15 amp in-line fuse is incorporated into the receiver wire harness. It is located behind the receiver on the back side of control tower.

Waste Disposal

Remote control batteries are pollutants to the environment. Dispose of these according to your state and local regulations.

Schematics



Electrical Schematic (Rev. A)

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