

INSTRUCTION SHEET

2017 NEC Required Engine Shutdown Add-On Kit (445.18(B))

Liquid-Cooled Products 15kW–60kW

DANGER

Accidental start-up. Disconnect power and render unit inoperable before performing service work. Failure to do so will result in death or serious injury.

(000344)

WARNING

Only qualified service personnel may install, operate, and maintain this equipment. Failure to follow proper installation requirements could result in death, serious injury, and damage to equipment or property. (000182)



WARNING

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury. (000100a)

CAUTION

Equipment Damage. The emergency stop switch is not to be used to power down the unit under normal operating circumstances. Doing so will result in equipment damage. (000246)

Introduction

New specifications in Article 445.18(B) of the 2017 National Electrical Code (NEC) require generators to be equipped with an independent means of shutting down the prime mover (engine). The shutdown mechanism, when activated, requires a mechanical reset. Generators 15 kW and larger require two engine shutdown switches. This kit includes all components needed to install required engine stop switches on Generac liquid-cooled Protector™ Series gaseous and diesel generators equipped with Evolution™ controllers.

NOTE: Some Authorities Having Jurisdiction (AHJs) and local codes require Protector diesel generators to be equipped with an optional Emergency Stop Switch (E-stop) as shown on the pre-installation checklist. The E-stop is offered separately from this kit as model G0065100.

IMPORTANT NOTE: If installing this kit on a Protector diesel unit equipped with or requiring an E-stop, turn to [page 6](#) and proceed with [INSTRUCTIONS—Protector Diesel \(with E-stop\)](#).

If installing this kit on a Protector diesel unit that does **not** require an E-stop, proceed with the instructions beginning on this page.

INSTRUCTIONS—Protector Gaseous / Protector Diesel (no E-stop)

Required Tools

The installer must be equipped with common installation tools including:

- power drill
- drill bits
- center punch
- wire cutters
- wire stripper
- crimper
- pencil or marker
- electrical tape
- Step drill capable of boring a 13/16 inch (21 mm) diameter hole
- Clear silicone sealant

Prepare for Installation

Before installing this kit, prevent the generator from accidental startup:

1. Open viewing window.
2. Press OFF key on control panel keypad. Red LED above key illuminates to confirm system is OFF.
3. Move main circuit breaker switch to OFF (Open).
4. Remove 7.5 A fuse.

- See **Figure 1**. Remove side access panel using vise-action latch key.



Figure 1 - Remove Side Access Panel

- Loosen nut on negative battery terminal and disconnect from post. Verify negative connector is isolated away from battery.
- Remove six screws with nylon washers to release rear panel.

NOTE: To simplify removal, rotate left side of panel outward away from enclosure before disengaging right side.

- Remove four screws with nylon washers to release fascia over control panel.

Controller Identification

See **Figure 2** to verify generator is equipped with an Evolution 1.0 controller.

Evolution 1.0 (Sync 2.0) Controller

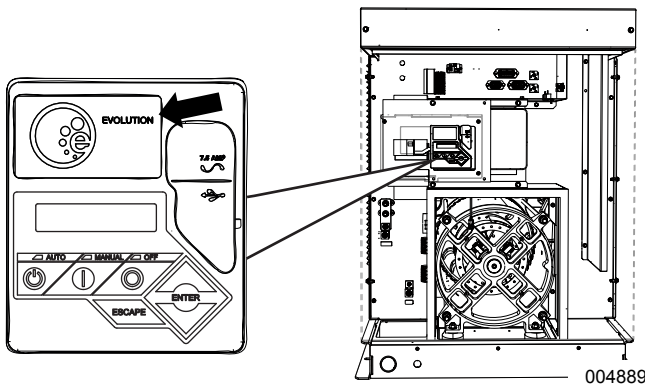


Figure 2 - Evolution 1.0 Controller

Wire Preparation

- See **Figure 3**. Cut black wire (A) at center of loop.

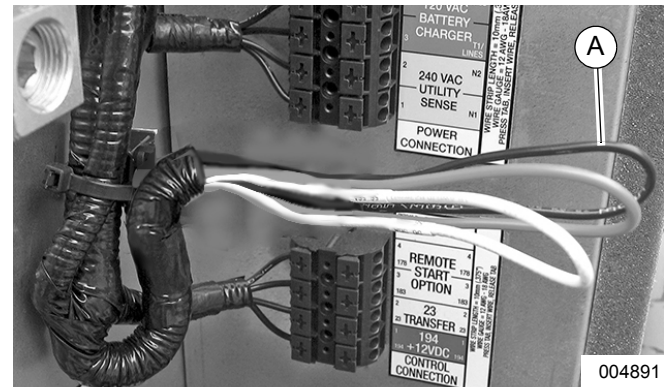
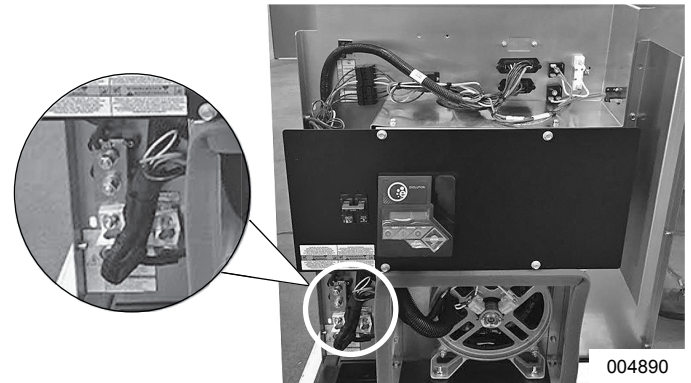


Figure 3 - Wire Preparation

- Strip 1/4 inch (6.4 mm) of insulation from cut wire ends.

Rocker Switch Installation

The ON/OFF Rocker Switches must be installed so that the UP position is ON and that the DOWN position is OFF. Use a continuity tester to verify rocker switch ON position (normally closed).

Roof Panel Installation

- See **Figure 4**. Measure 5 in. (12.7 cm) in from the right edge of roof panel, centered vertically. Mark an X at this location. This will be the center point for the switch mounting hole.

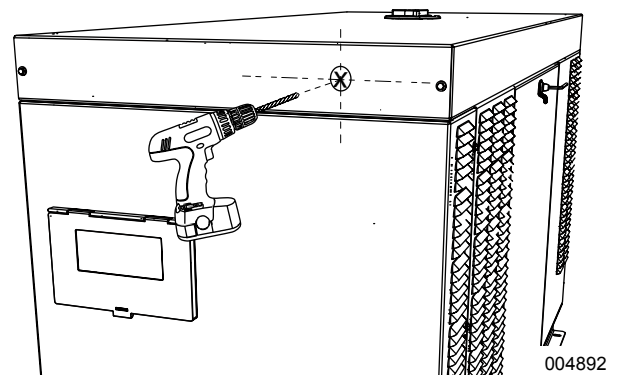


Figure 4 - Prepare Roof Panel

2. Use a step drill to bore a 13/16 in. (21 mm) diameter hole in the roof panel.

IMPORTANT NOTE: Do NOT drill hole larger than 13/16 in. (21 mm)! An oversize hole will prevent rocker switch installation and cannot be repaired in the field. The entire roof panel must be replaced.

3. Thoroughly clean area of any metal shavings.

IMPORTANT NOTE: Metal shavings have sharp edges that can nick, cut, or abrade wire insulation, possibly resulting in equipment failure.

4. See **Figure 5**. Insert rocker switch (B) into hole and apply a small amount of silicone sealant around perimeter for added weather resistance.

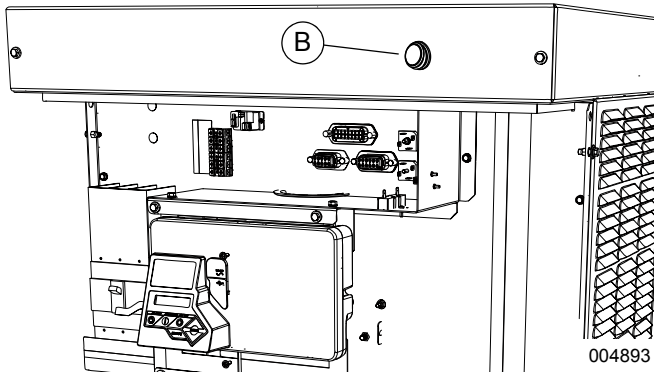


Figure 5 - Roof Panel Switch Installation

Interior Mount Installation

1. See **Figure 6**. Open viewing window located on rear enclosure panel. Remove four corner screws and customer access cover (A). Mark an X on the outside of the customer access cover centered on the right side. This will be the center point for the switch mounting hole.

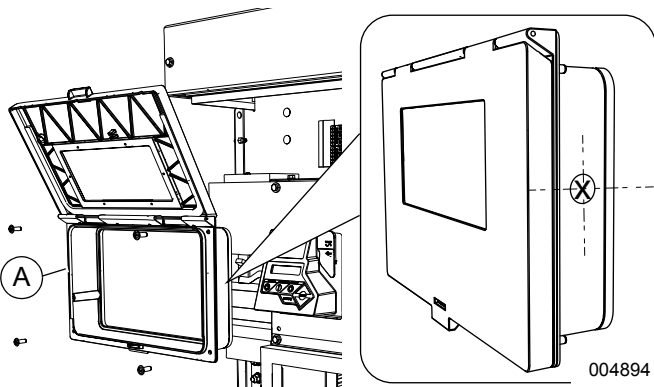


Figure 6 - Prepare Customer Access Cover

2. Use a step drill to bore a 13/16 in. (21 mm) diameter hole at the marked location.

IMPORTANT NOTE: Do NOT drill hole larger than 13/16 in. (21 mm)! An oversize hole will prevent rocker switch installation and cannot be repaired in the field. The entire customer access cover must be replaced.

3. Thoroughly clean area of any plastic shavings.
4. Install customer access cover in rear enclosure panel, securing with four screws.
5. Cut away one square inch (6.5 cm²) of insulating foam on inside of rear panel directly aligned with rocker switch hole.
6. See **Figure 7**. Insert rocker switch (B) into hole from inboard side of controller access cover. Rocker switch terminals should be on the insulated side of the rear enclosure panel.

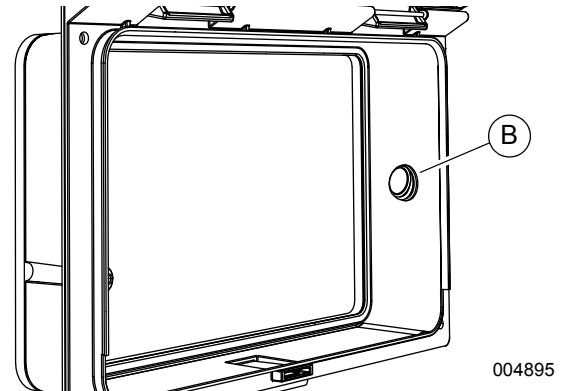


Figure 7 - Customer Access Cover Switch Installation

Rocker Switch Wiring Installation

The ON/OFF rocker switches must be wired in series and then connected to the wires alongside the control panel.

Switch Wiring

1. Cut one length of 18 AWG wire at 24 in. (61 cm), one length of wire at 36 in. (91 cm), and one length of wire at 42 in. (106.7 cm).
2. Strip 3/8 in. (10 mm) of insulation from each end of all three wires.
3. Crimp an insulated quick disconnect connector to one end of the 36 in. (91 cm) and 42 in. (106.7 cm) lengths of wire.
4. Crimp an insulated quick disconnect connector to each end of the 24 in. (61 cm) length of wire.

Continued on next page

5. See **Figure 8**. Connect one crimped end of 24 in. (61 cm) wire (E) and 36 in. (91 cm) wire (C) to rocker switch terminals on outboard side of controller access cover. Verify there is enough insulation removed to properly connect and disconnect wires.

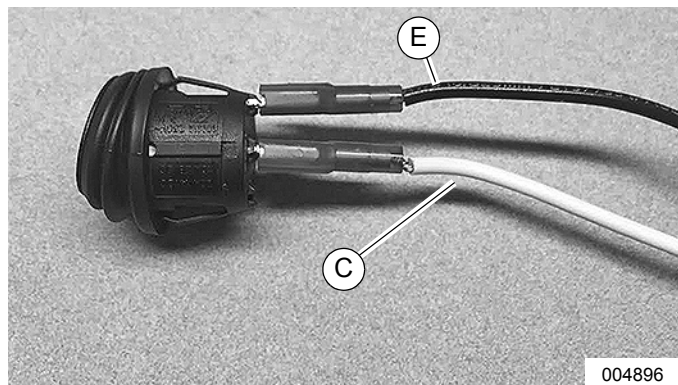


Figure 8 - Crimped Rocker Switch Wires

6. Position rear enclosure panel close to rear of generator. Wires connected to switch in rear panel will be routed and wired to inside of generator control panel.
7. See **Figure 9**. Route loose end of 36 in. (91 cm) wire (C) along existing harness to left side of control panel.

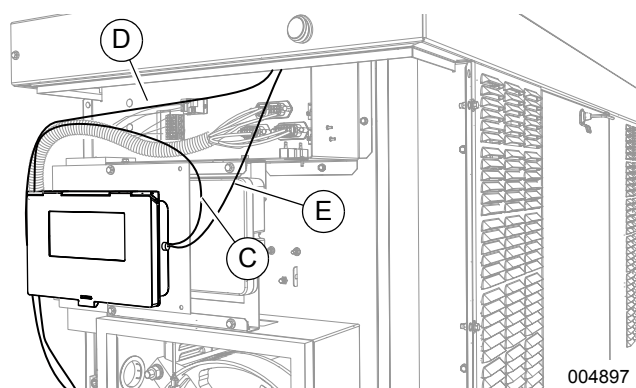


Figure 9 - Wire Routing

8. See **Figure 10**. Crimp an insulated barrel splice crimp connector (F—supplied) to stripped end of 36 in. (91 cm) wire (C). Crimp open end of barrel splice connector to one of the stripped black wires.

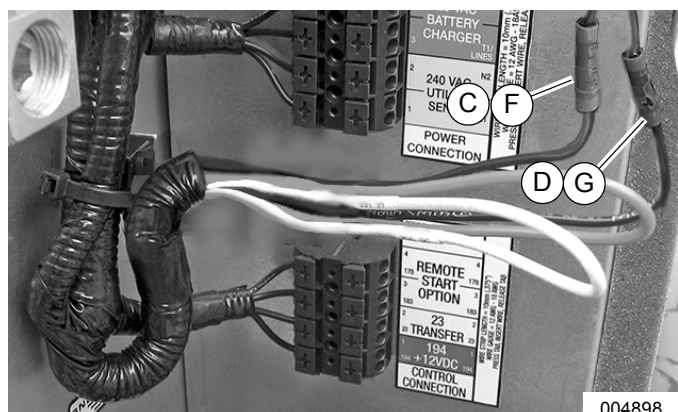


Figure 10 - Crimped Wires at Harness

9. Crimp an insulated barrel splice crimp connector (G—supplied) to stripped end of 42 in. (106.7 cm) wire (D). Crimp open end of barrel splice connector to second stripped black wire.
10. See **Figure 9**. Route loose end of 42 in. (106.7 cm) wire (D) up along existing harness to location of second rocker switch.
11. Guide 42 in. (106.7 cm) wire (D) and 24 in. (61 cm) wire (E) over the top of connection box divider panel. Tuck wires between panel flange and roof panel insulation.
12. Using quick disconnect connectors, fasten two wires to rocker switch terminals in roof panel.
13. Using four screws with nylon washers, fasten fascia over control panel.
14. See **Figure 11**. Apply supplied engine shutdown decals above and next to rocker switches.

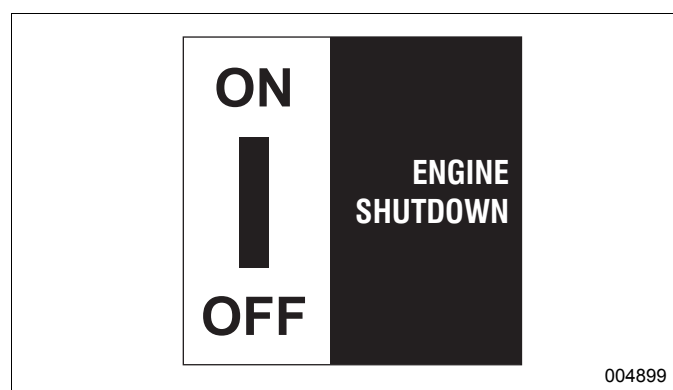


Figure 11 - Engine Shutdown Decal

15. Install rear panel.

NOTE: To simplify installation, first engage right side of panel and then rotate left side in toward enclosure. Alternately work left and right sides in until slots are aligned with screw holes on both sides. Avoid pinching loose switch wires between panel and enclosure. Install six screws with nylon washers and tighten until snug.

NOTE: Proceed carefully when removing rear enclosure panel. Gently remove panel, allowing just enough room to disconnect wires from switch terminals in access cover. Once wires are disconnected, rear panel may be fully removed and set aside. Reconnect auxiliary switch wires before replacing rear panel.

Firmware Update (if required)

The generator controller may require a firmware update. Firmware version 1.19 or later is required.

Verify controller firmware version. If an update is required, install latest version before testing engine shutdown switches.

1. Connect negative battery terminal and tighten nut.
2. Install 7.5 A fuse and configure install wizard.
3. With generator controller OFF, enter Edit menu.
4. Scroll through the options and select "Update Firmware." Press Enter.
5. Insert a USB drive with current firmware into controller port. Follow prompts.
6. After firmware has been updated, press "Escape" until sub menu screen displays.
7. Enter dealer menu.
8. Select "Dealer/Edit" menu.
9. Scroll through the options and select "Auxiliary Stop Setting."
10. Select "Auxiliary Shutdown."
11. Press Escape until submenu screen displays.

Activate Engine Shutdown Functionality

Verify firmware version of the controller is correct as specified in [Firmware Update \(if required\)](#). If an update is required, download and install the latest firmware before proceeding.

The controller must detect the installed switches to activate the engine shutdown functionality.

1. Verify controller is powered and generator is OFF.
2. Turn rocker switches ON to verify switches are disengaged.
3. Turn one rocker switch OFF. The controller should detect that the switch has been engaged and will display "Auxiliary Shutdown."
 - If alarm appears on controller screen, turn rocker switch ON and clear alarm.
 - If alarm does not appear on controller screen, engine shutdown switch is not functioning. Verify firmware version meets requirements. Disconnect power and re-check wiring installation. Contact Generac Technical Support if the problem cannot be identified or if you need assistance.
4. Repeat steps 1–3 for second rocker switch.

Test Switch Operation

Test engine shutdown switches after installation to verify proper operation.

1. Verify rocker switches are ON.
2. Press MANUAL key on control panel keypad to start engine.
3. With engine running, press one of the engine shutdown switches to OFF. Engine should shut down immediately.
 - **If engine stops**, press engine shutdown switch to ON, clear alarm on controller, and restart engine to verify generator is operating normally. After verifying normal operation of first switch, verify operation of second switch.
 - **If engine does not stop**, engine shutdown switch is not functioning correctly. Stop generator through the control panel, and re-check wiring installation. Contact Generac Technical Support if the problem cannot be identified or if you need assistance.
4. Show homeowner how to operate engine shutdown switches. Remind him or her that the engine shutdown switches are not intended to be the primary means to shut down the generator under normal operating conditions. Accidental activation of an engine shutdown switch will prevent the generator from operating during a power outage.

Complete Installation

1. Move main line circuit breaker (generator disconnect) to ON (closed).
2. Close viewing window.
3. Install side access panel and lock latch using vise-action key.

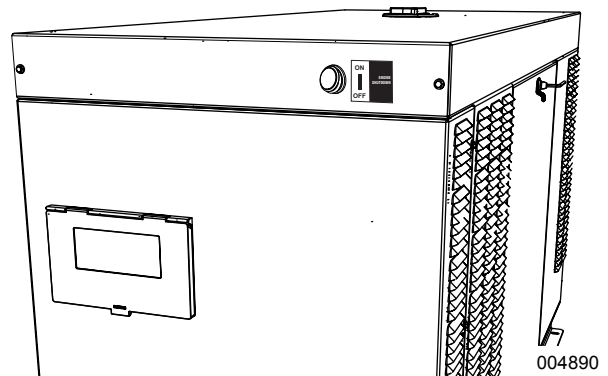


Figure 12 - Completed Installation

INSTRUCTIONS—Protector Diesel (with E-stop)

Only one rocker switch is required on Protector diesel units with an E-stop. The rocker switch will be mounted inside the customer access cover. Dispose of the second rocker switch.

Required Tools

The installer must be equipped with common installation tools including:

- power drill
- drill bits
- center punch
- wire cutters
- wire stripper
- crimper
- pencil or marker
- electrical tape
- Step drill capable of boring a 13/16 inch (21 mm) diameter hole
- Clear silicone sealant

Prepare for Installation

Before installing this kit, prevent the generator from accidental startup:

1. Open viewing window.
2. Press OFF key on control panel keypad. Red LED above key illuminates to confirm system is OFF.
3. Move main circuit breaker switch to OFF (Open).
4. Remove 7.5 A fuse.
5. See [Figure 13](#). Remove side access panel using vise-action latch key.



Figure 13 - Remove Side Access Panel

6. Loosen nut on negative battery terminal and disconnect from post. Verify negative connector is isolated away from battery.
7. Remove six screws with nylon washers to release rear panel.

NOTE: To simplify removal, rotate left side of panel outward away from enclosure before disengaging right side.

8. Remove four screws with nylon washers to release fascia over control panel.

Controller Identification

See [Figure 14](#) to verify generator is equipped with an Evolution 1.0 controller.

Evolution 1.0 (Sync 2.0) Controller

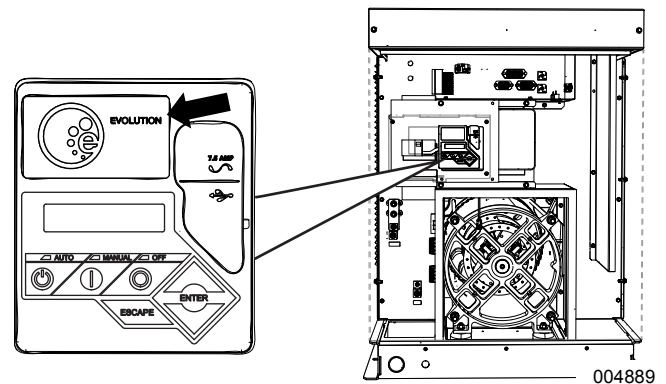


Figure 14 - Evolution 1.0 Controller

Emergency Stop Switch (E-stop)

If an E-stop is NOT already installed:

1. Mount and wire E-stop according to E-stop kit instructions.

NOTE: Only crimp one black wire from the E-stop to pin side of Deutsch connector. The other black wire will be used to connect the rocker switch in series.

2. Complete the additional rocker switch installation as described below.

If an E-stop is already installed:

1. See [Figure 15](#). Disconnect one black wire from the E-stop harness by removing butt splice connector on pin side of Deutsch connector.
2. Strip 3/8 in. (10 mm) of insulation from each end of wire (A).

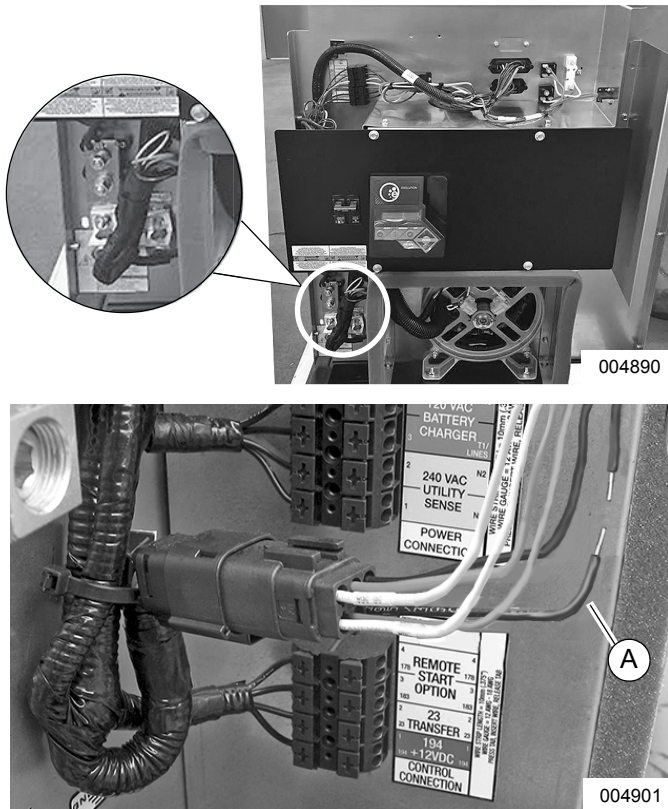


Figure 15 - Wire Preparation with E-Stop Installed

Rocker Switch Installation

The ON/OFF Rocker Switch must be installed so that the UP position is ON and that the DOWN position is OFF. Use a continuity tester to verify rocker switch ON position (normally closed).

Interior Mount Installation

1. See **Figure 16**. Open viewing window located on rear enclosure panel. Remove four corner screws and customer access cover (A). Mark an X on the outside of the customer access cover centered on the right side. This will be the center point for the switch mounting hole.

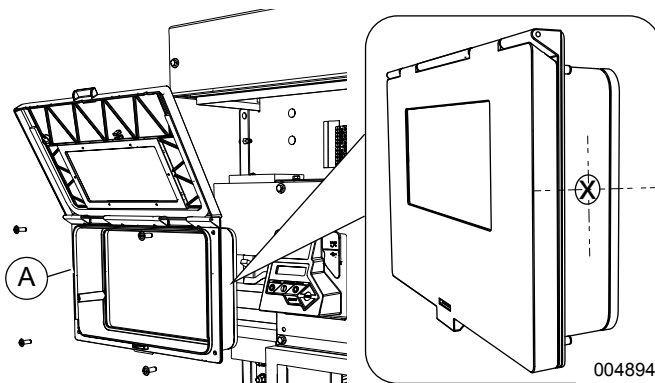


Figure 16 - Prepare Customer Access Cover

2. Use a step drill to bore a 13/16 in. (21 mm) diameter hole at the marked location.

IMPORTANT NOTE: Do NOT drill hole larger than 13/16 in. (21 mm)! An oversize hole will prevent rocker switch installation and cannot be repaired in the field. The entire customer access cover must be replaced.

3. Thoroughly clean area of any plastic shavings.
4. Install customer access cover in rear enclosure panel, securing with four screws.
5. Cut away one square inch (6.5 cm²) of insulating foam on inside of rear panel directly aligned with rocker switch hole.
6. See **Figure 17**. Insert rocker switch (B) into hole from inboard side of controller access cover. Rocker switch terminals should be on the insulated side of the rear enclosure panel.

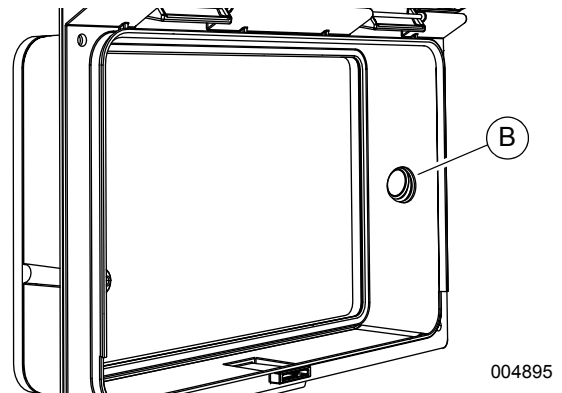


Figure 17 - Customer Access Cover Switch Installation

Rocker Switch Wiring Installation

One ON/OFF rocker switch must be wired in series with the E-Stop harness and then connected to the black wire on pin side of Deutsch connector.

Switch Wiring

1. Cut one length of 18 AWG wire at 36 in. (91 cm). Strip 3/8 in. (10 mm) insulation from each end of the wire.
2. Crimp an insulated quick disconnect connector to one end of the 36 in. (91 cm) wire.
3. Crimp an insulated quick disconnect connector to the free end of the black wire from the E-stop harness.

4. See **Figure 18**. Connect crimped ends of 36 in. (91 cm) wire (C) and black wire from E-stop harness (D) to rocker switch terminals at customer access cover. Verify there is enough insulation removed to properly connect and disconnect wires.

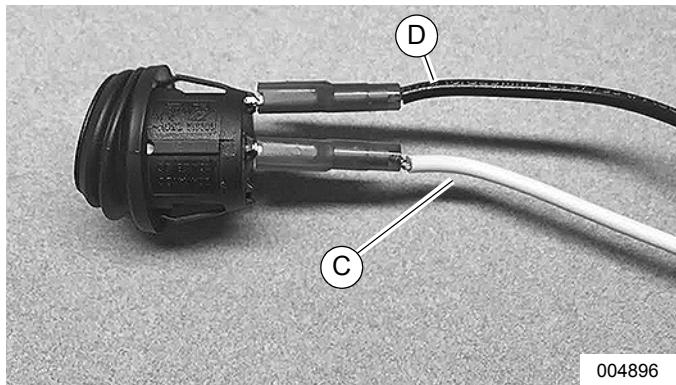


Figure 18 - Crimped Rocker Switch Wires

5. Position rear enclosure panel close to rear of generator. Wires connected to switch in rear panel will be routed and wired to inside of generator control panel.
6. See **Figure 19**. Route loose end of 36 in. (91 cm) wire (C) along existing harness to left side of control panel.

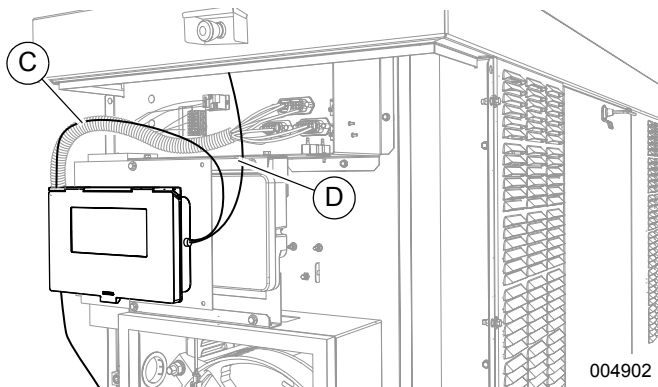


Figure 19 - Wire Routing

7. See **Figure 20**. Crimp an insulated barrel splice connector (E—supplied) to stripped end of 36 in. (91 cm) wire (C). Crimp open end of barrel splice connector to the stripped black wire on pin side of Deutsch connector.

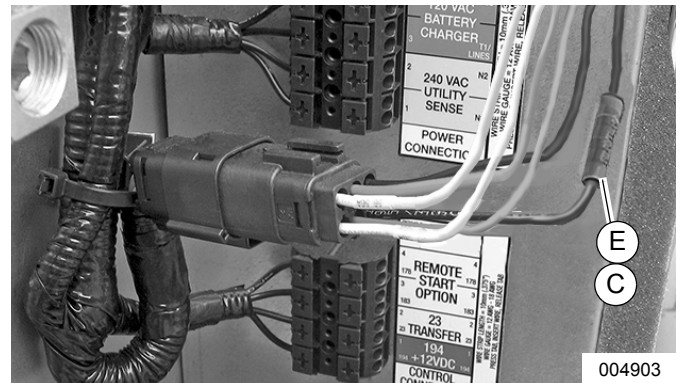


Figure 20 - Connect Switch Wire

8. Using four screws with nylon washers, fasten fascia over control panel.
9. See **Figure 21**. Apply one supplied engine shutdown decal next to rocker switch.

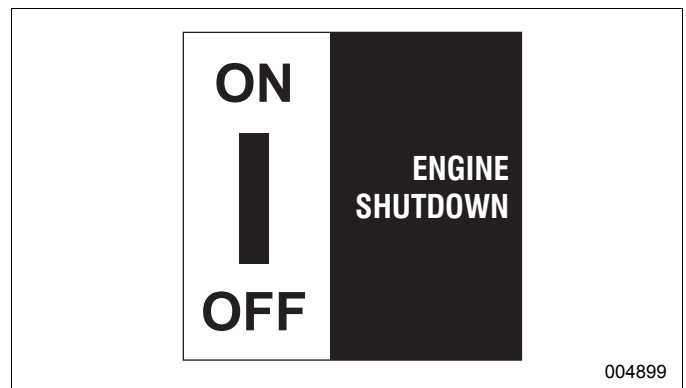


Figure 21 - Engine Shutdown Decal

10. Install rear panel.

NOTE: To simplify installation, first engage right side of panel and then rotate left side in toward enclosure. Alternately work left and right sides in until slots are aligned with screw holes on both sides. Avoid pinching loose switch wires between panel and enclosure. Install six screws with nylon washers and tighten until snug.

NOTE: Proceed carefully when removing rear enclosure panel. Gently remove panel, allowing just enough room to disconnect wires from switch terminals in access cover. Once wires are disconnected, rear panel may be fully removed and set aside. Reconnect auxiliary switch wires before replacing rear panel.

Activate Engine Shutdown Functionality

The controller must detect the installed E-stop and rocker switch to activate emergency stop functionality.

1. Install 7.5A fuse.
2. Connect negative battery terminal and tighten nut. Verify controller is powered and generator is OFF
3. Disengage E-stop and turn rocker switch ON.
4. Push E-stop knob. Controller should detect that the E-stop has been engaged and will display "Emergency Stop Alarm."
 - If alarm appears on controller screen, reset E-stop by pulling knob and clearing alarm.
 - If alarm does not appear on controller screen, E-stop is not functioning.

Disconnect power and re-check wiring installation. Contact Generac Technical Support if the problem cannot be identified or if you need assistance.

5. Repeat steps 1–3 for the rocker switch by toggling between ON and OFF.

Test Switch Operation—Protector Diesel

Test E-stop and rocker switch after installation to verify proper operation.

1. Verify E-stop is disengaged and rocker switch is ON.
2. Press MANUAL key on control panel keypad to start engine.
3. With engine running, push E-stop knob. Engine should shut down immediately.
 - **If engine stops**, reset E-stop by pulling knob, clear alarm on controller, and start engine to verify generator is operating normally. After verifying normal operation of E-stop, verify operation of rocker switch.
 - **If engine does not stop**, either E-stop or rocker switch is not functioning correctly. Stop generator through the control panel, and re-check wiring installation. Contact Generac Technical Support if the problem cannot be identified or if you need assistance.

4. Show homeowner how to operate the E-stop and rocker switch. Remind him or her that these devices are not intended to be the primary means to shut down the generator under normal operating conditions. Accidental activation of an E-stop or rocker switch will prevent the generator from operating during a power outage.

Complete Installation

1. Move main line circuit breaker (generator disconnect) to ON (closed).
2. Close viewing window.
3. Install side access panel and lock latch using vise-action key.