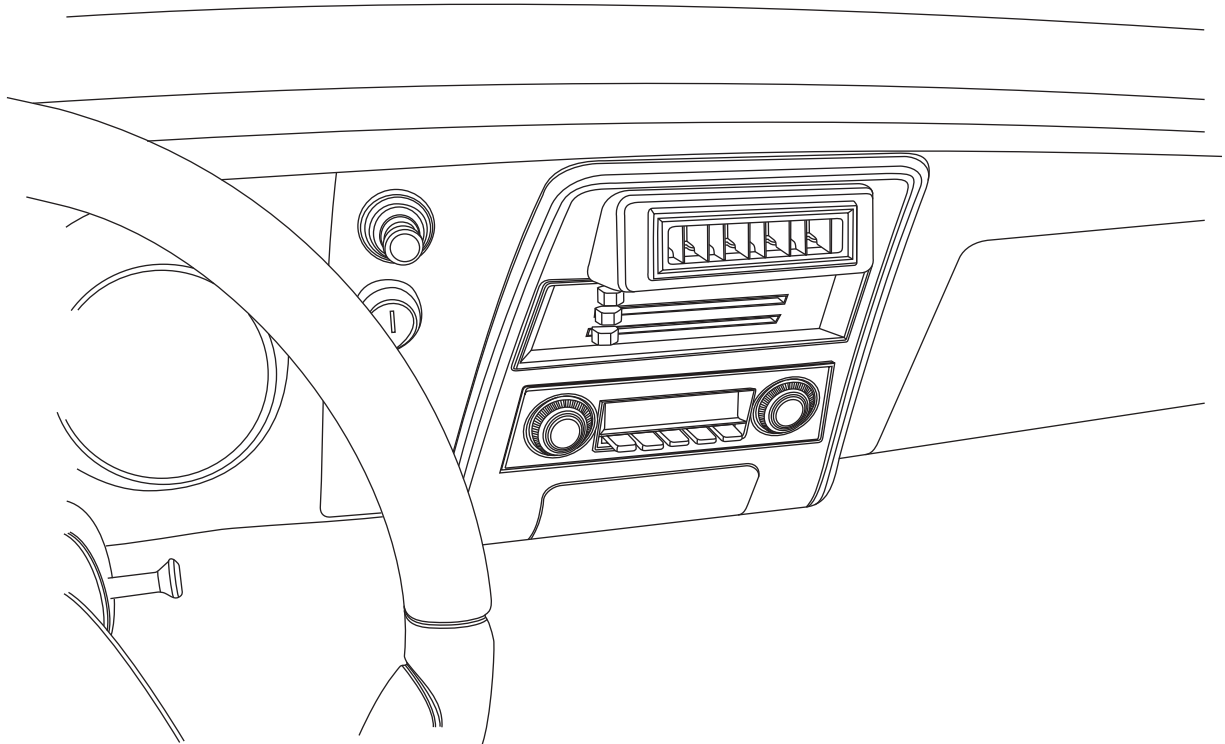




an ISO 9001:2008 Registered Company

1967-68 Chevrolet Camaro

without **Factory Air**
Control Panel Conversion Kit
475168



18865 Goll St. San Antonio, TX 78266
Phone: 210-654-7171
Fax: 210-654-3113
www.vintageair.com



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Table of Contents

Thank you for purchasing this control panel kit from Vintage Air. When installing these components as part of a complete SureFit™ system, Vintage Air recommends working from front to back on the vehicle, installing the condenser kit, hose kit, and compressor first, followed by the wiring, evaporator, and finally the control panel.

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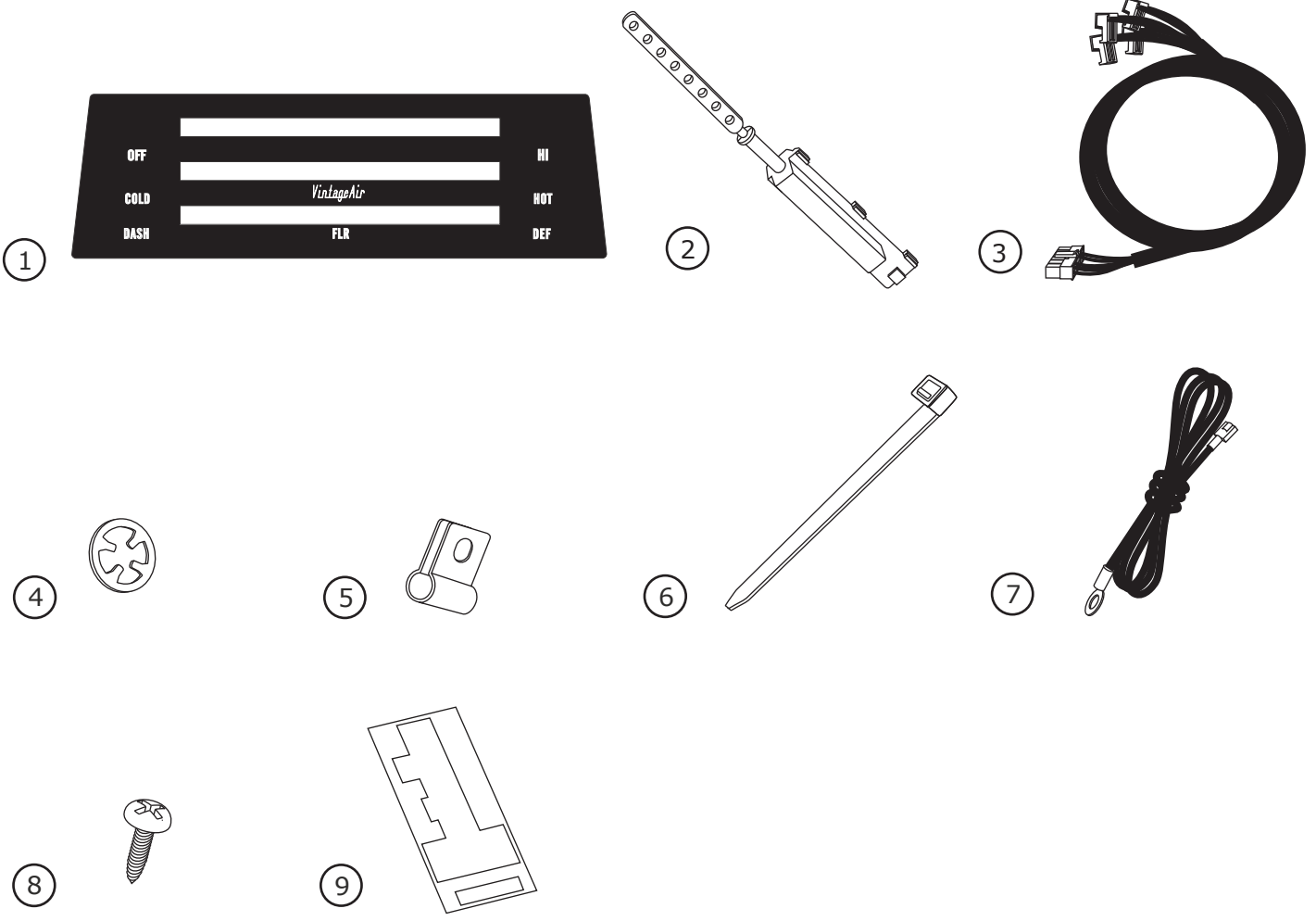


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Packing List: (475168) Control Panel Conversion Kit 1967-68 Chevrolet Camaro without Factory Air

No.	Qty.	Part No.	Description
1.	1	484168	Label, Control Panel Mode
2.	3	112002-SUA	Cable Converter Assembly
3.	1	232002-VUA	Control Harness, Gen IV Universal
4.	3	65976-VUE	Push-on Ring, 3/16"
5.	3	491010-VUR	Clamp, Cable Converter
6.	5	21301-VUP	Tie Wrap, 4"
7.	1	231520	Ground Wire
8.	4	18235-VUB	Screw, #8 x 1/2", Pan Head
9.	1	484170	Label Backing

**** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**



**NOTE: Images may not depict actual parts and quantities.
Refer to packing list for actual parts and quantities.**



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Removing OEM Control Panel

Perform the Following:

1. Remove (4) OEM screws from the dash bezel, under the dash (retain) (See Figure 1, below).
2. Remove the OEM control panel from the dash (retain).
3. Disconnect the cables and wires from the back side of the OEM controls (discard).
4. Remove the (2) screws securing the OEM fan switch to the top of the control panel. Remove the fan switch from the control panel (discard).

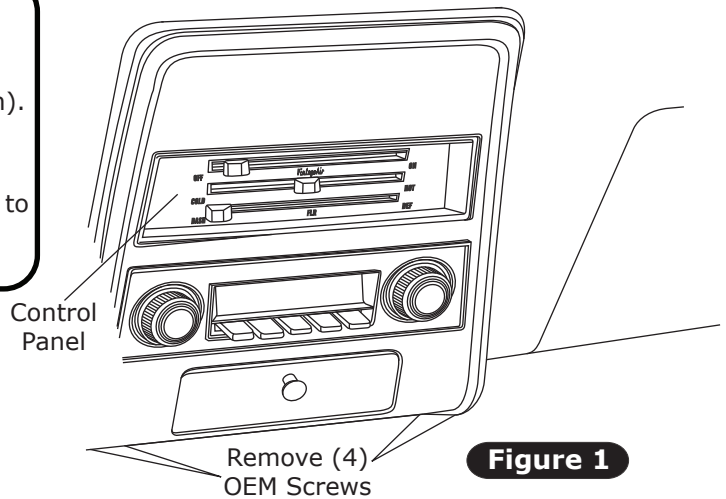


Figure 1

Placard Installation

NOTE: The OEM control panel placard can be used with this system. However, the bottom of the placard will not depict actual mode settings. The actual mode settings are shown on the replacement placard mode label that comes with this kit. To use the replacement placard mode label, you must modify parts of the control panel assembly as described below. We leave it up to you, the customer, to decide if you would like to use the OEM placard or the replacement placard mode label.

To Use the Replacement Placard Mode Label:

1. Remove the (3) lever knobs (See Figure 2, below).
2. Remove the (4) control panel face plate mounting rivets. Drill out the rivets using a 9/64" drill bit (See Figure 2, below).
3. Remove the OEM control panel face plate, placard and OEM backing plate from the control panel. Orient the OEM backing plate as shown in Figure 2, below. Using a suitable method, cut along the inside edge of the flange as shown.

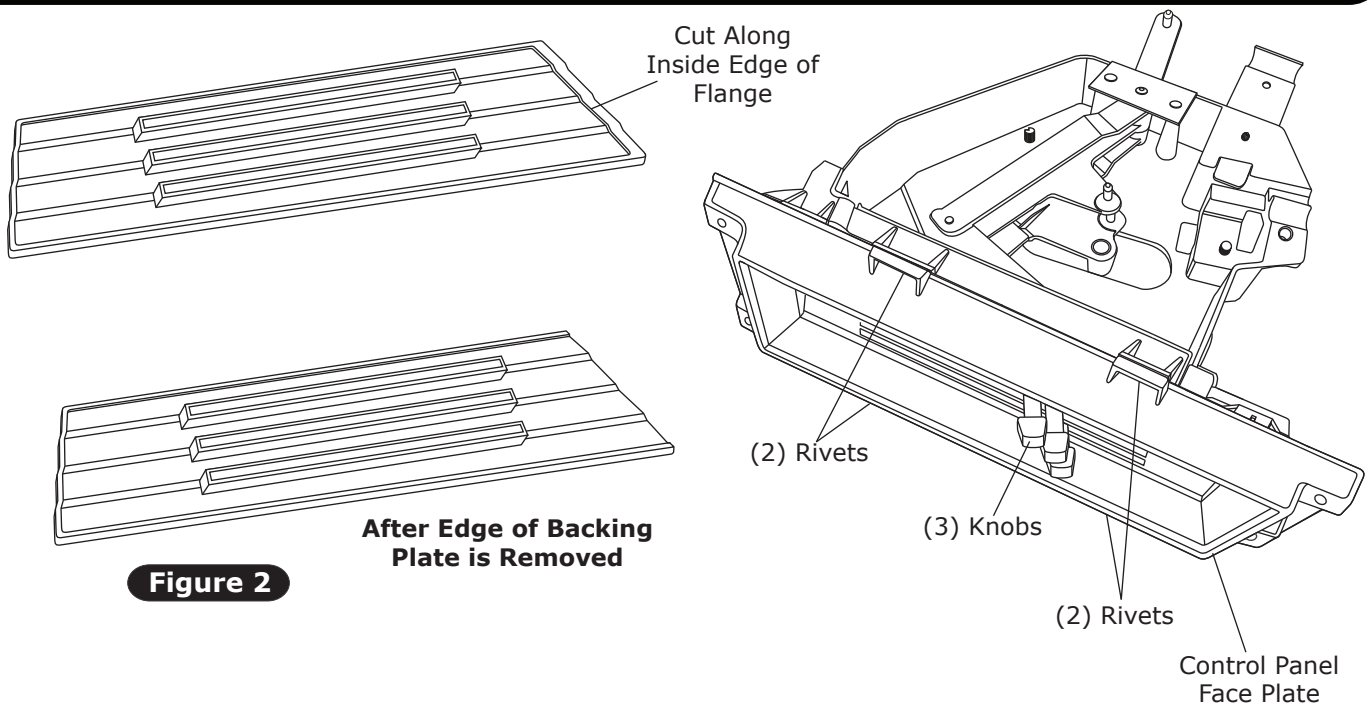


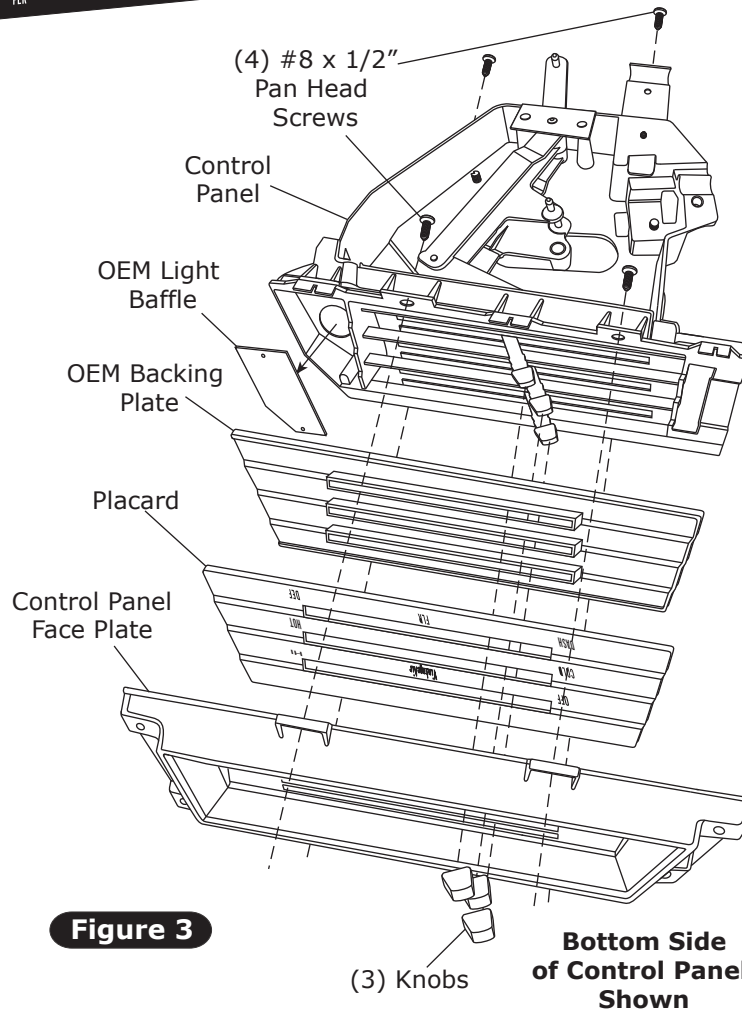
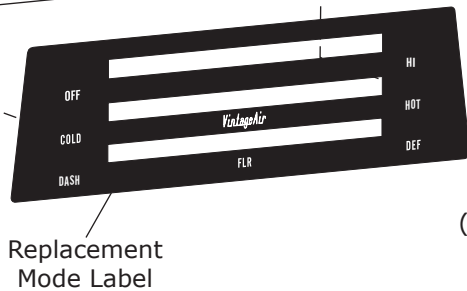
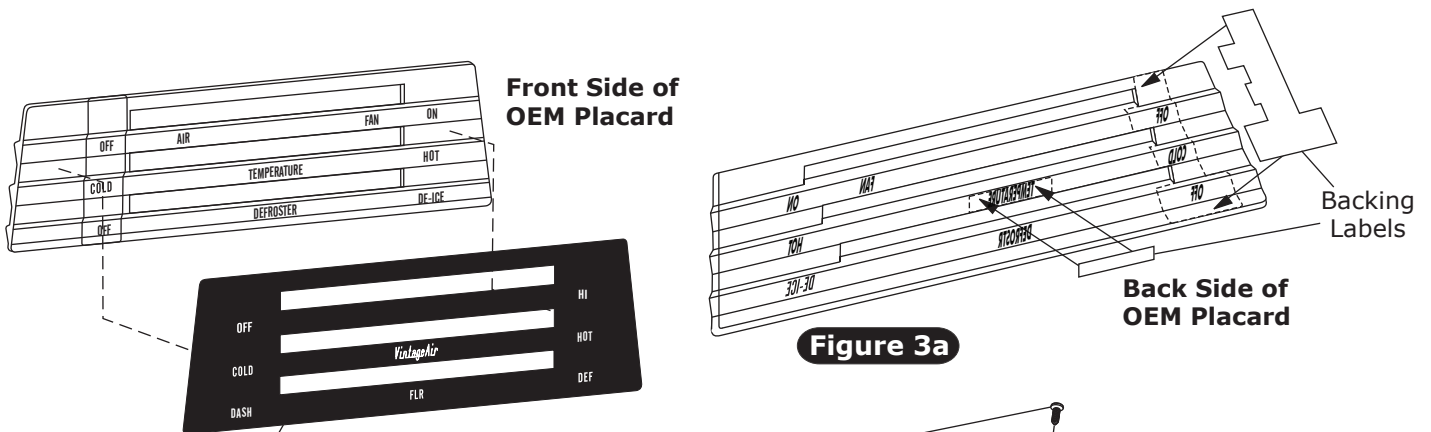
Figure 2



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Placard Installation (Cont.)

1. Locate the OEM placard. Turn the placard over, and apply the white backing labels to the back side of the OEM placard as shown in Figure 3a, below. **NOTE: These white stickers are applied to the back side of the control panel placard to balance the amount of light across the face of the control panel.**
2. Install replacement placard mode label on the front side of the OEM placard.
3. Remove OEM light baffle (discard).
4. Install OEM backing plate, placard and control panel face plate. Secure control panel face plate to control panel using (4) #8 x 1/2" pan head screws.
5. Reinstall knobs.





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Cable Converter Assembly Modification

1. Locate the (3) cable converter assemblies. Using a pair of wire cutters, cut the cable converter actuator rods as shown in Figure 4, below.

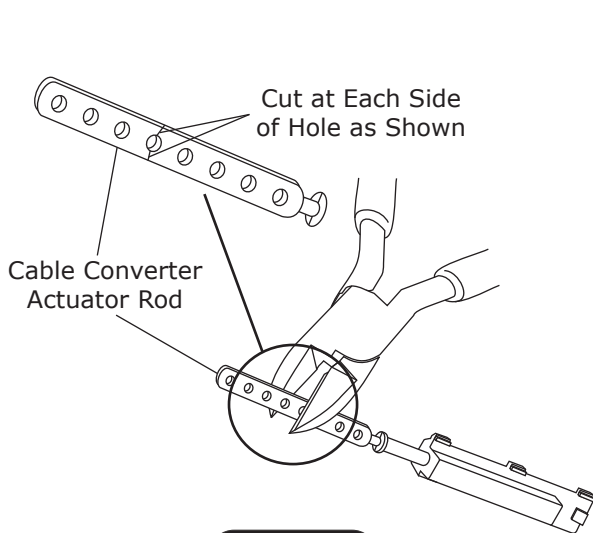
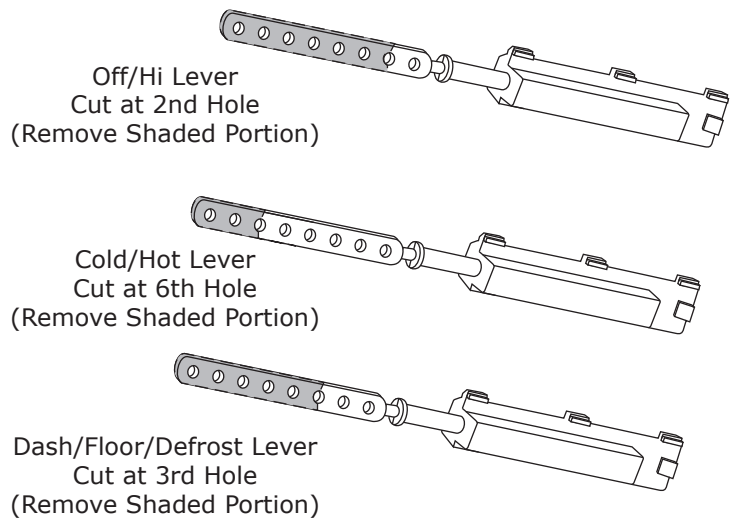


Figure 4



Cable Converter Assembly Mounting Clamp Installation

1. Install cable converter assembly mounting clamps. **NOTE: Orient clamps in relation to the (3) housing snaps on the cable converter assembly (See Figure 5, below).**

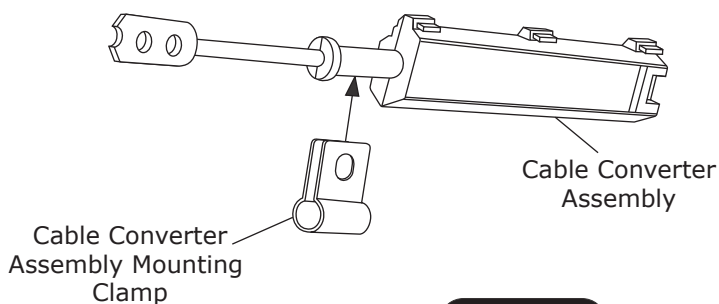
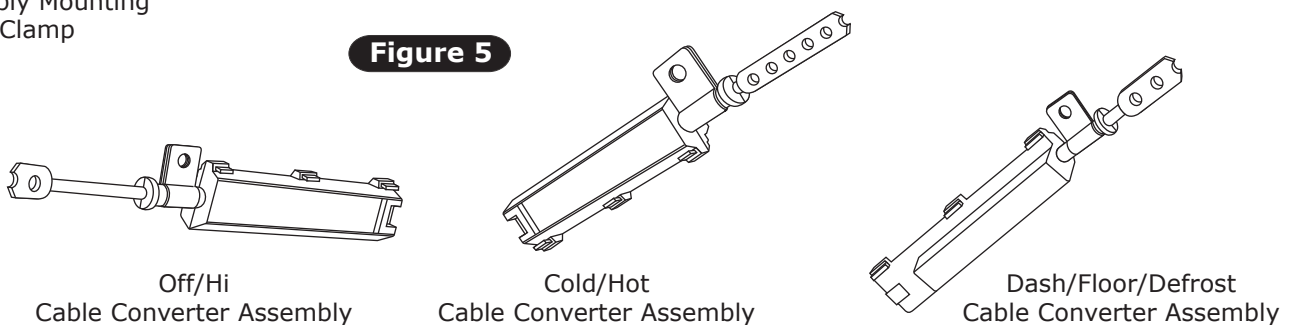


Figure 5



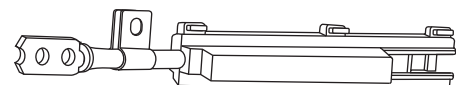
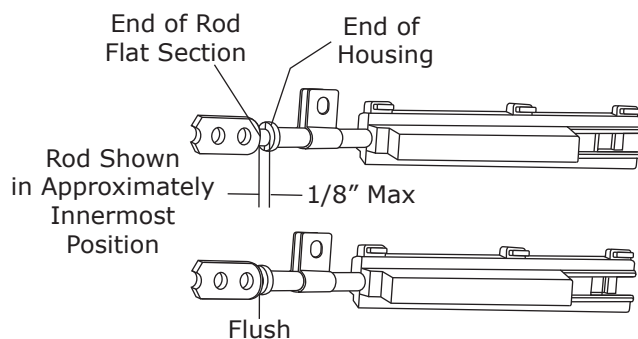
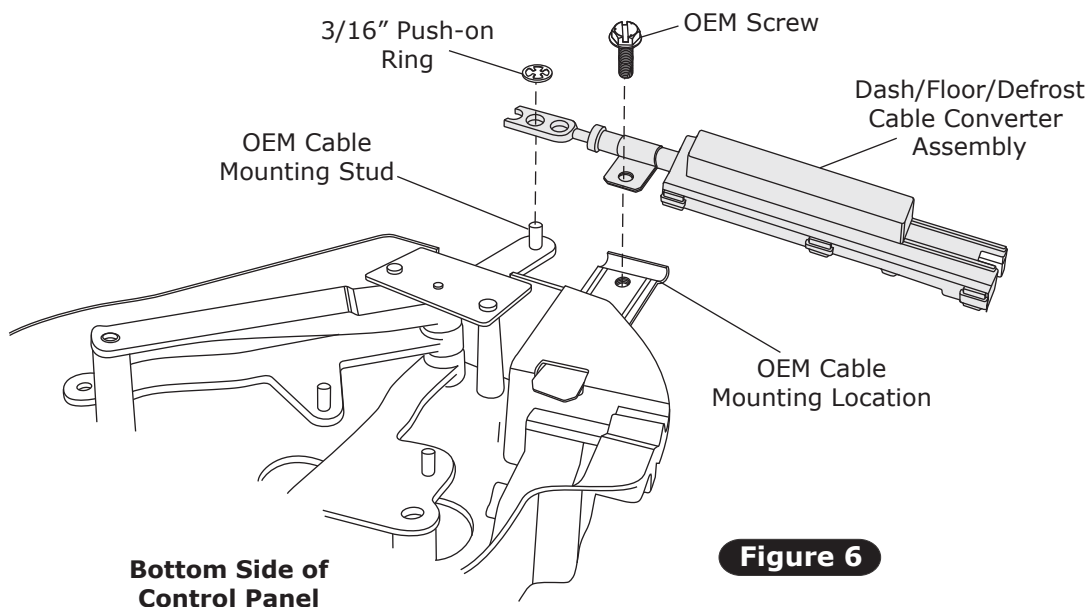
Orient Cable Converter Assemblies and Install Mounting Clamps as Shown.



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Dash/Floor/Defrost Cable Converter Assembly Installation

1. Turn control panel over, with bottom side facing up.
2. Install the cable converter assembly onto the Dash/Floor/Defrost lever (See Figure 6, below).
3. Install the cable converter push rod onto the OEM cable mounting stud on the lever.
4. Secure the cable converter assembly onto the OEM control panel using the OEM screw in the OEM cable clamp mounting location (See Figure 6, below).
5. Since the cable converter assembly can slide back and forth in the clamp before the screw is tightened, position the cable converter assembly such that the flat part of the rod is as close to flush as possible with the end of the housing at the lever's innermost position (See Figure 6, below).
6. Secure the cable converter lever push rod onto the OEM cable mounting stud using a 3/16" push-on ring as shown in Figure 6, below.



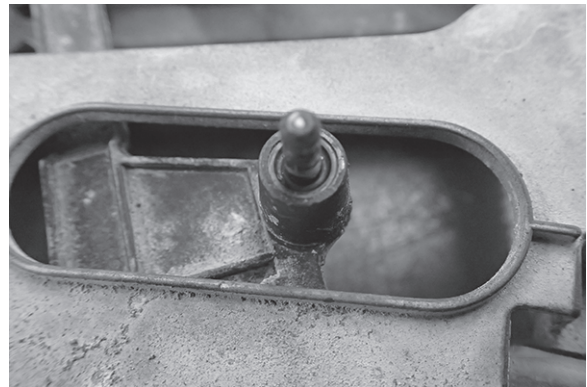
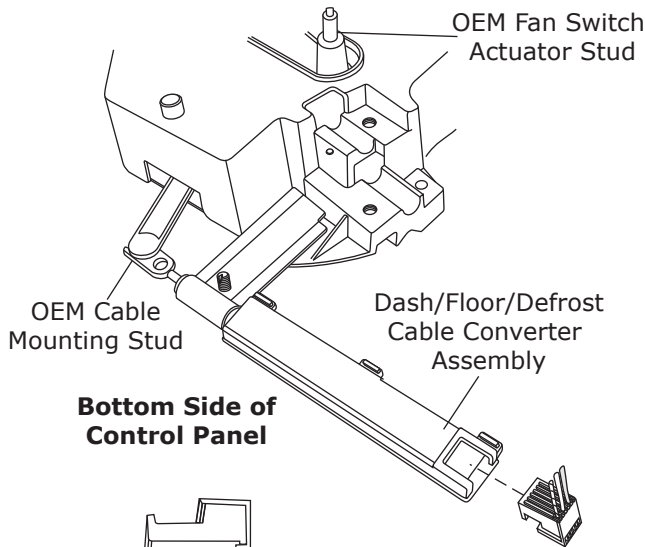
NOTE: Do not allow rod to separate housing when rod is in innermost position.



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Dash/Floor/Defrost Control Harness

1. Remove OEM fan switch actuator stud (See Figure 7 and photos, below). **NOTE: Fan switch actuator stud removal is required to allow clearance for duct hoses. Failure to remove the stud will result in a punctured duct hose.**
2. Locate the control panel wiring harness, and plug the corresponding wire into the correct cable converter assembly as shown in Figure 7, below.
3. Once the wires are correctly plugged into the cable converter assembly, secure the wires to the cable converter assembly using the supplied tie wraps. The tie wrap must be located between the end of the wire jacket and the step in the cable converter housing, forcing a bend in each wire as it passes over the step in the cable converter housing. The head of the tie wrap must fall on the edge of the housing to remain tight. Ensure that the tie wraps are tight enough that the wires cannot move (See Figure 8, below).



Before Stud Removal

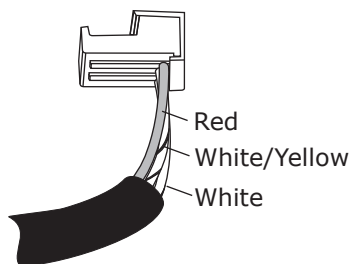


Figure 7



After Stud Removal

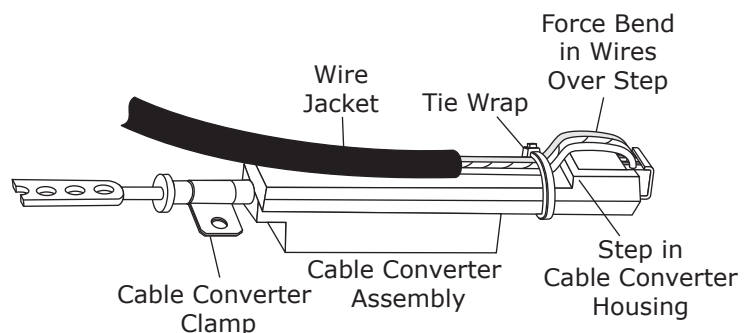
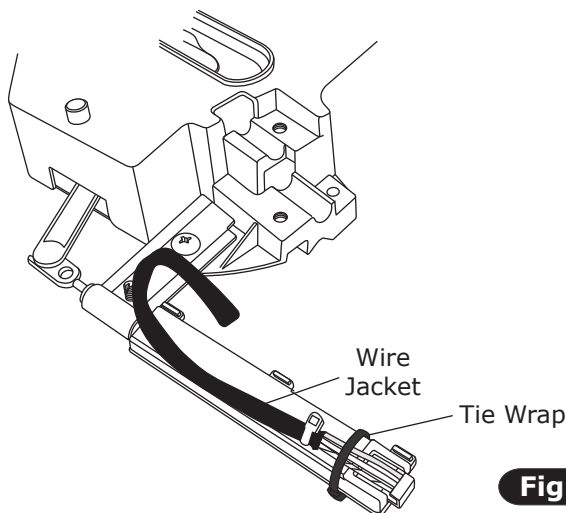


Figure 8



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Cold/Hot Cable Converter Assembly & Control Harness Installation

1. Install the cable converter assembly onto the Cold/Hot lever.
2. Install the cable converter push rod onto the OEM cable mounting stud on the lever.
3. Secure the cable converter assembly onto the OEM control panel using the OEM screw in the OEM cable clamp mounting location (See Figure 9, below).
4. Since the cable converter assembly can slide back and forth in the clamp before the screw is tightened, position the cable converter assembly such that the flat part of the rod is as close to flush with the end of the housing at the lever's innermost position.
5. Secure the cable converter lever push rod onto the OEM cable mounting stud using a 3/16" push-on ring as shown in Figure 9, below.
6. Locate the control panel wiring harness, and plug the corresponding wire into the correct cable converter assembly as shown in Figure 10, below.

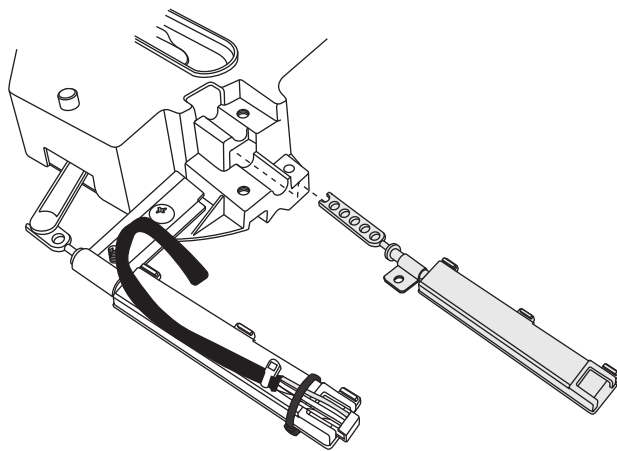
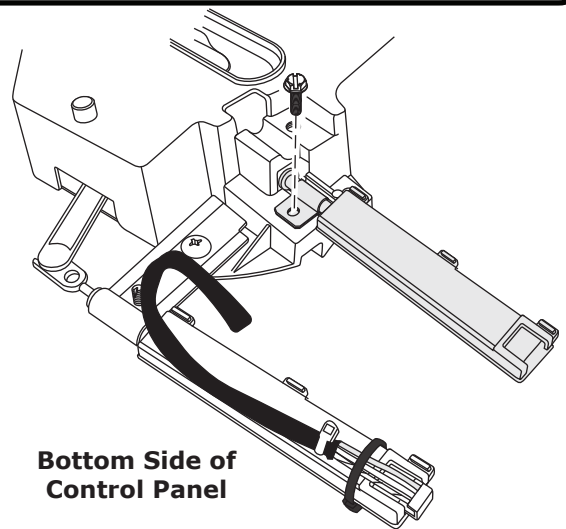
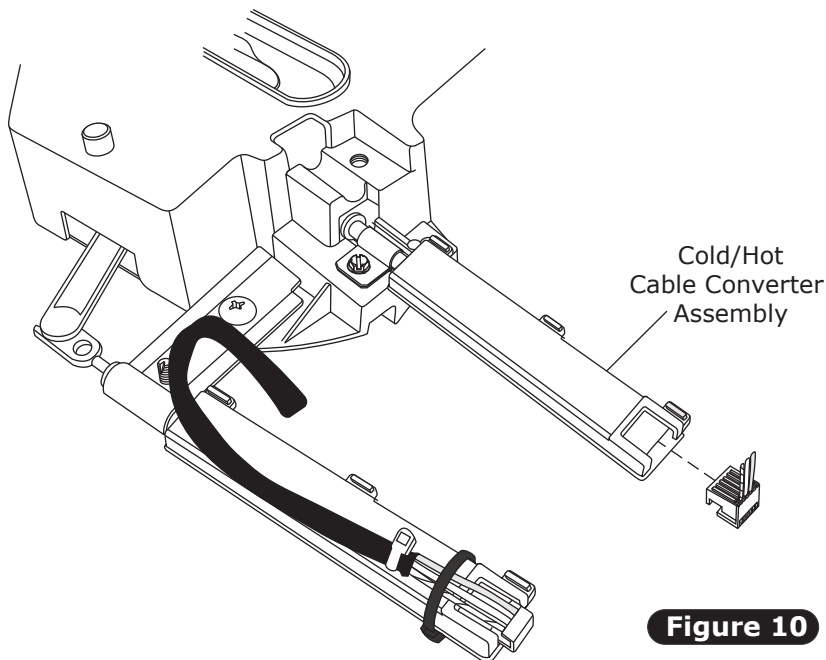


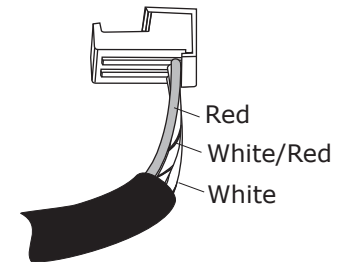
Figure 9



Bottom Side of Control Panel



Cold/Hot Cable Converter Assembly



Cold/Hot Cable Converter Assembly

Figure 10



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Cold/Hot Control Harness (Cont.)

1. Once the wires are correctly plugged into the cable converter assembly, secure the wires to the cable converter assembly using the supplied tie wraps. The tie wrap must be located between the end of the wire jacket and the step in the cable converter housing, forcing a bend in each wire as it passes over the step in the cable converter housing. The head of the tie wrap must fall on the edge of the housing to remain tight. Ensure that the tie wraps are tight enough that the wires cannot move (See Figure 11, below).

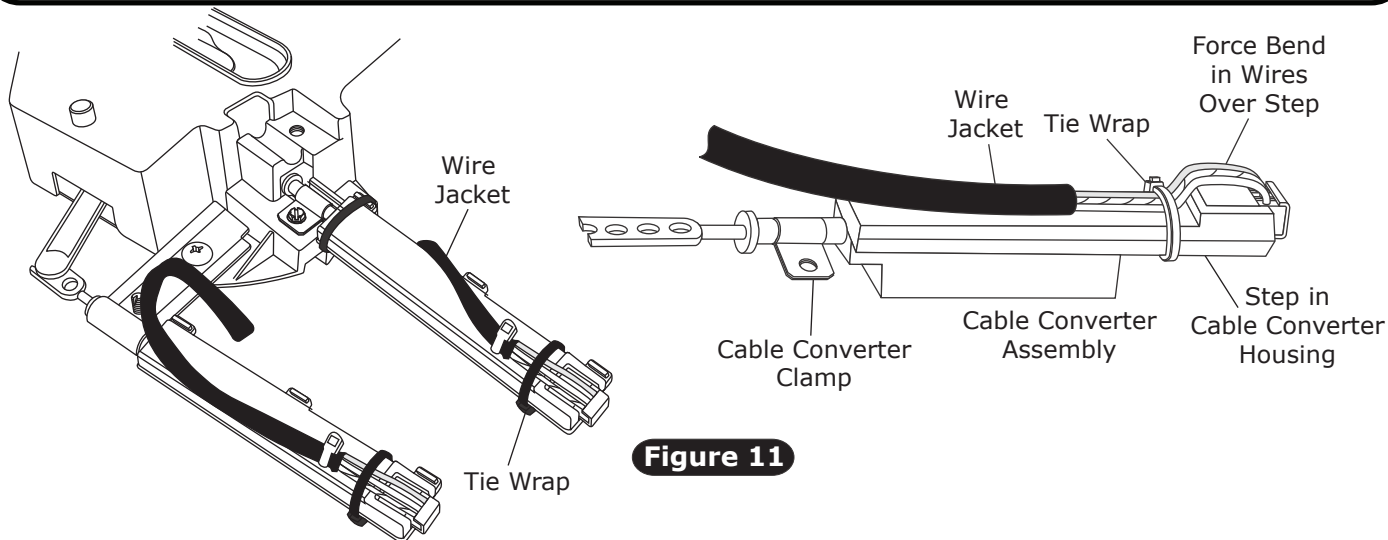


Figure 11

Off/Hi Cable Converter Assembly Installation

1. Install the cable converter assembly onto the Off/Hi lever.
2. Install the cable converter push rod onto the OEM cable mounting stud on the lever.
3. Secure the cable converter assembly onto the OEM control panel using the OEM screw in the OEM cable clamp mounting location (See Figure 12, below).
4. Since the cable converter assembly can slide back and forth in the clamp before the screw is tightened, position the cable converter assembly such that the flat part of the rod is as close to flush with the end of the housing at the lever's innermost position.
5. Secure the cable converter lever push rod onto the OEM cable mounting stud using a 3/16" push-on ring as shown in Figure 12, below.

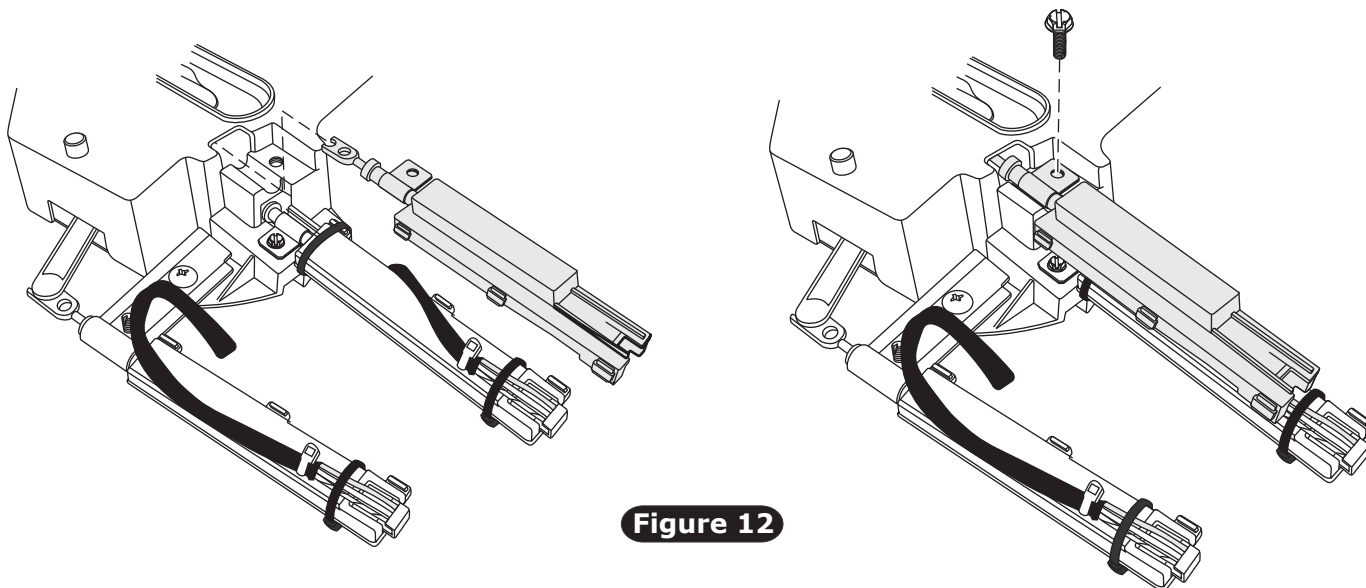


Figure 12



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Off/Hi Control Harness

1. Locate the control panel wiring harness, and plug the corresponding wire into the correct cable converter assembly (See Figure 13, below).
2. Once the wires are correctly plugged into the cable converter assembly, secure the wires to the cable converter assembly using the supplied tie wraps. The tie wrap must be located between the end of the wire jacket and the step in the cable converter housing, forcing a bend in each wire as it passes over the step in the cable converter housing. The head of the tie wrap must fall on the edge of the housing to remain tight. Ensure that the tie wraps are tight enough that the wires cannot move (See Figure 14, below).

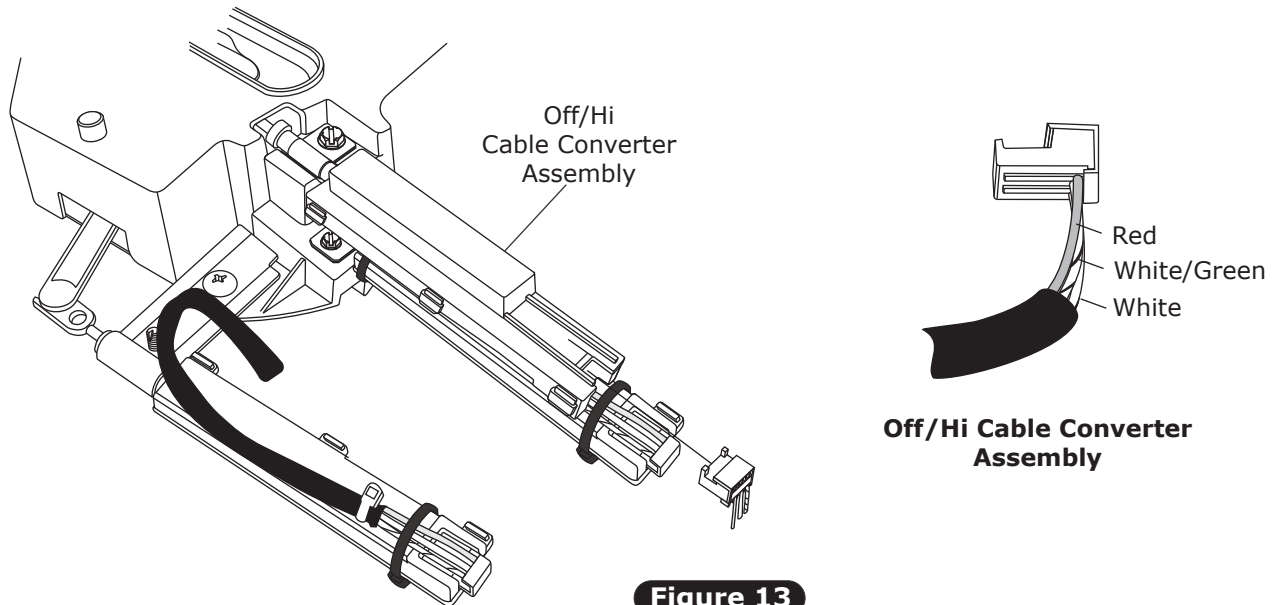


Figure 13

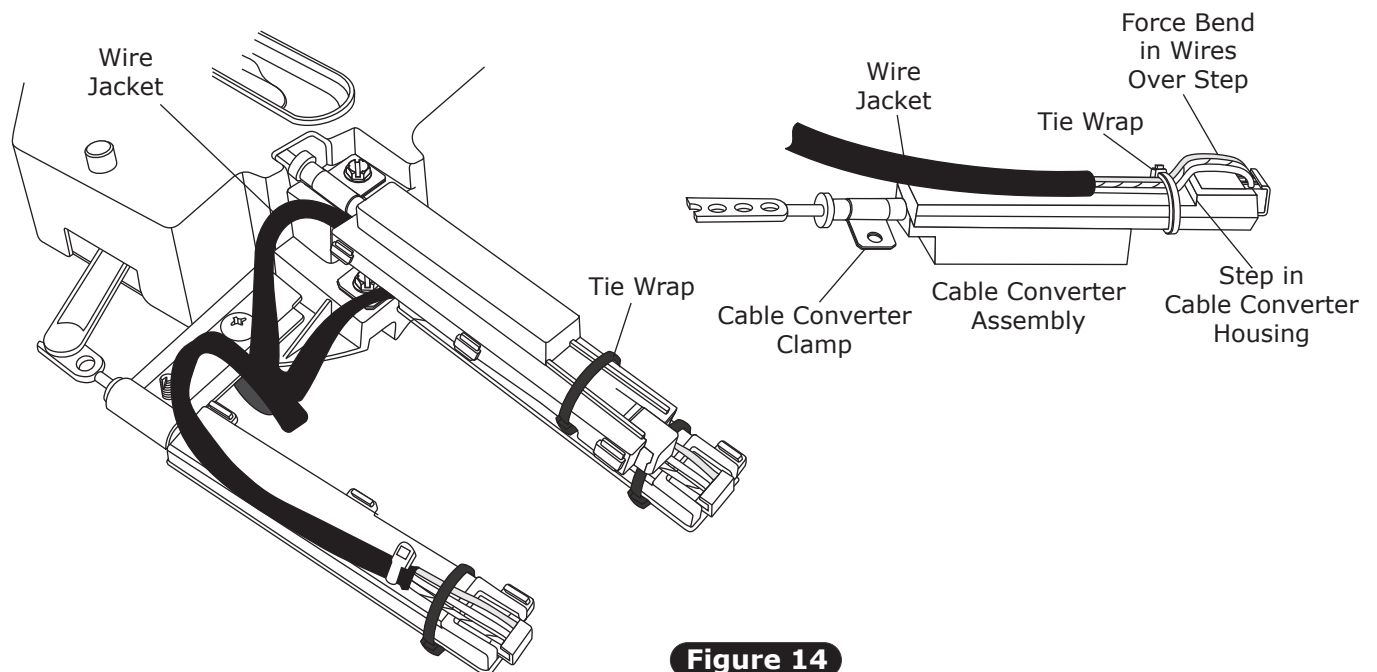


Figure 14

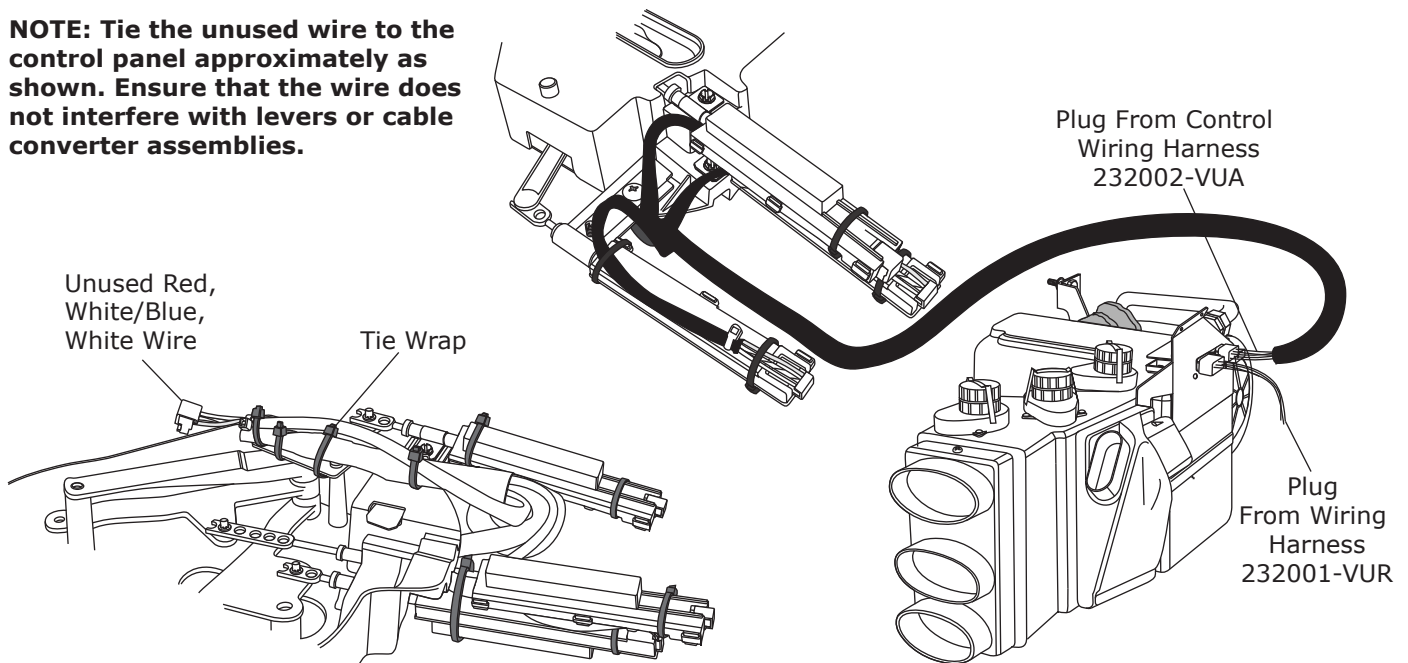


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Final Steps

1. Using the supplied tie wraps, tie the wires to the control panel. Confirm that wires are secured and do not interfere with lever operation or cable converter assembly.
2. Install control panel into dash using OEM screws. To ease installation, rotate control panel slightly and pass the cable converter assemblies through the dash opening first. As the cable converter assemblies pass through the dash opening, rotate the control panel back the opposite direction to fit control panel into the dash. **NOTE: Make sure cable converter assemblies clear the duct hose behind the left side of the dash opening. Do not force the control panel into the dash. Forcing the control panel into the dash will damage the cable converter assemblies and/or duct hose.**
3. Plug the wiring harnesses into the ECU module on the sub case.
4. Wire according to the wiring diagram on Page 16.
5. Calibration procedure and operation instructions:
 - A. Calibrating the control panel will set the range of travel for the cable converters connected to the OEM control panel levers. Performing this procedure will set the limits of the cable converters at their highest and lowest points.
 - B. Locate the gray wire with an unused connector in the wiring harness near the two cable harness relays. This wire is labeled PROGRAM on the wiring diagram.
 - C. It will be necessary to ground the gray wire for approximately five seconds while moving the controls, so it is sometimes helpful to attach one end of the white jumper to the vehicle's ground (for example, the chassis) and have the other end ready to connect to the gray PROGRAM wire when the procedure requires it.
 - D. To calibrate the control panel, follow the calibration procedures on Pages 14 & 15.

NOTE: Tie the unused wire to the control panel approximately as shown. Ensure that the wire does not interfere with levers or cable converter assemblies.



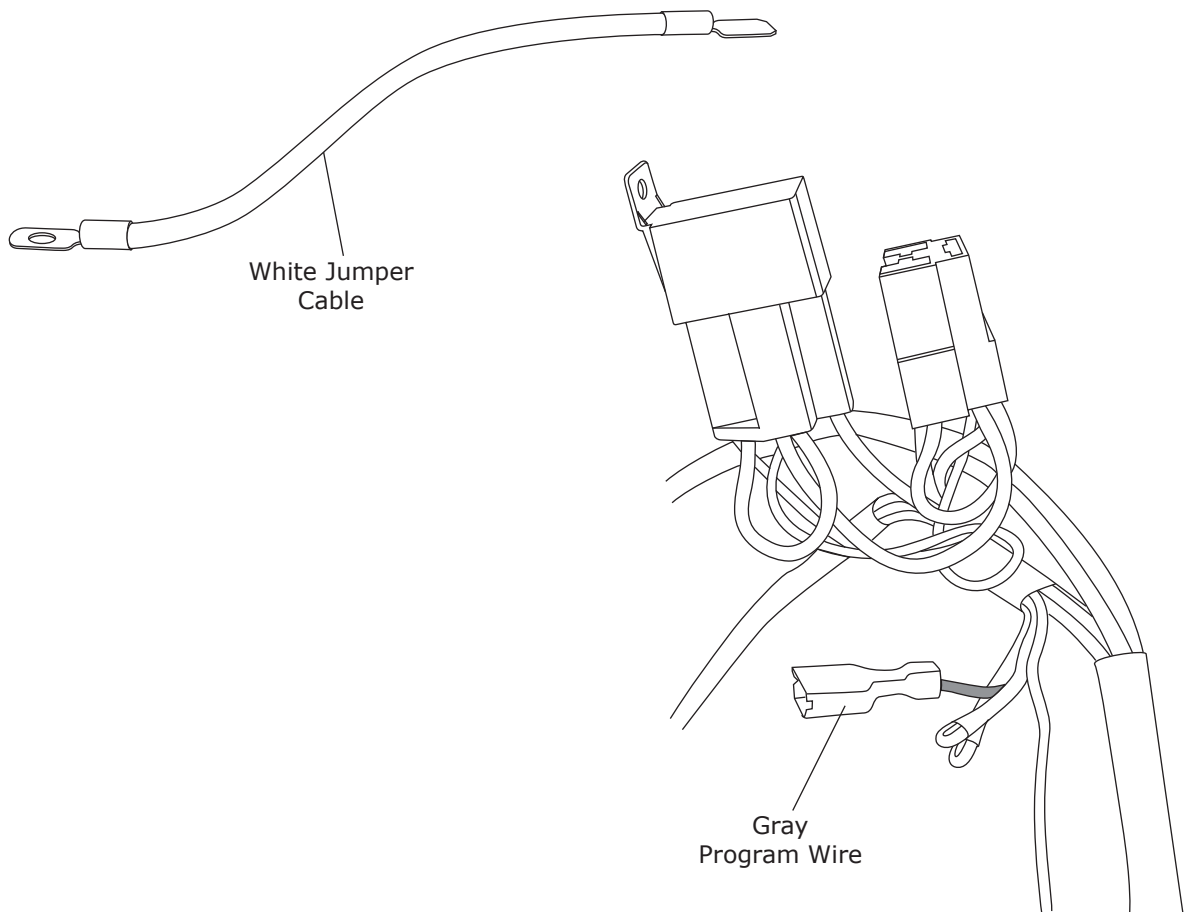


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Control Panel Calibration Procedure

On Vintage Air Gen IV systems using factory controls, it is necessary to calibrate the system to your specific control panel. This procedure ensures that the stroke of your control panel levers or knobs is translated into precise control of the fan speed, temperature blend and mode door position. Please carefully read and understand these procedures before beginning. The procedure may be repeated as many times as necessary to get it right.

In preparation for calibration, you will need to attach the supplied white ground jumper wire to a suitable chassis ground. This jumper wire must be easily connected to the gray programming wire located in the main Gen IV wiring harness next to the relays. During the calibration procedure, you will connect the white jumper to the gray program wire, which will "teach" the Gen IV ECU the upper limits of the control levers or knobs. The blower will momentarily change speeds, signaling that the upper limits have been "learned". You will move the levers or knobs to opposite extreme positions of their travel and then disconnect the white jumper. The blower will again change speeds, signaling that the lower limits have been learned and that the calibration procedure is complete.

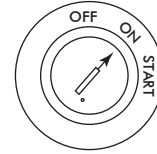




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Control Panel Calibration Procedure (Cont.)

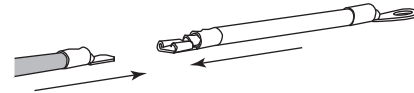
1. Turn on the ignition switch (Do not start the engine).



2. Move the control levers/knobs to the position shown.



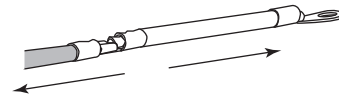
3. Connect the white jumper wire to the gray program wire. Wait for the blower speed to change (Approximately 5 seconds).



4. Move the control levers/knobs to the positions shown.



5. Disconnect the white jumper wire from the gray program wire. The blower speed will change, indicating completion of the calibration procedure.



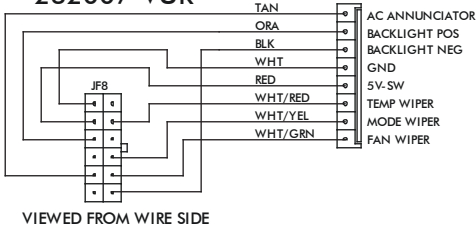
6. Confirm proper operation of controls. Repeat procedure if necessary. When finished, tape over program wire connector with electrical tape to prevent accidental contact with chassis ground.



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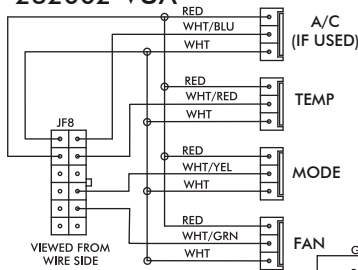
Wiring Diagram

232007-VUR

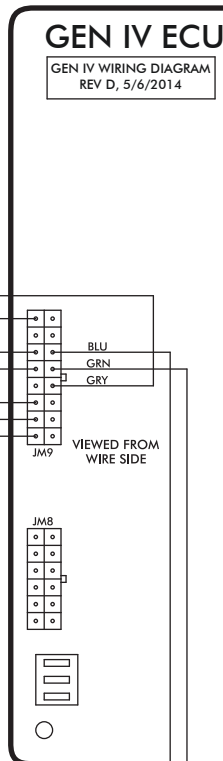


VIEWED FROM WIRE SIDE

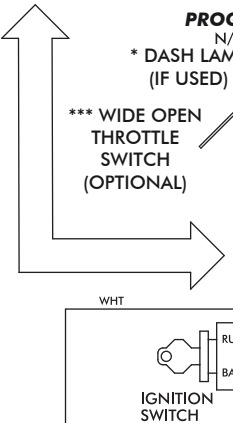
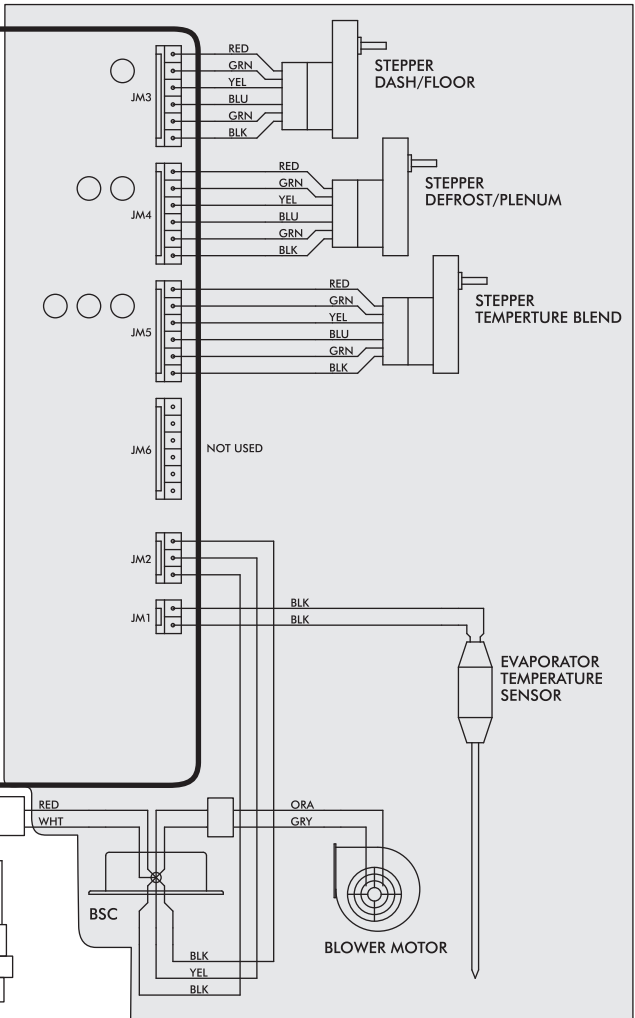
232002-VUA



VIEWED FROM WIRE SIDE



PRE-WIRED



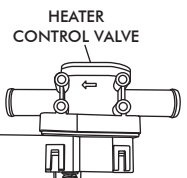
IGNITION SWITCH

** CIRCUIT BREAKER 30 AMP

COMPRESSOR RELAY



CMPR



NOTE: = CHASSIS GROUND

To AC Request on ECM

- Dash Lamp Is Used Only With Type 232007-VUR Harness.
- **Warning:** Always Mount Circuit Breaker As Close to the Battery As Possible. (NOTE: Wire Between Battery and Circuit Breaker Is Unprotected and Should Be Carefully Routed to Avoid a Short Circuit).
- Wide Open Throttle Switch Contacts Close Only at Full Throttle, Which Disables A/C Compressor.



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Operation of Controls

On Gen IV systems with three lever/knob controls, the temperature control toggles between heat and A/C operations. To activate A/C, move the temperature lever/knob all the way to cold and then back it off to the desired vent temperature. For heat operation, move the temperature lever/knob all the way to hot and then adjust to the desired vent temperature. The blower will momentarily change speed, each time you toggle between operations, to indicate the change. **NOTE: For proper control panel function, refer to control panel instructions for calibration procedure.**

Blower Speed

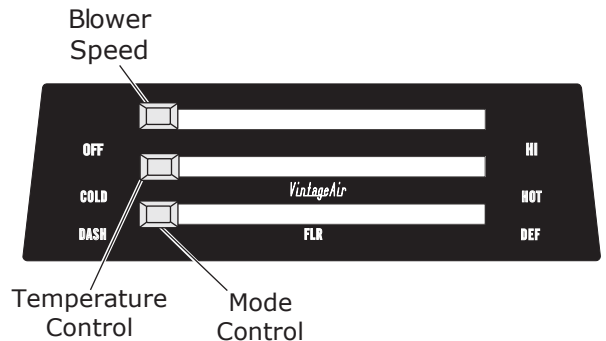
This lever/knob controls blower speed, from OFF to HI.

Mode Control

This lever/knob controls the mode positions, from DASH to FLOOR to DEFROST, with a blend in between.

Temperature Control

This lever/knob controls the temperature, from HOT to COLD.



A/C Operation

Blower Speed

Adjust to desired speed.

Mode Control

Adjust to desired mode position (DASH position recommended).

Temperature Control

For A/C operation, adjust to coldest position to engage compressor (Adjust between HOT and COLD to reach desired temperature).



Heat Operation

Blower Speed

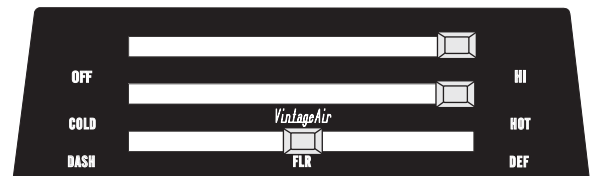
Adjust to desired speed.

Mode Control

Adjust to desired mode position (FLOOR position recommended).

Temperature Control

For maximum heating, adjust to hottest position (Adjust between HOT and COLD to reach desired temperature).



Defrost/De-fog Operation

Blower Speed

Adjust to desired speed.

Temperature Control

Adjust to desired temperature.

Mode Control

Adjust to DEFROST position for maximum defrost, or between FLOOR and DEFROST positions for a bi-level blend (Compressor is automatically engaged).



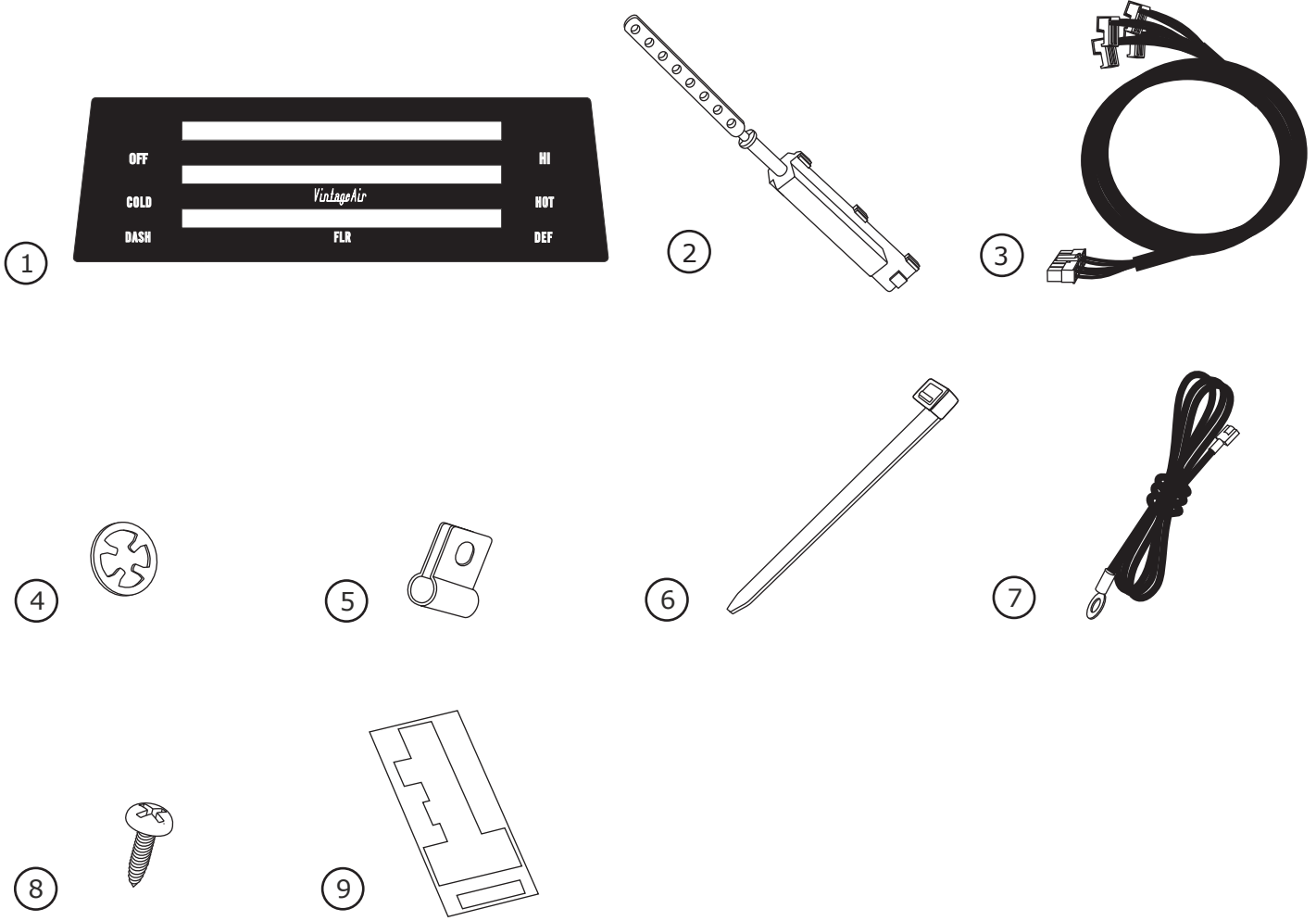


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Packing List: (475168) Control Panel Conversion Kit 1967-68 Chevrolet Camaro without Factory Air

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4.	3	65976-VUE	Push-on Ring, 3/16"
5.	3	491010-VUR	Clamp, Cable Converter
6.	5	21301-VUP	Tie Wrap, 4"
7.	1	231520	Ground Wire
8.	4	18235-VUB	Screw, #8 x 1/2", Pan Head
9.	1	484170	Label Backing

Checked By: _____
Packed By: _____
Date: _____



**NOTE: Images may not depict actual parts and quantities.
Refer to packing list for actual parts and quantities.**