an ISO 9001:2015 Registered Company

1969-70 Ford Mustang

with **Factory Air**
Control Panel Conversion Kit
(475170)

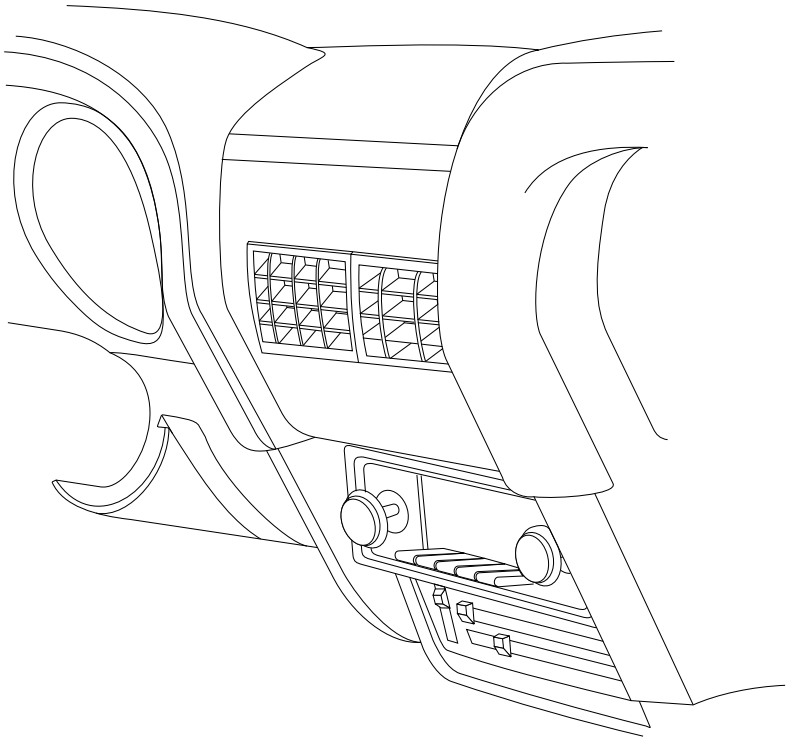


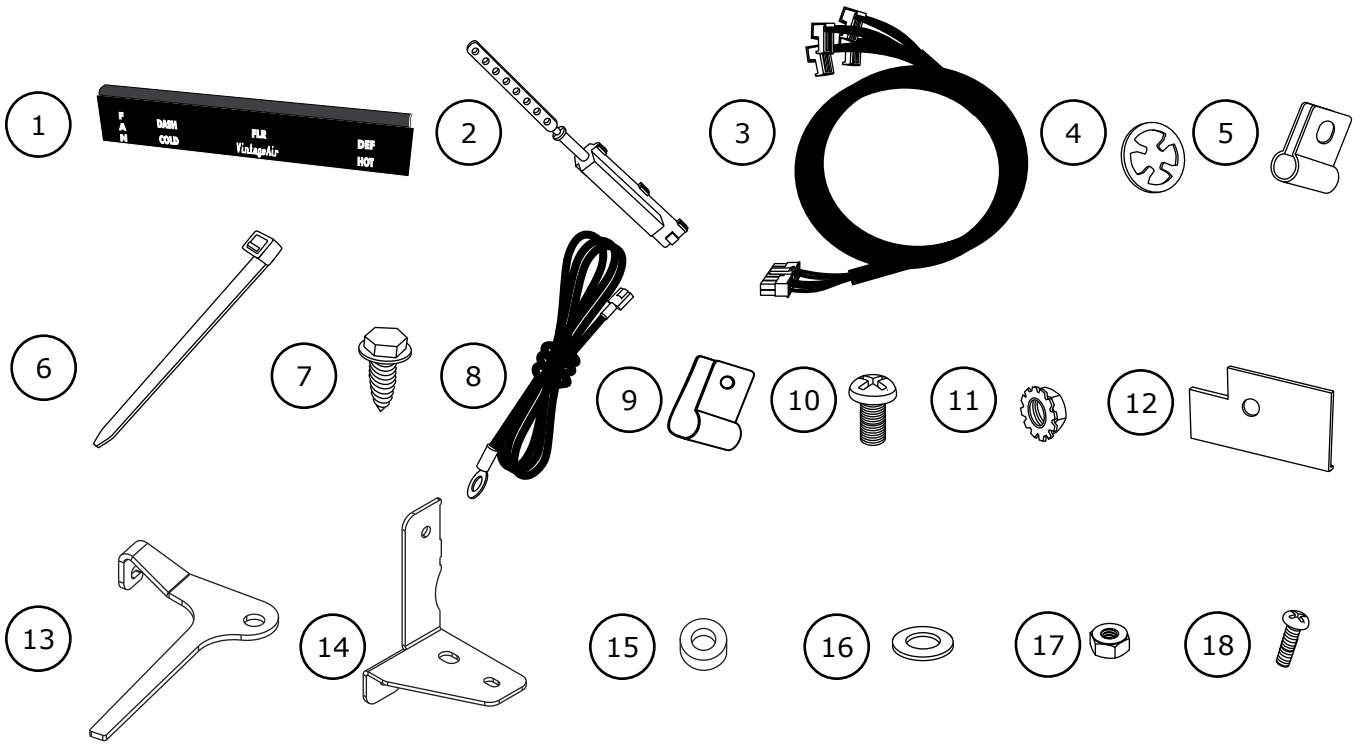
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Packing List:
Control Panel Kit (475170)

No.	Qty.	Part No.	Description
1.	1	484075	Placard, Control Panel
2.	3	112002-SUA	Cable Converter Assembly
3.	1	232002-VUA	Control Harness, Gen IV Universal
4.	2	65976-VUE	Push-on Ring, 3/16”
5.	3	491010-VUR	Clamp, Cable Converter
6.	6	21301-VUP	Tie Wrap, 4”
7.	4	18247-VUB	Screw, #10 x 1/2”, Sheet Metal
8.	1	231520	Ground Wire
9.	1	18058-VUB	Cable Clamp, 5/16”, Nylon
10.	1	18249-VUB	Screw, 10-24 x 3/8”
11.	1	18260-VUB	Nut with Star Washer, 10-24
12.	1	642074	Bracket, Cable Converter Mounting
13.	1	643103	Bracket, Blower Speed Lever
14.	1	643104	Bracket, Control Panel Support
15.	1	180384	Nylon Spacer, 3/16”
16.	1	49704-VUI	Nylon Flat Washer, 1/16”
17.	1	18147-VUB	Locknut, 10-32
18.	1	18258-VUB	Screw, 10-32 x 3/4”

**** 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.

OEM Control Panel Removal

Perform the Following:

1. Remove the (3) mounting screws from the control panel (See Figure 1, below).

2. Remove the control panel.

3. Disconnect the cables, wires, vacuum switch and vacuum hoses from the back of the control panel.

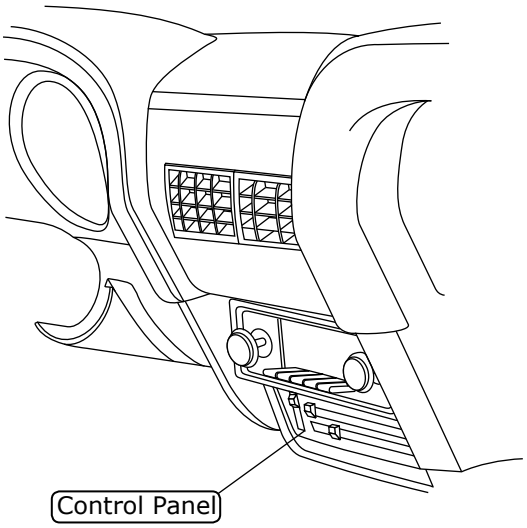


Figure 1

Placard Installation

1. Remove the control panel knobs (retain).

2. Remove the OEM lens and bracket from the control panel (See Figure 2, below).

3. Install the supplied control panel placard as shown in Figure 2a, below.

4. Reinstall the OEM bezel and (2) control knobs onto the Temperature and Mode levers. **NOTE: Retain the 3rd control knob for later use.**

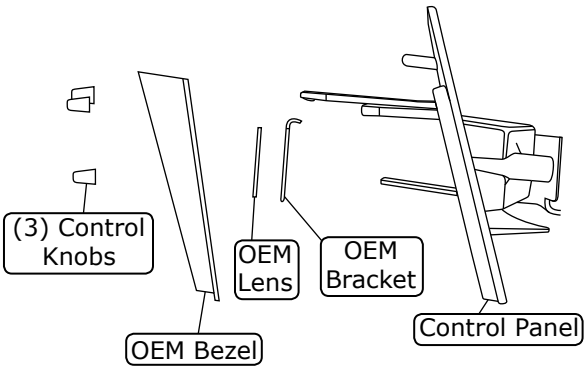


Figure 2

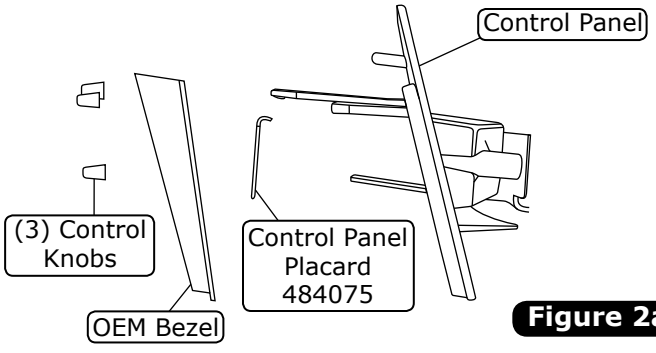


Figure 2a

Cable Converter Assembly Modification

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

2. Trim each cable converter rod, rounding off corners as shown in Figure 3a, below.

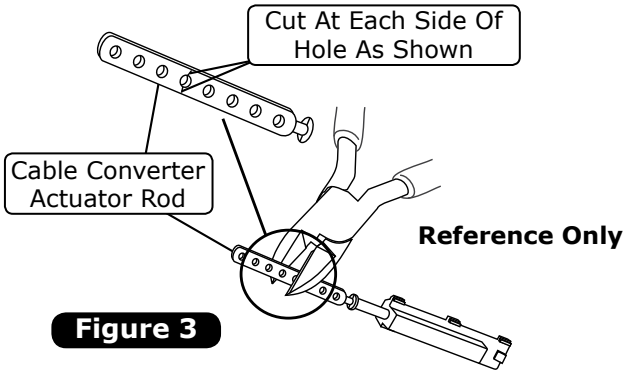


Figure 3

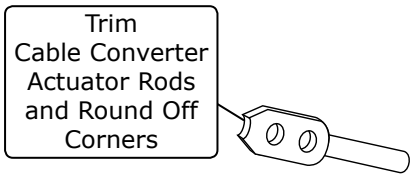
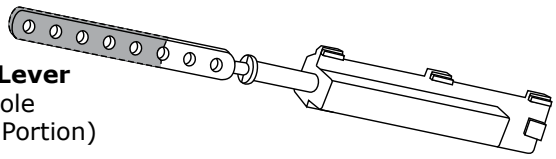
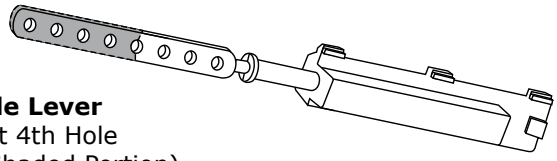


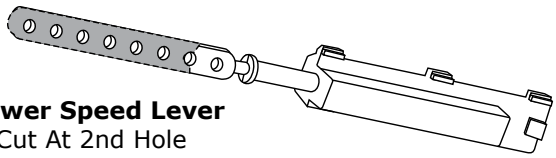
Figure 3a



Temperature Lever
Cut At 3rd Hole
(Remove Shaded Portion)



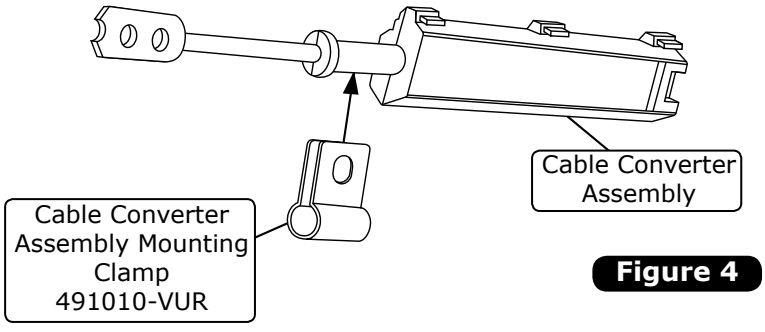
Mode Lever
Cut At 4th Hole
(Remove Shaded Portion)



Blower Speed Lever
Cut At 2nd Hole
(Remove Shaded Portion)

Cable Converter Assembly Mounting Clamp Installation

1. Install the cable converter assembly mounting clamps. **NOTE: Orient clamps in relation to the (3) housing snaps on the cable converter assembly as shown in Figure 4, below.**



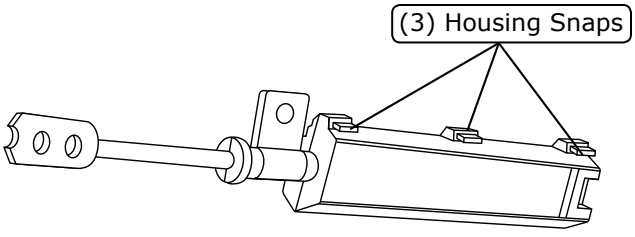
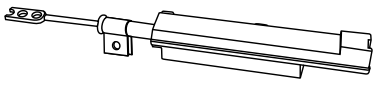
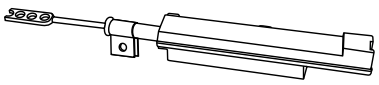


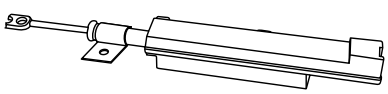
Figure 4



Temperature Cable Converter Assembly



Mode Cable Converter Assembly



Blower Speed Cable Converter Assembly

Cable Converter Mounting Bracket Installation

1. Install the cable converter mounting bracket onto the control panel using a 10-24 x 3/8” screw and a 10-24 nut with star washer as shown in Figure 5, below.

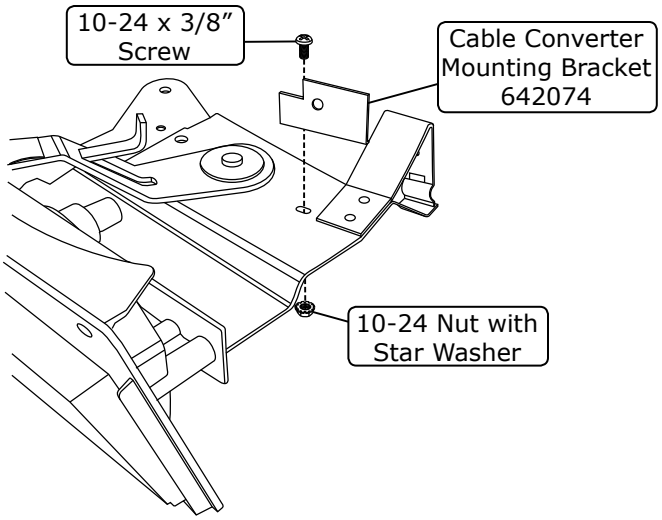


Figure 5

Mode Cable Converter Assembly Installation

1. Install the cable converter assembly onto the mode lever by attaching the cable converter push rod to the OEM cable mounting stud on the lever (See Figure 6, below).

2. Secure the cable converter assembly to the cable converter mounting bracket using a # 10 x 1/2” sheet metal screw (See Figure 6, below).

3. 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).

4. Secure the cable converter lever push rod to the OEM cable mounting stud using a 3/16” push-on ring as shown in Figure 6, below.

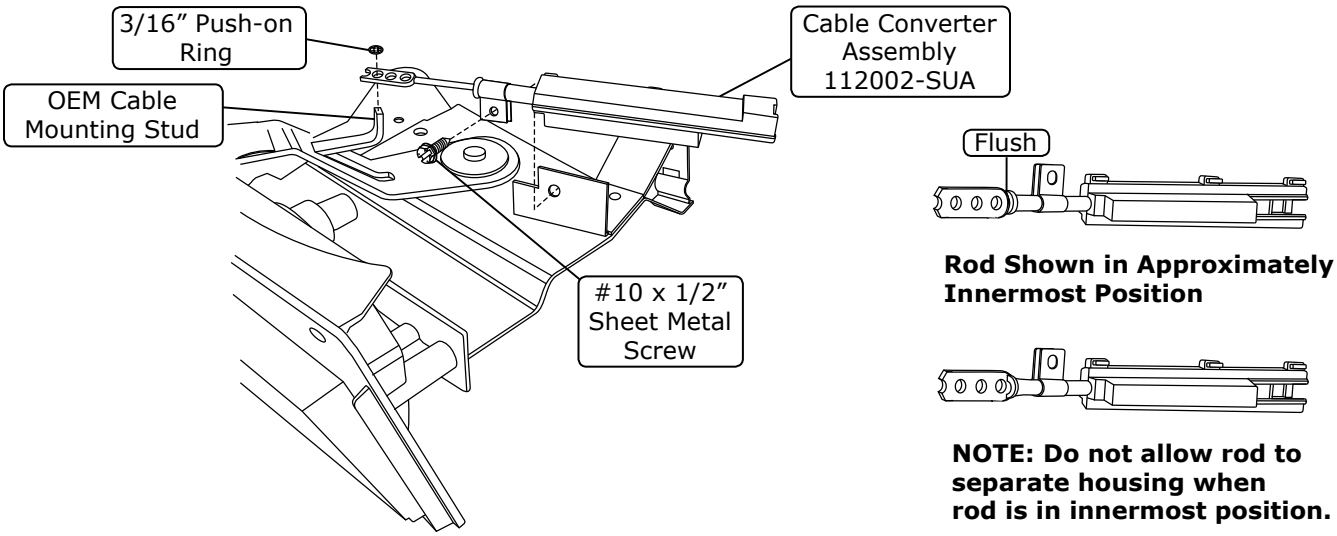


Figure 6

Mode Control Harness Installation

1. Locate the control panel wiring harness, and plug the corresponding connector into the correct cable converter assembly as shown in Figure 7, below.
2. Once the connector is correctly plugged into the cable converter assembly, secure the wires to the cable converter assembly using (2) of the supplied tie wraps (See Figure 8, below). One 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).

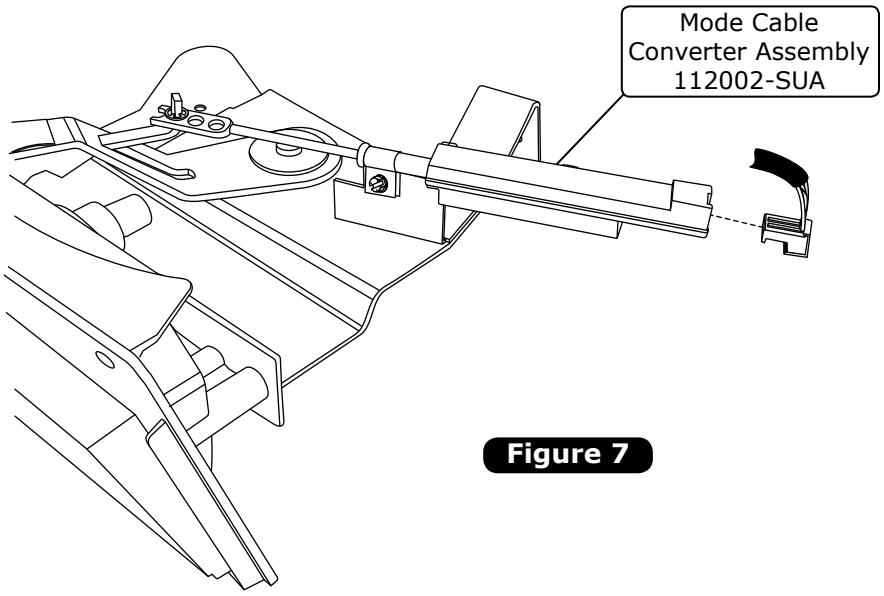
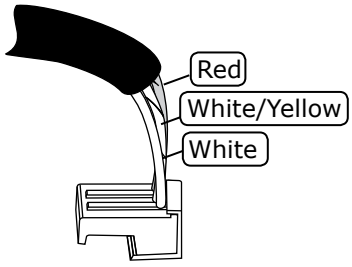


Figure 7



Mode
Cable Converter Assembly

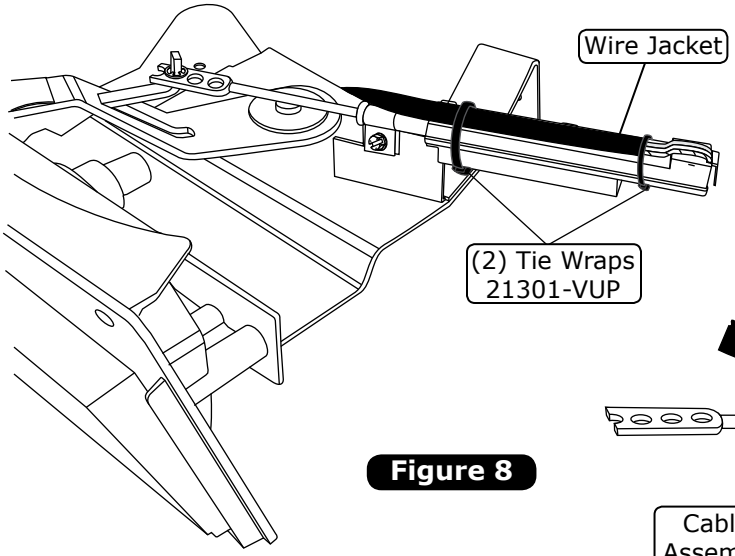
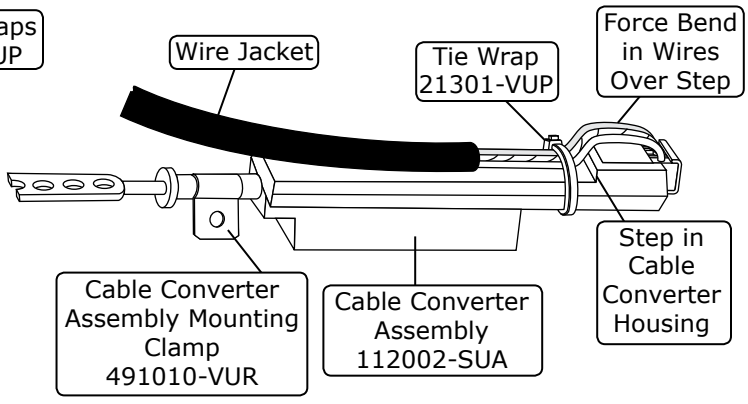


Figure 8



Temperature Cable Converter Mounting Hole Modification

1. Drill a 1/8” hole into the control panel as shown in Figure 9, below.

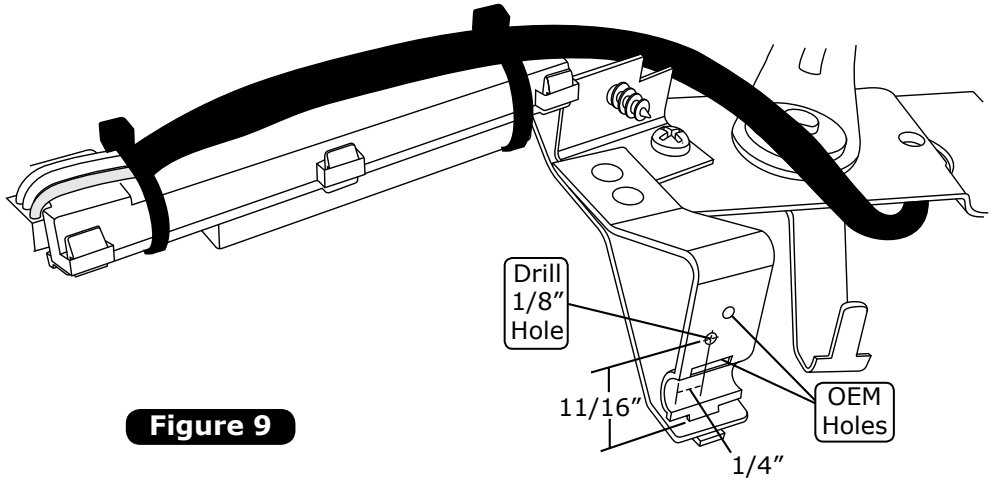


Figure 9

Temperature Cable Converter Assembly Installation

1. Install the cable converter assembly onto the temperature lever by attaching the cable converter push rod to the OEM cable mounting stud on the lever (See Figure 10, below).

2. Secure the cable converter assembly to the control panel using a # 10 x 1/2” sheet metal screw as shown in Figure 10, below.

3. 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 10, below).

4. Secure the cable converter lever push rod to the OEM cable mounting stud using a 3/16” push-on ring as shown in Figure 10, below.

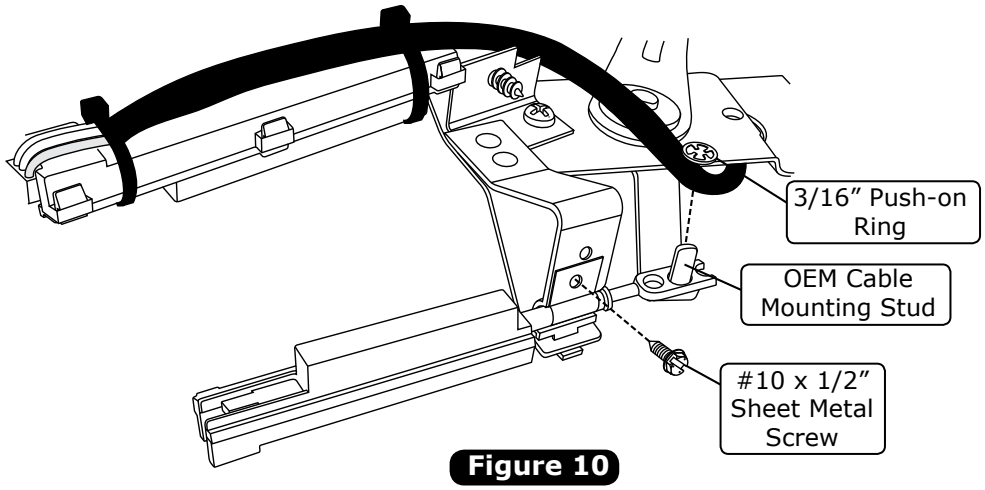
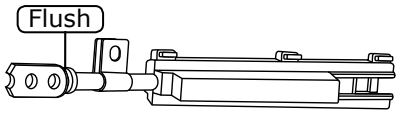
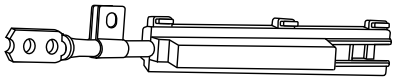


Figure 10



Rod Shown in Approximately Innermost Position



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

Temperature Control Harness Installation

1. Locate the control panel wiring harness, and plug the corresponding connector into the correct cable converter assembly as shown in Figure 11, below.
2. Once the connector is correctly plugged into the cable converter assembly, secure the wires to the cable converter assembly using (2) of the supplied tie wraps (See Figure 12, below). One 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 12, below).

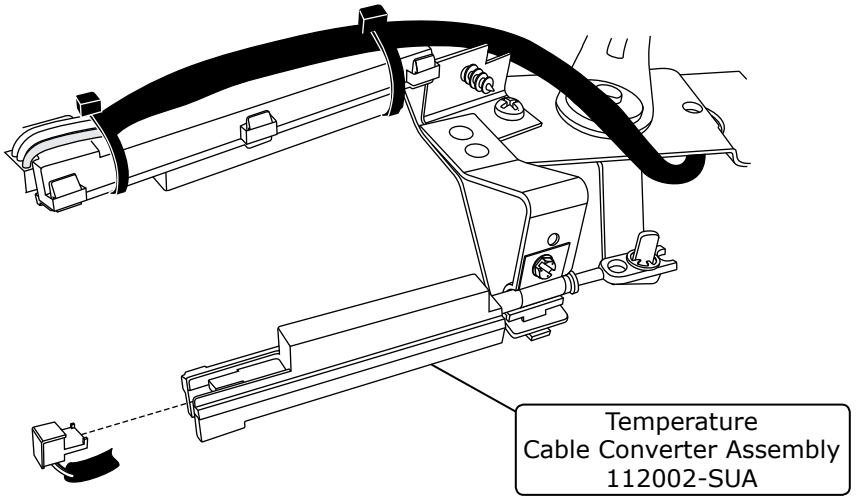
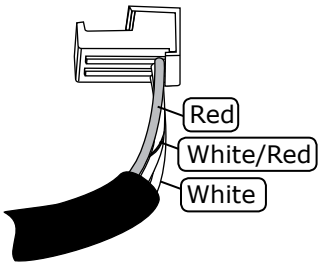


Figure 11



Temperature Cable Converter Assembly

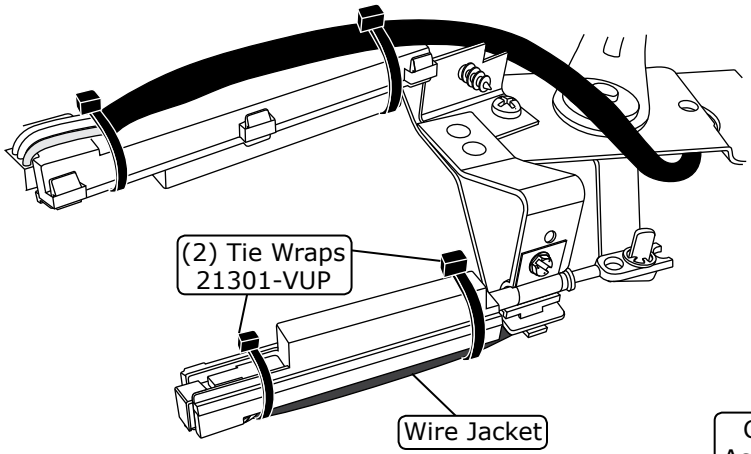
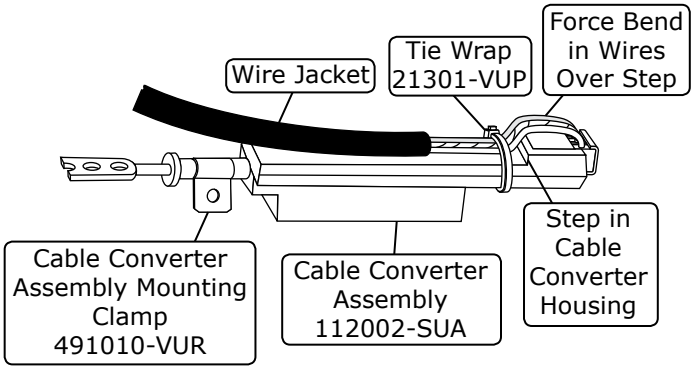


Figure 12



OEM Blower Switch Removal

1. Remove the OEM blower switch (discard) by removing (1) screw (retain) (See Photo 1, below).

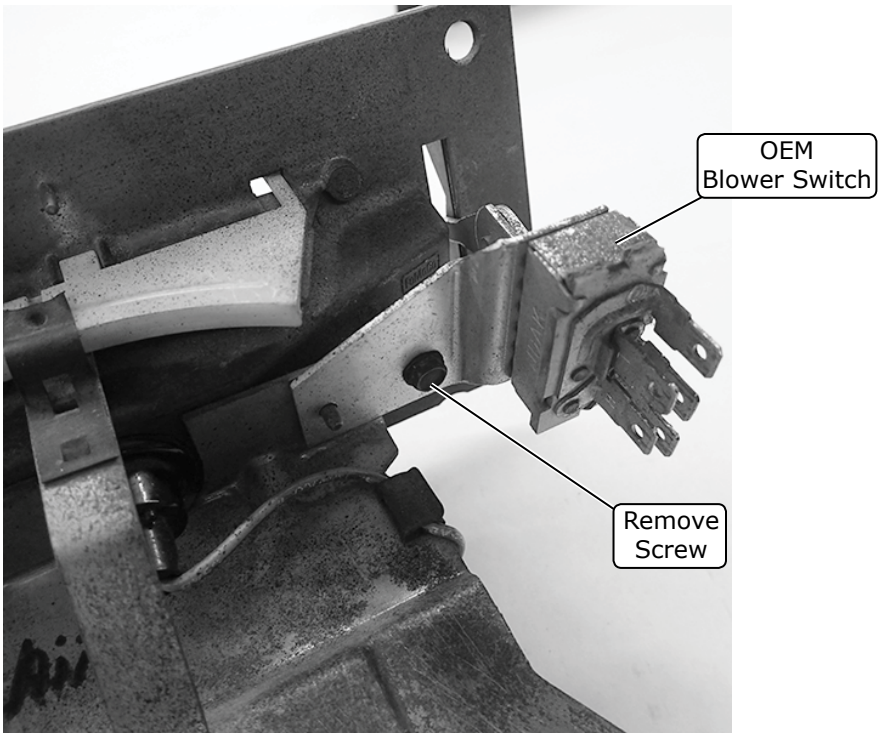


Photo 1

Control Panel Support and Blower Speed Lever Bracket Installation

1. Install the control panel support bracket using the OEM blower switch screw (See Photo 1, below). **NOTE: Adjust the bracket as neccessary before tightening the screw (See Photo 2, below).**
2. Install the blower speed lever bracket onto the control panel support bracket using the following hardware in this order: (1) 10-32 x 3/4" screw, (1) 1/16" nylon flat washer, the blower speed lever bracket, (1) 3/16" nylon spacer, the control panel support bracket and (1) 10-32 locknut (See Photos 3 & 4, below).

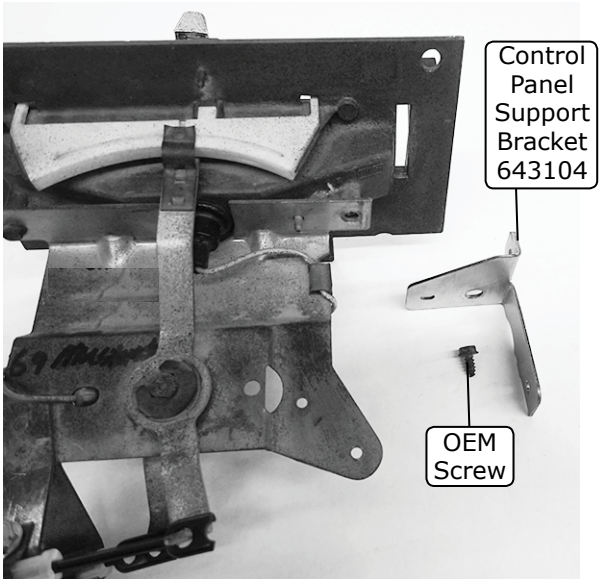


Photo 1

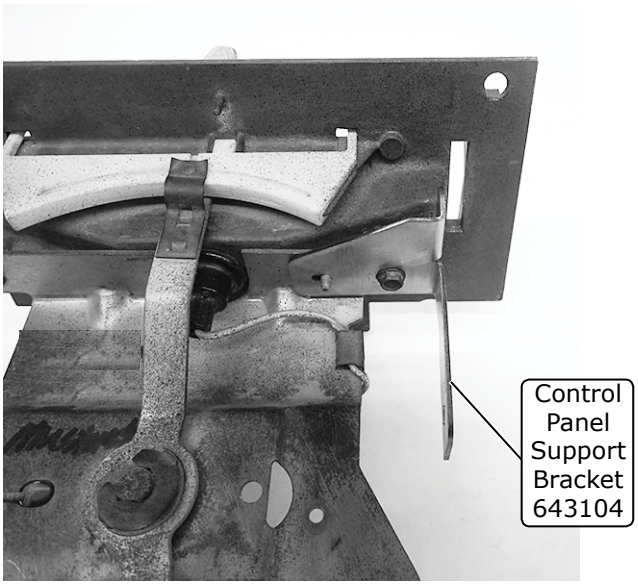


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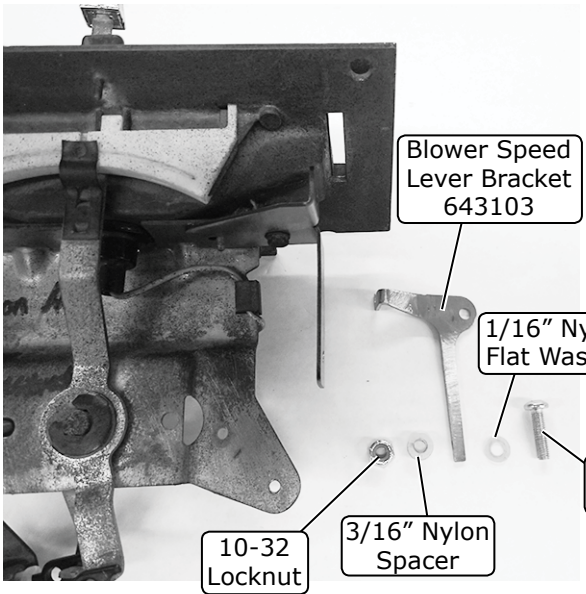


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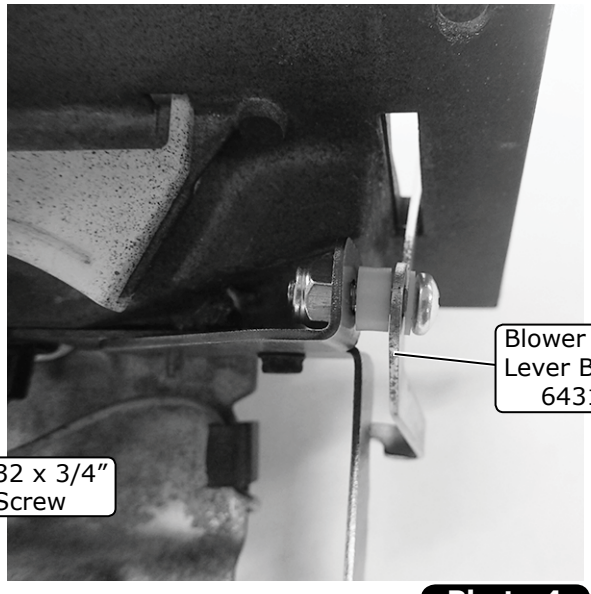


Photo 4

Blower Speed Cable Converter Assembly Installation

1. Install the cable converter assembly onto the blower speed lever bracket by attaching the cable converter push rod to the hook on the bracket (See Photos 1 & 2, below).
2. Secure the cable converter assembly to the control panel support bracket using a # 10 x 1/2" sheet metal screw as shown in Photos 1 and 2, below.
3. 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 13, below).
4. Install the OEM blower control knob onto the blower speed lever bracket (See Photos 3 & 4, below).

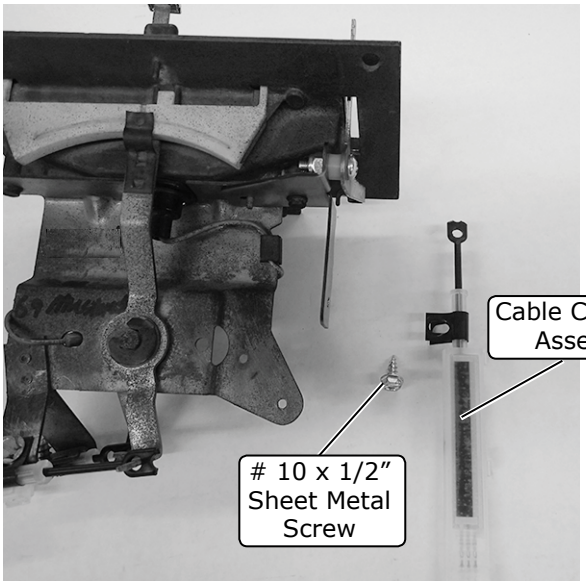


Photo 1

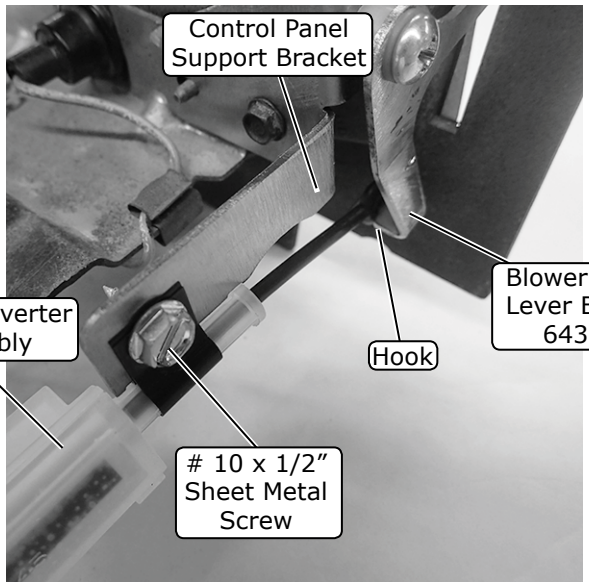
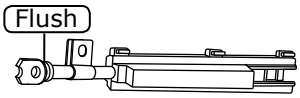
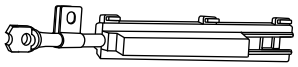


Photo 2



Rod Shown in Approximately Innermost Position



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

Figure 13

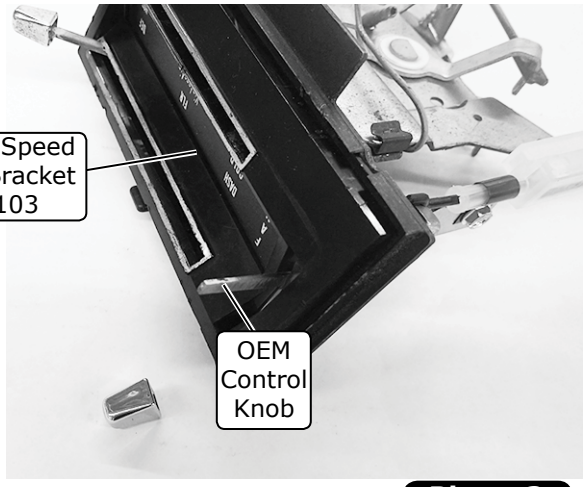


Photo 3

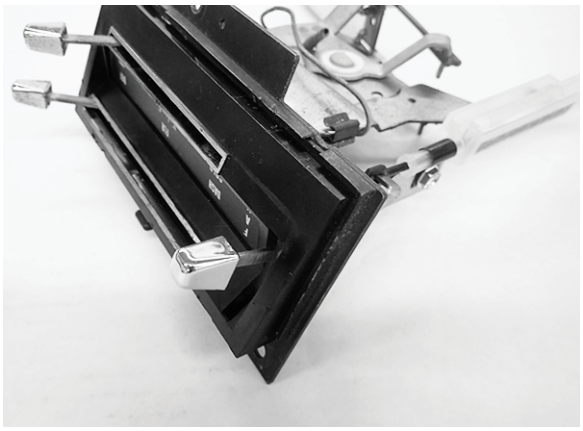


Photo 4

Blower Speed Control Harness Installation

1. Locate the control panel wiring harness, and plug the corresponding connector into the correct cable converter assembly (See Photo 1 and Figure 14, below).
2. Once the connector is correctly plugged into the cable converter assembly, secure the wires to the cable converter assembly using one of the supplied tie wraps (See Photo 1, below). 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 wrap is tight enough that the wires cannot move (See Photo 2, below).

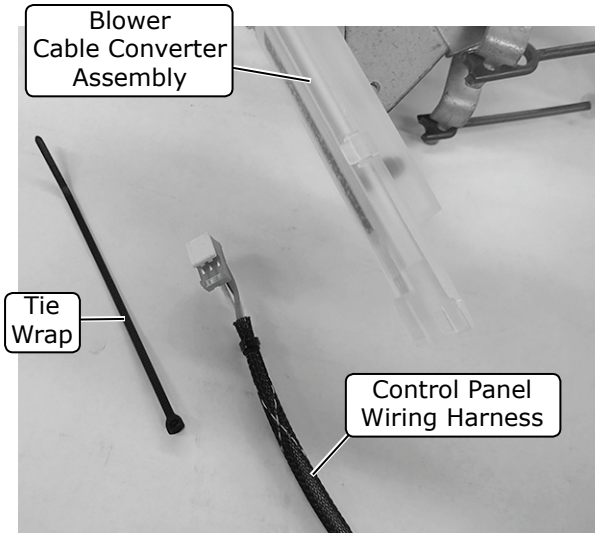
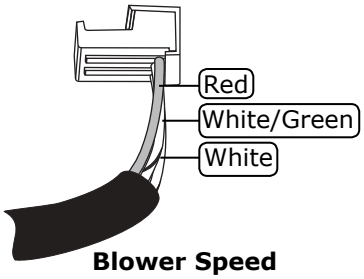


Photo 1



Blower Speed Cable Converter Assembly

Figure 14

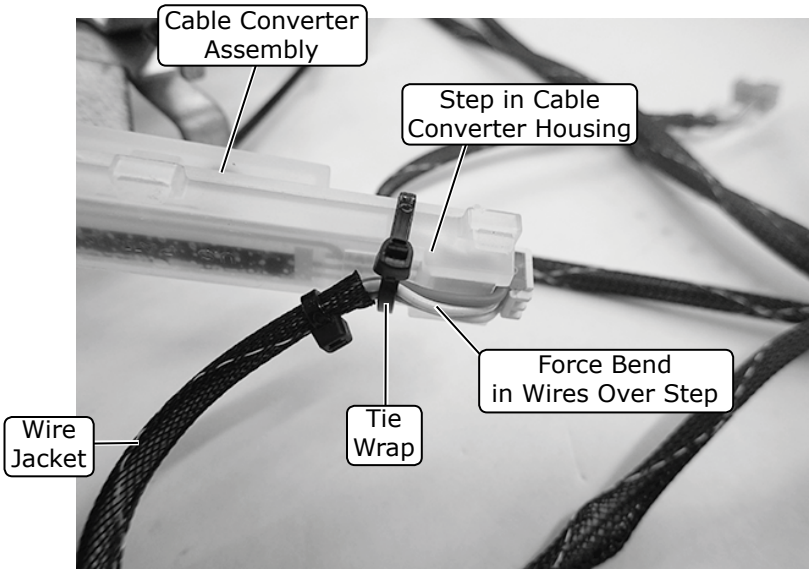
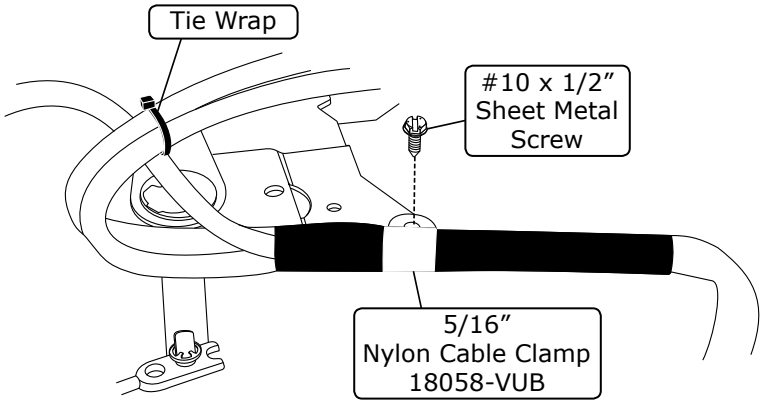


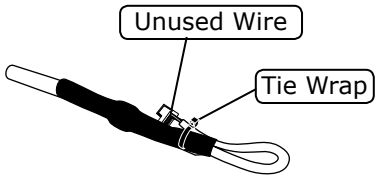
Photo 2

Wiring Harness Final Steps

1. Secure the wiring harness to the control panel using a 5/16” nylon clamp and a #10 x 1/2” sheet metal screw (See Figure 15, below).

2. Using one of the supplied tie wraps, secure the wires and the unused wire to the control panel as shown in Figure 15, below. Confirm the wires are secure and do not interfere with lever operation or cable converter assemblies.





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.

Figure 15

Final Steps

1. Install the control panel into the dash. **NOTE: To ease installation, rotate the 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 in the opposite direction to fit the control panel into the dash. Make sure the cable converter assemblies clear the duct hose behind the dash opening. Do not force the control panel into the dash. Forcing the control panel into the dash may damage the cable converter assemblies and/or the duct hose.**
2. Plug the wiring harnesses into the ECU module on the sub case (See Figure 16, below).
3. Wire according to the wiring diagram on Page 18.
4. 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 cable harness relay. 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 16 & 17.

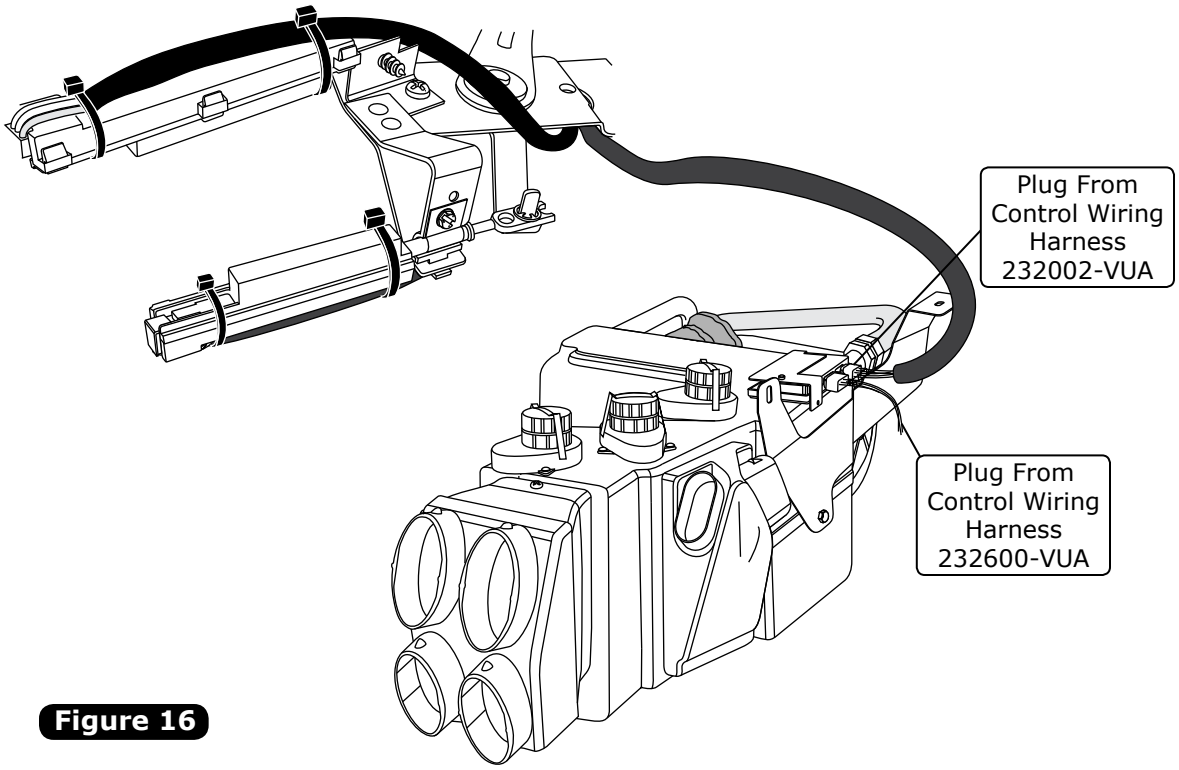
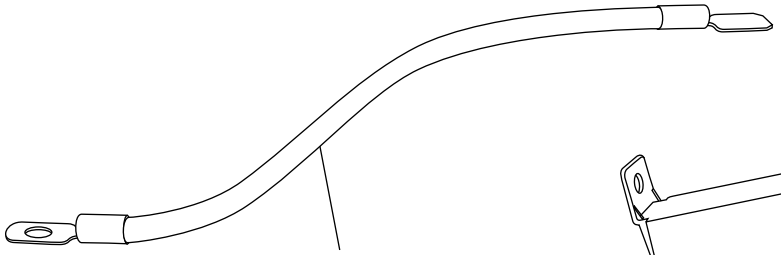


Figure 16

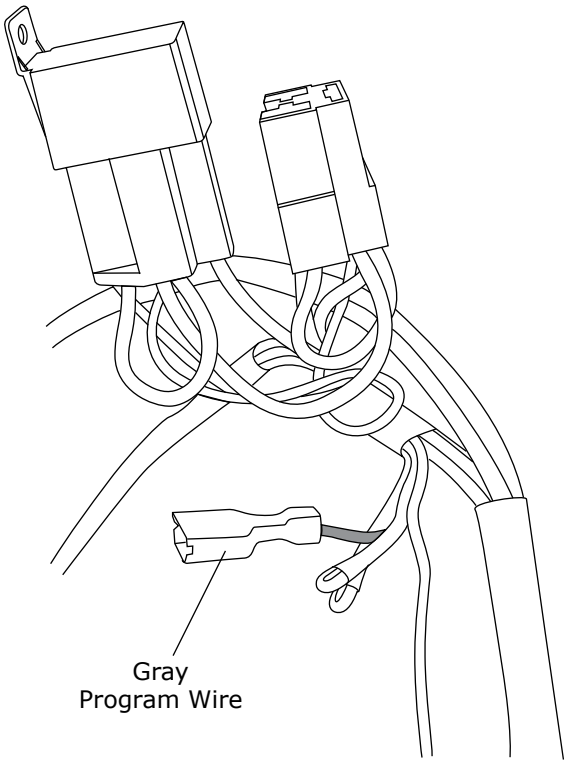
Control Panel Calibration Procedure

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 compressor relay. 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.



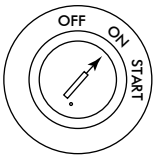
White Jumper Cable



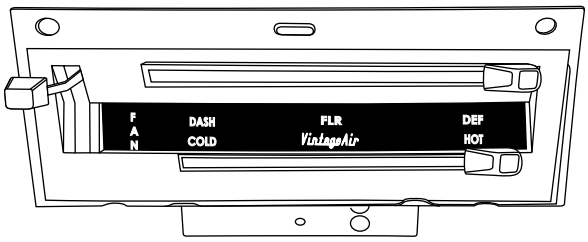
Gray Program Wire

Control Panel
Calibration Procedure (Cont.)

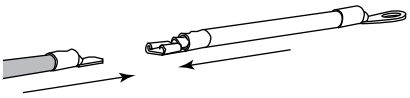
1. Turn on the ignition switch (Do not start the engine).



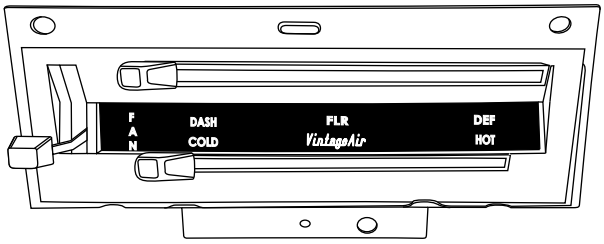
2. Move the control levers/knobs to the position shown.



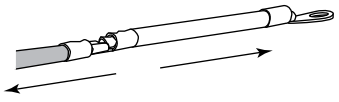
3. Connect the white jumper wire to the gray program wire. Wait for the blower speed to change (Approximately 5 seconds).



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



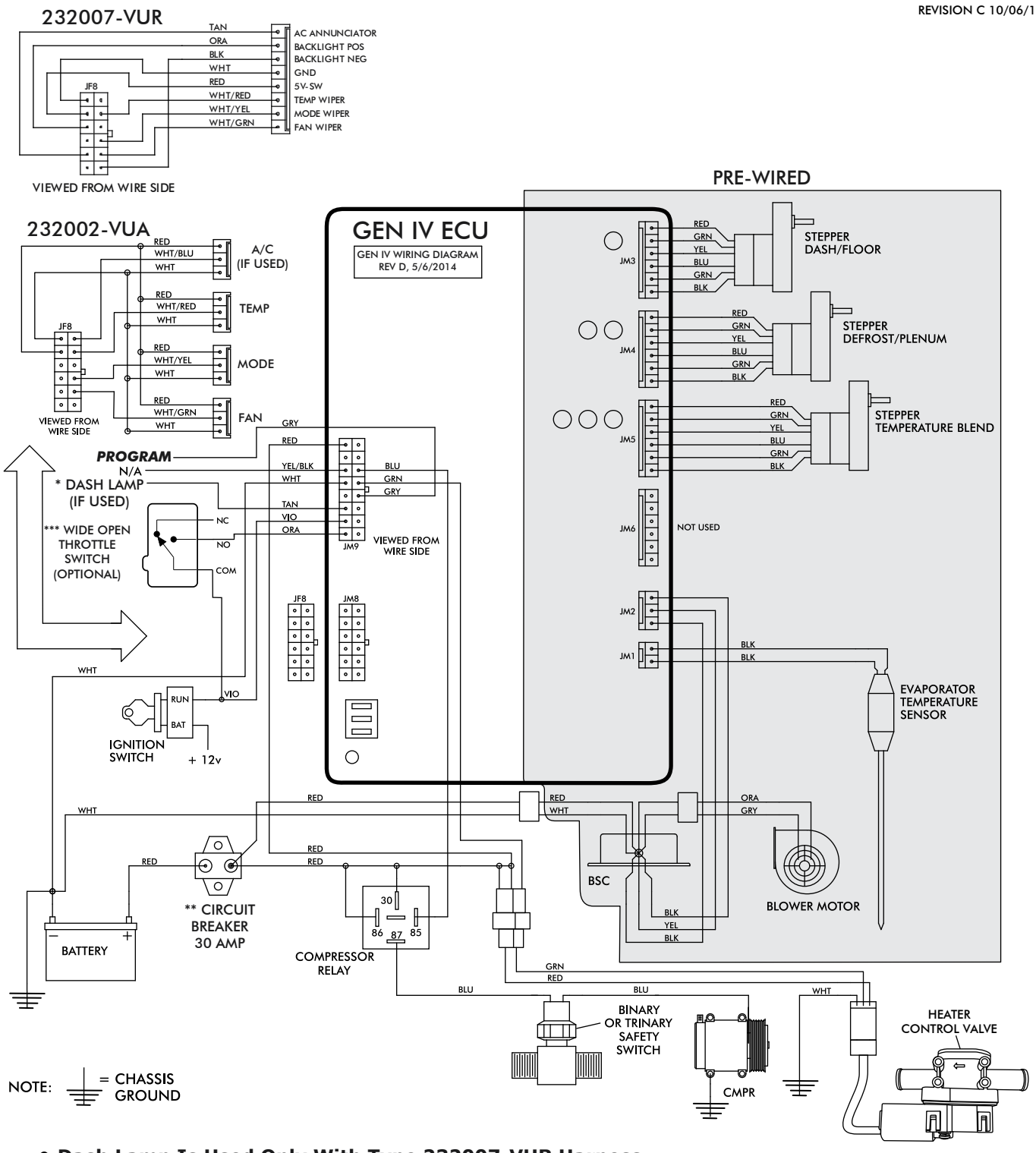
5. Disconnect the white jumper wire from the gray program wire. The blower speed will change, indicating completion of the calibration procedure.



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.

Wiring Diagram

REVISION C 10/06/17



- **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.**

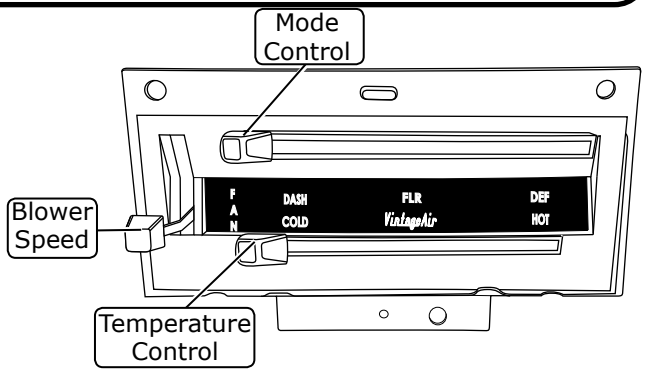
Operation of Controls

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 Pages 16 & 17 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.

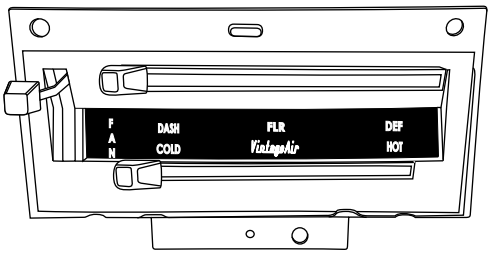


A/C Operation

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).

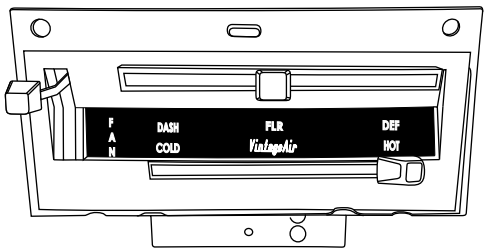


Heat Operation

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).

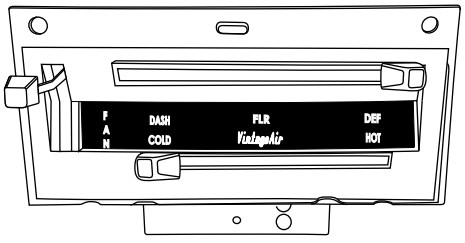


Defrost/De-fog Operation

Blower Speed
Adjust to desired speed.

Temperature Control
Adjust to desired temperature.

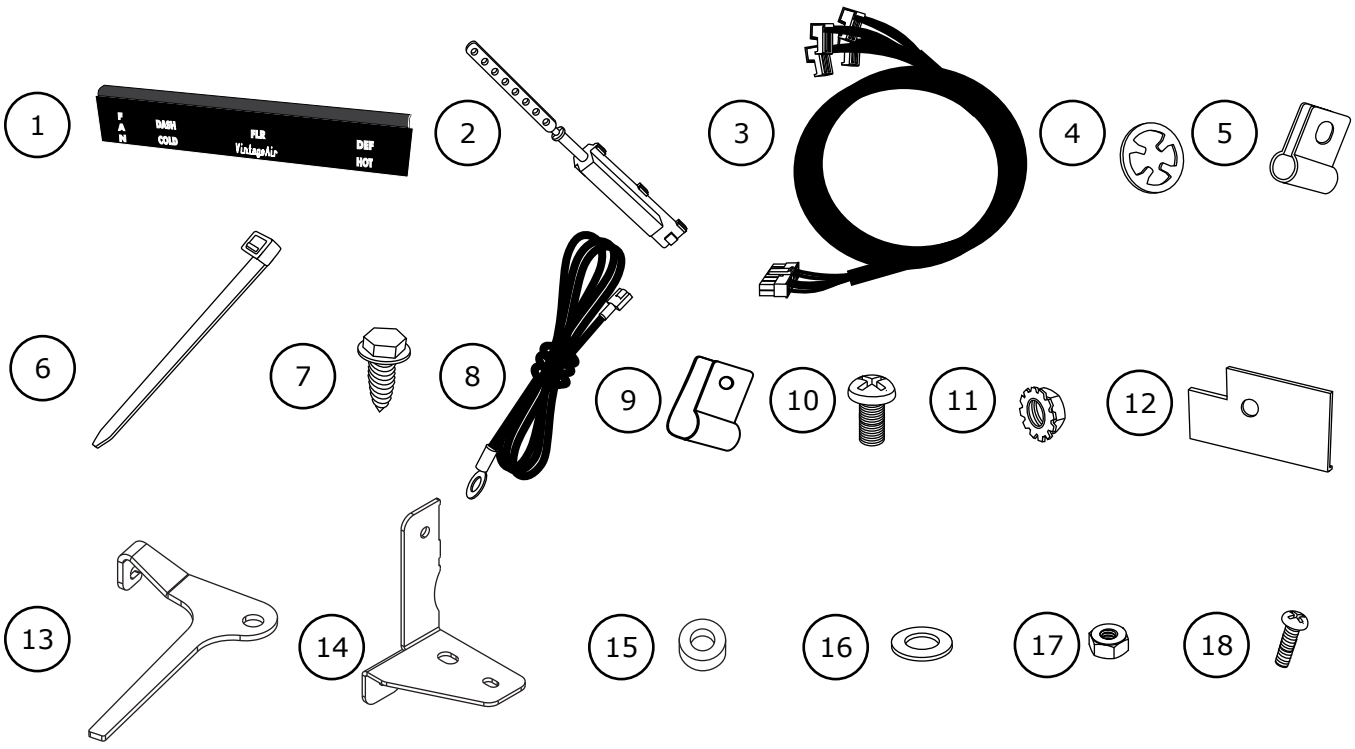
Mode Control
Adjust to DEFROST position for maximum defrost, or between FLOOR and DEFROST positions for a bi-level blend (Compressor is automatically engaged).



Packing List:
Control Panel Kit (475170)

No.	Qty.	Part No.	Description	
1.	1	484075	Placard, Control Panel	
2.	3	112002-SUA	Cable Converter Assembly	
3.	1	232002-VUA	Control Harness, Gen IV Universal	
4.	2	65976-VUE	Push-on Ring, 3/16”	
5.	3	491010-VUR	Clamp, Cable Converter	
6.	6	21301-VUP	Tie Wrap, 4”	
7.	4	18247-VUB	Screw, #10 x 1/2”, Sheet Metal	
8.	1	231520	Ground Wire	
9.	1	18058-VUB	Cable Clamp, 5/16”, Nylon	
10.	1	18249-VUB	Screw, 10-24 x 3/8”	
11.	1	18260-VUB	Nut with Star Washer, 10-24	
12.	1	642074	Bracket, Cable Converter Mounting	
13.	1	643103	Bracket, Blower Speed Lever	
14.	1	643104	Bracket, Control Panel Support	
15.	1	180384	Nylon Spacer, 3/16”	
16.	1	49704-VUI	Nylon Flat Washer, 1/16”	
17.	1	18147-VUB	Locknut, 10-32	
18.	1	18258-VUB	Screw, 10-32 x 3/4”	

Checked By: _____
Packed By: _____
Date: _____



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