

## ELECTRICAL TROUBLE SHOOTING FOR EVANS TEMPCON HEATER A/C SYSTEMS

<u>PROBLEM</u>	<u>POSSIBLE CAUSES</u>	<u>REMEDY</u>
1. A/C Clutch does not operate Blower operates as it should.	* Faulty Rotary Mode Selector Switch	* Check for Switch continuity, Replace if necessary
	* Clutch Circuit Wires have fallen off of Clutch Terminal, Thermostat or Pressure Switch.	* Re-install Clutch circuit wires as required
	* Faulty A/C Thermostat	* Jumper across Thermostat terminals. If Clutch engages, replace Thermostat.
	* Faulty A/C Pressure Switch (make certain adequate refrigerant is contained in system)	* Ensure Switch is tight on fitting.  * Jumper across switch terminals (A/C Thermo. and "comp" terminals for trinary switch). If Clutch engages, replace Switch.
	* Faulty A/C Clutch	* With Engine <b>OFF</b> apply 12V+ supply directly to Clutch terminals and listen for Clutch engagement. Replace Clutch if there is no engagement.
2. HVAC Accessory Fuse Blows when Rotary Mode Selector switch is in any position except "OFF", "Vent", and "Floor".	* Faulty Chassis Circuitry (Chevrolet & Ford)	* Referring to accompanying wiring diagram, if voltage is read at point "A" when A/C Switch is depressed and Clutch engages when 12V+ power is applied directly to Clutch terminal, problem is originating in chassis wiring. Refer to Chassis Manufacturer's Service Manual.
	* Short Circuit in Clutch Circuit Wiring	* Inspect all associated wiring (Blue Wire from Control Panel to Thermostat, wiring from Thermostat to Pressure Switch and from Pressure Switch to Clutch.

NOTE: FOLLOW DIAGNOSIS PROCEDURE IN "REMEDY" COLUMN IN THE ORDER LISTED.

## **ELECTRICAL TROUBLE SHOOTING (Cont'd)**

<b><u>PROBLEM</u></b>	<b><u>POSSIBLE CAUSES</u></b>	<b><u>REMEDY</u></b>
2. Cont'd	* Short Circuit in Clutch	* With engine <b>OFF</b> apply an 8 amp fused 12V+ power supply directly to Clutch terminals. If fuse blows, replace Clutch.
3. Blower Does Not Operate at any speed.	* A/C Circuit Fuse is Blown	* Replace with 25 Amp Fuse and Test System for proper operation.
	* Power Lead to Control Panel has fallen off at the power source (fuse block).	* Re-install Power Lead to Coach Manufacturer's Specified Terminal at Fuse Block.
	* Ground Wire for Control Panel has fallen off or has come loose from the chassis ground location.	* Check that ring terminal on black wire of harness is adequately fastened to a good chassis ground.
	* Wire Harness connector(s) at Resistor or Motor has fallen off.	* Re-install Connector(s) and check Blower for proper operation.
	* Open Circuit in Wire Harness Between Resistor and Blower Motor or from Power Source to Control Panel or from Panel to Resistor.	* Inspect wiring from Resistor to Motor, from power source to Control Panel and from Control Panel to Resistor. Repair broken wires as required
	* Faulty Control Panel	* With vehicle ignition switch in the <b>ON</b> position, Rotate Mode Selector Switch to any position except OFF and rotate Blower Switch to the HIGH speed setting. Using a Voltmeter, check for voltage in the orange wire at the resistor. If no voltage is read, replace Control Panel.
	* Faulty Resistor	* With vehicle ignition switch in the <b>ON</b> position, rotate Blower Switch to High speed. Using a voltmeter, check for voltage at the resistor pin which feeds the red motor wire. If no voltage is read, replace Resistor.

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## **ELECTRICAL TROUBLE SHOOTING (Cont'd)**

### **PROBLEM**

### **POSSIBLE CAUSES**

### **REMEDY**

3. Cont'd

\* Faulty Blower Motor

\* With vehicle ignition switch in the **ON** position, rotate Blower Switch to High Speed. Using a voltmeter, check for voltage at the Red Motor connector wire. If voltage is read, replace Blower Motor.

4. Blower does not operate at all speeds.

\* Improperly installed Wire Connectors

\* Inspect connectors at each end of end of the wire harness. Ensure that all socket terminals on the ends of the leads are fully inserted and locked into the connector. Push the connectors fully into the Control Panel, and the Resistor Terminals. Check Blower for normal operation.

\* Faulty Control Panel

\* With the vehicle ignition switch in the **ON** position, rotate Blower Switch to a speed that isn't working. Using the accompanying wiring diagram, locate the corresponding terminal on the back of the control for the fan switch speed position selected. Measure the voltage at this terminal. If no voltage is read, replace Blower Switch.

\* Open Circuit in Wire Harness

\* Remove the 4 wire connector of wire harness from the resistor. Re-install wire harness connections at the Control Panel. With the vehicle ignition switch in **ON** position rotate the Blower Switch to a speed that isn't working. Using the accompanying wiring diagram, identify the corresponding wire color for the fan speed position selected. Measure the voltage at the termination of the wire in the four socket connector. If no voltage is read, inspect the wire for damage and repair as required.

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## **ELECTRICAL TROUBLE SHOOTING (Cont'd)**

### **PROBLEM**

### **POSSIBLE CAUSES**

### **REMEDY**

4. Cont'd	<ul style="list-style-type: none"><li>* Open Circuit in Resistor</li></ul>	<ul style="list-style-type: none"><li>* Re-install the 4 wire connector of the wire harness back onto the Resistor. With the vehicle ignition switch in the <b>ON</b> position, rotate the Blower Switch to a speed that isn't working. Measure the voltage at the pin on the connector of the wire harness that plugs into the motor connector. If no voltage is read, replace Resistor.</li></ul>
5. HVAC Circuit fuse blows when blower is turned on to any speed	<ul style="list-style-type: none"><li>* Damaged wiring between Resistor and Motor, or between Resistor and Control Panel. Possible damaged red power lead wire between control panel and fused power source.</li><li>* Short Circuit at Resistor</li></ul>	<ul style="list-style-type: none"><li>* Inspect all associated wiring for insulation chafing or other damage that would result in shorting the circuit. Repair as required.</li><li>* Remove resistor from Air Box and inspect the Resistor windings for evidence of electrical arcing. Re-install Resistor ensuring that none of the windings or metal contacts are touching any portion of the Air Box itself.</li></ul>
	<ul style="list-style-type: none"><li>* Blower Wheel Rubbing on Blower Housing</li><li>* Faulty Blower Motor</li></ul>	<ul style="list-style-type: none"><li>* Inspect Blower Wheel to housing clearance.</li><li>* With the engine Off apply 25 amp fused, 12V+ power supply directly to the terminals on the motor. If fuse blows, replace the motor.</li></ul>
6. HVAC Circuit Fuse Blows when Blower is switched to a particular speed.	<ul style="list-style-type: none"><li>* Damaged Wiring between Control Panel and Resistor</li></ul>	<ul style="list-style-type: none"><li>* Make note at what speed the fuse blows. Using the accompanying wiring diagram, identify the corresponding wire color for the fan switch speed position on which the fuse blew. Inspect this wire for any chafing or other damage that would result in shorting the circuit. Repair as required.</li></ul>

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