

# Diagnostic Information and Procedures

# A Diagnostic Starting Point - Stationary Windows

Begin the system diagnosis by reviewing the system Description and Operation. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to *Symptoms - Stationary Windows* in order to identify the correct procedure for diagnosing the system and where the procedure is located.

## Symptoms - Stationary Windows

**Important:** Review the system operation in order to familiarize yourself with the system functions. Refer to *Rear Window Defogger Operation*.

#### **Visual/Physical Inspection**

- Inspect for aftermarket devices which could affect the operation of the Stationary Windows System. Refer to *Checking Aftermarket Accessories* in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

#### Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to *Testing for Intermittent and Poor Connections* in Wiring Systems.

#### Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- Defogger Always On Rear Window
- Defogger Inoperative Rear Window
- And Son Defogger Grid Lines Diagnosis

Step	Action	Value(s)	Yes	No
1	Did you review the system operation and perform necessary inspections?	1 the loss of the and asso through a set of the and asso	Go to <i>Step 2</i>	Go to Symptoms - Stationary Windows
2	<ol> <li>Turn the ignition to the OFF position.</li> <li>Turn the rear defogger off.</li> <li>Does the rear defogger turn off?</li> </ol>	a tha Pulit positica. 3 ana HVAC contra amural Roke to Tirouit	Go to Testing for Intermittent and Poor Connections in Wiring Systems	ndi .s. adi ascil teenna0 cio <b>Go to <i>Step 3</i></b>
<u>01 qe</u> 3	<ol> <li>Turn the ignition switch to the OFF position.</li> <li>Disconnect the HVAC control connector C4.</li> <li>Turn the ignition switch to the RUN position Is the rear defogger still on?</li> </ol>		Go to Step 4	Go to Step 5
4	Repair the short to battery voltage in the supply v circuit of the rear defogger grid. Refer to <i>Wiring I</i> Wiring Systems. Did you complete the repair?		Go to <i>Step 6</i>	b poy trid   a hager <del></del>
5	Replace the HVAC control. Refer to <i>Control Asse</i> <i>Replacement</i> in HVAC Systems - Manual. Did you complete the replacement?	embly net agi ant e neric te netici e settest terese	Go to <i>Step 6</i>	s wey biû s wstaff snados Alesti i s
6	Operate the system in order to verify the repair. Did you correct the condition?	stuetsky Sump, or :	System OK	Go to <i>Step 3</i>
NT (1955	00 (0 Step 13 - 05 5			, fia, rear c 13 delegan Circuit Te
		d Beeles No Restricted Window Poets		13 Pepinon

# Defogger Always On - Rear Window

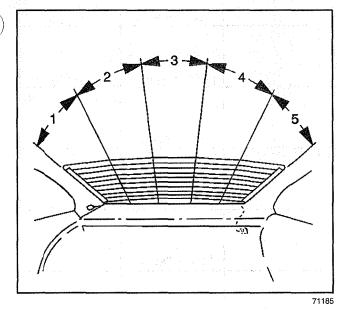
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	Defogger Inoperative -	Rear Window	noismoin	Danosic
Step	Action	Value(s)	Yes	No
eien.	Did you review the system operation and perform the necessary inspections?	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	Go to <i>Step 2</i>	Go to Symptoms - Stationary Windows
<b>2</b> 10 8130	<ol> <li>Turn the ignition to the RUN position.</li> <li>Turn the rear defogger switch on.</li> <li>Observe the status of the defogger on indicator.</li> <li>Does the rear defogger turn on?</li> </ol>	ng the Description you de <u>te</u> mine secure when Description and	Go to <i>Testing</i> for Intermittent and Poor <i>Connections</i> in Wiring Systems	bris noticitation Ini noticitation Ini noticitation Ini noticitation Ini <b>Step 3</b>
3	Are both the defogger indicator and the defogger grid inoperative?	yob celemene komerts norma	Go to Step 4	Go to Step 5
nol g smeta 4	<ol> <li>Turn the ignition switch to the OFF position.</li> <li>Connect a test lamp between the HVAC control connector C4 terminals A and D. Refer to <i>Circuit Testing</i> in Wiring Systems.</li> </ol>	organy Proston 19 far disgradele 1 is iso <u>s</u> tea.	sic - onwigings i deport toened a wooscing anti-aran	nter to identify i village to identify no system and w
9/1	Does the test lamp illuminate?		Go to Step 7	Go to Step 8
5	Is the defogger grid operative while the defogger indicator is inoperative?	a estatúni ación activitation	Go to Step 18	Go to Step 6
6	<ol> <li>Connect a test lamp between the HVAC control connector C4 terminal B and ground. Refer to <i>Circuit</i> <i>Testing</i> in Wiring Systems.</li> <li>Breas the next defeases switch</li> </ol>		ogner Cooration	Rear Wàndow Dei
ana di muranta da si da si	2. Press the rear defogger switch. Does the test lamp illuminate?	842 S.S.S. 2 1	Go to Step 12	Go to Step 18
20100000 14100000 7	<ol> <li>Connect a test lamp between the HVAC control connector C4 terminals C and D. Refer to <i>Circuit</i> <i>Testing</i> in Wiring Systems.</li> </ol>	oner one dovers	p material indication Velocitoritation	nseedoon (11)
······	2. Turn the ignition switch to the RUN position. Does the test lamp illuminate?	70009067-945 13	Go to Step 17	Go to Step 11
<u>े क्ष</u>	Connect a test lamp between the HVAC control connector C4 terminal A and ground. Refer to <i>Circuit</i> <i>Testing</i> in Wiring Systems. Does the test lamp illuminate?	n Selece (17C) e (1 o	Holive noting the Go to <i>Step 9</i>	Go to Step 10
÷9	Repair a poor connection or an open in the ground circuit of the HVAC control. Refer to <i>Wiring Repairs</i> or <i>Connector</i> <i>Repairs</i> in Wiring Systems.	onad MUR artic	n in the second operation with the second of the second operation of the second operation of the second operation of the second operation	vert 19 vert 19
	Did you complete the repair?	johes var er vysti	Go to Step 19	律的短程
10	Repair a poor connection or an open in the battery voltage circuit of the HVAC control. Refer to <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems.	a and a constant of the second s	Go to <i>Step 19</i>	A2 gm/W A b soy biC becator
	Did you complete the repair? Repair a poor connection or an open in the ignition 3 voltage circuit of the HVAC control. Refer to <i>Wiring</i> <i>Repairs</i> or <i>Connector Repairs</i> in Wiring Systems.	in the second	ecsium crit elerano	nuny biš Naty biš Nateset
S (385)	Did you complete the repair?		Go to Step 19	e usy bid you e
12	Connect a test lamp between the supply voltage circuit of the rear defogger grid and the ground circuit of the rear defogger grid at the rear defogger grid connector. Refer to <i>Circuit Testing</i> in Wiring Systems.	·····		
	Does the test lamp illuminate?		Go to Step 13	Go to Step 14
13	Replace the rear defogger grid. Refer to <i>Rear Lift Window</i> <i>Replacement.</i> Did you complete the replacement?		Go to <i>Step 19</i>	<u>1997</u> - 1997 -
	Lord you complete the replacement:	I		I

Defogger Inoperative - Rear Window (cont'd)							
Step	Action	Value(s)	Yes	No			
14	Connect a test lamp between the supply voltage circuit of the rear defogger grid and ground. Refer to <i>Circuit Testing</i> in Wiring Systems.	estanovski ta 1999 bilovska zitem tra storek novadovskogovorski že					
erdi.	Does the test lamp illuminate?		Go to Step 16	Go to Step 15			
vists 15 S) phil	Repair a poor connection or an open in the supply voltage circuit of the rear defogger grid. Refer to <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you complete the repair?		Go to Step 19				
16	Repair a poor connection or an open in the ground circuit of the rear defogger grid. Refer to <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you complete the repair?		Go to Step 19				
олыс 17, <sub>666</sub> Wes	Inspect for and repair a short to ground or an open in the supply voltage circuit of the rear defogger grid. Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems. Did you find and repair a short or an open?		Go to Step 19	Go to Step 18			
<b>18</b> ляею	Replace the HVAC control. Refer to <i>Control Assembly</i> <i>Replacement</i> in HVAC Systems - Manual. Did you complete the replacement?		Go to Step 19				
19	Operate the system in order to verify the repair. Did you correct the condition?		System OK	Go to Step 3			

## **Defogger Grid Lines Diagnosis**

#### **Test Procedure**



- 1. Start the engine.
- 2. Activate the rear window defogger system.
- 3. Ground one test lamp lead.

4. Contact the other test lamp lead to each of the grid lines at points 1 through 5 as shown in the figure.

# Specification Normal Test Lamp Brilliance

- 4.1. No Bulb Brilliance (1)
- 4.2. 1/4 Bulb Brilliance (2)
- 4.3. 1/2 Bulb Brilliance (3)
- 4.4. 3/4 Bulb Brilliance (4)
- 4.5. Full Bulb Brilliance (5)

**Important:** The lamp brilliance will decrease proportionately to the increased resistance in the grid line as the probe is moved from the feed bus wire to the ground bus wire. Test all of the grid lines in at least two places in order to eliminate the possibility of bridging a break. The range of test lamp brilliance may vary from one window to another.

- 5. Compare the test lamp brilliance pattern with the normal test lamp brilliance in order to check for proper grid operation:
  - If the test lamp shows full brilliance at both ends of the grid lines, inspect for a loose ground wire contact to body ground.
  - If an abnormal lamp reading is apparent on a specific grid line, place the test lamp lead on that grid at the feed bus bar and move the lead toward the ground bus bar until the lamp goes out. This will indicate the location of the break.

