

CoolGuard

Temperature Monitor & Alert Unit
For K9 Police Vehicles
M852-10



Technical Support

Installation / Performance Support

- Wire Harness
- Fan
- Pager
- Fusing
- Window Interface
- Coolguard Unit & Probe

Call American Aluminum Service Department

- 1-800-277-0869 (Toll Free)
- 1-850-584-3969 (Direct)
- 1-850-584-8485 (Fax)
- www.ezrideronline.com (Web Site)

Diagnostic Support

Diagnostic Support ONLY

- CoolGuard Module
- CoolGuard Temp Probe

Call TouchTronics, Inc. Service Department

- 1-800-294-2570 (Toll Free)
- 1-574-294-2570 (Direct)
- 1-574-293-1611 (Fax)
- www.touchtronics.com (Web Site)

Operation

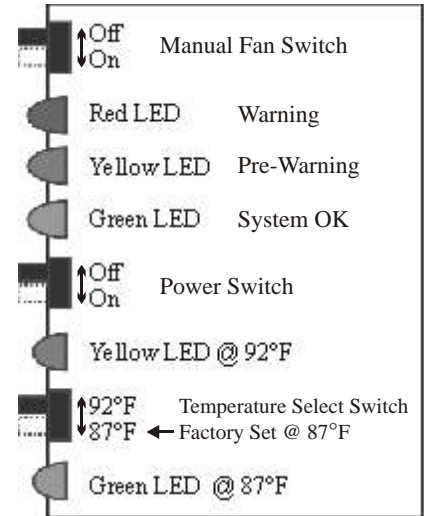
When the CoolGuard is turned On, it will not read the vehicle temperature for a period of 5 minutes, allowing time for the vehicle air conditioner to normalize the interior climate. At the end of the 5 minute period, the CoolGuard samples the interior temperature once every second and compares it to the alarm / trigger point that has been selected.

The module sends a visible (yellow LED) and audible (double chirp) pre-warning anytime the interior temperature is within 2°F of selected alarm / trigger.

The module sends a visual (red LED) and audible (2 short, 2 long, 2 short) warning anytime the interior temperature has reached the selected alarm / trigger point. Additionally, when the warning temperature has been reached, the module will drop windows and turn on the fan.

The warning alarm can only be deactivated by resetting the power switch on the CoolGuard module.

The CoolGuard also performs a virtual 'hand-shake' with the external temperature probe every 3 seconds and will sound a warning anytime the probe does not respond.



Note: The CoolGuard temperature probe is calibrated to within **+/- 2°F for the alarm / trigger point**. The CoolGuard external temperature probe is specifically designed for this application. When compared to standard household thermometers, it will not correlate unless tested under standardized test conditions

Operation	Status Indicators	Window Drop (+) Output	Fan* (+) Output	Pager (+) Output	Horn (-) Output
Time Out @ Power Up 5 Minutes	Green LED ON Flashing	Off	Off	Off	Off
Standard Operation	Green LED ON Solid	Off	Off	Off	Off
Pre-Warning 2°F Temperature	Yellow LED ON Solid	Off	Off	None	One Double Chirp each time pre-warn reached
Alarm / Trigger 87°F or 93°F ±2°F	Red LED ON Solid	On-Set DIP Switch	On Continuous	On - 1 sec plse/ 5 minutes	2short/2 long/2 short @ 10 second intervals
Temperature Probe Failure	Red LED ON Flashing	On	On	None	Double Chirp @ 3 second intervals
Triggered @ 87°F ±2°F	Small Green LED ON Solid				
Triggered @ 93°F ±2°F	Small Yellow LED ON Solid				

Mounting

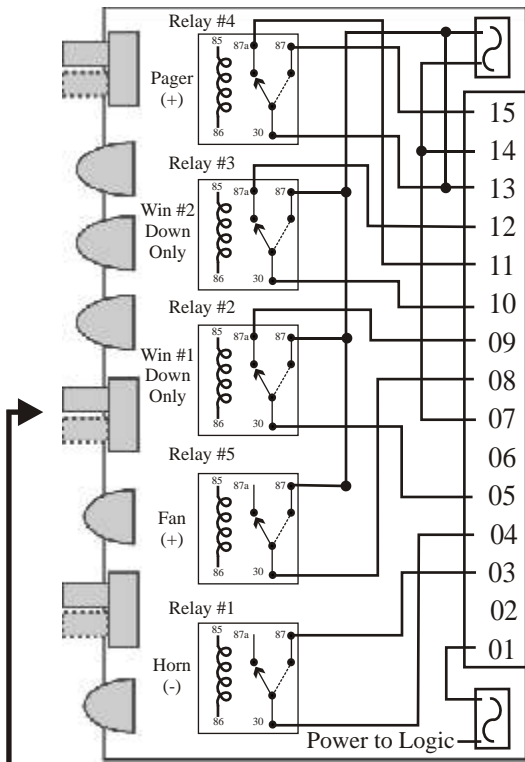
CoolGuard Module Location

The CoolGuard module should be mounted in a location where you can easily see the status lights and reach the switches. Typically, it is mounted on the center console or on the K9 cage front, nearest to the driver. Do NOT mount the CoolGuard module where water or moisture can drop onto or seep into the CoolGuard module.

CoolGuard External Temperature Probe

The best place for the external temperature probe is about ten inches (10") above the floor. Attach it to the outside, center of the dog cage, near the front seats of the vehicle. A tie-wrap is supplied for securing the external temperature probe. Locating the probe near the roof is NOT recommended because the air trapped there is typically hotter than the rest of the vehicle. Care should be taken to place the probe and the wiring in a location where the dog cannot reach.

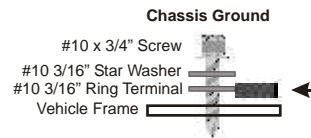
Installation: Ignition, Battery Power & Ground



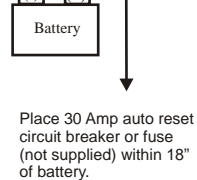
ATO Style Power Fuse - 30 Amps (Window & Fan)

15	Pink	Pager Output (N.O.)
14	Orange	Power Input
13	Orange*	Circuit protection for the pager is provided either internally or externally with an in-line fuse.
12	Dk Blue	Window 2 - Motor Input
11	Gray	Pager Output (N.C.)
10	Lt Blue	Window 2 - Down Output
09	Dk Green	Window 1 - Motor Input
08	Tan	Fan Output
07	Orange	Power Input
06	Empty	----
05	Lt Green	Window 1 - Down Output
04	Violet	Horn Output
03	Black	Chassis Ground
02	Yellow	Key Switch
01	Red	Logic Power

Mini Glass Style Logic Fuse - 0.75 Amps



Scrape paint and clean area before installing ground screw. A loose chassis ground connection WILL cause intermittent operation!



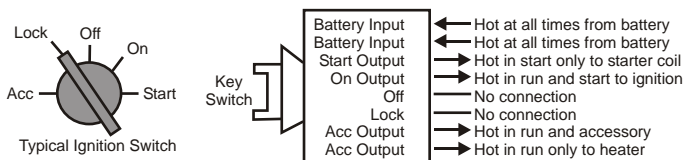
5 Minute Climate Adjustment Period
Rapidly turn the CoolGuard module power switch On/Off 3 - 4 times to BYPASS the climate adjustment period. The module should NOT be left in the ON position.

Installation: Power

- 1) Install Logic Power (+12VDC, Red Wire)**
 - Run 18g wire to a 'clean +12v' battery power source.
 - Do NOT connect any power for motors or lights to this wire.
- 2) Install Battery Power (+12VDC, Orange Wire)**
 - Run a 14 AWG power wire to at least one of the orange wires J1-7 or J1-14.
 - If running wire from battery, then install a fuse or circuit breaker (not supplied) within 18" of the battery.

Smaller gauge wire may cause voltage drop between the battery and the CoolGuard module which can cause intermittent operation of the outputs.

- 3) Install Ignition (+12VDC, Yellow Wire)**
 - Install the yellow wire to the 'hot in run and Accessory' wire on the vehicle ignition wire harness. **OR**
 - Install the yellow wire to the "Accessory" fuse in the vehicle fuse panel.



Installation: Window Drop Time

Set Window Drop Time

- Roll windows down several times and count the number of seconds it takes to move from a fully closed position to a fully open position.
- Check chart below to select the dip switch setting which matches the window drop time.
- Remove the cover from the CoolGuard module.
- Set dip switch 5 (see below) to the correct setting.

Windows should operate normally when window switch is pressed. Windows will drop for 2.5 seconds when alarm is triggered. The windows should move at a normal speed when triggered by the alarm. **The module does not automatically return the window to a closed position.**

Settings are for Dip Switch S5 ONLY

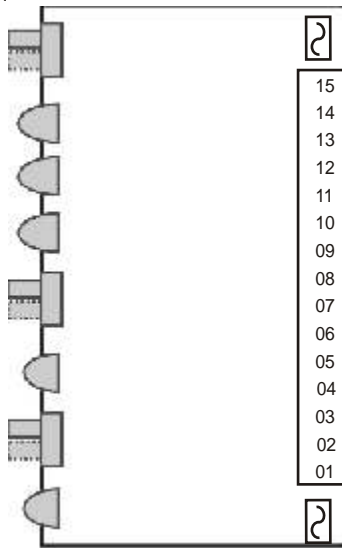
Select ONLY One Setting For Dip Switch # S5			
1.0 Second Drop Off / Off	2.5 Second Drop Off / On	3.5 Second Drop On / Off	5.0 Second Drop On / On
On CTS Off Off	On CTS Off Off	On CTS Off Off	On CTS Off Off
Factory Setting			

Note: Do Not Change the Factory Settings on Dip Switch S6

Installation Applications: Horn and / or Fan

Fan Circuit

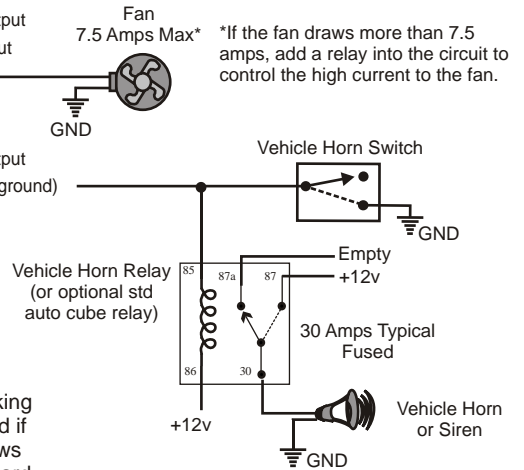
Turn Manual Fan Switch To ON Position →



ATO Style Power Fuse - 30 Amps

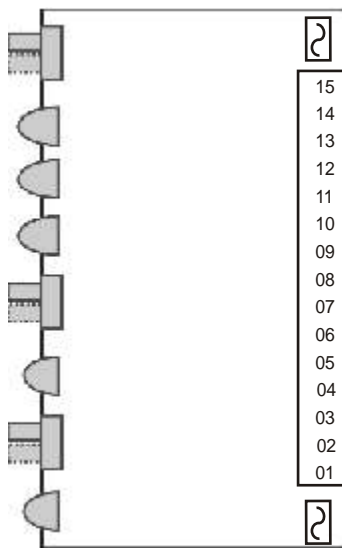
- 15 — Pink — Pager Output (N.O.)
- 14 — Orange — Power Input
- 13 — *Orange or Empty (See note on page - 3 -)
- 12 — Dk Blue — Window 2 - Motor Input
- 11 — Gray — Pager Output (N.C.)
- 10 — Lt Blue — Window 2 - Down Output
- 09 — Dk Green — Window 1 - Motor Input
- 08 — Tan — Fan Output
- 07 — Orange — Power Input
- 06 — Empty — ----
- 05 — Lt Green — Window 1 - Down Output
- 04 — Violet — Horn Output (1amp - ground)
- 03 — Black — Chassis Ground
- 02 — Yellow — Key Switch
- 01 — Red — Logic Power

Mini Glass Style Logic Fuse - 0.75 Amps



A siren can be installed instead of the vehicle horn. Most sirens are looking for a negative (ground) input. Check the amperage draw of the siren and if it is less than 1 amps, then you can change to the siren. If the siren draws more than 1 amp, put a 30 amp relay between the siren and the CoolGuard module output.

Installation Applications: Window

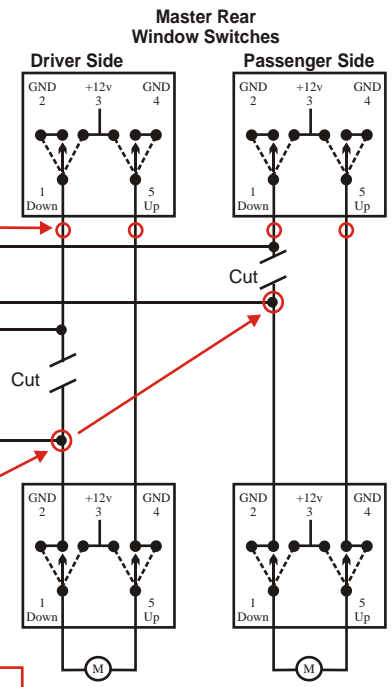


ATO Style Power Fuse - 30 Amps

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Mini Glass Style Logic Fuse - 0.75 Amps

Test voltage @ switch terminal. (4 plcs) See 5.0 on pg 6



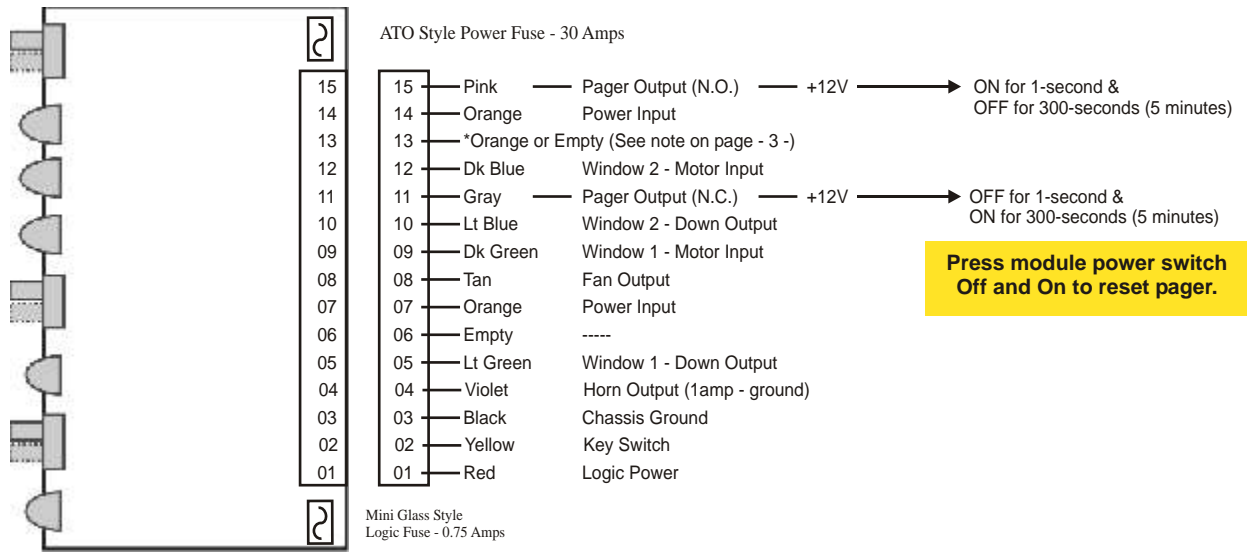
****Please Note:**
Due to continually changing wire colors through-out the automotive industry, TouchTronics can NOT provide accurate wire color information on a consistent basis. **American Aluminum Customer Service may be able to provide up-to-date wire color information on most vehicles. See page 1 for Customer Service phone numbers.** Additionally, the service department of your local dealership may also be able to provide up-to-date wire color information.

Test Point "A" +12v when alarm triggered for 2-sec minimum (2 plcs)

Window or Door Lock Switch	Switch NOT Pressed	Switch Pressed	Typical # of Wires
Positive Pulse	No Voltage / Floats	+12 Volts	3 Wires
Negative Pulse	No Voltage / Floats	Ground	3 Wires
Reversal Rest@Ground	Ground	+12 Volts	5 Wires

To determine which type is used in your vehicle, take a voltmeter and probe one of the output wires at the switch. Check the polarity with the switch pressed and without the switch pressed. Compare results with the chart on left.

Installation Applications: Pager



Notes:


Voltage Table

Pin #	Pin Description	Correct Voltage	Current
J1-1	Logic Power Input	+12v - Battery Voltage	100mA
J1-2	Ignition Power Input	+12v - Ignition Key On + 0 v - Ignition Key Off	100mA
J1-3	Ground	+ 0 v - Chassis Ground	
J1-7	Power Input	+12v - Battery Voltage	30A - Fused in Unit
J1-13	*Pager Input or Empty	+12v	5A - Fused in Harness
J1-14	Power Input	+12v - Battery Voltage	





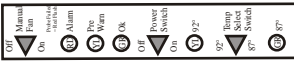





*See Note on Page - 3 -

Specifications

Operating Voltage	-	10 Volts DC to 18 Volts DC
Circuit Protection		
Logic Fuse	-	0.75 Amp
Power Fuse	-	30.0 Amp (Supplied on module)
Max Power Output		
Horn	-	1 Amp
Window 1	-	5 - 15 Amps
Window 2	-	5 - 15 Amps
Fan	-	7.5 Amps
Physical		
CoolGuard Module	-	3" x 1" x 2" (width, height, depth)
Temperature Probe	-	1 1/2" x 2" (width, length)

Symptom	Possible Cause	Corrective Action
1.0 No power to CoolGuard module	<p>1.1 Ground or power connection to module has failed.</p> <p>1.2 Chassis ground has failed.</p>	<p>1.1.1 Check ground (black wire) and logic power (red wire). Use a voltmeter when checking voltage.</p> <p>1.1.2 If either ground or power is not present, then locate failure in wire harness and repair.</p> <p>1.2.1 Check chassis ground connection, it should be clean and tight, no paint on metal, an external tooth star washer should be present, no rust or dirt in connection.</p> <p>1.2.2 Chassis ground should be located on vehicle frame.</p>
2.0 Fuse blows each time factory window switch is pressed	<p>2.1 Wire in factory window circuit was NOT cut.</p> <p>2.2 New wires in window circuit have been reversed.</p>	<p>2.1.1 Cut wire completely and then reconnect wires.</p> <p>2.2.1 Check CoolGuard in circuit. The input wire must be closest to the switch and the output wire must be closest to the window motor.</p>
3.0 CoolGuard does not trigger at 87°F or 92°F.	<p>3.1 Probe is mounted near an ac vent.</p> <p>3.2 External temperature probe calibration has failed.</p>	<p>3.1.1 Move probe to a location that is not subject to external heat and cooling sources.</p> <p>3.2 Test external temperature probe calibration</p> <p>3.2.1 Locate a standard thermometer, using a rubber band, attache the thermometer to the temperature probe (black rubber tip on the 10' gray cable).</p> <p>3.2.2 Close all windows and doors, turn on air conditioning to stabilize vehicle temperature to about 70°F.</p> <p>3.2.3 Turn on the CoolGuard module and by-pass the time-out feature.</p> <p>3.2.4 Large green LED should be On solid and alarm should NOT trigger.</p> <p>3.2.5 Turn heat on inside vehicle and slowly raise the temperature over a 5 minute time period to 87°F</p> <p>3.2.6 Alarm should trigger +/- 2°F of the 87°F trigger point.</p> <p>3.2.7 If there is a problem with temperature calibration and you are off by more than 3°F, please call the factory technical help line.</p>
4.0 Window moves slower when triggered by the CoolGuard module than it does when switch is pressed	4.1 Power wire from battery to CoolGuard module is too small for current draw causing a voltage drop.	4.1.1 Increase wire gauge size to 14awg or larger between the battery and the orange wires of the CoolGuard module wire harness.
5.0 Window does not drop when alarm is triggered	5.1 Window drop circuit is not interfaced correctly.	<p>5.1 Test window voltage at window switch</p> <p>5.1.1 Check voltage on both orange wires. The potential should be +12v at all times.</p> <p>5.1.2 Check voltages at both driver and passenger window switch wires when switch is NOT pressed. The output wires for Up and Down should both be at ground potential.</p> <p>5.1.3 Press switch Down and place test probe on Down terminal of switch. Voltage should change to +12v and the window should move downward as long as the switch is pressed.</p> <p>5.1.4 Press switch Up and place test probe on Up terminal of switch. Voltage should change to +12v and the window should move upward as long as the switch is pressed.</p> <p>5.1.5 Set temperate select switch to 87°F</p> <p>5.1.6 Trigger alarm by holding probe between fingers, the voltage at test point 'A' should be at +12v while alarm is triggered.</p> <p>5.1.7 If all voltages are correct, then there is an improper connection to the window motor.</p> <p>5.1.8 If voltage at test point 'A' is NOT +12v and the orange wires are at +12v, call the factory technical help line.</p>
 <p>Use a digital or analog voltmeter to check power and voltage! Do NOT use a test light!</p>		
6.0 Large red LED flashes constantly	<p>6.1 Probe has failed.</p> <p>6.2 Probe wire connector is loose.</p>	<p>6.1.1 Call factory for replacement</p> <p>6.2.1 Remove connector, clean and reinstall</p>

M852-10 CoolGuard Kit Component List

1 pc	M852-1	CoolGuard Master Module	
1 pc	M873	Temperature Probe	
1 pcs	HNS10542-2	Wire Harness, 15-position	
1 pc	LBL10544-1	Right Hand - Side Mounted Status Indicator Label	
1 pc	LBL10544-2	Left Hand - Side Mounted Status Indicator Label	
2 pcs	HDW10495-1-08x008	8 x 1/2" self drilling screw	
1 pc	HDW10496-1-10x012	10 x 3/4" self drilling screw	
1 pc	HDW10445-1-10	3/16" external tooth star washer	
1 pc	TIE10720-1	4" Tie Wrap	
1 pc	TIE10723-1	9" Tie Wrap w/ Mounting Hole	

WARNING!
The CoolGuard Module is NOT designed to be used for children.
DO NOT leave children unattended in a closed vehicle.

TouchTronics, Inc. Warranty Policies and Procedures

- 1) Each individual product is warranted under the TouchTronics Limited Warranty program for 1 full year from date of purchase or a *maximum* of 2 years from the date of manufacture.
- 2) No product will be covered under the TouchTronics Limited Warranty program that has a manufacture date older than 2 years.
- 3) To receive technical support or warranty service, call our technical support center during regular business hours. 1-800-294-2570
- 4) To enable our technical support staff to better serve you, please have the following information available when you call.

Date Of:		Product Information:		Vehicle Information:	
Purchase		Model Number		Dealer Name	
Installation		Serial Number		Dealer Phone	
Fill in all pertinent information at the time of purchase or installation.				Make / Model	

Limited One (1) Year Warranty

Section One
 Seller will warrant any product originally manufactured or assembled and sold by seller for a period of *up to TWO YEARS* (24 months) from the original date of manufacture or **ONE YEAR** (12 months) from the original retail sale or O.E.M. in-service date.

Section Two
 The following are in lieu of all warranties; expressed; implied; or statutory, including but not limited to, any implied warranty of merchantability of fitness for a particular purpose and of any other warranty obligation on the part of seller. Seller, except as otherwise hereinafter provided, warrants the goods against faulty workmanship or defective materials for a period of *up to TWO YEARS* (24 months) from the original date of manufacture or **ONE YEAR** (12 months) from the original retail or O.E.M. in-service date.

Seller's sole and exclusive liability shall be (at seller's option) to repair; replace; or credit buyer for such goods which are returned by buyer during the applicable warranty period set forth above, provided that (I) seller is promptly notified in writing or by phone upon discovery by buyer that such goods failed to conform and an explanation of any alleged deficiencies, (II) such goods are returned to seller, (III) seller's examination of such goods shall disclose that such alleged deficiencies actually exist and were not caused by accident, misuse, neglect, alteration, improper installation, unauthorized repair or improper testing. If seller elects to repair or replace such goods, seller shall have a reasonable time to make such repairs or replace such goods.

Seller's warranties as herein above set forth shall not be enlarged, diminished, or affected by, and no obligation or liability shall arise or grow out of, sellers rendering of technical advice or service. Damage to products caused by the customer or during installation cannot be claimed under this warranty. All devices returned that are not covered under the seller's warranty policy, will be charged a minimum of \$25.00 for evaluation plus additional charges for components and labor to repair the device not to exceed the original selling price. Seller considers the following to be typical examples of customer or installation damage: burned or broken traces on the printed circuit board, burned or damaged components, dirt or water residue on the printed circuit board or inside the case, modifications by the customer, broken cases or housings and dead batteries

Section Three

A return material authorization number (RMA) must be issued by seller before any product is returned for evaluation or repair. Warranty repairs must be completed at authorized repair facilities.

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